Short Wave World
September 1993  £1.90
ISSN 0037-4261

Radio Stations Special

Cuban Clandestines
Swiss Radio International
EDXC '93
SINPO Explained

Plus Regular Features Covering
- Airband, Scanning, Junior Listeners, SSB Utility Listening,
- Propagation, Amateur Bands,
- Long, Medium & Short Waves,
- Satellite TV Reports,
- Weather Satellites ... and more.

Universal M-8000 Decoder Review

Roberts R101 Portable 9-Band Radio Reviewed
The MVT-7100 is a new handheld sensation with the widest ever frequency coverage! It’s sensitive receiver provides effortless reception of SSB and CW using true carrier injection with 50Hz resolution. It can even be hooked up for fax and data reception (with accessories).

The MVT-7100 is a complete communications package in the palm of your hand.

Accessories supplied:
- Telescopic Antenna, NiCad Batteries, Car Connector, UK Charger, Carrying Strap, Earphone, English Manual

Price £449

Available from your local dealer or direct from U.K. Distributors

NEVADA COMMUNICATIONS
189 London Road, North End, Portsmouth, Hants PO2 9AE. Tel: (0705) 662145 Fax: (0705) 690626
Cover: Our theme this month is radio stations. Many broadcast stations are located in exotic places - here the Andean volcanoes act as a backdrop to HCJB's antennas at Quito, Ecuador.

DISCLAIMER. Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. Short Wave Magazine advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available. The Publishers of Short Wave Magazine wish to point out that it is the reponsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.
SWM SERVICES

Subscriptions
Subscriptions are available at £22 per annum to UK addresses, £25 in Europe and £27 overseas. Subscription copies are despatched by Accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both Short Wave Magazine and Practical Wireless are available at £38 (UK) £42 (Europe) and £45 (rest of world).

Components for SWM Projects
In general all components used in constructing SWM projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article. The printed circuit boards for SWM projects are available from the SWM PCB Service, Badger Boards, 87 Blackberry Lane, Four Oaks, Sutton Coldfield B74 4JF. Tel: 021-353 9326.

Back Numbers and Binders
Limited stocks of most issues of SWM for the past five years are available at £2.00 each including P&P to addresses at home and overseas (by surface mail).

Binders, each taking one volume are available for £5.50 plus £1 P&P for one binder, £7 P&P for two or more, UK or overseas. Please state the year and volume number for which the binder is required. Prices include VAT where appropriate.

Orders for back numbers, binders and items from our Book Service should be sent to: PW Publishing Ltd., FREEPOST, Post Sales Department, Arrowsmith Court, Station Approach, Broadstone Dorset BH18 8PW, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in Sterling.

Credit card orders (Access, Mastercard, Eurocard or Visa) are also welcome by telephone to Broadstone (0202) 659950. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Poole (0202) 659950.

Airband Radio

Dear Sir
I have been a keen airline enthusiast for a while and each night for about an hour I scan the different ATC stations on my AOR AR-1500EX, with an indoor desktop scanner antenna. The problem is I'm not allowed to have an outdoor antenna, but that does not stop me.

My hobby involves me scanning a different station each night for a month and logging down the airlines plus all the usual information. At the end of the month I calculate the number of airlines received, plus how many times I have received the same airline.

For example, for the month of June, the Top Ten airlines reported were:

1: British Airways 132
2: British Midland 61
3: UK Air 32
4: Britannia Airways 31
5: Air France 28
6: Air 2000 21
7: Aer Lingus 17
8: Lufthansa 14
9: Shuttle 13
10: SAS 12

The number of planes that I logged was 608, and a total of 67 different airlines.

Paul M Fineman
Kent

Dear Sir
I was very interested to read the letter from Mike Wynn in the July SWM, concerning the Future Air Navigation System and possible demise of the h.f. airband.

FANS was the subject of an excellent article by Charles Tyler in the March issue of Geographical magazine, which indeed states that h.f. is to be completely phased out from aircraft communications. Not only that, but the use of Automatic Dependant Surveillance is intended to reduce the need for pilots to communicate directly with ground stations, since virtually all navigational information will be processed automatically. I, for one, feel that even if equipment to monitor such traffic became available, not being able to actually 'listen' to aircraft going oceanic would be a very poor substitute for the present situation.

However, I feel that h.f. may yet belie the obituaries being written for it. On a recent visit to RAF Marham, I had the opportunity to discuss satellite versus h.f. with a communications technician, who informed me that the RAF's experience in the Gulf was that satellite proved very vulnerable to sunspot activity, while h.f. was much more reliable. It is my feeling that while satellite may be effective for navigation, retaining h.f. as a communications back-up would be eminently sensible - it is, after all, proven technology.

On a final note, it is worth remembering that the US military pioneered the Global Positioning System, but the Global High Frequency System remains as active as ever, proving that satellite and h.f. are complementary, not exclusive. Short wave is too useful to be discarded!

Roderick McKenzie
King's Lynn

Mystery Station

Dear Sir
In response to C. Prior's letter, the station he heard was Radio Aum Shinrikyo, 381-1, Hitoana, Fujinomiya, Shizuoka, 418-01, Japan. They have a relay via Radio Moscow and broadcast at 0530-0600 and 2130-2200 on numerous frequencies. I have heard them clearly on 11.630 and 11.800MHz between 2130 and 2200.

J. Pattison
Bath

Dear Sir
The unidentified Japanese station is almost certainly Radio Aum Shinrikyo, a religious station broadcasting on some of the transmitters of Radio Moscow. I am currently logging it on 15.220MHz from 0430-0500 and 2130-2200UTC (English language). At the end of each transmission a Radio Moscow announcement is made and English language broadcasts of Radio Moscow resume.

I, too, find the voice of the female announcer difficult to understand.

Gerry Haynes
Bushey Heath

Callsigns

Dear Sir
May I thank you for the timely delivery of your excellent magazine, which arrived this morning. On turning to the Letters page, I could not believe what I was reading from your contributor W.E. Moore, West Yorks.

What a lot of irrelevant waffel! It surely did not merit inclusion. Radio stations can call themselves what they want in this country, so long as the title is decent and the Radio Authority does not object.

Obviously two stations in the United States could not be licensed with the same call letters, there could not be two WACSs. The USA is administered by the FCC. This country (the UK) is administered by the Radio Authority and they would not licence a station that used an illegal name.

Any station in this country would, granted, be foolish to use a name already being used by another, In most cases the station titles are simply abbreviations of a longer title, enabling shorter 'catchier' jingles and easier listener recognition. Here are a few examples:

CWR - Coventry & Warwickshire Radio
GWR - Great Western (or Wiltshire) Radio
BRMB - Birmingham Broadcasting company
KFM - Kings Lynn FM
KCBC - Kettering & Corby Broadcasting Company

In any case, none of these examples are actually callsigns, such as 5XX or 2MT, etc., simply names with no copyright.

Michael J Smith
Warwickshire

Short Wave Magazine, September 1993
US Callsigns

Dear Sir
I was interested to read W.E. Moore's letter in your August edition. He is quite correct in making a complaint about the disturbing trend towards using American-style callsigns by British commercial radio stations. But this is nothing new. The first example of this was Two Counties Radio, based not a million miles away from SWMF. They came on air using the callsign 2CR, surely an Australian callsign. In Gloucestershire we have the Severn Sound medium wave outlet calling itself '3CR'. Sure an interesting one.

Second, I should like to correct Mr Moore on his suggestion that this practice is illegal. It is not. All the callsigns he mentions in his letter, KFM, WNK, CNFM, etc., have all been approved by both the Radio Authority and the DTI. So perhaps he should address his comments to those bodies. In any case v.h.f./f.m. stations are unlikely to become long distance DX catches, but the problem in relation to medium wave a.m. outlets is an interesting one.

Second, I should like to correct the piece of information in the August 'Junior Listener' page, in an item headed Sunshine 855. The Orban Optimod processor is not normally used to limit audio bandwidth. This function is usually performed by high and low pass filters built into the transmitter installation. What the Optimod is used for is to increase audio quality to the listener. It does this by a complex combination of both level compression and frequency equalisation. It is, in effect, a sophisticated 'loudness button'. Most a.m. outlets use this type of processing in their output.

FM stereo transmissions are also processed using either the f.m. version of Optimod or a similar system called Innovox. The latter is generally thought to have a less crude sound than the Orban unit that, which if not very carefully set-up can have a rather 'ghetto blaster' type sound. To hear what I mean, take a listen to Radio 1 FM that uses Optimod, or Classic FM, which is an Innovox user.

Mike Ganley
Gloucestershire

Peter Rouse GU1DKD

Dear Sir
Even though it was not un-expected, the death of Peter Rouse - GU1DKD shook me badly. I first met Peter on the Ham Radio Stand at the Leicester show some years ago, when we both got fairly blitzen on Chris Lorek's freebie wine. Sharing the same publishing company, writing similar material to each other, even suffering the same medical complaint (although mine being a different type) we immediately struck up a friendship. His laconic and 'dry' sense of humour closely matched that of my own. Ands we both had this burning desire to pass-on information wrinkled-out-from a surprising variety of sources, most of them emanating from the States, where 'Freedom of Information' is a way of life, and not a daily struggle!

Peter was generous to me with his information sources, and, as I had just started with the same publishing company, gave me much valuable information about the company itself. Information which was to stand me in good stead over the years. I meet an enormous number of people every year as I wander around the world collecting little nuggets of information, to be filed away until a need arises. Yet, very few of these people stand out in my memory. Peter was so different. He was a charismatic man, whose ability to communicate was (in my opinion, certainly not Peter's) only second to my own. He stands out in my mind as one of the very few giants of intellectual ability able to talk on equal terms with just about anyone he met.

And behind the brain, ready to pounce at a second's notice, was his incredible sense of fun. Witness when I asked him about his 'day-job' was somewhat shocked, Peter told me that he was an Announcer for Channel TV. I explained that Channel TV was particularly difficult to receive in the depths of Sherwood Forest, to which we both fell about in complete hysteric - no doubt aided by the wine!

Peter will be a hard, if not impossible act to follow. I certainly don't envy the pretender to his crown. He helped me personally when I was a very 'green' and naive beginner. I shall miss you greatly Peter. When I join you in that Great Publishing Company in the skies, we can finally settle just who is the best writer! My love to a great man, and my deepest sympathy to his family, to whom I am offer the following thoughts.

You're only dead when the last person on Earth can no longer remember your name.

Farewell Peter

K. M. Fox
Sheffield

Good Service

Dear Sir
I know you get many letters on this theme, but I had cause to be impressed with the efficient service of SRP Trading. A telephone call on June 30 and the sending of a cheque was all it took, the unit arrived on July 2!

H. Richards
South Humberside

As I would not hesitate to complain if I were to receive poor service from an advert in your magazine, I should give mention to the fabulous service I received at Haydon Communications of Edgware.

Mike Haydon was very helpful and patient. I got a very fair trade-in price for my old receiver and the Lowe HF-150 that I purchased is every bit as good as the reports I've heard, and NO I don't have shares in the shop!

Stephen J Sadler
Middlesex

I would like to thank Waters & Stanton Electronics for the excellent service I have received. The staff were very courteous and helpful at all times.

Les Borthwick
Roxburghshire

I would like to express my thanks to AOR at Wirksworth for the help and assistance they gave me over a few problems I had with some equipment I had from them. I am an avid short wave listener, being disabled I can't do much else. Just a few kind words to those radio amateurs out there, it is nice to hear you say, "and to all our short wave listeners out there!", it really makes listening well worthwhile.

Ken Hornby
Derby

"Service' today is hard to come by in a spontaneous manner. I sent $83 in US funds to J&J Enterprises after a 'phone call that was highly informative in regards to mating their Scancat to an Icom IC/R5000 via an CT-17 interface. They also gave me a home 'phone number for help. Unfortunately, six weeks later, the product had still not arrived. I phoned again, using the home 'phone number, and within hours was telephoned back and asked to describe my plight. Taking me at my word, J&J Enterprises despatched a repeat order to me that same day. This is not a letter cautioning the sending of money through the post. It's just a commendation to J&J Enterprises for accepting my word and expressing professional concern.

Neville L.H. Cresdee
Gosport

I would like to extend my appreciation to S&R Trading for the efficient service I have received. A telephone call on May 25 and the sending of a cheque was all it took, the unit arrived on May 30!

L. Rouse
South Lanarkshire

I would like to express my thanks to AOR at Wirksworth for the help and assistance they gave me over a few problems I had with some equipment I had from them. I am an avid short wave listener, being disabled I can't do much else. Just a few kind words to those radio amateurs out there, it is nice to hear you say, "and to all our short wave listeners out there!", it really makes listening well worthwhile.

Ken Hornby
Derby

"Service' today is hard to come by in a spontaneous manner. I sent $83 in US funds to J&J Enterprises after a 'phone call that was highly informative in regards to mating their Scancat to an Icom IC/R5000 via an CT-17 interface. They also gave me a home 'phone number for help. Unfortunately, six weeks later, the product had still not arrived. I phoned again, using the home 'phone number, and within hours was telephoned back and asked to describe my plight. Taking me at my word, J&J Enterprises despatched a repeat order to me that same day. This is not a letter cautioning the sending of money through the post. It's just a commendation to J&J Enterprises for accepting my word and expressing professional concern.

Neville L.H. Cresdee
Gosport

I would like to extend my appreciation to S&R Trading for the efficient service I have received. A telephone call on May 25 and the sending of a cheque was all it took, the unit arrived on May 30!

L. Rouse
South Lanarkshire
**Grassroots**

**rallies**

**September 5**: The Telford Rally will be held at the Telford Exhibition Centre, Telford. Bob G7WVG. Tel: (0952) 770922.

**September 5**: The Bristol Radio Rally will be held in The Great Train Shed, Temple Meads Railway Station, Bristol. Mark Baker G4YRZ. Tel: (0275) 634282.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on 522 Mikes. Mics MSG4VY. Tel: (0268) 543025.

**September 11**: Scottish AR Convention 93 is being held at Cardonald College, Glasgow. The usual Convention events, together with all the usual traders. Tom Hughes GM3EDC. Tel: 041-882 5753.

**September 12**: Lincoln Hamfest, organised by Lincoln Short wave Club, will be held as usual in the Exhibition Centre, Lincolnshire Showground from 10.00am 4.00pm for the disabled, 10.30am to 17.30 for the general public. Trade stands together with the usual attractions for the family.

**September 12**: The BARTO Rally will be held at Soton Exhibition Centre, Esher, Surrey. Attractions include Bring & Buy, on-site catering, special interest groups and car parking. Doors open from 10.30am to 5pm. Admission £1.50 for adults. QPs £1. Peter Nicoll. Tel: 021-453 2676.

**September 19**: The East of England Rally will be held at the East of England Showground, Dandle Road, Peterborough. Entrance fee £1.50 accompanied children free. Mike G0CVC. Tel: (0733) 225388.

**September 26**: Three Counties Radio Rally will be held at the Three Counties Show Ground, Malvern. All trade stands are in one hall with the catering facilities.

**E. Cotton. Tel: (0905) 773181.**

**October 25**: Lyme Open Day. Mattlock. Visit the famous Mattlock Emporium on Chesterfield Road, browse and perhaps purchase from the vast stocks. The workshops will be open as well.

**October 3**: The Great Lumley Amateur Radio & Electronics Society will take place in the Community Centre. Doors open 10.30am for the disabled and 11am for others. There will be trade stands, Bring & Buy and refreshments available. Talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 7**: Grassroots Radio Rally will be held in The Great Train Shed, Temple Meads Railway Station, Bristol. Mark Baker G4YRZ. Tel: (0275) 634282.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 25**: Lowe's Open Day. E. Cotton. Tel: (0905) 773181.

**September 11**: Scottish AR Convention will take place in the Community Centre. Doors open 10.30am for the disabled and 11am for others. There will be trade stands, Bring & Buy and refreshments available. Talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 12**: The BARTO Rally will be held at Soton Exhibition Centre, Esher, Surrey. Attractions include Bring & Buy, on-site catering, special interest groups and car parking. Doors open from 10.30am to 5pm. Admission £1.50 for adults. QPs £1. Peter Nicoll. Tel: 021-453 2676.

**September 19**: The East of England Rally will be held at the East of England Showground, Dandle Road, Peterborough. Entrance fee £1.50 accompanied children free. Mike G0CVC. Tel: (0733) 225388.

**September 26**: Three Counties Radio Rally will be held at the Three Counties Show Ground, Malvern. All trade stands are in one hall with the catering facilities.

**E. Cotton. Tel: (0905) 773181.**

**September 25**: Lyme Open Day. Mattlock. Visit the famous Mattlock Emporium on Chesterfield Road, browse and perhaps purchase from the vast stocks. The workshops will be open as well.

**October 25**: Lyme Open Day. Mattlock. Visit the famous Mattlock Emporium on Chesterfield Road, browse and perhaps purchase from the vast stocks. The workshops will be open as well.

**October 3**: The Great Lumley Amateur Radio & Electronics Society will take place in the Community Centre. Doors open 10.30am for the disabled and 11am for others. There will be trade stands, Bring & Buy and refreshments available. Talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 7**: Grassroots Radio Rally will be held in The Great Train Shed, Temple Meads Railway Station, Bristol. Mark Baker G4YRZ. Tel: (0275) 634282.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 5**: The Bristol Radio Rally will be held in The Great Train Shed, Temple Meads Railway Station, Bristol. Mark Baker G4YRZ. Tel: (0275) 634282.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 7**: Grassroots Radio Rally will be held in The Great Train Shed, Temple Meads Railway Station, Bristol. Mark Baker G4YRZ. Tel: (0275) 634282.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.

**September 7**: Grassroots Radio Rally will be held in The Great Train Shed, Temple Meads Railway Station, Bristol. Mark Baker G4YRZ. Tel: (0275) 634282.

**September 5**: The Vange ARS Annual Rally will be held at The Laindon Community Centre, Laindon High Road/Aston Road, Laindon, Basildon. Doors open from 10.30am. Admission £5. There will be trade stands, a Bring & Buy, raffle, refreshments, good car parking, talk-in on S22. Admission £1. Barry G1JDP. Tel: 091-388 5936.
**Listeners Awards**

A recent letter from Chris Carrington, the International Short Wave League's Publicity Officer, reminded me of the ISWL's range of awards. With the summer drawing to a close (what summer?) it's a good time to start preparing for those winter projects. The ISWL offers a range of nine awards that may well appeal to junior listeners. As well as providing interesting certificates to decorate the shack, working for awards helps you learn more about the hobby as you strive to improve your results to get that last DX station. Let's just briefly run through the various awards.

**Century Club:** This is given for those that have verifications from a hundred countries or more. This is certainly a stiff test and I'm sure there aren't too many of these about.

**Commonwealth Award:** This is for the amateur loggings of 50 countries or 30 broadcast countries.

**Continental Award:** For this you will need verification reports from ten stations in each of the six continents.

**European Award:** This requires 50 (30 for broadcast) countries within Europe.

**Zone Award:** For the receipt of 25, 50 or 75 ITU Zones as defined on an ITU Zone map.

**5 Band Century Award:** This is a tough amateur award and requires QSL cards for 100 countries on each of the 3.5, 7.0, 14.0, 21 and 28MHz amateur bands.

**Pacific Ocean Award:** A total of 45 (30 broadcast) countries that border the Pacific Ocean.

**States Award:** Requires verified reception of 50 US states.

**Short Wave Broadcast Bands DX Award:** This is a specialist award for broadcast enthusiasts and requires verified reception of stations in all eight continents. This award is also split into four classes as shown below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Europe</th>
<th>Africa</th>
<th>Asia</th>
<th>N.America</th>
<th>S.America</th>
<th>Oceana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>35</td>
<td>40</td>
<td>35</td>
<td>12</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Class 2</td>
<td>30</td>
<td>30</td>
<td>27</td>
<td>10</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Class 3</td>
<td>25</td>
<td>22</td>
<td>18</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Class 4</td>
<td>17</td>
<td>15</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

This gives a total country score of 140 (class 1), 110 (Class 2), 80 (Class 3) and 50 (Class 4).

All of these awards are open to non-members and further details, along with claim forms, can be obtained from the Awards Manager, Herbert Yeldham, Deal Hall Farm, Burnham Marshes, Burnham-on-Crouch, Essex CM0 8NQ. As this is a largely voluntary organisation, please remember to include a large s.a.e. with your enquiry.

**Space Odysseys The TV Heroes**

A World Of Toys, Dorset's first Musical Box Toy Museum at the village of Arne, near Wareham, Dorset is currently holding an exhibition entitled Space Odysseys The TV Heroes.

The exhibition has models on display including Thunderbirds', Fireball XL5 and Stingray all of which have been recreated by Wareham based professional model maker Martin J. Bower, who has worked for the TV and film industry for the last 25 years.

Martin, a Thunderbirds fan himself became involved in recreating these models after the launch of the Thunderbirds comic. As all the original models from the 1960s were destroyed, when the comic was launched decent stills were needed for photographs. This led to Martin recreating the entire Thunderbirds fleet, along with other popular models, at exactly the same size as the originals with particular attention being paid to detail.

Martin has also worked on several highly regarded cult films and shows such as Alien, Blake 7, Space 1999 as well as being involved with Dr Who for five years.

The highlight of a visit to this museum must be the chance to see an original Parker puppet, one of only three still in existence, owned by Martin himself. If you remember the original, or are an avid fan of Thunderbirds and the other Gerry Anderson cult series a visit to the museum is a must.

The Museum run by Brian and Iris Etches is staging this exhibition in aid of The Joseph Weld Hospice Appeal (Dorchester) until September 17 1993. Admission charges have been increased to £2.25 for Adults, £1.95 for OAPs and £1.10 for children so that 50p per visitor can be donated to the appeal.

For more information contact A World Of Toys, The Purbeck Toy & Musical Box Museum, Arne House, Arne, Nr., Wareham, Dorset BH20 5BT. Tel: (0929) 552018.

**Science Museum**

I've recently received a very interesting information pack from the Science Museum. Included within this was their museum guide that, I thought, was very well set out with clear layouts and excellent photographs. Having been around the Science Museum many times in the past, I recommend spending some time looking at the guide to make sure you see all the things that interest you. Short Wave listeners may be particularly interested to see the demonstration radio station GB2SM. In addition to running amateur equipment for all the bands from 1.8MHz through to 430MHz, this station features television and satellite systems. Included in the satellite systems are both television and meteorological reception.

If you want to see the station running, there are normally demonstrations on Sunday, Monday, Tuesday and Thursdays. For detailed times you will need to contact the information desk on 071-938 8000.

**Helpline**

Judging from my mailbag, and that of the editor, there are lots of readers out there that need a wide range of basic problems answered. As a fair number seem to come my way, I thought it was about time I offered the service through the column. So, if you have any radio related questions from satellites to Radio 1, drop a line to the address at the head of the column. I will do my best to answer promptly and there may even be a prize or two for the star questions!!

---

**Space Odysseys The TV Heroes**

Top: Thunderbird 4 in the Repair Bay.

Centre: Martin Bower's interpretation of War Of The Worlds as created for the Bournemouth Science Fiction & Fantasy Society.

Bottom: The Stingray
**New Showroom Opens**

On 10 July 1993 Welland Communications opened their new showroom in Bedford. This opening saw an expansion into the following ranges: 30201181 to 30201190 and 30201231 to 30201240. There could be a problem with these receivers so if you own one of these models you are advised to contact Welland Electronics Ltd., 33 High Street, Bedford MK40 1RY. Tel: (0234) 364004.

For further information on the services available contact Welland Communications, 33 High Street, Bedford MK40 1RY. Tel: (0234) 364004.

**Radio & TVDX News**

Below is some important data for new Australian TV channels which will be adopted in the future.

<table>
<thead>
<tr>
<th>Channel</th>
<th>Video (MHz)</th>
<th>Audio (MHz)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>9A</td>
<td>203.25</td>
<td>208.75</td>
<td>new channel</td>
</tr>
<tr>
<td>10</td>
<td>210.25</td>
<td>215.75</td>
<td>shifted up 1MHz</td>
</tr>
<tr>
<td>11</td>
<td>217.25</td>
<td>222.75</td>
<td>shifted up 1MHz</td>
</tr>
<tr>
<td>12</td>
<td>224.25</td>
<td>229.75</td>
<td>new channel</td>
</tr>
</tbody>
</table>

Cellular-Vision NZ (Auckland) is proposing a microwave distribution service (MMDS) in the major cities around New Zealand and hopes to provide an eventual maximum 49 channels.

German broadcasting network ARD has delayed the start of digital audio broadcasting (DAB), Intended for 1995, and the earliest date for commencement is now 1997. ARD are strapped for cash and to re-engineer Band 3 ch.E12 for DAB will cost over 30 million DM and will involve moving nearly 300 ch.E12 relay transmitters up to u.h.f. The government have indicated that the ch.E12 spectrum will be used for DAB!

Meanwhile, down Mexico way the government is to sell off the former state-run (but now closed) chs. 7 and 13 Imevision network to private operators, presenting commercial giant Televisa with serious competition. Already six consortia have bid for the old Imevision facilities.

There's a 'pirate' ship operational in the Adriatic transmitting to the embattled Balkans - though it is funded by the EEC and run by a French political group! Radio Brod operates a 50kW, 720kHz transmitter and broadcasts in Croatian, Muslim and Bosnian dialects. The French ship is tendered from Bali in SE Italy.

Less radio and TV activity in Turkey, as from April 1st the government closed down all private land based stations which - the government claim - were operating in breach of the law. The broadcasting explosion lead to nearly 700 radio and 100 TV stations nationwide and now the only private stations operating are those transmitting in from offshore, nearby islands or from distant studios linking programmes by satellite - London has several!

Indian TV is to improve with greater regional linking via satellites INSAT 1 and 2. Doordershans will link 48 stations in the North East across Assam, Meghalaya, Nagaland, Arunachal Pradesh, Tripura, Mizoram and Manipur via 2A. Nearly 4000 community TV receivers are being installed in villages across the seven North East states. Other regions to be covered in regional operations are Pradesh, Jammu, Kashmir, Rajasthan, Madhya and the Punjab. Regional radio networking will also be improved.

After changes in private broadcasting in Turkey, Italy is also pushing for change. The Fininvest group may lose one of their three TV networks as indeed may RAI, the state broadcaster. Five year franchises will be awarded to new applicants, this intended to break the duopoly that Finvest and RAI enjoy. The Finvest group is run by Italian magnate Silvio Berlusconi. Ch. 31 Bucharest now radiates the CNNI programme for 23 hours daily.

On April 22nd last the Telshan network opened in Sri Lanka. Telshan Network (Pvt) Ltd provides countrywide transmissions of local and foreign programmes on four channels. Programme hours are 1600-2300 weekdays and 1600-2300 weekends. The Daily News, Sri Lanka report that TNL is introducing stereo (or dual language programming) on the service and additionally the TV sound is broadcast in the f.m. radio band at 101.70MHz. TNL transmits on chs. E3 and E4 Band 1 and at chs.E21, 26 u.h.f. And news that "East West TV" (ETV) is likely to be on air shortly in Sri Lanka and will transmit the Hutchvision (Star TV) programme from AsiaSat 1, Prime Sports and the BBC Asia TV service. Transmissions will be at u.h.f. chs.E31, 32, 33 and 56.

Roger Bunney
Bunfight at the Hendon Hamstore

Saturday 22 July saw the official opening of the Icom Hamstore in Hendon. Located at 11 Watford Way, Hendon, London NW4 3JL, the store was overflowing with people, searching for (and finding!) bargains, throughout the day. As usual in London, parking is not the easiest, but Hendon Central underground station is a very short distance away.

Doug G0LUH, and Paul G7MNI, were helped out on the day by Matthew 2E1AWE from Icom. Mark Jarvis and Dennis Goodwin G4SOT. Reinforcements were there in the guise of Steve Devine G0TKD from Loves and David Wilkins from Kenwood, while Sally Coning mastered the refreshments. Judging by the number of trips Doug made to re-stock the drinks cabinet, the day was a remarkable success.

New From Uniden

Nevada have introduced two new Uniden Scanners to their range.

The first of these, the Bearcat 2500XLT Scanner features continuous band coverage, 400 channels, 20 banks, 10 priority channels, v.f.o. control, weather search and rechargeable battery pack to name a few. The 2500XLT, is available from Nevada for £365. The second is the Bearcat 890XLT Scanner. This is a 200 channel continuous band scanner with features such as 10 banks, 10 priority channels, weather alert, auxiliary tape output and an optional CTCSS key. Both of the latter are the first additions to the Uniden Bearcat range for many years and have been developed after painstaking research.

The 200XLT costs £365 and the 890XLT £299; both are available from Nevada, 189 London Road, North End, Portsmouth, Hants PO2 9AE. Tel: (0705) 662145. Both prices include either UK charger or mains adapter.

RAE Courses

Hull College are to begin running a selection of radio courses, starting on Monday September 13 with the Global Maritime Distress & Safety System (GMDSS) course, leading to the new GMDSS Certificate of Competence necessary to operate Marine Radiotelephony equipment. Also starting on the 13th is the Yacht & Small Boat Owners, VHF Radiotelephony course, leading to the Certificate of Competence necessary to operate Marine VHF radio equipment. Both of these will only run if there is sufficient demand.

The College will also be running a City & Guilds London Institute 766 Radio Amateurs Examination Course starting on Tuesday 14 September and a Learning Morse Code Course commencing on Wednesday 15 September.

Enrolment for all of the above is September 1, 1993. For details of prices and availability contact Hull College, Queen’s Gardens, Hull HU1 3DG. Tel: (0482) 29943.

Reddish Vale Evening Centre, Reddish Vale Road, Reddish, Stockport SK5 7HD. A full RAE course of 25 sessions, commences Monday September 27. The classes will run on Mondays, 7 to 9pm. Facilities will be available for students so who register for the course to sit the examination in December 1993. It is available either for those wishing to obtain the licence quickly, or for students needing to resit one or more components. The examinations will be held at the centre.

They will also be running a Morse course of 25 sessions, up to 20w.p.m. The sessions will run on Thursdays, 7 to 9pm, commencing Thursday September 30. Enrolment for both courses will be on September 13, 14 & 16 between 7 & 8pm. Further details from course tutor Dave Wood on 061-430 6246.

North Trafford College, Talbot Road, Stretford, Manchester M32 0XH. Tel: 061-872 3731 are offering another RAE course this year, starting in September. The course tutor will be J. T. Beaumont G3NGD. Theory will be on Tuesday afternoons. An Advanced Radio Course in Amateur Television on Tuesday evenings or Wednesday mornings, Morse on Tuesday evening or Wednesday afternoons.

Sawston Village College are to begin running an RAE class in September. The course tutor will be P. B. Buchan G3INR. For more details contact W. Cupit BA, Sawston Village College, Cambridge. Tel: (0223) 834492.

MAN-93 Convention

Flightdeck - The Airband Shop, Cheddle, Cheshire have announced that they are holding this year’s MAN-93 Convention at Terminal 1, Manchester Airport on October 17 between 10am and 5pm.

The Manchester Convention is a well established aviation enthusiasts’ meeting joining the ranks of prestigious venues such as Paris, Zurich, Frankfurt, Los Angeles, Miami and London-Gatwick. This event presents the opportunity for aviation ‘buffs’ to get together to buy, sell and trade anything to do with ‘planes including postcards, slides, photos, models, kits, timetables, books, etc.’

The ever increasing public fascination for watching aircraft, along with the growing demand for table space has prompted the move to Manchester Airport’s Gordon Thomas Suite for Man ‘93. Previous conventions have attracted visitors from the West and East coasts of America, Canada, France, Holland, Germany, Ireland, Switzerland and all over the British Isles.

For further information and details of how to book table space contact Sue Fairbotham, Flightdeck - The Airband Shop, 192 Wilmstow Road, Heald Green, Cheddle, Cheshire SK8 3BH. Tel: 061-499 9350.

Flightdeck - The Airband Shop, Cheddle, Cheshire have announced that they are holding this year’s MAN-93 Convention at Terminal 1, Manchester Airport on October 17 between 10am and 5pm.

The Manchester Convention is a well established aviation enthusiasts’ meeting joining the ranks of prestigious venues such as Paris, Zurich, Frankfurt, Los Angeles, Miami and London-Gatwick. This event presents the opportunity for aviation ‘buffs’ to get together to buy, sell and trade anything to do with ‘planes including postcards, slides, photos, models, kits, timetables, books, etc.’

The ever increasing public fascination for watching aircraft, along with the growing demand for table space has prompted the move to Manchester Airport’s Gordon Thomas Suite for Man ‘93. Previous conventions have attracted visitors from the West and East coasts of America, Canada, France, Holland, Germany, Ireland, Switzerland and all over the British Isles.

For further information and details of how to book table space contact Sue Fairbotham, Flightdeck - The Airband Shop, 192 Wilmstow Road, Heald Green, Cheadle, Cheshire SK8 3BH. Tel: 061-499 9350.

For further information and details of how to book table space contact Sue Fairbotham, Flightdeck - The Airband Shop, 192 Wilmstow Road, Heald Green, Cheadle, Cheshire SK8 3BH. Tel: 061-499 9350.

For further information and details of how to book table space contact Sue Fairbotham, Flightdeck - The Airband Shop, 192 Wilmstow Road, Heald Green, Cheadle, Cheshire SK8 3BH. Tel: 061-499 9350.

For further information and details of how to book table space contact Sue Fairbotham, Flightdeck - The Airband Shop, 192 Wilmstow Road, Heald Green, Cheadle, Cheshire SK8 3BH. Tel: 061-499 9350.
YES, the original "open day" is back! Make a note in your diaries, PIMs, Filofaxes, Psion Organisers, scraps of paper or the back of an envelope! Wherever you keep important information, don't forget 25th September. Yes, it is a Saturday!

As well as all the usual attractions, we'll have lots more going on for those less radio orientated so why not bring the whole family out for the day. They can indulge you for couple of hours and you can spend the rest of the day sightseeing in and around Matlock. We'll have some special concessionary tickets on the day for some of the local attractions.

Right! That's the carrot for the family — now we've got a few for you!

1 We'll be catering for every aspect of the radio hobby, with special demonstrations covering a huge range of equipment and accessories.
2 Packet radio techniques run by DANPAC, our local Packet group.
3 Talk-in on S21 and SU21 with G4LOW run by our local radio club.
4 Free car boot sale space to sell your own gear.
5 Bargain basement full of odds and ends.
6 Super special prices on all mainline equipment, including HF rigs, mobiles, handies, antennas, PSUs, TNCs. Terrific trade-ins too!

Check our workshop
Even the workshop will be open so there's no better time to meet the biggest and best team of engineers in the country and maybe discuss some of your more technical problems with them.

We'll also be showing off our new R&D department where you might just get a glimpse of Project N and for the first time, you'll be able to visit our new receiver production unit at Cromford in the original workshop of Arkwright's Mill.

Live 'short-wave' room
Something else new for this year is the short-wave room with the world's finest receivers complete with our now famous Modemaster decoding software and Multiscan control programmes on continuous live demonstration, together with a full range of antennas, headphones and other accessories.
HQ OPEN DAY '93

It's a great day out!

Run the rigs...
Work the Dx...
Bag the bargains!

Books...
Boot sale...
and
Beautiful bargains!

And don't forget our branches
There's a Lowe shop near you at...
Maidstone 0622 692773
Plymouth 0752 607384
Bournemouth 0202 577760
Leeds 0532 452657
Cumbernauld 0236 721004
Bristol 0272 315263
London-Heathrow 0753 545255
Cambridge 0223 311230
Newcastle 0661 860418

Short Wave Magazine, September 1993
THE ROBERTS R101
9-BAND PORTABLE RADIO

The new 9-band receiver from Roberts, the R101, is small and light enough to slip into a shirt, or blouse, pocket. Lawrence Harris has been looking at this very portable receiver.

With any new radio I always find something unexpected - this time it was the use of a manual rotary tuning knob. Many radios are now fitted with electronic or digital push-buttons and it is common to include storage capability for selected frequencies. However, the proof of the pudding?

First a look at the buttons and switches. The front face incorporates the 50mm speaker, together with three keys labelled FM, MW-SW and POWER OFF. The radio is switched on using either the FM or MW-SW button, according to choice. Choosing between medium wave m.w. (often referred to as amplitude modulation - or a.m.) and short wave, is made using a slider control located on the top right-hand section of the radio. This moves between m.w. and each s.w. band, numbered sequentially from one to seven. This choice is also indicated on the front face by an orange number showing the selected band. I tested the rotary tuner very carefully and could not feel any backlash whatsoever. Tuning was easy and could be done accurately. There is also a SAFETY lock switch on the right hand side. Pushing it up prevents the receiver being accidentally switched on or off, so is particularly useful for travelling.

On the left side the rotary volume control can deliver as much power as you could want, though remember that excessive volume drains batteries disproportionately quickly. The receiver uses either two AA batteries, or 3V from a mains converter. Power consumption is a miserly 100mA at 3V, demonstrating the efficient receiver design used by the circuitry. Incidentally, this features four integrated circuits, five transistors and one f.e.t.; well, I was interested to know that! The MONO-STereo switch allows f.m. stereo decoding to be disabled, a useful facility when you are trying to listen to a weak f.m. station. Most local stations around Britain now broadcast in stereo, and on certain occasions, particularly during periods of enhanced solar activity, one can pick up more distant stations. The use of this switch can improve reception for weak signals, otherwise, in STEREO mode the decoder will try to extract the two components, producing a rather noisy result. It worked well, particularly while using the earphones. There are also two sockets, one for the stereo earphones, the other for the optional mains/d.c. supply. There are tiny TUNING and STEREO i.e.d.s situated just above the POWER OFF switch. The TUNING i.e.d. lights when any station is accurately tuned and reasonably strong. It worked well on each band, including s.w. though sometimes there was a short delay before it lit. The STEREO i.e.d. indicates that a stereo f.m. broadcast is being received. This will only be heard properly using the earphones, as the speaker is then automatically disconnected.

Antennas

The telescopic antenna is a neat job that slots into a clip on the top of the radio when not in use. It expands to nearly 600mm, and can be swivelled but not rotated. When expanded, it is used for f.m. and all s.w. bands. An internal ferrite rod is used for m.w. (a.m.) reception.

Results

I spent some pleasant afternoons and evenings listening to the various bands to get a feel for the reception capabilities of this model. It came up against some stiff competition when comparing its performance with radios collected over many years. In each case I used a comparable antenna and location. One Sunday afternoon I methodically tuned into every receivable station on each band and logged the numbers found. The f.m. band picked up all local stations perfectly. I tried it next to the computer while writing this review. There was considerable noise between stations, resulting in a mix of high pitched tones (a polite way of describing an awful racket!), but the tuning circuits correctly extracted the f.m. broadcasts from the computer mush and the result was good. Under such challenging conditions the antenna must be adjusted for best reception.
living room, reception was easier, as expected. Medium wave was, as usual, filled with stations, so I did not do a census! SW -1 is the 49m band and I logged three foreign language stations and one English, while SW -2 (41m) also included three foreign stations plus two utility broadcasts. I didn’t try to decode these but the signals were loud and clear. SW -3 (31m) seemed packed - 14 foreign stations and three English language programmes were heard. Some of the broadcasts were obviously one station using several frequencies. SW -4 (25m) was similarly crowded. I remember listening to this band every weekend as a student, as it included a number of stations broadcasting English pop records at a time when there was no such service in Britain - just before the 'pirates' arrived. SW -5 (21m) had four foreign stations; SW -6 (19m) had an assortment of utility broadcasts, French, English, and 16 other foreign stations. Finally, SW -7 (16m) was also nearly full, with Russian, English, French and ten other stations. You can never feel lonely with so many different programmes available 24 hours every day!

A radio like the 8101 must be a boon to students of foreign languages. I puzzle over the market for foreign language study records when so many clearly spoken broadcasts are available. This type of radio would surely make the perfect introduction to short wave listening for the youngster, rather than throwing mindless video games at them? Some parental help in exploring the world of short wave broadcasting can open up such fascinating horizons.

Specifications
Power 3V via 2xAA batteries, preferably alkaline. or using a 3V d.c. output mains converter; uses 100mA.

Battery life: approx. 20 hours is claimed, using normal volume and alkaline cells.

Aerials:
FM Telescopic
MW built-in Ferrite rod
SW Telescopic

Loudspeaker 8Ω 50mm; 3.5mm stereo earphones provided

Frequency coverage:
FM 87.5 - 108MHz
MW 530 - 1605kHz
SW1 49m 5.90 - 6.20MHz
SW2 41m 7.05 - 7.40MHz
SW3 31m 9.50 - 9.90MHz
SW4 25m 11.65 - 12.05MHz
SW5 21m 13.55 - 13.85MHz
SW6 19m 15.10 - 15.60MHz
SW7 16m 17.50 - 17.90MHz

Price: £49.99

My thanks to Roberts Radio for the loan of the radio.

Sound quality
No matter how new, how old, how many facilities, or how easy to use, in my view, the main test of a radio must always be sound quality. With a 50mm speaker we are away from the tinny reproduction offered by some miniature speakers. I was happy with the sound from this radio - and I consider my hearing to be unusually critical. I used the earphones for several broadcasts. The sound quality was adequate and there was plenty of volume available, but I would have liked a headband to have been provided because the phones tended to slip.

Publications
Two small booklets are included with the radio - a manual and a Wave Handbook. The manual describes the correct operation of the radio, including standard warnings about avoiding exposure to the elements. The Wave Handbook contains a listing, arranged in alphabetical order by country name, of the various short wave transmissions to be found while tuning around the various bands.

When using this, or any other frequency listing, it is important to remember that not all listed transmissions will be heard. I did hear most of the English language broadcasts that were listed for the BBC, but could not identify Radio Australia even though I heard transmissions on the listed frequencies for the correct time of day. Experience comes with tuning in regularly to these bands, and cannot be obtained just by reading, essential though that is. To me, one of the most fascinating things about s.w. radio, has always been actually monitoring a broadcast until the station finally identifies itself. That way I eventually logged many countries and got to hear about events going on all over the world that no-one else seemed to know about! That has always been the way with short wave.
We aim to give the best prices on all major brands and we will endeavour to match any competitors genuine offer on Icom, Kenwood, AOR & Yaesu receivers.

This month’s special: **10% OFF** all list prices on Icom, Kenwood, AOR & Yaesu receivers.

**FRG-8800 — OFFER EXTENDED DUE TO OVERWHELMING DEMAND**

- **Built in power unit**
- **Direct entry keypad**
- **Built in automatic timer**
- **All mode AM, FM, SSB, CW**
- **12 channel memory**
- **Optional VHF converter**

**£659**

**NOW ONLY £559**

$\text{SAFE}
\text{£100}$

ICR1 hand-held scanner........................................ £395 £355 B
ICR100 wide-band receiver................................. £629 £566 D
ICR72E general coverage receiver..................... £859 £773 D
ICR7100 25-2000MHz receiver......................... £1395 £1255 D
ICR9000 100kHz-2GHz receiver......................... £4950 £4455 E
RS5000 Kenwood communications RX ............... £999 £899 D
FRG100 Yaesu’s latest winner............................ £599 £539 D

FRG-8800 — Fitted with:
- Built in power unit
- Direct entry keypad
- Built in automatic timer
- All mode AM, FM, SSB, CW
- 12 channel memory
- Optional VHF converter

**AOR: THE ROLLS ROYCE OF SCANNING RECEIVERS.**

Offers subject to availability

<table>
<thead>
<tr>
<th>RX &amp; SCANNERS</th>
<th>List</th>
<th>Specials</th>
<th>Carriage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICR1000A</td>
<td>£949</td>
<td>£854</td>
<td>C</td>
</tr>
<tr>
<td>AR2000</td>
<td>£309</td>
<td>£278</td>
<td>B</td>
</tr>
<tr>
<td>AR2800</td>
<td>£449</td>
<td>£404</td>
<td>C</td>
</tr>
<tr>
<td>AR1500EX</td>
<td>£349</td>
<td>£314</td>
<td>B</td>
</tr>
</tbody>
</table>

**Selection of used & ex demo equipment**

<table>
<thead>
<tr>
<th>RX &amp; SCANNERS</th>
<th>£ inc. Vat</th>
<th>RX &amp; SCANNERS</th>
<th>£ inc. Vat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICF-80</td>
<td>£229</td>
<td>AR2000</td>
<td>£309</td>
</tr>
<tr>
<td>AR2000</td>
<td>£250</td>
<td>AOR</td>
<td>£225</td>
</tr>
<tr>
<td>AR2000</td>
<td>£1000</td>
<td>AR2000</td>
<td>£225</td>
</tr>
<tr>
<td>AR2000</td>
<td>£329</td>
<td>AR2000</td>
<td>£329</td>
</tr>
<tr>
<td>AR2000</td>
<td>£389</td>
<td>AR2000</td>
<td>£389</td>
</tr>
<tr>
<td>AR2000</td>
<td>£179</td>
<td>AR2000</td>
<td>£179</td>
</tr>
<tr>
<td>AR2000</td>
<td>£625</td>
<td>AR2000</td>
<td>£625</td>
</tr>
<tr>
<td>AR2000</td>
<td>£125</td>
<td>AR2000</td>
<td>£125</td>
</tr>
<tr>
<td>AR2000</td>
<td>£169</td>
<td>AR2000</td>
<td>£169</td>
</tr>
<tr>
<td>AR2000</td>
<td>£199</td>
<td>AR2000</td>
<td>£199</td>
</tr>
<tr>
<td>AR2000</td>
<td>£225</td>
<td>AR2000</td>
<td>£225</td>
</tr>
<tr>
<td>AR2000</td>
<td>£369</td>
<td>AR2000</td>
<td>£369</td>
</tr>
<tr>
<td>AR2000</td>
<td>£110</td>
<td>AR2000</td>
<td>£110</td>
</tr>
<tr>
<td>AR2000</td>
<td>£639</td>
<td>AR2000</td>
<td>£639</td>
</tr>
<tr>
<td>AR2000</td>
<td>£179</td>
<td>AR2000</td>
<td>£179</td>
</tr>
<tr>
<td>AR2000</td>
<td>£179</td>
<td>AR2000</td>
<td>£179</td>
</tr>
<tr>
<td>AR2000</td>
<td>£380</td>
<td>AR2000</td>
<td>£380</td>
</tr>
<tr>
<td>AR2000</td>
<td>£269</td>
<td>AR2000</td>
<td>£269</td>
</tr>
</tbody>
</table>

**D=£12.50, E=£16.50**

*Please phone to confirm availability.*

South Midlands Communications Ltd, S.M. House, School Close, Chandlers Ford Ind. Est., Eastleigh, Hants SO5 3BY

Showroom hotline 0703 251549 HQ showroom hours 9.30-5 weekdays 9-1pm Saturday

HQ & Mail Order  Southampton (0703) 255111  Leeds (0532) 350606

Birmingham 021-327 1497  Axminster (0297) 34918  Chesterfield (0246) 453340

South Wave Magazine, September 1993
WEIGHING YOUR CATCH

SINPO - What Does It Really Tell Us?

The SINPO code is the most generally used way of telling others how well a broadcast signal is being received. Don Phillips tries his best to use the SINPO code to report his reception details and wonders just how helpful it really is.

Let me suggest that I have tuned in my receiver and am in the process of logging a station. I am concerned about reading the exact frequency. I have struggled to get a clear identification and need also to record some details of the programme. I have logged the ITU code, the station name, and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?

The station I am listening to is moderately weak, there is some interference by other stations, but it is quite possible to understand the broadcast. I am keen to move down the band to look for some other DX. Shall I unthinkingly record SINPO - 33333 to give the general picture, or should I record a noise level of 3 and have checked the transmitter site with the World Radio TV Handbook. I can record the time and date by checking wrist-watch and calendar. The only bit left is the little box in my logging book which says 'SINPO'. What should I write in here?
Lynch's Third Year At

To celebrate the third year at our Northfields showroom, we're having the biggest sale ever offered by a Radio Retailer. Very LOW DEPOSITS ON INTEREST FREE, (isn't it funny how everyone seems to have caught on to this one!), or CASH purchase, (TRADE-INS still welcome), the savings on all NEW & USED SHORT WAVE RADIO EQUIPMENT will be offered during SEPTEMBER ONLY and will not be available at these prices again.

Thanks to all my loyal U.K. and Overseas customers, MARTIN LYNCH has had another successful year. Over TEN THOUSAND customers have poured through the front door or telephoned to place an order. Even more important is that you keep coming back to support your "Independent Retailer", realising that we really can offer objective and unbiased advice, giving you the very best in customer care.

More recently, you may have had a call from Brian, G3THQ. He's the latest member to join my sales team, his role being somewhat unusual. His job isn't to make sales, (albeit I'm the last to stop him!), it's actually to liaise with you AFTER the sale is made. Without landing you in it with the other half, Brian's role is to make sure you're satisfied with the purchase and ensures that nothing is left out of the transaction. In other words, if you're delighted with the service you've received from MARTIN LYNCH, then he is satisfied. So am I. How many other retailers contacted you - after the sale?

**Massive Celebra**

**SHORTWAVE BIRTHDAY BARGAINS**

**YAESU FRG8800**  
**SALE PRICE**

Many "AS NEW" examples available from stock from £499.00 including FREE Shortwave Antenna.

**KENWOOD R5000**  
**SALE PRICE**

The best KENWOOD receiver money can buy. Only £599.95 including a MyDEL ATU-1 antenna tuner and Shortwave antenna.

**KIYOSHI HF150**  
**SALE PRICE**

Short & Dumpy, but looks aren't everything! (Are they Tom?). The "QUAD" Electronics equivalent of Radio Manufacturers. It works well. Only £379.00 including FREE NICADS & Telescopic Whip.

**ICOM ICR71E**  
**SALE PRICE**

Still ICOM's ultimate Shortwave Receiver. Discounted to £999 including FREE MyDEL ATU-1 & Shortwave Antenna.

**DRAKE R8E**  
**SALE PRICE**

Quaky looks, but a quacking good radio!! Only £795 including FREE R8 software for IBM computer Control, OR MyDEL ATU-1 and Shortwave Antenna.

**ALL THESE BIRTHDAY BARGAINS AVAILABLE DURING SEPTEMBER ONLY!!**

**Dial 081 566 1120 NOW**

286 NORTHFIELD AVENUE, EALING, LONDON W5 4UB

Short Wave Magazine, September 1993
**MARTIN LYNCH**

**G4HKS**

**THE AMATEUR RADIO EXCHANGE CENTRE**

---

**Northfields**

The Universal Range of Decoders Direct From The USA

**M-400**

As featured in August Short Wave Magazine, the NEW UNIVERSAL M-400 decoder is a must for those who want a serious RTTY SITOR, FEC, WEATHER FAX plus much more CODE CONVERTOR at a sensible price. Available from stock.

£379.95 incl. VAT
PSU extra at £19.95.

**M-1000**

Got a PC and want a powerful decoder using your own computer as part of the system? The UNIVERSAL M-1000 is a complete CODE CONVERTOR on a single card, ready to plug into an IBM compatible PC. Full colour on screen graphics are at your disposal. This one IS fully recommended - our Chief Engineer uses one!

£379.95 incl. VAT

**M-8000 - SEE THE REVIEW IN THIS ISSUE!!!!**

The ultimate in all mode code convertors. Mainly used by commercial organisations throughout the world, UNIVERSAL have managed to engineer the package at a price within reach of the true hobbyist. A true colour VGA output is given to enhance the incredible definition obtainable in all modes by this advanced piece of hardware. It's easier to use than you think - a few hours will soon bring you up to speed. Get your hands on one today!

£69.95 incl. VAT

(9V battery not supplied)

---

**MyDEL**

**IS HERE**

MyDEL TPA Tunable PreAmp Antenna

Housed in one neat unit, the MyDEL TPA is the latest innovation from the USA. Ever wished you could improve the picture quality in your images? Well, the TPA offers an easy solution! A pre-amp, and as an alternative a telescopic whip for the occasional indoor short wave listening. Powered by one 9V PP3 battery, it could be the answer to your needs. Ideal for listeners who only have limited space for antenna systems.

£69.95 incl. VAT.

---

**Scanners Birthday Bargains**

YUPITERU

MVT7100

The LEADER in Scanners!

Only £449.95 with FREE Desk top power supply/charger & MyDEL SCANNERS DIRECTORY.

**AOR 1500EX**

The best value ALL-MODE scanner available.

Reduced to only £339 with FREE copy of the UK SCANNERS DIRECTORY.

**AOR 3000A**

The ultimate BASE/MOBILE all mode all frequency SCANNER! Heavily reduced to £1,000.99.

**ICOM IC-7100**

HF mkIII

Nobody does it better! 50kHz to 200MHz.

**AOR AR2000**

Still the best value scanner money can buy. Reduced to £299.95 with FREE U.K. Scanning Directory.

**IC-71E**

After three years, it's still the smallest scanner on the mark. Only £1395 with FREE U.K. Scanning Directory.

**MVT7000**

A MVT7100, without SSB, excellent performance. Only £349, with FREE spare set of NICADS & U.K. SCANNING DIRECTORY.

**VT-125 mkII**

The smallest & lightest Civil Air band monitor available. Reduced to only £125.95.

---

**Telephone Sale!!!**

**VXT225**

Nothing to beat the Civil Air & Military Coverage. Only £269 with FREE AIR BAND FREQUENCY GUIDE.

**IC-R1E**

Highly recommended - our Chief Engineer uses one!

£395 with FREE UK Scanning Directory.

**MVT7100 & 7000 owners!**

**NEW MyDEL ATU-1**

Built in the U.K. to our own specification, the ATU-1 is identical to its Japanese model costing nearly 40% more, isn't it time you bought British?

£59.95 incl. VAT.

Attention all Yupiteru MVT7100 & 7000 owners!

The new **MyDEL SCAN-2513**

Wide band scanner antenna

Ideal as a direct replacement to the telescopic antenna offered with the Yupiteru models, the NEW MyDEL SCAN-2513 flexi antenna covers 25 - 1300MHz. It's a far more convenient than the standard unit and a lot safer! Will suit any hand-held scanner.

£19.95 incl. VAT.

---

Tel: 081 566 1120  Fax: 081 566 1207

Switch 

Vsa 

Rsgb

Short Wave Magazine, September 1993
The Practical Wireless
Dayton HamVention Holiday
1994, promises to be an even bigger success than last year's trip! Organised in conjunction with RCT International: Bristol, participants are guaranteed a first class service throughout the week.

On Monday April 25, the group, led by the Editor of Practical Wireless Rob Mannion G3XFD, departs from Gatwick on a scheduled flight to Cincinnati, followed by direct coach transfer to The Engelwood Holiday Inn, Dayton, Ohio, home town of pioneer aviators Wilbur and Orville Wright. No visit to Dayton would be complete without a tour of USAF Dayton, which houses the world's largest flight museum. Practical Wireless have arranged a private coach trip to the museum on Tuesday, April 26, which will not only allow a chance to see exhibits such as Flyer III, but will also include a visit to the world renowned IMAX Three Dimensional Cinema. This is a visit that everyone on the trip will enjoy, even if you think you're not interested in aircraft, but please don't forget the comfy shoes.

Wednesday's free day allows time to explore downtown Dayton. Doubtless some will home in on Mendelsons', the world's largest electronic surplus store, to stock up on goodies! Or else you could head for the shopping malls - ladies please note this is well worth doing. Those who went on the '93 trip really enjoyed the different shops and came home laden with many bargains.

Thursdays' schedule will include a Day Excursion by private coach and two radio orientated special visits. Friday 29 sees the start of the HamVention itself. Doors open at 12 noon, though it might be worth asking Room Service for an early call since the Giant Fleamarket opens at around 6am! For those who overestimate their flight bag capacity over the weekend, Delta Airlines will thankfully be operating their excellent and reasonably priced 'Pack and Despatch Service' at the HamVention itself. Admission fees and courtesy buses for the weekend are included in the package. But if you're not interested in amateur radio, don't think there's nothing at the HamVention for you. There are three days of 'alternate activities' planned. All kinds of craft, cookery and other social events are laid on for those with little or no interest in the radio side of things. The 1993 programme had things like 'Stained Glass in a Frame', 'Victorian Bear', 'Christmas Door Swag' and 'Silk Screen Stationary' on the agenda - although these are only a few examples.

After the bustle of the convention, The Practical Wireless Dinner, to be held on Sunday evening at one of Dayton's excellent restaraunts, promises the opportunity to meet up again with friends made at the 1993 HamVention, and perhaps make a few more. Departing from Dayton on Monday afternoon, there will probably be just enough time to spend a few hours in Cincinnati City prior to boarding the overnight flight home.

The tour price of just £630 per person is inclusive of scheduled return flights from Gatwick to Cincinnati, seven night's accommodation, all coach transfers, two day excursions by private bus, and, of course, admission to the HamVention itself. Single rooms are available at an additional £205 per person, and travel insurance is optional at £40.

Only a limited number of places are available. Full booking information and a detailed itinerary are available from Annette Oxley at RCT International, Practical Wireless 1994 HamVention Holiday, 44 College Green, Bristol BS1 5SH. Tel: (0272) 230933; Fax: (0272) 22691.

Listen With Grandad by Leon Balen & David Leverett

My Grandad can't come to the 'phone at the moment, I'm afraid he's rather tied up....
RC818 (SSP £199.99)
Multi-band Digital Preset Stereo World Radio with Cassette Recorder
This flagship model demonstrates the leading edge of Roberts technology. With a clear LCD display of all functions, it has 5 tuning methods, 45 preset stations, dual-time display, standby and clock/alarm plus a cassette section for timed recordings from the radio. Provision is made for single sideband and CW transmissions as well as stereo FM on headphones and stereo record/playback of cassettes. Comes complete with a mains adaptor.
• 5 Tuning methods – direct frequency keying, auto-scan, manual scan, memory recall and rotary • 45 memory presets • SW metre bands from 120m to 11m • BFO control for reception of CW and SSB • FM stereo on headphones • AM wide/narrow filter • Waveband coverage: LW 150-519 kHz; MW 520-1620 kHz; SW 1.621-29.999 MHz; FM 87.5-108 MHz • Radio standby function
• Pre-programmable radio to tape recording • LCD display • Signal strength and battery condition indicator • Sleep timer • Safety lock switches • Adjustable RF gain • 700 mW Power output

R808 (SSP £119.99)
Multi-band Digital Preset Stereo World Radio
The R808 has all the advanced features of the R817 with the exception of BFO (Beat Frequency Oscillator) but in a more compact case specially designed for the regular traveller.

R621 (SSP £59.99)
10-Band Compact Stereo World Radio (FM/MW/SW1-8)
All the functions of a much larger model are combined in this compact radio with clock/alarm. Easy SW bandspread tuning with LCD tuning/stereo indicator and FM stereo on ear or headphones. The clock/alarm shows dual time on a backlit display with up to 60 min sleep timer and snooze with wake to radio or buzzer. Comes complete with soft carrying pouch and stereo earpieces.

R101 (SSP £49.99)
9-Band Miniature World Radio (FM/MW/SW1-7)
Exceptional sound quality and facilities in a truly pocket-sized, ultra-light receiver. Easy to tune with featherlight touch-band switches. LED tuning/stereo and waveband indicators. Wide SW bandspread tuning with stereo FM via ear or headphones. Complete with soft carrying pouch and stereo earpieces.

An unequalled combination of value, quality, technology and choice....in short....

ROBERTS

For your nearest stockist contact:
ROBERTS RADIO CO. LTD 127 Molesey Avenue, West Molesey, Surrey KT8 2RL
Tel: 081 979 7474 Fax: 081 979 9995

Short Wave Magazine, September 1993
CRISIS AND CREDIBILITY AT RADIO MOSCOW

By G D Rawnsley B.A.

Since it began broadcasting in 1978, the World Service of Radio Moscow has achieved a level of notoriety amongst its listeners. Employing a dozen frequencies at any one time, for up to twenty four hours a day, the station is expert in the propaganda techniques of saturation broadcasting. Regular listeners are familiar with its style and content, which have changed little over the years, despite the introduction Perestroika. Since the onset of Glasnost and the period of reform, however, the political diatribe and rhetoric have been tempered, and a certain informality has crept in to its programming which is pleasing to any ear that remembers Radio Moscow in the pre-Gorbachev era. On Monday, 19 August, 1991 all that changed. The West awoke to learn that Mikhail Gorbachev had been replaced as President of the Soviet Union for unexplained ‘health reasons’. For the Western media the explanation was obvious: Gorbachev had been the victim of a hard line conspiracy. Not surprisingly Moscow was changed accordingly, to defeat the coup; that there was a large army present in the centre of Moscow, and that the coup was a KGB/military/ right wing conspiracy. Not surprisingly none of this was broadcast by Radio Moscow World Service, usually so vociferous about events happening within the Soviet Union that they take priority over major world stories. It seemed obvious to all listening that the Soviet media, Radio Moscow included, was now under the control of the conspirators. This was apparently confirmed by a new statement issued by the Committee and first broadcast at 1000UTC, which detailed the emergency measures to be implemented; curfew, the prohibition of strikes and demonstrations; the banning of opposition parties and demonstrations, and so on: most importantly for the media, the creation of a new central body to control it. The end of the coup just two days later, facilitated by the masses defiance of these decree, indicated the futility of the statement, and the bungled nature of the coup itself. Had its managers been competent, and who would have thought, with the KGB behind them, they were anything but, the threats made in such statements would have been carried through, and order imposed almost immediately. The failure to do this sealed the fate of the coup.

Day One

The programme schedule of Radio Moscow was changed accordingly, most of the early broadcasts being taken up with stirring classical music which, in any other circumstances, would have suggested the death of a major political figure. At 0756UTC, Radio Moscow broadcast a statement issued by the ‘new’ Soviet leadership; a masterpiece of political rhetoric which attempted to justify the coup as a constitutional act. carried out. It was claimed: “in order to overcome the deep crisis in all fields...chaos and anarchy threatening the life and safety of Soviet citizens...” (in order to safeguard territorial integrity, freedom and independence of the country, proceeding from the results of a national referendum to retain the Union of Soviet Socialist Republics...A State of Emergency is introduced for six months...”

This statement was followed on the hour (0800UTC) by a news flash. This was perhaps the most surprising change to the schedule that day. Regular listeners to Radio Moscow World Service know that the news, traditionally extremely long and often tedious given its narrow focus, is usually the most dominant feature of the schedule. However, this edition consisted of five minutes resume of the statement just broadcast (repeated yet again in full only five minutes later!), and a summary of an address by the new State Emergency Committee, which equalled its previous statement in propaganda content, bandering such words as ‘democratic’, promising the continuation of ‘reform’, and perhaps most importantly given that this was being broadcast to a global audience, guaranteeing to abide by all treaties and international obligations.

By this time, the Western media had started to report extensively on events as they occurred - that President Gorbachev was under house arrest; that Boris Yeltsin was urging the Soviet people to strike and take part in civil disturbances to defeat the coup; that there was a large army present in the centre of Moscow, and that the coup was a KGB/military/ right wing conspiracy. Not surprisingly none of this was broadcast by Radio Moscow World Service, usually so
schedule of programmes, usually strictly adhered to and guaranteed except under the most precarious of situations was abandoned in favour of music and obviously non-political programmes. Thus listeners were not able to hear the news and views, inside report or update, but were allowed to continue attempting Russian by radio, and hear of the latest developments in science and engineering, both of which sounded quite banal on a day of such historic proportions.

The news had changed yet again by 1700 UTC, following a news conference given by the acting President Gennady Yanaev, in which he reported Gorbachev to be 'resting', and expressed the hope that he would be able to resume his duties. As President when he was well enough! For the first time we learnt via Radio Moscow World Service of disturbances against the coup and its condemnation as 'illegitimate' by Boris Yeltsin, as well as his call for a national strike to begin. At the end of the news, the announcer revealed what could be interpreted either as a glimmer of optimism, a simple case of impromptu irony, or perhaps, another coded message in the phrase: 'And that is the end of the news from the World Service of Radio Moscow on this beautiful summer evening!' The usually strict and formal style of news presentation had momentarily lapsed, but why, at such an apparently critical juncture in the nation's history?

Day Two

By the end of the second day of the coup, August 20, Radio Moscow World Service had managed to restore a level of balance in its broadcasts. 'The News' was just that, news of events going on in the Soviet Union, instead of the simple repetition of government decrees. Indeed, it could be said that Radio Moscow was revealing its own blatently anti-coup line via its broadcasts, which is surprising, given that the fact that the emergency decrees had supposedly placed the media under the control of an especially created central body, and, as one knows, the first rule of ensuring a successful coup is seal the communications network. Yet Radio Moscow was allowed to broadcast news of the armed troops on the streets of Moscow ('describing the atmosphere as 'calm but tense'), and of the makeshift barricades around the Russian Parliament. They also included Yeltsin's call for strikes, and his demand that both he and World Health Organisation doctors be allowed to verify the health of President Gorbachev, who were Yeltsin, was able to report news of his own detention in the Crimeas via the BBC World Service! The news was also interesting for a number of other reasons, not least of which was its inclusion of a statement by the Patriarch of All Russia. A religious figurehead commenting on the political situation was an occasion to be looked upon as the embodiment of Glasnost, and would have been unthinkable in the years prior to Gorbachev. Radio Moscow also broadcast the reaction of various world leaders; the marked ambivalence of the United Nations General Secretary to the events; the hesitation of the French to 'assess the implications before we understand all the circumstances of what has happened', and the insistence of the Chinese, the USSR's traditional enemies, not to become involved in their internal affairs. These contrasted sharply with the vociferous condemnations of the coup made by President Bush and Prime Minister John Major and carried by Radio Moscow. By now it should have been obvious to all listeners that the coup was on its' last legs, were now merely smouldering, but we had to wait until the next day to witness its final death throes.

Day Three

On August 21, at an extraordinary meeting of the Russian Parliament, Boris Yeltsin told the world that he was in control of the Republic's armed forces, that the army was hastily retreating from the streets of Moscow after a night of violence in which three people were killed by troops, and that the leaders of the coup had fled to the airport in light of the fact that the BBC World Service was allowed to broadcast the news of Gorbachev's resignation as a top priority news story, without the Interfax tag, but with the President's full statement.

Credibility

What this reveals about Radio Moscow World Service is not clear. It is determined to be seen as a station manned, first and foremost, by professional journalists, and one which therefore insists that all facts and sources are checked and verified before broadcasting. If this is its claim, how does it justify itself in light of the fact that the BBC World Service, famous across the globe for its journalistic credibility, carried the story at 1900 UTC, a full hour before Moscow? Perhaps Radio Moscow simply did not want to believe such news? The true answer may be less cynical; Radio Moscow World Service must be applauded for its resilience through what were obviously difficult times for the station, which had previously gained journalistic credibility since these events, but still has some way to go if its international reputation for journalistic integrity is to improve.

Actualy under contro of the State Emergency Committee. Not only did we hear comments on the weather and Beethoven's 5th Symphony, as mentioned above, but throughout the drama the announcers continued to refer to Mikhail Gorbachev as 'President'. Thus despite the claims by its leaders that the takeover was constitutional, it was never really recognised as such. This was one of the main failures of the coup, but there were others. Throughout these three days, but particularly on the second and third, as Radio Moscow World Service began to restore a degree of balance, the words that Gennady Yanaev had spoken at the news conference on the 18th were broadcast, and they sounded pitiful. The committee were justifying the coup and were seeking a popular support that would never be forthcoming. This is not how coups succeed. Coups are based on naked power, and the creation of a fear of that power amongst the restless masses, not on a promised crime. That Radio Moscow World Service was allowed to continue broadcasting, and tell the world of the resistance to the coup leaders, despite so-called central control of the media is indicative of the botched nature of the whole event. Lenin once said that he who controls communications controls the world. The hardliners would have done well to heed their mentor, for in the event they controlled neither.

Postscript

Just when it seemed safe to go back to the radio receiver after the blanket coverage of the historic events in the Soviet Union, on the afternoon of Saturday August 24, the story continued to unfold and heighten in drama. Western media reported that Interfax - an independent news agency with close government ties - had claimed that President Gorbachev was considering resigning as General Secretary of the Communist Party. Simultaneously, Russia was broadcasting a news bulletin which, as well as reporting on the funeral procession for those killed in the coup (or as the station put it, 'who had lost their lives for freedom and democracy'), also included various Interfax reports. These included, amongst other things, the sealing of Communist Party Headquarters in Lenigrad, but made no mention of the report the West had obviously got over the wires. If Radio Moscow World Service was prepared to broadcast Interfax reports, the agency was obviously regarded as a credible source by the station: what did this indicate about the validity of its reports of Gorbachev's impending resignation? Obviously, one, again, was what was committed from the broadcasts was just as important as what was transmitted.

By 1900 UTC the media in the West was reporting Gorbachev had stepped down, after making a statement on Soviet television in which he said it was 'not possible to fulfill my duties as General Secretary'. He had appointed the Russian Prime Minister, Ivan Silayev to head the new Soviet Government, and had subsequently ordered the infliction of party property. Communism in the Soviet Union was nearing its end. The news on Radio Moscow World Service, broadcast at 1900 UTC included none of this, but did mention (albeit not as priority news) an unclarified report of this by Interfax - which refused to name its source, but which had been made and accepted by the West. It was a full hour later, at 2000 UTC before the fact of Gorbachev's resignation was reported as a top priority news story, without the Interfax tag, but with the President's full statement.
CIVIL/MILITARY AIRBANDS.

FAIRMATE

HP2000

STILL ONE OF THE MOST POPULAR HANDHELD SCANNERS ON THE MARKET. Over the last year the HP2000 has netted almost all other models.

- Continuous coverage from 350kHz to 1200MHz
- 1000 channels of memory
- Keypad or rotary control
- AM, FM and WIDE FM modes
- Search steps from 3 to 995kHz

Supplied with full set of accessories/charger £299.99

BLACK JAGUAR

BJ200 MKIV

A new and completely revamped version of this popular scanner. Now using surface mount technology, performance is better than ever.

- 5088, 26-30, 115-178
- 200-260, 360-500MHz
- Selectable AM/FM
- 10 memories

DEAL FOR: Civil/Military/Airbands £239

NEW COMMTEL SCANNERS

We are pleased to introduce a range of scanners under the CommTel brand. Although a new name to the UK, CommTel scanners are made by one of Japan's largest and most respected manufacturers. They have been building high quality products for the Americans and European markets for many years. We have tried and tested the first samples and can recommend these scanners. They are highly reliable and easy to use.

COMMTEL 102

A 1-band 10 channel scanner.

- Frequency coverage: 668-88MHz, 128-174MHz, 280-512MHz
- Scan delay: lock out £199.00

COMMTEL 204

Top of the range with a triple conversion receiver. Suitable for many applications.

- Frequency coverage: 668-88MHz, 128-174MHz, 280-512MHz
- 400 channel memory
- 150kHz-30MHz, 76-108MHz
- Scan delay: lock out £249.95

COMMTEL 205

A super basic mobile scanner with easy-to-read front panel display/control button.

- 400 channel memory
- Frequency coverage: 25-52kHz, 720-1300MHz
- Direct access up to 200,000 frequencies
- Modes - AM, FM, NFM
- Audio squelch - scan delay £344.00

SONY

Asa a Sony Stockist we stock the complete range of Sony Shortwave products... Here is a selection of the popular models.

SW33

JUST RELEASED, this new model covers 13 bands.

- 70-108MHz
- All major SW broadcast bands
- World time clock, adjustable by time zone
- 17 memories

Supplied w/Compact Antenna, Carry Case, Shortwave Guide £399.99

SW77

The SW77 covers 1.50kHz to 30MHz plus 76-108MHz. With a rotary tuning dial, 125 scan memories, reception of AM, FM, USB, LSB, CW, tape record facility, this is a superb all rounder £399.99

SW1E

Pocket shortwave plus VHF radio supplied with headphones, case and shortwave guide. This model won’t hurt your pocket £199.99

SW7600

One of Sony’s most popular VHF and Shortwave radios. 76-108MHz FM, 150kHz-30MHz. Shortwave receiver AM, FM, LSB, ... £795

SW753

A new multi-band radio from Sony with dual conversion receiver that gives outstanding results.

- 150kHz-30MHz, 76-108MHz
- All modes including SB
- 125 multi-function memories

PLUS MORE FACILITIES £279.99

AN1

An external active antenna with built-in pre-amp, covers 150kHz-30MHz. Fully portable with easy to mount flexing brackets £58

NEW SONY "PYXIS" GLOBAL POSITIONING RECEIVER

A portable satellite receiver gives position in Lat./Long. and altitude accurate to 30-100 metres £58

NEW LOW PRICE £99.00


RISING FOR THE RADIO ENTHUSIAST

HUGE STOCKS - FAST DELIVERY - PERSONAL SERVICE

TELEPHONE HOTLINE: (0705) 662145 FAX: (0705) 690626

ACCESSORIES

WIDEBAND PRE-AMPLIFIERS

These low noise preamplifiers are a must for the scanner enthusiast and will improve reception on many bands of base/handheld radios.

SCANNERMASTER GW-2

A low noise GaAs FET preamp covering 110MHz - 1.1GHz with variable gain (-3 to -20dB) and high efficiency battery.

JIM M75

Similar to GW-2 above but with selectable bandpass for improved performance and 252100MHz freq coverage.

JIM PSU101 MK IV

A combined direct current power supply/charger for handheld scanners. Suitable for most popular models. Special versions now available please call for more details.

SCANNING ANTENNAS

SCANMASTER BASE

New high quality wide band receiving antenna uses thin glass/stainless steel, with a small radial "N" type connector. Length 18".

SCANMASTER MOBILE (25-1000MHz)

A wideband high sensitivity magnetic mount antenna - ready to go with 12ft of low loss coax and BNC connector. Approx. 18" long.

SCANMASTER DISCONE (25-1300MHz)

Stainless steel top of the range "N" type connector. Cables for short mounting pole and clamps "B elements with vertical whip" - complete with short mounting pole and clamps etc. (best value at £49.00 - £47.00)

SCANMASTER DOUBLE DISCONE 110-1300MHz

Our very latest antenna - gives outstanding performance. Nearly 2.5dB gain over a standard discone plus transmit out put.

Limited stock only! Please, order now, these are going fast!

INTRODUCTORY PRICE: £39.95 + £4.75 P/P

YAESU

NEW FRG-100 HF RECEIVER

100 memory channels and all mode capability. Five different scan options and an automatic record facility, what more do you ask? Full brochure available. Special offer - £199.95

ICOM

R7000
covers 100MHz to 300MHz on the HF Bands and offers all mode reception (FM, with the optional board) Easy to use and clarded to suit the operator. A full 99 memory channels with scan facility and 100B preamp fitted as standard.

R1

IC's most popular pocket sized wideband scanner covering 150MHz to 1300MHz with 100 Memory Channels (AM, FM and WFM Modes).

Low Power 1.99.

LOWE HF-225

Receive, transmit and fast chargers are available

LOWE HF-150

Receive only model but with an excellent EARS LCD display. Top Quality. Power Memory: £39.95

KENWOOD

R5000 RECEIVER

Standard in the receive section of the TS440S HF Transceiver both in looks and design this model covers 100kHz to 30MHz all mode, 100 memory channels and facilities for optional antennas. RECOMMENDED SPECIAL OFFER: £79.95

SANGEAN ATS803A

Full coverage shortwave receiver with AM/FM and SSB reception, with many features and good sensitivity filtering. This has become the latest most popular low cost radical. SPECIAL OFFER THIS MONTH: £69.00 post and packing.

STEEPLETONE MB87

Multi-band Radio

This radio will appeal to both Aircraft and Marine Operators. The multi-band "Jumbo" radio has almost everything you need to monitor these bands, LW, MW, SW, TV, CB and the Marine and Aircraft Bands. Good Starter... £76.40

TRADING POST

As many SWM reader are aware, we are the UK's largest distributor of Scanning Receivers - supplying many of the dealers who advertise in this magazine. As a result, over a period of time, we receive in our bulk shipments from Japan and elsewhere products with marks or slight damage to the outer colour sleeve or carton.

For this month we can offer a limited quantity of fully tested scanners, BRAND NEW WITH 1 YEARS GUARANTEE, but with slightly damaged or missing outer packaging, i.e. on product only.

Yupiteru MVl-T700 £389.00

Yupiteru MVl-T7000 £289.00

Fairman HP2000 £269.00

AOR 2300 £379.00

Quality is strictly limited - sold on a "first come, first served" basis.

SECONDHAND ITEMS

Bearcat 800XI Base Scanner £99

AR2000 £69.00

JIM PRO-1000 £159.00

Kenwood R2000 £99

Yupiteru MVl-8000 Base Scanner £225.00

Yupiteru MVl-7000 £245.00

Nevada MS1000 £219.00

Fairman HP2000 £225.00

Sony Pro 80 Handheld £195.00

Icon R71E HF RX £695.00

Yupiteru MVl-8000 £69.00

Nevada MS1000 £185.00

Realistic PRO 34 £175.00

Yupiteru VT1205 Handheld £99

Sony 2001 HF RX £175.00

Regency MX7000 £195.00

Stock of secondhand product changes daily - call for the latest info or P/X quotation.

PAY BY THREE POST-DATED CHEQUES

INTEREST FREE

Simply divide the price into 3 equal monthly payments. Write 3 cheques dated in consecutive months starting with today's date and post them to us enclosing your order. We will accept your instruction and post the new equipment to your address. Please, remit your telephone number and cheque card number to us as these are required immediately we receive the cheques.

The hardest part is deciding what to buy!

SHOWROOMS: 1A MUNSTER ROAD, PORTSMOUTH PO2 9BS

MAIL ORDER: 189 LONDON ROAD, PORTSMOUTH PO2 9AE

Short Wave Magazine, September 1993

21
Radio Stations Special

EDXC 93
Vive Las Palmas!

Although Whitsun is the traditional time for the annual conference of the European DX Council, 1993 was different. For the first time the EDXC met outside continental Europe. Radio Sweden's George Wood went to Las Palmas in the Canary Islands.

"Good morning ladies and gentlemen. I'm sure we're going to enjoy our stay here in the Canary Islands. It's very pleasant to come from the United Kingdom and find that sunshine and warm temperatures do exist".

A couple of years ago when EDXC Secretary General Michael Murray told me there were plans to hold a conference in the Canary Islands, my response was basically 'Dream on'. At that point the council was at a real low point, having trouble just finding any venues for the following year. It didn't seem like a local club way out on the southern fringes could actually do all the organising that older and more established clubs in the north were reluctant to do.

Yet, there was Michael Murray standing on the stage at the University of Las Palmas, opening EDXC 93 in the Canary Islands!

The European DX Council brings together the clubs for short wave listeners in Europe. Aside from newsletters, the major activity of the council in the annual conference, organised by a member club, often in collaboration with a broadcaster. Many representatives from radio stations also take part, making the EDXC meeting a unique opportunity for program makers and programme listeners to meet.

EDXC 93 was held at the University of Las Palmas. The local club, AER Canaries, had such good relations with the university that there is even a course in DXing.

Many of the EDXC participants were young graduates of that course, and several of the conference lectures were aimed at them.

For example, industrial engineer Jose Miguel Navarro representative Senor Mauricio de Campo Pujada. After a brief introduction to his firm's products, he surprisingly announced "It's better to have a good antenna and a poor receiver, than a poor antenna and a good receiver".

He then spent an hour talking about 'Everything You Ever Wanted To Know About Antennas' (and perhaps some things you didn't want to know). Once again, for veteran EDXC-goers this was old stuff, but the young Canarians were fascinated as Senor del Camp Pujada spoke at great length on the virtues of the dipole, the inverted V, multi-band dipoles, vertical antennas and many variations thereof, accompanied by illustrations.

"Sony is best known for its research, do some research yourself!" Senor del Camp Pujada exhorted his listeners, "build your own antennas, and I'm sure the result will be far superior to what you might have with an antenna inside your house".

If that day of EDXC 93 was devoted to the basics of short wave listening, another day was an illustration of what is intruding more and more into the hobby every year - satellites.

When Antonio Nunes, the Director of the Escuela Técnica Superior de Telecommunications, addressed the conference he described how cables and satellites have made a difference for the Canaries, isolated as they are out in the sea. He spoke of Spain's Hispasat direct broadcasting satellite, intended to provide television programming to both Spain and Latin America, of the NATO communications base just 10km away, which provided military communications across the Atlantic, the trans-oceanic submarine cables that passed close by, and the fibre-optic link to the nearby island of Tenerife, the first of its kind in all of Europe.

He was followed by Doctor of Engineering Juan Domingo Sandoval Gonzalez, who told the conference how Spanish universities have used the Olympus direct broadcast satellite for multi-media interactive education in telecommunications. The programme is intended to reach 12 schools across Spain by next year. (This isn't the kind of thing satellite TV monitors can just tune into on Olympus however. The system is digital, with a 2Mb/s uplink from Madrid, and 64Kb/s uplinks from the other schools. Eventually, it will include a connection to the international Internet network, providing electronic mail and access to databases outside of Spain).

There was also a workshop on Satellite Broadcasting, in which those of us broadcasters who are on satellite, shared our experiences.

But the high point of Satellite Day at EDXC 93 was the trip to the southern shores of the island, not to the tourist beaches at Playa de Ingles, but rather to the nearby Maspalomas satellite station. This is divided into two sections. One part, called North MER (Main Equipment Room), monitors weather satellites such as the
SONY ICF-2001D
FULL KIT INCLUDING: AN1-£275

AWARD WINNERS
071-637-0353/0590
AN AWARD WINNING MASTERPIECE

ICF-2001D Kit £275 only
Finest all-round pro-receiver in the business.
FM/AM/MW/AF multi-band reception • 32 station preset memory • Synchronous detector circuit • PLL quartz-locked synthesizer circuit • Digital/analog tuning • 2-way scan tuning (emergency broadcast, defines) • 2-position tone control • Direct metre band access • 4-event programmable timer • AM stations • External antenna for AM, FM and AIR • 4 memory presets, FM/LW/MW/SW reception • PLL synthesized circuitry • FM stereo • Continuous AM frequency coverage • 4 way tuning • 10 memory preset • Anti-skip control • Pilot tone • Digital clock • Dual conversion system • Record out socket • Headphones socket • Key protection • Record function • Digital clock and alarm • LCD display and light function • Auto scan, manual tuning, 10 key direct tuning • Programmable timer • Continuous AM frequency coverage • 4 way tuning • 10 memory preset • 2 step tone control • Key protection • Record out socket • Headphones socket • Key protection • Record function • Digital clock and alarm • LCD display and light function • Auto scan, manual tuning, 10 key direct tuning

NEW ICF-SW77 similar specification to 2001D but with 8VA type high performance battery tuning

Kenwood RI790...£449
Fairmate HP2000...£299
Nevada HS1000...£269
Alcom CL245...£169
Yuess IT6.. £329
Yuess IT74...£329
Yuess IT223...£299
Yuess IT411...£249
Yuess IT811...£269
Yuess IT111...£389
Yuess IT121...£319
Yuess IT124000...£349

PRO worldband rec incl weather fax £269.00
PRO dish antenna £159.00

SONY

ICF-SW7600...£154.95
ICF-SW1...£154.95

ULTRA-COMPACT SHORTWAVE RADIO WITH PLL SYNTHESIZER CIRCUITRY
FM/AM/MW/SW/receives • PLL synthesized circuitry • FM stereo • Continuous AM frequency coverage • 4 way tuning • 10 memory preset, auto 2, manual tuning, 10 key direct tuning • Programme memory • Sleep function • Digital clock and alarm • LCD display and light function • 2 step tone control • Key protection • Panel out socket • Supplied with stereo earphones, shortwave guide and compact one complete package.

ICM

SCANNERS/TRANSCIEVERS
ICR-1 13-1500 MHz
100 memories...only £380.00
ICF-28...£130.00
ICF-7100...£1199
ICW-2E...£429.95

FULL RANGE STOCKED

ICF-28 144MHz...£275
ICF-21E...£275
ICF-25...£500
ICF-27...£279
ICF-28D...£319
ICF-29E...£399
ICW21E Dual Band...£429
ICW-21...£429
ICW-3230H...£675

SONY ICF-SW55 "SUPERADIO"
- World time zones • SSB • Full digital p/sets • Multiband
£249 only

GRUNDIG

SATELLIT 700...£349.00
YACHT BOY 222...£529.95
YACHT BOY 230...£659.55
CONCERT BOY 230...£359.55

FOR ALL ORDERS RING OUR EXPERT STAFF KUMAR OR MARK

WE ALSO STOCK A RANGE OF BOOKS FOR FREQUENCY SCANNING

THE UK SCANNING DIRECTORY
3rd Edition...£16.95
ICF-SW7600...£154.95

HIGH PERFORMANCE PORTABLE RECEIVER WITH PLL SYNTHESIZER CIRCUITRY AND CONTINUOUS AM FREQUENCY COVERAGE
FM/AM/MW/SW/SSB receives • PLL synthesized circuitry • FM stereo • Continuous AM frequency coverage • 4 way tuning • 10 memory preset, auto 2, manual tuning, 10 key direct tuning • Sleep function • Digital clock • Programmed tuning • 2 step tone control • Key protection • Record out socket • Headphones socket • Key protection • LCD display • Dual conversion system • Supplied with compact earphones, stereo earphones and AC power adaptor • Power: 4xAA size battery

ICF-AIR7...£249
ICF-PRO 80...£309
CR-V21 worldband receiver

NEW full range antennas,base stations, CB mobiles, etc

YUPITERU

MTV 7100
"BEST SELLER"
£399.95 only

VHF/FM/AM/SW4
MARINE

ROBERTS

PHILIPS
American NOAA series, and earth resources satellites, like the French-Swedish SPOT, Japan’s MOS, and Europe’s ERS-1. This was a treat for amateur WEFAx monitors, who could compare their modest equipment (PCs for orbit prediction and demodulating and small omni-directional antennas for 137MHz), with the rack of computers used for tracking the 10 metre dish antenna at Maspalomas and the second computer rack for the demodulation of signals in the X (8.66GHz), S (2GHz), and L (1.6GHz) bands.

The other side of the facility, South MER, is a satellite control station, a European Space Agency prototype that can be configured to provide telecommands and monitor telemetry for many kinds of satellites. South MER has a 15 metre dish and uplinks in the S-band and downlinks in both the S and X bands. While we were there, it was being used for the Eureca (European Space Agency) scientific satellite, which was placed in orbit last year by the American Space Shuttle and was retrieved by the Shuttle a few weeks after EDXC 93.

For those who missed EDXC 93, there’s always next year. The 1994 conference will be held in Paris. After the last few years, when it was uncertain where the next conference would be held, the next two years are also booked. EDXC 95 will be in the Danish resort of Rebild, north of Aarhus, and EDXC 96 will be in Florence, Italy (with the organisers promising a visit to Vatican Radio). For more details, write to: EDXC, Box 4, St Ives, Huntingdon PE17 4FE.

For more details, write to: EDXC, Box 4, St Ives, Huntingdon PE17 4FE.

There’s always some DX news announced at EDXC meetings. The biggest such news at EDXC 93 was a special broadcast in connection with the conference itself. The Voice of America transmits in sideband on 10.869kHz, including a rare short wave relay of VOA Europe, with the left stereo channel on one sideband, and the right channel on the other. It was probably the first stereo broadcast in the history of short wave, although listeners needed two receivers, one tuned to each sideband, to hear the stereo. Every year’s EDXC meeting also sees the release of some very important publications for short wave listeners from the Danish Short Wave Clubs International. The 30-page Tropical Band Survey covers all broadcasters in the frequency range of 2 to 6MHz, most commonly used by third World stations, and most sought after by many listeners.

The 20-page Clandestine Stations List has all known clandestine frequencies, addresses, political affiliations, and QSL policies. The TBS is available for 7 IRCs, the Clandestine List for 6 IRCs, from DSWCI, DK-2670 Greve, Denmark. Jeff White from Radio Miami International announced that now that they have a construction permit and call letters (WRMI), along with the old transmitter from Radio Clarin in the Dominican Republic, and a brand new antenna, they are about to begin broadcasts on 9.955MHz. Unfortunately for Europeans, broadcasts are aimed south towards Latin America. But, after the recent bad publicity about robberies directed at tourists, Miami is interested in promoting its image, and tourist programs to Europe may be in the offering.

On the satellite from, Deutsche Welle has now absorbed the external services of Deutschlandfunk. DW intends to drop some language services, and station representative Waldemar Kramer indicated that good relations with countries such as the Netherlands, France and Denmark may mean that the services to those countries will be among those discontinued.

Deutsche Welle TV continues to grow. After the recent expansion to North America on the Intelsat-K and Satcom C-4 satellites, Asia is next. Deutsche Welle is to have a transponder on AsiaSat-2 when the satellite is launched in 1994. That may also have something to do with the announcement by Henry Lee of Taiwan’s Voice of Free China that they will be coming to Europe by satellite within the next two years, through co-operation with Deutsche Welle.

The other station news was my confirmation that Radio Sweden was dropping its Spanish and French services, due to the Swedish parliament’s vote to cut our operating budget by a third. This was probably what prompted the Spanish DXers’ Workshop at EDXC 93 to adopt a manifesto calling on international broadcasters not to cut back on services in languages such as Spanish, French and Italian.
A VISIT TO SWISS RADIO INTERNATIONAL

By Derek Jasnoch

A Brief History

Short wave transmissions from Switzerland started in 1934 with experimental transmissions from Swiss people living abroad. These trials met with such a positive reception that regular transmissions began a year later. The political situation in Europe during the 1930s had created a need for Swiss people living in other continental countries to keep themselves informed of the political position at home via access to news direct from Switzerland. Throughout the war years, Switzerland remained one of the few truly neutral voices to be heard. Because of this, many people, on both sides of the conflict came to rely on Swiss Radio for an objective viewpoint. In the United States, SRI built up a particularly strong audience since it provided a studio in which American GIs could send messages back home to families and friends.

By the end of the war, SRI was transmitting in German, French, Italian, English, Spanish, and Portuguese. In 1946 Esperanto was added. This was followed by Arabic in 1964, and Rumantsch (Switzerland's fourth language) in 1971. Currently there are plans to drop the Esperanto broadcasts, leaving eight language services broadcast from SRI. From March 1993 two services will be offered on short wave, one for an international audience, and the other for Swiss nationals living abroad. In practice, this will mean that typical transmissions will begin with half an hour of English broadcasts on five or six frequencies, followed by French for half an hour; the frequencies will then be split. The international service would continue in German or Arabic for example, with programmes geared towards the international listener, while the second service would continue with programmes broadcast in German, Italian and French, serving the expatriate Swiss audience.

The Schwarzenburg transmitter site.

SRI's studios and offices in Berne.

The long term strategy of the SRI is to become more than just an international short wave station. It sees its future as a multi media information channel, providing news and views from Switzerland. In terms of its radio operations, this will mean using the superior broadcast quality of f.m., with distribution via satellite to Europe, North America and Australia where the signals could either be received by individuals with suitable equipment, or retransmitted on local f.m. stations. In North America SRI is available on the C-SPAN satellite, and in Europe as of March 1993, it will be available on ASTRA 1A, transponder 9H, at a frequency of 11.332GHz, and a sub carrier of 7.2MHz.

As far as European broadcasting is concerned, Mr Fankhauser, Head of SRI's PR and Marketing Department, believes that short wave has a limited future. With the advent of direct digital audio broadcasting from satellite, any European service must eventually switch over to this medium, which offers far superior sound quality in stereo, and more reliable reception. He does, however see a continuing role for short wave in maintaining a link with peoples in less-developed parts of the world, where short wave is, and
probably will be for some time, their only reliable means of learning what is really happening in the world, and even sometimes in their own country! For the time being, however, SRI remains committed to its short wave service, with the opening of a new 500kW relay station in Montsinery, French Guiana at the end of 1993. This will serve Latin America, North America, Australia and SE Asia, replacing half the transmissions from the Africa Number One transmitter in Moyabi, Gabon, and replacing all the transmissions from the current 250kW transmitter in Brasilia. Relays to the Far East will continue from the 120kW transmitter which is currently leased from Radio Beijing.

There are also five transmitting stations in Switzerland itself, four 250kW transmitters at Schwarzenburg for world broadcasts, and a 500kW transmitter at Soltens. For the omni-directional European service there are two 250kW transmitters at Lenk and one 250kW transmitter at Sarnen. There are also two 250kW transmitters held in reserve at Beromunster. So far plans to site a sixth station in Switzerland have been thwarted due to environmental considerations.

During the last year or so SRI has been experimenting with an RTTY service, and a great deal of interest has been generated by this from news agencies, TV and radio services in other countries, as well as individual listeners. A one hour transmission is sent to various parts of the world. This consists of the news in German, French and Italian, followed by an English section which provides information on various aspects of Swiss life such as culture, politics and economic matters.

**Swiss Radio International Today**

Berne, the capital of Switzerland on a Tuesday morning. The crowds still mill through the covered shopping arcades lining both sides of Marktgasse. Others walk on the cobbled main street carefully avoiding the trams which lumber languidly along. So here I am amongst the ancient fountains, the clock towers, and the fourteenth century shopping centre. Swiss time is pressing on, so I hop on a tram and head out to the suburb of Ostring. Soon I am standing in front of a rather utilitarian buildings which houses the studios and offices of Swiss Radio International.

Greeted by SRI's PR and Marketing Head, Walter Fankhauser, we walk past the English Language section and settle down in the PR office. The table and desk spaces are piled high with papers, books and brochures, people bustle in and out of the office, and the phone often interrupts our conversation.

My hosts gave me a guided tour around the building, accompanied by Paul Badertscher, Head of the Technical Production Department. With his staff of thirty they look after the studio facilities, operate the studio equipment and provide technical support as and when needed. The maintenance of the transmitting sites is left to the Swiss PTT.

First stop on the tour was one of the three Production Studios. Here programmes are produced not only for the short wave service but also for supply to local a.m. and f.m. stations mainly in the United States. These are largely music programmes which are recorded onto CDs between four or five hundred of these discs are sent out to local stations during a month. The studio itself is very large and is divided into two areas. The Announcers Suite is roomy enough to accommodate about a dozen people. On the other side of the sound-proof glass is the Operating Suite. This contains all the up-to-date equipment including a CD recorder, turntables, tape recorders and a mixer. Other equipment included a reference receiver to check the frequency accuracy of the transmitters, a slow speed, multi-track tape recorder to store each and days output onto a single reel of tape for future reference. Most of this is supplied by Swiss manufacturers Studer AG.

It is possible to broadcast live to subscribers. First we walk past the switching room which sorts out the features programmes being recorded ahead of airtime. Live broadcasts are usually made from the Continuity Studios. I arrived just in time to hear the English News bulletin being broadcast to the Far East. I watched the announcer deliver a flawless performance, then it was time to cue and play a taped feature programme. There are four Continuity Studios and these are often in use at the same time. The announcer sits behind the glass while a Continuity Operator controls sound levels, cueing of taped items and jingles etc. Further along in Studio Three, a music programme was being aired on the European service. Meanwhile we disappeared off to the modulation room which houses the switching mechanism for connecting various sources to
Radio Stations Special

RTTY TRANSMISSIONS FROM SRI

<table>
<thead>
<tr>
<th>Time (UTC)</th>
<th>Beamed To</th>
<th>Freq (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0030 - 0130</td>
<td>South America</td>
<td>10.515 - 230</td>
</tr>
<tr>
<td>0200 - 0300</td>
<td>North America</td>
<td>010.515 - 295</td>
</tr>
<tr>
<td>1700 - 1800</td>
<td>Australia</td>
<td>15.835 - 50</td>
</tr>
<tr>
<td>1830 - 1900</td>
<td>Africa</td>
<td>17.530 - 17</td>
</tr>
<tr>
<td>2000 - 2100</td>
<td>Asia</td>
<td>10.515 - 50</td>
</tr>
</tbody>
</table>

* These transmissions may be received in Europe via the sidelobes.

English Transmissions to Europe via Astra

<table>
<thead>
<tr>
<th>Time (UTC)</th>
<th>Freq (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 - 0000</td>
<td>010.515</td>
</tr>
<tr>
<td>0200 - 0230</td>
<td>0900</td>
</tr>
<tr>
<td>0400 - 0430</td>
<td>1130</td>
</tr>
<tr>
<td>0600 - 0630</td>
<td>1330</td>
</tr>
<tr>
<td>0900 - 0900</td>
<td>1530</td>
</tr>
<tr>
<td>1100 - 1130</td>
<td>1730</td>
</tr>
<tr>
<td>1300 - 1330</td>
<td>1700</td>
</tr>
<tr>
<td>1500 - 1530</td>
<td>1700</td>
</tr>
<tr>
<td>1700 - 1730</td>
<td>1700</td>
</tr>
<tr>
<td>2000 - 2030</td>
<td>2000</td>
</tr>
</tbody>
</table>

the continuity studios and for connecting the output of the studios to the transmitter sites and the satellite ground station.

Much of the switching at the station is now controlled automatically, including the playing of certain jingles and the switching of lines to the various transmitter sites. All this is synchronised by a very accurate time source which allows SRI’s Modulation Room. Top left is the accurate time standard. The Broadcast monitor receiver is in the centre with the programme logging recorders on the right.

SRI: INTERVIEW WITH THE HEAD OF THE ENGLISH SECTION: PAUL SUFRIN.

By Derek Jasnoch

Most articles in magazines about short wave listening offer either technical advice on broadcasting, or provide guides to what is broadcast, but what of the people who work to give us this short wave programming? Derek Jasnoch interviews Paul Sufrin, the ‘software behind the hardware’ at SRI.

How did you first get involved in international broadcasting?

It was by accident. I had journalistic training in Toronto between 1961 and 1964, and after a brief apprenticeship in Canada I decided to try my luck in Europe. Firstly I moved to England and tried for a job at Reuters, but that didn’t work. Then I saw an advertisement for newsroom work at SRI, so I went for an interview and was accepted. So began a kind of love/hate relationship. Working in international radio is a challenge; firstly because of the transmission problems involved, and secondly the challenge of presenting a message that is very ephemeral. It has to be clear and simple for the listener.

Describe a typical working day

I start by opening all of the junk mail and follow that up by throwing away all of the junk mail! Check the wire services to see what stories should be followed up. Most of the editorial decisions are left up to the person doing the programmes that week or that day. I may go out reporting and offer this work to the person in charge that day, and it may be accepted or rejected.

What do you enjoy most about your job?

The combination of administration and journalism. As an administrator there is a lot of duty work to do, attending meetings, working out budgets, schedules and rota. The challenge is to do this and keep a hands-on approach to the programming with presentation, reporting, feature work and so on.

What do you dislike most about your job?

The same thing!

What has been your most memorable moment in broadcasting?

A memorable occasion was being on reporting duty for the International Committee of the Red Cross in Thailand, reporting their activities for the radio, and becoming a member of an ICRC delegation for one week, unofficially of course, and going everywhere that delegation went. That was in the early Eighties. It was interesting to be part of a process that one doesn’t normally see, and to be able to turn that into a programme.

Do you listen to short wave radio at all?

I’m not a frequent listener - I don’t have the time! I try to listen when I have the chance but it’s very seldom. If I could, I would listen to the BBC, VOA and Radio Canada, if it existed as such!

What do you personally understand to be the role of the SRI?

To make a listener, anywhere in the world, feel like he is listening to Swiss local radio in English. To bring the listener into Switzerland, by informing him not only about the ‘clique’ image of Switzerland, but to let him know what Swiss people think about what is going on in various parts of the world.

And the future role of short wave broadcasting?

As far as I am concerned , it has a good future, certainly in the short term. From the point of view of programming it has got an important role to play. On the basis of the letters that we get, the listeners appreciate what they consider a balanced, objective opinion from Switzerland about current affairs. The value of Swiss short wave is the trust it engenders.”
Those words, spoken in Spanish and transmitted from a not-so-secret clandestine radio station, were part of the Central Intelligence Agency’s contribution to the Bay of Pigs invasion of Cuba in 1961. The CIA station had been on the air for a year, beaming to Cuba from tiny Swan Island off the coast of Honduras.

Radio Swan — however well known it became — was but one of a long and still growing list of anti-Castro broadcasters, ranging from little known Cuban exile groups to the US government itself, determined to do what they can to agitate and stir up the Cuban populace, further weaken and eventually bring down the Castro government.

The collapse of communism, the disintegration of the USSR, extreme cuts in aid to Cuba from Russia and the Confederation of Independent States, along with Castro’s growing isolation in the world has many experts predicting that he’s be gone in another year, perhaps even less. There can’t be much doubt that Cuban exile groups, sensing that the time may at long last be at hand, are jumping on the airwaves to make their voices heard and have at least some small part in the final victory. There’s no question that, at this time anyway, the shortwaves have more voices.

But once Castro took power, once he had established Cuba as a one-party state, the shortwaves had their ups and downs over the years. These highs and lows have run fairly parallel to such outside factors, as the degree of US irritation with Castro at any one time and how tolerant Washington (and thus the Federal Communications Commission) was with illegal broadcasts to Cuba coming from within US territory.

**Gibraltar Steamship Corporation**

The first major character in this multi-decade drama was Radio Swan (later called Radio Americas), an operation of the American Central Intelligence Agency. Run through a front called the Gibraltar Steamship Corporation, based in New York City, GSC, it turned out, owned no steamships. The station was heard throughout the world with its 7.5kW transmitter operating on 6.000MHz, and a 50kW medium wave unit running on 1.160MHz (later 1.157MHz). The station’s seven-year run caused no end of speculation within the short wave listening community as to who was running it, and whether it was really on Swan Island. Early programming was done at the Gibraltar offices in New York but this work was soon turned over to a Miami production studio and the tapes flown to Swan twice weekly. Radio Swan became very well known; often as not books which deal with the Bay of Pigs or the CIA give, at least, brief mentions to this station. One book on US intelligence agencies devoted an entire chapter to it.

**Bay of Pigs**

After the Bay of Pigs defeat, Gibraltar moved its offices to Miami and soon disappeared, to be replaced by the Vanguard Service Corporation, another CIa front. Within weeks Radio Swan changed its name to Radio Americas. Radio Americas continued operating until 15 May, 1968 when it closed down — having announced its coming end some weeks ahead of time.

A contemporary of Radio Swan/Americas was Radio Liberated - La Voz Anti-Communista de America, whose transmitters it was eventually learned, were near Caracas, Venezuela. It maintained post office boxes there and in Miami and claimed to use a 5kW transmitter. Clandestine broadcasting enthusiasts never learned for certain who was behind this station, though speculation was that it, too, was a CIA operation.

**Sporadic Efforts**

The Bay of Pigs disaster was followed by a quiet period which lasted from the late 1960s into the late 1970s. Americas and Liberated were off the air, Washington seemed uninterested and the exile community made only very limited and sporadic efforts at beaming radio broadcasts to Cuba.

An upswing was underway by around 1979; however, with a series of anti-Castro broadcasters illegally taking to the air off and on over the next several years. Most used converted amateur radio equipment and operated in the area between 7.000 and 7.100MHz.

**Faded Away**

During those years American clandestine radio enthusiasts picked up signals from such stations as Radio Cuba Libre, operated by the Christian Democratic Movement; Radio Abala, operated by Agrupacion Abaia Radio Rebelde; Radio Libertad Cubana; La Voz de Alpha 66 (operated by the Alpha 66 group); La Voz de Junta Patriotica Cubana (Junta Patriotica Cubana); Radio Antorchas Martiana (Martí Insurrectional Movement); Radio Trincheras (Radio Foxhole) La Voz de Aventur Progresista Cubana (Voice of the Progressive Cuban Youth); Radio 1450 (1450 Brigade); a fake Radio Havana Cuba and some others were all on the air at one time or another. In some cases they had life spans of just weeks or even less. Some were located and closed by the FCC, others just faded away.

**Commandante David**

One of the more interesting of these stations was Radio Libertad Cubana which featured ‘Commandante David’, who claimed to be broadcasting from Oriente Province in Cuba. The air name he used was the same one used by Castro in his own rebel broadcasts from radio Rebelde. ‘David’ claimed to be able to predict the dates and places where sabotage would occur on the island. The station was raided and closed in the summer of 1980 and ‘David’ was identified as one Jose Gonzales of Hialeah, Florida, a Cuban who had been a US citizen for 30 years. Libertad Cubana and Commandante David re-appeared briefly in mid-1988, although one cannot be certain whether it was the same ‘David’ at the microphone.

**Cuban Agents**

In 1984 a source claimed that Cuban agents operating in Miami worked to locate some of the clandestine transmitters and then turned the information over to the FCC.

La Voz de Alpha 66 station was raided and closed by the FCC. The Alpha 66 group put a second station on the air several years later and maintained a fairly regular three evenings per week schedule on 6.666MHz, but this, too, was eventually closed down.

The station, run since its inception by Dr Diego Medina, was found to be operating from a Ford van. Medina accused the FCC of confiscating about $30,000 worth of broadcasting equipment. La Voz de Alpha 66 is back on the air now, practising safer methods of broadcasting, as we’ll see shortly.

"Alert, alert! Look well at the rainbow. The fish will rise very soon. The sky is blue. The fish is red...

Gerry L. Dexter takes up the story.

**SHORT WAVE TARGET:**

23° NORTH, 82° WEST

Radio Stations Special
Communications Centre (Photo Acoustics Ltd.)

TWO-WAY RADIO ● AMATEUR RADIO ● AUDIO VISUAL ● SALES & SERVICE
58 High Street, Newport Pagnell, Bucks MK16 8AQ. Tel: (0908) 610625  FAX: (0908) 216373

TWELVE MONTHS TO PAY AT ZERO INTEREST

YUPITERU MVT-7100
Factory Fresh
Latest European Version
530kHz-1650MHz!
PHONE FOR
FULL TECHNICAL
INFORMATION
WFM/NFM/AM/LSB/
USB/CW/
Widest Frequency
Range Ever!
1000 Memories in 10 Banks
500 Search-Pass Memories
Steps from 50Hz to 100kHz
Proper USB/LSB Switching
Dial Resolution to 50Hz
30 steps per sec. scan rate!
Illuminated Keypad
20dB Attenuator
Supplied with:
Ni-cads, DC Cigar Lead, Antenna,
Hand Strap, Belt Clip, Earphone,
AC Charger, Full Warranty.
Each one individually tested.
YOU'RE SAFE WITH US!

£449

Deposit £199.95 12 monthly payments of £66.67

KENWOOD R5000
Kenwood's only receiver now but still holding its own with the competition.

ICOM R72E
Icom's excellent mid-price receiver. Ideal for listeners needing "modern" facilities like scanning, loads of memories and a clock. Now with battery back-up.

Deposit £172.00 12 monthly payments of £57.25

YAESU FRG100
Yaesu's new compact receiver is the latest in a long and successful line. It has one or two excellent features but they're not immediately obvious.

Deposit £120.00 12 monthly payments of £39.92

SECOND-HAND LIST

HF 125 ......................................... £225.00
AOR AR2800 ................................ £325.00

Part Exchange Welcome, Ask for Kerry G6IZF, Andy G4YOW, or Paul SWL.

Short Wave Magazine, September 1993
Mail Order Code
- Immediate despatch
- 24 hour delivery on most items
- Full value carriage insurance
- 3 full time service engineers on
  ham radio
- 10 days to return if not satisfied
- 12 months parts and labour
  warranty
- Excellent spares stocks
- No grey imports – just
  honest prices
- Free after sales help

NOBODY BEATS OUR SERVICE!

New items
- HB-100 Quality desk stand for any hand-held.
  Fully adjustable, amazing little
  accessory. £27.95
- AB-58V Magnetic magnetic mount with BNC
  socket and plug. For instant handy
  mobile use your helical on the mag. £29.95
- EP-300 High quality earclip pieces as
  supplied to the police. Zero fatigue. £13.95
- HX-9000 High gain dual band helical for 2m
  and 70cms hand-helds 2m – 2dB
  70cms – 3.8dB. Total length is 19 inches.
  Also wideband receiver centred on
  150/300/450/900MHz. £29.95
- HX-7000 7 version of above. £19.95

UK SCANNING DIRECTORY
We've got the new 3rd edition in stock. Is it
legal or is it not? Get your copy before the
whole lot get taken off the market! As a
service to our many mail order customers
we are offering this post free. £16.95

HB-400 Amazing! £13.95!
Hand-held mount
The easy way to mount
your hand-held or
scanner in the car. Fits
any hand-held using the
belt clip. Gives firm
mounting for safe
driving.

Airband/Shortwave Combo Monitor Receiver SAB-9 MkII
Ideal for the beginner and those on a budget.
It covers the civil airband, marine, amateur,
emergency and FM broadcast bands. One of
our most popular “birthday presents” it offers
hours of entertainment. Very popular at air
displays and the like, particularly at this price.
It is powered by 4 x AA
cells and covers LW/MW
plus 108 – 176MHz.
There is a headphone
socket for private
listening and a
telescopic shop.
SAB-9EP – The above
radio in presentation
box with headphones
and book. £31.95

SONY AIRBAND & SHORTWAVE DISCOUNTS
We have a small quantity of both the Sony Air-7
and Sony Pro-80 scanning receivers for
sale. The only condition is that the equipment is
in hardly used condition. Each one is
checked over and supplied with manual,
accessories and a six month warranty. Prices
are extremely low so it's first come first served.
Air-7 LW/WM/AM 76-174MHz AM/FM £199
Pro-80 115kHz-227 MHz AM/FM/SSB £139

On Glass Scanning Aerial
TGSP Scanner Model 30 - 1200MHz
NEW
Just attach to the
glass surface of
rear window and
line up the
internal connector
box on the inside
of the window. It's
as simple as that.
14" of cable is
provided with
screw connector to attach
to box. If you ever need to
remove the aerial we can
supply the special kit to
carry this out with
replacement parts for
remounting.

NEW FOR OLD!
Too good to be true? Well er...yes. But the next best thing is to part
exchange your gear. We are always interested in good clean equip-
ment that needs a new home. We have customers waiting for all the
popular items so why not give us a call today and see if we can help
you buy that new model or even pay you cash. Everything we take in
is checked in our own workshops and you get a true 3 months
warranty. Stocks at the moment include a lovely old Eddystone
EC-10 £95; Icom R-71s from £549; Realistic DX-390 short wave
receiver from £119; AOR-2002 £259; IC-R100 £329; R-535
VHF/UHF Airband £199; DJ-X1 £229, Pro-80 and 32s from £119
and lots more. We'll send you the list on request. Plenty of
transceivers for HF and VHF also normally in stock. DIAL
01702 260553 for quote or information.

Free Ham Radio Catalogue
Free Ham Radio Catalogue
12 Months to pay!
- SONY ICF SW7600 £179
- KENWOOD RS5000 £999 FREE CREDIT
- ICOM IC-R729 £859 FREE CREDIT
- YAESU FRG100 £599 FREE CREDIT
- AOR 3000A £949 FREE CREDIT

Great News!
FREE HAM RADIO CATALOGUE
The best ever produced!
For the first time ever you can obtain a copy of this catalogue
packed with Ham Radio equipment and accessories, some
never before advertised. You get the full specification with
pictures and accompanying price list. Forty four pages of
absorbing reading and it's all FREE! Just call in and
collect one from our
Hockley or Hornchurch
stores. Alternatively send
two first class stamps to
cover postage.
Frank in control of mail
order despatch

Waters & Stanton
UK's largest stockist of specialist receivers

Retail and Mail Order: 22 Main Road, Hockley, Essex SS5 4QS.
Tel: (0702) 206835/204965 Fax: (0702) 205843
Retail Only: 12 North Street, Hornchurch, Essex. Tel: (07084) 44765
VISA & ACCESS MAIL ORDER, 24 Hour Answerphone. Open 6 Days a Week 9am-5.30pm
Rail: Liverpool St./Hockley or District Line/Hornchurch

FREE CREDIT
On Most HF Receivers
12 Months to pay!
- FREE CREDIT
  On Most HF Receivers
  12 Months to pay!
- SONY ICF SW7600 £179
- KENWOOD RS5000 £999 FREE CREDIT
- ICOM IC-R729 £859 FREE CREDIT
- YAESU FRG100 £599 FREE CREDIT
- AOR 3000A £949 FREE CREDIT

949
FREE CREDIT
100kHz - 2036 MHz
ALL MODE BASE/MOBILE SCANNER
ICOM IC-R7100 £1395 FREE CREDIT
25MHz - 2GHz ALL MODE BASE
STATION SCANNER
INTEREST FREE CREDIT OVER
6, 9 or 12 MONTHS DEPOSIT TO
SUIT YOU. PLEASE PHONE
MARK FRANCIS FOR DETAILS
Electronics
24 HOUR DELIVERY AVAILABLE

Alinco Scanner
DJ-X1D
AM NFM/WFM 200kHz - 1300MHz
The DJ-X1D is produced by the famous ALINCO Corporation of Japan and is the toughest, smallest and most sensitive scanner we have ever offered. Ideal for both professional and hobby operations it fits snugly in the pocket and has proved a winner with our commercial customers. It is fully programmable and can monitor everything from Military aircraft to broadcast FM. It even has illuminated display and buttons. Superb value!
* No gaps
* 100 memories
* Battery saver
* Ni-cad and AC charger
* Fully programmable
* Helical whip
* Strap and belt clip

**NEW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGERS**

**NOW WITH NICADS AND CHARGE...
HAMSTORES

SPECIAL EVENT DAY AT 'BIRMINGHAMSTORE'

Last year we claimed to have one of the best Ham Radio Showrooms in the country... this year we know we have. Come and see for yourself between 10am & 4pm on Saturday 18th September.

Come and see how we have developed and help us celebrate our second year in Birmingham with a glass of Buck's Fizz and some nibbles, you might even get your teeth into a NEW RADIO! There will be some EXTRA SPECIAL DISCOUNTS ON OFFER PLUS...

- Selection of second-hand radios
- 2m/70cms transceiver checks
- Video presentations on Amateur Radio
- Advice on the Radio Amateur's exam
- Guidance on the Novice course
- Local Radio Club representation
- Radio Station GB5IT demonstrating modes of operation including RTTY, PACTOR and PACKET
- Shortwave listening & weather chart reception
- Operating desks c/w rigs by all the major manufacturers
- Extensive stocks of new gear
- Scanning radio displays
- Mobile radio aerials and accessories
- Portable radios of all kinds
- Loads of Radio books
- Data sheets to mull over, in fact everything for Radio Hobbyists, be they listeners or transmitters
- ICOM Marine, Avionic and PMR radios will also be on display
- HAMSTORES stock AEA, AKD, Alinco, AOR, Barenco, Comet, Cushcraft, Davis, Dee Comm, Diamond, Icom, JRC, Kenwood, Lowe, Microset, MFJ, RSGB books, Toyo, Yaesu and Yupiteru gear
- Low deposit, interest-free credit is available on most radio purchases
- Gordon, John and Ray are all looking forward to greeting you on the 18th!

BIRMINGHAM: (STORE IS JUST OFF M5 MOTORWAY AT JUNCTION 2)
International House, 963 Wolverhampton Rd. Oldbury, West Midlands B69 4RJ.
Tel: 021 552 0073 Fax: 021 552 0051. Also at...
LONDON:
11 Watford Way, Hendon, London NW4 3JL. Tel: 081 202 0073 Fax: 081 202 8873
HERNE BAY:
Unit 8, Herne Bay West Industrial Estate, Sea Street, Herne Bay, Kent CT6 8LD.
Tel: 0227 741555 Fax: 0227 741742. N.B. Herne Bay closed for lunch 1300-1400.
OPENING TIMES: Mondays to Fridays: 09:00-17:00 & Saturdays: 09:00-16:00.
La Voz del CID

Early 1981 saw the arrival of what was to prove the longest-running anti-Castro broadcaster "La Voz de Cuba Independiente y Democratica - La Voz del CID" - operated by the organisation Cuba Independiente y Democratica. But it, too, heard an FCC knock on its door and was closed down. Its first transmitter was traced to a horse farm near Miramar, Florida. CID, however, wasn't deterred. It was soon back on the air - this time from sites outside the country and thus out of the FCC's reach. Over the next couple of years CID grew into several separate services aimed at specific parts of the Cuban population - Radio Maximo Gomez was aired via the facilities of Radio Clarin in the Dominican Republic. Radio Ignacio Agramonte was a CID owned transmitter, apparently from Guatemala, operating on 5.106 MHz, Radio Antonio Maceo was carried over Venezuelan shortwave station Ecos del Torbes. Other CID programmes and services included Radio Jose Antonio Echevarria, Radio Antonio Quitera, Radio Camilo Cienfuegos and Radio Frank Pais. There were several others, of briefer duration as well. Some were on the air for periods of several hours each day, others for as little as half an hour. All of the services were named after Cuban heroes, martyrs and former resistance leaders. Today, however, the station has done away with that rather cumbersome arrangement and uses mostly the Voz del CID identification. Its broadcasts run virtually around the clock and are thought to be from transmitters in Guatemala, running around 10kW. CID says its funding comes from American foundations, Latin American businessmen and other individual contributions. In 1998 CID announced plans to put Tele CID, an anti-Castro TV station on the air, broadcasting from a ship off the Florida coast but this plan never came to fruition. CID is headed by Huber Matos, an early member of the Castro government who later broke with Fidel and then spent 20 years in Cuban jails.

Controversy

In 1985 the US government got back into the anti-Castro broadcasting game, putting Radio Marti on the air via Voice of America transmitters. Radio Marti is on the air 24 hours per day, programmed from studios in Miami. Castro threatened to retaliate and use his high power, medium wave transmitters to interfere with US clear channel stations and, in fact, did so briefly but did not stay to pursue the threat any further. TV Marti, broadcasting from a transmitter in a balloon, began test broadcasts in March 1990 and regular operations a couple of months later. It had been plagued with controversy and technical problems.

Mystery

A few weeks before Radio Marti began regular broadcasting another clandestine Cuban station came on the air, one which remains a mystery to this day. In the spring on 1985 US short wave DXers spotted a station on 9.920 MHz which, night after night, played only music - mostly Latin vocals by a man with a voice which sounded like Nat King Cole, (but wasn't). These strictly music broadcasts went on for several months. Then, in September, after some six months of playing nothing but music the station began to speak. It called itself Radio Caiman (alligator) and signed on and off with the Latin classic Siboney. The programming took a soft sell approach and still consists largely of music. Unofficial direction and signed on and off with the Latin classic Siboney. The programming took a soft sell approach and still consists largely of music. Unofficial direction.
Radio Stations Special

The first to follow CANF was Alpha 66, which, having been closed down by the FCC on at least two previous occasions, could now broadcast regularly and without worry. Alpha 66's programming is now described as education and news analysis. Programmes are taped and sent to WHRI. A different version is on Tennessee short wave station WWCR, which is recorded just a few hours before it is broadcast.

Broker

WWCR, yet another religious broadcaster, soon found that Cuban and other political interest groups were a source of steady income, and added broadcasts by three different Cuban groups in the early part of 1991. Then a third party got into this act and began to actively seek out groups who wanted to broadcast their story to Cuba. Radio Miami International, already had an application for a short wave station on file with the FCC (it has since been granted). RMI began seeking out these exile groups and acting as a broker between them and the stations, taking a fee for their services. RMI also places some of the broadcasts on New Orleans short wave station WRNO. At present, Radio Miami International has a healthy list of Cuban groups on one or more stations:

Special Messages

Esperanza is the programme of the Municipalities of Cuba in Exile (Municipios de Cuba en el Exilio) and features world and Cuban news, discussion of news and commentary and a feature which focuses on a different Cuban municipality each day. Also included are special messages for members of the Cuban military urging them to stop supporting Castro.

Radio Conciencia is produced and presented live by the Cuban National Commission live and often features interviews with people favouring a change to democracy in Cuba. It also publicises the activities of dissident groups inside Cuba.

Radio Voluntad Democratica broadcasts on behalf of the Partido Revolucionario Cubano Autentico (Authentic Cuban Revolutionary Party) which has been active since 1991. It includes international and Cuban news and news of some of the exile groups. This organisation is a member of the Plataforma Democratica Cubana and thus takes a liberal approach to democracy.

Pueblo Libre is the voice of the Junta Patriotica Cubana which has operated its own clandestine transmitters in the past. The show features interviews and discussions and analysis of news. Aired live, the show is aimed more at younger Cubans.

Pueblo Libre is produced by the Cuban Alliance (Alianza Cubana) and contains news, features, segments, segments for young people and editors.

Radio Periodico Panamericano is a weekly produced by Caribe Inpress, based in Miami, and is closely allied with an umbrella organisation of exile groups under the name Plataforma Democratica Cubana. They urge the creation of a dialogue with Castro, which they hope would eventually lead to free elections. Among the several weekly features is a report

The table below shows the frequencies and times of broadcasts by various Anti-Castro groups:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Time (UTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.030</td>
<td>0600-0900</td>
</tr>
<tr>
<td>6.070</td>
<td>0900-1200</td>
</tr>
<tr>
<td>6.305</td>
<td>0210-0930</td>
</tr>
<tr>
<td>7.080</td>
<td>0200-0800</td>
</tr>
<tr>
<td>7.340</td>
<td>2300-1100</td>
</tr>
<tr>
<td>7.355</td>
<td>0100-0200</td>
</tr>
<tr>
<td>7.355</td>
<td>0200-0300</td>
</tr>
<tr>
<td>7.355</td>
<td>0300-0500</td>
</tr>
<tr>
<td>7.355</td>
<td>0600-0900</td>
</tr>
<tr>
<td>7.355</td>
<td>0900-1800</td>
</tr>
<tr>
<td>7.355</td>
<td>1800-2200</td>
</tr>
<tr>
<td>7.355</td>
<td>2200-0000</td>
</tr>
<tr>
<td>7.385</td>
<td>0000-0200</td>
</tr>
<tr>
<td>7.400</td>
<td>0200-0400</td>
</tr>
<tr>
<td>7.450</td>
<td>0300-0400</td>
</tr>
<tr>
<td>7.480</td>
<td>0400-0459</td>
</tr>
<tr>
<td>7.500</td>
<td>0500-0630</td>
</tr>
<tr>
<td>7.550</td>
<td>0630-0800</td>
</tr>
<tr>
<td>7.650</td>
<td>0800-0900</td>
</tr>
<tr>
<td>7.700</td>
<td>0900-1000</td>
</tr>
<tr>
<td>7.800</td>
<td>1000-1200</td>
</tr>
<tr>
<td>7.900</td>
<td>1200-1400</td>
</tr>
<tr>
<td>7.950</td>
<td>1400-1600</td>
</tr>
<tr>
<td>8.000</td>
<td>1600-1800</td>
</tr>
<tr>
<td>8.050</td>
<td>1800-2000</td>
</tr>
<tr>
<td>8.100</td>
<td>2000-2200</td>
</tr>
<tr>
<td>8.150</td>
<td>2200-0000</td>
</tr>
<tr>
<td>8.250</td>
<td>0000-0200</td>
</tr>
<tr>
<td>8.350</td>
<td>0200-0400</td>
</tr>
<tr>
<td>8.450</td>
<td>0400-0600</td>
</tr>
<tr>
<td>8.550</td>
<td>0600-0800</td>
</tr>
<tr>
<td>9.000</td>
<td>0800-1000</td>
</tr>
<tr>
<td>9.100</td>
<td>1000-1200</td>
</tr>
<tr>
<td>9.250</td>
<td>1200-1400</td>
</tr>
<tr>
<td>9.350</td>
<td>1400-1600</td>
</tr>
<tr>
<td>9.450</td>
<td>1600-1800</td>
</tr>
<tr>
<td>9.550</td>
<td>1800-2000</td>
</tr>
<tr>
<td>9.650</td>
<td>2000-2200</td>
</tr>
<tr>
<td>9.750</td>
<td>2200-0000</td>
</tr>
<tr>
<td>10.150</td>
<td>0000-0200</td>
</tr>
<tr>
<td>10.550</td>
<td>0200-0400</td>
</tr>
<tr>
<td>11.100</td>
<td>0400-0600</td>
</tr>
<tr>
<td>11.450</td>
<td>0600-0800</td>
</tr>
<tr>
<td>12.00</td>
<td>0800-1000</td>
</tr>
<tr>
<td>12.100</td>
<td>1000-1200</td>
</tr>
<tr>
<td>12.450</td>
<td>1200-1400</td>
</tr>
<tr>
<td>13.00</td>
<td>1400-1600</td>
</tr>
<tr>
<td>13.450</td>
<td>1600-1800</td>
</tr>
<tr>
<td>14.00</td>
<td>1800-2000</td>
</tr>
<tr>
<td>14.550</td>
<td>2000-2200</td>
</tr>
<tr>
<td>15.100</td>
<td>2200-0000</td>
</tr>
<tr>
<td>15.550</td>
<td>0000-0200</td>
</tr>
<tr>
<td>16.00</td>
<td>0200-0400</td>
</tr>
<tr>
<td>16.550</td>
<td>0400-0600</td>
</tr>
<tr>
<td>17.00</td>
<td>0600-0800</td>
</tr>
<tr>
<td>17.450</td>
<td>0800-1000</td>
</tr>
<tr>
<td>18.00</td>
<td>1000-1200</td>
</tr>
<tr>
<td>18.450</td>
<td>1200-1400</td>
</tr>
<tr>
<td>19.00</td>
<td>1400-1600</td>
</tr>
<tr>
<td>19.450</td>
<td>1600-1800</td>
</tr>
<tr>
<td>20.00</td>
<td>1800-2000</td>
</tr>
<tr>
<td>20.450</td>
<td>2000-2200</td>
</tr>
<tr>
<td>21.00</td>
<td>2200-0000</td>
</tr>
<tr>
<td>21.450</td>
<td>0000-0200</td>
</tr>
<tr>
<td>22.00</td>
<td>0200-0400</td>
</tr>
<tr>
<td>22.550</td>
<td>0400-0600</td>
</tr>
<tr>
<td>23.00</td>
<td>0600-0800</td>
</tr>
<tr>
<td>23.550</td>
<td>0800-1000</td>
</tr>
</tbody>
</table>

Addresses

La Voz de Alpha 66
PO Box 420067
Miami, FL 33142

La Voz del CID: Cuba Independiente y Democratica
16200 SW 37th Terrace
Miami FL 33165

Radio Marti
400 - 6th St. SW
Washington DC 20547

La Voz de Fundacion Cubano Americano National Foundation
7200 NW Terrace, Suite 104
Miami, FL 33144

Radio Periodico Panamericano
2306 Brigade
Via Radio Miami International

Radio Conciencia
Cubano National Commission
Via Radio Miami International

Rumbo A La Libertad
2506 Brigade
Via Radio Miami International

La Voz del Movimiento 30 de Noviembre
November 30th Movement
via Radio Miami International

Pueblo Libre
Junta Patriotica Cubana
via Radio Miami International

Radio Voluntad Democratica Partido Autentico
via Radio Miami International

Radio Periodico Panamericano Caribe Inpress
via Radio Miami International

Un Sol Pueblo
Social democratic Co-ordinating Committee
via Radio Miami International.
**UNIVERSAL M-8000 DECODER**

Top-the-line decoders may be out of the reach of many pockets, but it's great to dream! Mike Richards has a look at the impressive M-8000 from Universal Electronics.

Anyone who follows my 'Decode' column will know that decoding systems come in all shapes and sizes. They range from a simple Verobox for some of the computer based systems, through to the M-8000, which must be the ultimate in push-button technology! The M-8000 stands at the top of the Universal product range and, as you would expect, carries an impressive price tag of £1199.95. However, it boasts a very wide range of facilities and, will appeal to those who would rather keep away from computers.

So what does it do? In simple terms, it connects to the audio output of your receiver and decodes signals for display on a printer and/or a video monitor. The M-8000 is able to process Morse, RTTY, Packet and pager systems.

To help the operator discover the various modes, the M-8000 is supplied with a very comprehensive owner's manual. This spiral bound A4 book comprises 101 well laid-out pages, with a clear index system. The sections dealing with the more complex modes are accompanied by a handy frequency list for each mode. Having tried a few of these they appeared to be reasonably well up-to-date and ideal for the new user.

**Push-Button Mania!**

Well, what about that front panel? It's certainly good for impressing your friends, but what do all those buttons and lights do? In practice this very effective design enables the operator to change many of the M-8000's parameters very rapidly. As you can see from the photograph Fig.1., each of the keys is labelled to indicate its function. Some of the labels are obvious, e.g. SPEED, but others will take a little getting used to. The secret, as with any complex equipment, is to take time to explore all the modes. I found that after only a few hours of use, I had memorised all the important operating controls.

Selection of the required receive mode is done with the MODE key which cycles through the available options. A quicker way to do this is to take advantage of the function buttons and use the mode menu. To select a mode you just enter the appropriate menu number using the number buttons on the right-hand push button set. This is a very quick and easy way to change the operating mode.

Perhaps the most common adjustments required by the utility listener are to the speed and shift settings. The M-8000 handles these with a number of options. The most basic involves toggling through the preset speeds and shifts for the selected mode using the front panel SPEED and SHIFT keys respectively. Closely linked to these, the T/S or Tone Select key enables different tone sets for a given shift. Although the M-8000's ability to make manual selections of the operating parameters is great for the experienced operator, it does require a certain amount of technical understanding. To counteract this, Universal have included a couple of facilities to make life a little easier. The first of these is the TUNE option. Pressing this key on the front panel causes the M-8000 to analyse the signal and automatically tune the decoder to the incoming signal. For this option to work successfully you first have to roughly tune the receiver. I found that the M-8000 is happy providing I was within about 500 or 600Hz of the correct tuning point. The time taken for this operation depended on the quality of the signal and the degree of mistuning, but averaged around ten to fifteen seconds.

As an added bonus, the M-8000 reports the revised mark and space frequencies and the shift of the signal.

Closely related to the TUNE function and just as useful, is the SRO or Speed Read Out. This is activated with a single key press and attempts to measure the baud rate of the signal. On pressing TUNE with F2 active, the M-8000 not only matches the filters to the signal but also measures and sets the baud rate. This very powerful and convenient feature will appeal to all users. For those who want total control, both the tones and baud rate may still be manually set.

In addition to the vast array of keys, the front panel includes a number of i.e.d.s providing supplementary information. The main bargraph display has two switchable functions - 'Tune' and 'Input level'. The tune option operates from the output of the mark/space detectors and so is very dependent on the mark/space ratio of the signal. In practice, it could only really be used as a tuning indicator for signals with an even mark/space ratio such as a RTTY station sending RYs. In its other role as an input level monitor, it shows the level by illuminating i.e.d.s from left to right. This is very effective and the fast response time of the display is particularly good. Perhaps the most useful of the tuning indicators is the pair of mark/space i.e.d.s. These are driven by the mark and space detectors and flicker in sympathy with the incoming signal. Although this may sound rather crude, it's one of the oldest and most effective tuning systems. However, you do have to set the shift to get the best from this system. The remaining i.e.d.s are self explanatory and indicate the status of the received information. The only other control is a single rotary knob sat in the centre of the panel. This is the audio gain control and is particularly useful when receiving level-sensitive a.m. weather pics or the pager modes.
Interconnections
To support the M-8000's comprehensive range of facilities, there are a number of optional connection points on the rear panel. Perhaps one of the key points to check is the voltage setting for the a.c. mains power supply. The review model is supplied with this set to 115V!
To support the comprehensive display capabilities of the M-8000 a VGA computer monitor is needed. The connection for this is a standard mini 15-pin D connector. To connect the receiver audio, a pair of 6.3mm input jacks are provided. Although either input could be used for the receiver there are some special features associated with input 2 that optimise it for v.h.f. use. This second input uses a stereo jack with the ring fed to a special circuit designed to provide special conditioning for pager signals.
Printert support is through a, now standard, 25-way D connector for parallel printers and a not-so-standard serial port. Printer types supported are Epson compatible 9 and 24-pin dot matrix and HP LaserJet laser printers.
Should a serial printer be required, the connection is via the 15-pin accessory jack. This jack also provides access to a number of other advanced options. Those of you with computer driven shack use the auxiliary jack to provide remote control the M-8000. An external X-Y tuning scope, or even an external decoder can also be connected.

High Resolution Display
One of the main changes over previous decoders is the use of a computer VGA display system. This provides a significant improvement in display features over traditional composite monitors. The M-8000's video output provides 640 x 480 pixel resolution with sixteen colours (Fig.2).

When decoding RTTY-type signals, the display area is divided into twenty-six rows of text with the rest set aside for graphics tuning and status information. Included within the graphics section is a spectrum analyser style display. This shows a band of audio frequencies with the vertical display showing the duration of the signal, not its amplitude. This display proves particularly useful when using the auto tune facility. I found that as long as the signal is shown on the analyser the auto tune would capture it. For use as a main tuning indicator, however, the response time is rather too slow. Next to the analyser is a simulated X-Y tuning scope. This operates on the decoder output and produces a perfect + when the tuning is correct. As with the analyser, the response time is a little slow, restricting it to fine tuning corrections rather than main tuning.
Also included on the display are a selection of bargraphs operating from the input signal. Two of these show the respective signal levels, whilst another three display mark space combinations. One very simple but useful feature is the inclusion of the current time and date in the bottom right-hand corner. This is particularly useful for checking FAX schedules.
The M-8000 also features scroll inhibit and a form of video squelch, both designed to optimise the use of the screen and prevent it becoming cluttered with rubbish or messages scrolling off the screen.

User Programming
With so many options available within each operating mode the M-8000 has a programming mode so that your most used settings can be stored. There are a total of nine memories, each of which can store the full operating conditions, including any non-standard settings such as speed or shift.
One other interesting feature of the programming section is its ability to select what Universal call 'Sel-calls' With this system up to three different character strings can be entered to act as a search pattern for the printer output. As an example, if you wanted to print out all the AAXX prefixed SYNOP reports, you would set the 'Sel-call' to AAXX. The M-8000 then monitors the decoded text, but only sends output to the printer following receipt of the AAXX string. For the system to work properly you also have to set a "Sel-call" to stop the printing. In this example you would set this to NNNN, the standard code indicating the end of a message. There are, doubtless a thousand-and-one other uses for this interesting extra.

Common Modes
Let's now take a more detailed look at the main operational features of some of the more common utility modes.
Decoding Morse transmissions is particularly simple with the M-8000. Once selected, this mode accepts a single tone input that can be set to either 750 or 1000Hz. Correct tuning is shown by the MORSE i.e.d. flashing in synchronisation with the received signal. The only adjustment required on the M-8000 is to ensure that the input level is correctly set. Speed tracking is automatic, with just three pre-set ranges: slow, medium and high. In practice, the medium setting handles all but the very fast or very slow. The decoder locks very quickly and produces well spaced and relatively error free text. For the very best performance it is also worth using a narrow filter in your receiver. RTTY is probably one of the modes most used by utility listeners. Despite the various spectrum and X-Y tuning aids, I found the quickest method is to use the Mark and Space i.e.d.s on the front panel. The alternative is to roughly tune by ear and use the automatic speed and shift to finish the job. Once tuned-in, the decoder proves very capable, with low error rates even with quite poor signals. There is also the ability to decode from either mark or space only. This could be very helpful when suffering interference from an adjacent station. The M-8000 includes a number of standard features such as Unshift On Space, CASE toggle and a number of alphabets including Cyrillic.

Maritime enthusiasts will be pleased to hear that the M-8000 is well equipped for ARQ reception. There are three modes to support this: ARQ, FEC and AUTOR. Whilst ARQ and FEC provide direct reception of these modes, the AUTOR is likely to be the most used as it provides automatic detection of FEC and ARQ and is very quick and convenient. As with RTTY, the best tuning technique is to use the Mark and Space i.e.d.s. The M-8000 showed a very fast synchronisation time averaging around two seconds.
**S.P.R. TRADING**

**MVT 7100**

**Specifications**
- **NFM / WFM / AM / LSB / USB**
- **530 KHz – 1650 MHz**
- **1000 memory channels**
- **500 search pass frequencies**
- **10 search bands**
- **30 channels per sec. scan speed**
- **12v d.c. or 4 x AA power supply**
- **Back-lit I.C.D. & buttons**

**VERY SPECIAL PRICE**

RING FOR QUOTATION

**SANGAN**

**Portable SW Antenna**

**ANT 60**

- **Greatly improve reception power of portable shortwave receiver**
- **Easy hookup to snap onto telescoping rod antenna or plug into radio's external AM antenna jack**
- **Extends to 7 metres (23 feet)**
- **Portable for indoors and outdoors**
- **Suitable for all kinds of shortwave radios.**

£14.99 FREE POST AND PACKING WITH THIS ISSUE ONLY

**SKY SCAN**

**Desk Top Antenna Model Desk 1300**

Built and designed for use with scanners. Coverage 25 to 1300MHz. Total height ~ 36ins ~ 9cm at widest point. Comes complete with 4 metres of RG58 coax cable and BNC connector fitted. Ideal indoor - high performance antenna and can also be used as a car antenna when your car is static. REMEMBER YOUR SCANNER IS ONLY AS GOOD AS YOUR ANTENNA SYSTEM!

£49.00 + £3.00 p&p

**SKY SCAN V1300 Antenna**

Most discones only have horizontal elements and this is the reason that they are not ideal for use with a scanner. Most of the transmissions that you are likely to receive on your scanner are transmitted from vertically mounted antennas. The Sky Scan V1300 discone has both vertical and horizontal elements for maximum reception. The V1300 is constructed from best quality stainless steel and aluminium and comes complete with mounting pole. Designed and built for use with scanners. £49.95 + £3.00 p&p

**SKY SCAN Magmount MKII**

For improved performance, wide band reception, 25 to 1300MHz. Comes complete with protective rubber base, 4m RG58 coax cable and BNC connector. Built and designed for use with scanners. £24.95 + £3.00 p&p

**SCANNERS**

**Yupiteru MVT7100 SEP.T. SPECIAL OFFER PHONE?**

**Yupiteru MVT7000 SEP.T. SPECIAL OFFER PHONE?**

**Yupiteru VT225 SEP.T. SPECIAL OFFER PHONE?**

**Yupiteru VT125 SEP.T. SPECIAL OFFER PHONE?**

**Fairmate HP2000 SEP.T. SPECIAL OFFER PHONE?**

**Nevada MS1000 SEP.T. SPECIAL OFFER PHONE?**

**AOR 3000A SEP.T. SPECIAL OFFER PHONE?**

**AOR 2000 SEP.T. SPECIAL OFFER PHONE?**

**AOR 1500EX SEP.T. SPECIAL OFFER PHONE?**

**PRO 43 HAND HELD SCANNER**

**Frequency coverage:**
- 68-88MHz (5kHz steps)
- 118-136.975MHz (5kHz steps)
- 250kHz steps (5kHz steps)
- 137-144MHz (5kHz steps)
- 220-255MHz (5kHz steps)

Channels of operation: Any 200 channels in any band combinations (20 channels, 10 banks) and 10 monitor channels.

**SPECIAL OFFER PRICE** £229.95 + £5P&P LIMITED STOCK

**YUPITERU MVT 7000 HANDHELD**

**PROBABLY THE UK'S MOST POPULAR HANDHELD SCANNER!**

- Receives 8 to 1300 MHz 100kHz-1300MHz (at reduced sensitivity)
- 200 Memory channels
- Rotary or keypad freq. control
- AM/FM/NFM
- Large display with signal strength meter
- EACH SET IS SUPPLIED COMPLETE WITH:-
  - Full set of high power NICads, 2 antennas, carrying case, earphone, DC cable, belt clip and strap.
  - DC charger.

September Special Offer £349.99

**AOR SCANNERS**

**AR1500 HANDHELD**

Covers 500kHz to 1300MHz receiving NFM, WFM, AM, and SSB. Supplied with a large selection of accessories including -
- Charger
- Dry cell battery case
- 5m 1W antenna
- Ear piece
- Soft case

September Special Offer £395.00

Mail Order: SRP Trading, Unit 20, Nash Works, Forge Lane, Belbroughton, Nr. Stourbridge, Worcs. Tel: (0562) 730672. Fax: (0562) 731002
Shop: SRP Radio Centre, 1686 Bristol Road South, Rednal, Birmingham B45 9TZ. Tel: 021 460 1581
The new MVT7100...
...the ultimate scanner!

MORE MODES:
AM/FM/WFM/USB/LSB

MORE FREQUENCIES:
100kHz to 1650MHz (no gaps!)

MORE MEMORIES:
1000 Channels

Plus:
- Delay and skip functions
- High speed search
- 10 search bands
- Three-way tuning
- Fast scan speed
- Ultra-fine tuning
- Priority scan
- User friendly
- Attenuator

Complete with:
- Belt clip
- Earphone
- Wrist strap
- Car cigar strap
- Mains charger
- Nicad batteries
- Telescopic antenna and
  Lowe's famous service
  and back-up!

Receives: Utilities
- TV sound
- Marine band
- Civil airband
- Military airband
- Broadcast radio
- Emergency services and
  many more local and
  international services

IN STOCK NOW!

SPECIAL OFFER
1992 Edition of "POOLEY'S FLIGHT GUIDE"
This "Aviator's Bible contains details of all UK airfields, all ground, tower,
approach and radar frequencies, all lower airspace and radar information, airways
frequencies, private airstrip locations and much, much more.
This is last year's edition but almost all data is still correct.

Normal Price £16.50
OFFER PRICE £4.00
plus £2.00 Post & Packing (It's heavy with information!)

LOWE ELECTRONICS LTD
CHESTERFIELD ROAD, MATLOCK, DERBYSHIRE, DE4 5LE
Tel. 0629 580800 Fax. 0629 580020
(HEAD OFFICE, MAIN SHOWROOM & MAIL ORDER DEPARTMENT)

Branches at: Bournemouth - 0202 577780, Bristol - 0272 315263, Cambridge - 0223 311230,
Cumbernauld - 0236 721004, Heathrow - 0763 545265, Leeds - 0532 452657,
Maidstone - 0622 692773, Newcastle - 0661 860418,
NEW BRANCH - Plymouth - 0752 607284

Short Wave Magazine, September 1993
Last of the common modes is Packet data, in which the M-8000 can be set to receive data at either 300 baud for h.f. or 1200 for v.h.f. I must say I found the tuning particularly tricky with this mode. The problems are caused by a combination of the slow response of the tuning displays and the short duration of the packet signal. However, with a bit of practice, I mastered it.

**Powerful FAX**

The M-8000 features a particularly comprehensive FAX reception system. Not only can it accept conventional h.f. images, but it can also receive the a.m. images from orbiting satellites. As with all modern FAX systems automatic picture reception is possible with the IOC set according to the transmission start tone. The only odd point is the way in which the end of a picture is detected. The conventional technique is for the decoder to stop when the 450Hz stop tone is detected. Instead of using the stop tone, the M-8000 stops printing after they had been received using the screen dump option. With dot matrix printers, however, you can only print during reception. Although this is not the most convenient system, the resultant charts are very good quality. In addition to the default monochrome display you can cycle through black and white and a number of colour modes, the later being useful for showing temperature gradients on infra-red satellite images.

Those interested in satellite weather pictures will find the a.m. FAX mode very interesting, being delightfully simple to use and capable of producing excellent images.

**Advanced Modes**

No top level decoder would be complete without a selection of the more obscure decoding modes thrown in for good measure. The M-8000 includes most of the well known ARQ modes - ARQ-E, ARQ-E3, SWED-ARQ and the multi-channel ARQ M2 and M4 systems. All of these worked very effectively, thanks to the good internal filtering. One of the problems commonly associated with these modes is difficulty in synchronising.

### Specification

<table>
<thead>
<tr>
<th>Modes and Speeds</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morse</td>
<td>5 to 120 w.p.m. auto ranging</td>
</tr>
<tr>
<td>Baudot</td>
<td>45, 50, 57, 75 and 100 baud plus variable</td>
</tr>
<tr>
<td>Packet</td>
<td>300 and 1200 baud AX25</td>
</tr>
<tr>
<td>SITOR</td>
<td>Mode A and B (FEC collective and selective) 100 baud plus variable</td>
</tr>
<tr>
<td>FEC-A</td>
<td>96, 144 and 192 baud plus variable</td>
</tr>
<tr>
<td>FEC-S</td>
<td>96, 100, 144, 192 and 200 baud plus variable</td>
</tr>
<tr>
<td>ARQ-M2</td>
<td>86, 96 and 100 baud plus variable</td>
</tr>
<tr>
<td>ARQ-M4</td>
<td>172, 192 and 200 baud plus variable</td>
</tr>
<tr>
<td>ARQ-E</td>
<td>48, 64, 72, 86, 96, 144 and 192 baud plus variable</td>
</tr>
<tr>
<td>ARQ-E3</td>
<td>48, 64, 72, 86, 96, 100, 192 and 200 baud plus variable</td>
</tr>
<tr>
<td>ARQ-S</td>
<td>86, 96, 100, 172, 192 and 200 baud plus variable and 4, 5, 6 or 7 character groups.</td>
</tr>
<tr>
<td>SWED-ARQ</td>
<td>100 baud plus variable</td>
</tr>
<tr>
<td>Databit</td>
<td>Asynchronous and synchronous 4,5,6,7,8, pr 9 bits per character</td>
</tr>
<tr>
<td>Bit Inversion</td>
<td>Baudot codes</td>
</tr>
<tr>
<td>Three Shift Cyrillic</td>
<td>Baudot and video output only</td>
</tr>
<tr>
<td>Literal Display</td>
<td>Baudot and video display only</td>
</tr>
<tr>
<td>POCSAG</td>
<td>Digital pager code</td>
</tr>
<tr>
<td>GOLAY</td>
<td>Digital pager code</td>
</tr>
<tr>
<td>PICCOLO</td>
<td>Multi-tone teleprinter code</td>
</tr>
<tr>
<td>FAX</td>
<td>60, 90, 120 and 240 baud plus 288, 440 and 576 IOC</td>
</tr>
<tr>
<td>Filter Tones</td>
<td>High 2125, Low 1275 fixed shifts</td>
</tr>
<tr>
<td>Variable Shift</td>
<td>60 to 1250Hz in 5Hz steps</td>
</tr>
<tr>
<td>Modem Tones</td>
<td>Seven standard modem tone pairs.</td>
</tr>
<tr>
<td>VFT</td>
<td>Four standard f.m. channelisation schemes</td>
</tr>
<tr>
<td>Inputs</td>
<td>Two channels 4 - 600kHz 250mV p - p plus pager audio</td>
</tr>
<tr>
<td>Aux</td>
<td>External demodulator</td>
</tr>
<tr>
<td>Outputs</td>
<td>Video VGA colour, 26 lines of 80 characters excluding status and graphics.</td>
</tr>
<tr>
<td>Printers</td>
<td>Mil or EIA levels and parallel ASCII with handshaking</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>115/230V a.c. 50/60Hz 25W max.</td>
</tr>
<tr>
<td>Size</td>
<td>408 x 88 x 269mm deep</td>
</tr>
<tr>
<td>Weight</td>
<td>4.1kg approx.</td>
</tr>
</tbody>
</table>

Fig.3: FAX reception. Chart from Northwood.
The M-8000 overcomes this with a manual synchronisation mode that works extremely well. With the two and four-channel TDM systems, channel selection is achieved with a simple key press. I was particularly impressed by the M-8000's ability to handle v.f.t. signals. This mode is accessed by first selecting RTTY and then pressing the VFT button. It is then possible to cycle through the twelve or twenty-four channels with ease. All the standard channel spacings, e.g. 60, 85, 120 and 180Hz, are supported.

The sophisticated Piccolo multi-tone system is notoriously difficult to tune, but not with the M-8000, since it includes a special tuning mode that provides a five segment tuning display. All you need to do is adjust the receiver's tuning so that the tones align with the display. As the tuning is so critical, there is provision to shift the filter frequencies in 1Hz steps.

As with many of the complex modes, once a signal has been decoded you will often find that the traffic is encoded.

**Pager Decoding**

Two interesting new modes featured in the M-8000 are the POC SAG and GOLAY radiopaging systems. These are widely used in the v.h.f. bands and carry a wide range of traffic. There are a few problems associated with the low frequency content of pager transmissions, which is where the special input associated with the ring of ringer of the M-8000 comes into its own. This provides a degree of correction that aids reception. I found that you just need to be careful with the audio levels to secure clean decoding.

**Analysis**

Just to complete the range of facilities, the M-8000 boasts a couple of analysis modes to help the more advanced listener. These are based around straightforward bit analysis of the signal. Whilst the system is adequate for basic signal identification, a thorough understanding of data transmission techniques is necessary. As mentioned earlier, one of the most useful analysis modes is the auto-tune speed-shift measurement. Once the speed and shift of a station are known it is relatively easy to narrow down the mode.

**Summary**

The M-8000 is a comprehensive decoding system with a particularly wide and interesting range of operating modes. Although the front panel appears very complicated, once mastered, it provides very efficient access to the operating parameters. The signal processing abilities of the decoder are also very good and it is able to work successfully, even with quite poor signals. During the review I found that the performance could be further improved by the addition of external audio filtering such as the F2/3 from Datong. There are no poor areas, though I would like to see better use made of the front panel bargraph display to aid tuning of packet and ARQ signals. I'm sure that FAX reception could be improved by using the stop tone to end a transmission and maybe adding the facility to print out to a dot matrix printer after reception. These few items would finish off what is already a fine decoder.

The Universal M-8000 costs £1199.95 inc. vat and is available from Martin Lynch, 286, Northfield Avenue, Ealing, London W5 4UB.

Tel: (081) 5661120. My thanks to Martin Lynch for the loan of the review model.
Once in a while an interesting piece of radio equipment turns up for review. The R10 FM Communications Interceptor falls into this category.

The new R10 FM Communications Interceptor from Optoelectronics is a rugged, hand-held, f.m. only 'receiver' of unconventional concept and design. For a start there is no means of tuning the receiver - in fact the only controls are two edge-knobs - volume/on-off and squelch - and two push buttons, one to change the deviation range and the other to skip a signal. These are mounted on the top panel together with the BNC antenna socket, phone socket and two small i.e.d.s to indicate that power is on and a signal has been locked onto. The front of the set has two bargraph displays. The vertical one shows the deviation of the received signal, while the other, set at 45°, indicates signal level. A 50mm speaker lurks behind a series of slots in the front panel. Apart from a power socket in the side for the charger plug, that is all. No means of tuning and no indication of the frequency of the signals being received! Power is from built-in, NiCad rechargeable batteries.

The frequency coverage of the Interceptor is quoted as 30MHz to 2GHz. The sensitivity has been purposely set so that it will only detect strong, local signals. This prevents it being paralysed by the vast number of f.m. signals around, particularly in built-up areas.

**Uses**

To use the Interceptor just extend the telescopic whip antenna, switch on and listen. The only adjustments that can be made are to volume, squelch threshold and 'full scale' deviation, which can be set to be either 10 or 100kHz full scale.

Out in the country the only signals the Interceptor wanted to lock onto were from a local amateur 144MHz packet station about 400m away - not very interesting.

The unit would be of most use as a piece of test gear, rather than as a scanner. A repeater keeper could use it to monitor the signals from his repeater. It could also be used by amateurs to monitor the output from their v.h.f. or u.h.f. transceivers. Then there are the 'professional' uses. It could be used to check the operation of all the wireless microphones in use during a production, for instance. A p.m.r. operator with a fleet of vehicles could use one to do rapid spot checks on each vehicle as it leaves base. This type of check would be made quickly and simply with the Interceptor as there is no tuning or channel selection to be made and the low sensitivity means that the receiver is less likely to be overloaded.

The Optoelectronics R10 FM Communications Interceptor is an interesting concept which will cost you £349 inc. VAT (the price includes a mains charger) from Lowe Electronics Ltd., Chesterfield Road, Matlock, Derbyshire DE4 5LE. Tel: (0629) 580800 who supplied the unit reviewed.

**ERRATA**

**The Super-Regenerative Receiver July 1993**

Some errors crept into the section of this article headed Try it! A corrected version of Fig. 3, based on a circuit from Amateur Radio Techniques, is reproduced here. The coil details are shown in Table 1. The tuning capacitor is a 35pF + 35pF twin variable centre tapped. The Editorial Staff of SWM apologise for any inconvenience that may have been caused by these errors and ommisions.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Coil</th>
<th>Turns</th>
<th>Dia.</th>
<th>Wire</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>4t</td>
<td>13mm</td>
<td>18s.w.g.</td>
<td>Centre tapped. Feedback taken 1t from 'cold' end.</td>
</tr>
<tr>
<td></td>
<td>2t</td>
<td></td>
<td></td>
<td></td>
<td>Antenna Coupling</td>
</tr>
<tr>
<td></td>
<td>RFC</td>
<td>3t</td>
<td>32s.w.g.</td>
<td></td>
<td>Through ferrite bead</td>
</tr>
</tbody>
</table>

Short Wave Magazine, September 1993
Richard Noble concludes his description of a simple chart recorder.

The electronics for the chart recorder are built on two printed circuit boards. The smaller board holds the stereo slider potentiometer in the correct position behind the pen lever, whilst the other board forms the servo drive amplifier, trace multiplexer and power supply. This should be built into a suitable case that also houses the mains transformer. The power supply is straightforward and is shown in Fig. 4.1.

Construction of the two p.c.b.s is straightforward. The component layout and track pattern of the main board is shown in Fig. 4.2. If you have bought the author’s kit the stereo slider potentiometer is supplied ready fitted to the p.c.b., but not soldered in place. No other electronic components are provided with the kit.

A small modification to the solenoid driver circuit (Fig. 3.2) has been made. Resistor R33 is now connected to the base of Tr5, not the emitter and its value has been increased to 100kΩ. The physical layout of the recorder is such that the stereo slider potentiometer must be held in the correct position behind the pen lever and this is achieved by mounting it on a small p.c.b. (Fig. 4.3) screwed to the main frame of the recorder.

Setting Up Procedure

First check the servo drive system by leaving the i.c.s out of the channel sequencer section. Short both channel inputs and point B on the 4016 switch to ground. Connect point A on the 4016 switch to +5V. Set both channel offset potentiometers (R9 & 10) to mid-range.

Applying power to the circuit should make the pen settle somewhere near the middle of the paper width - if the motor connections are the right way round. If the pen rushes off and jams at either end of the leadscrew, the motor connections need reversing.

Before going any further the two 1kΩ potentiometers (R24 & 26) at either end of the stereo slider (R25a & b) should be set to maximum resistance. These potentiometers are found on the small p.c.b. in the recorder mechanism, not on the main board.

Once the pen settles properly, adjustment of the channel 1 offset potentiometer R9, should allow the pen to move smoothly from side to side. Connecting point A to ground and point B to +5V should switch to channel 2 and produce the same effect using the channel 2 offset potentiometer, R10.

Next the two 1kΩ potentiometers (R24 & 26) can be slowly, just a little bit at a time, reduced in resistance. This should have the effect of increasing the range by which the pen moves as the offset potentiometers are moved from end to end. This adjustment is a little tricky as there will suddenly come a point where the pen will move rapidly towards the end of its travel and may even try to jam at the end of the leadscrew. This means that the resistance at that end has been reduced too much.

The reason for this is that at the ends of potentiometers there is a short length of conducting metal which the wiper can move over. But while it is doing this there is no corresponding change in resistance and consequently no changing feedback signal telling the motor it is going too far. The travel must therefore be restricted to just not quite reaching the ends of the resistive parts of the track.

The adjustments are also slightly interactive, so a series...
Fig. 4.2: Full size printed circuit board layout and copper track pattern for the main board.

Fig. 4.3: Full size printed circuit board layout and copper track pattern for the p.c.b. carrying the stereo slider potentiometer and trimmer pots.
MOMENTUM COMMUNICATIONS

MCL 1100
DATA DECODER

The MCL 1100 Easyreader Data Decoder will automatically make sense of some of the strange noises that you can hear on your H.F. Radio Receiver enabling you to make FULL use of your equipment. The MCL-1100 processes data transmissions without the need of a separate computer and displays a full screen of text on your video monitor. Why make-do with one or two lines of information as offered by other manufacturers. And it's designed and manufactured in the U.K.

STANDARD FEATURES:
- SMARTLOCK system for easy tuning.
- Full screen of readable text with on-screen tuning indication.
- Automatic decoding of RTTY, GW, FEC (NAVTEX) and ARQ.
- Auto or manual selection of transmission speeds.
- Extremely rapid lock onto signal.
- Connection for a parallel type printer.
- Made in the U.K.

EASYREADER STILL ONLY £225.00 inc. VAT + Postage

C.M.H HOWES COMMUNICATIONS

EASY TO BUILD HOWES KITS!

Building your own equipment is half the fun of amateur radio! Whether you are a novice or an old hand, you should find an interesting project in our range.

TRANSMITTERS

<table>
<thead>
<tr>
<th>Kit</th>
<th>Assembled PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT160</td>
<td>£39.90</td>
</tr>
<tr>
<td>CTRX</td>
<td>£15.50</td>
</tr>
<tr>
<td>MTX20</td>
<td>£29.90</td>
</tr>
</tbody>
</table>

All the above transmitters are crystal controlled. Matching VFO kits are available and these enable transceiver operation with the relevant receiver kits. There are also kits to build a 10 & 15M 50W transmitter (super Novice rig).

ACTIVE ANTENNAS AND PRE-AMPS

<table>
<thead>
<tr>
<th>Kit</th>
<th>Assembled PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA2</td>
<td>£8.90</td>
</tr>
<tr>
<td>AA4</td>
<td>£19.90</td>
</tr>
<tr>
<td>AB118</td>
<td>£16.80</td>
</tr>
<tr>
<td>SPA4</td>
<td>£15.90</td>
</tr>
</tbody>
</table>

ADD EXTRA SELECTIVITY!

DUAL BANDWIDTH AF FILTER: £29.80

- Reduce noise and interference.
- Sharp SSB/Speech filter with faster roll-off than IF crystal filters!
- 300Hz bandwidth ON filter
- Printed and punched front panel
- All aluminium case

OTHER KITS

<table>
<thead>
<tr>
<th>Kit</th>
<th>Assembled PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL BANDWIDTH AF FILTER Kit (£15.90) + HA5OR Hardware (£13.90) = £29.80</td>
<td></td>
</tr>
</tbody>
</table>

Please add £1.50 P&P for kits or £4.00 P&P if ordering hardware.

HOWES KITS contain good quality printed circuit boards with screen printed parts locations, full, clear instructions and all board mounted components. Sales, constructional and technical advice are available by phone during office hours. Please send an SAE for our free catalogue and specific product data sheets. Delivery is normally within seven days.

73 from Dave G4KQH, Technical Manager.
The idea began in 1859 in Solferino, Northern Italy during a battle involving French and Italian troops, and the occupying Austrian forces. The medical services of the armies proved totally inadequate in the face of such carnage, and thousands of wounded troops were left to a gruesome fate on the battlefield. This situation so affected a visiting Swiss businessman, one Henry Dunant, that he set about helping the abandoned wounded himself, and persuaded many of the local populace to assist him in his efforts.

On returning home, he wrote a book entitled 'A Memory of Solferino', and sent a copy to all reigning Monarchs and other influential people in Europe, many of whom were shocked by his harrowing account of the cruelties of warfare. Amongst those who read his book was Gustav Moyneir, then President of the Geneva Public Welfare Society, who was so moved by its revelations that he set up a committee to discuss the matter. This ultimately led to an International conference at which the name 'The International Committee for Relief to the Wounded', and the insignia of a red cross on a white background was adopted. Subsequently the title 'International Committee of the Red Cross' (ICRC) was taken as the official title of the organisation, with the 'Red Crescent Society' subsequently enlisted to its ranks.

Refugees

In 1945, with the Second World War at an end, hundreds of thousands of civilian refugees, and prisoners of war freed from their years of imprisonment,
were desperately trying to find their way back to their families. With communications virtually non-existent, radio stations destroyed, telephones out of order, and all forms of transport in a state of chaos, families at home, eager for news of their loved ones, appealed to the only body able to offer any assistance - the ICRC in Switzerland. Reacting to these countless pleas for help, the Swiss Department of Posts, Telegraphs and Communications, who owned the transmitters of Swiss Radio International, granted air time to the Red Cross to enable them to broadcast all available information regarding the location and state of health of released prisoners and displaced persons. Thus was born the International Red Cross Broadcasting Service.

At The World Administrative Radio Conference held in 1948, approval was granted to a Swiss government request for a permanent frequency allocation for the ICRC. To this day, this body remains the only international organisation in the world to operate on its own radio frequency. It was felt that, in the event of another war, such a service would be of immeasurable value, and with this in mind, the ICRC commenced test programmes in 1951 to evaluate world-wide reception conditions. By 1965, the organisation had been granted air-time for a bi-monthly service, transmitting to Europe, the Middle East and the Americas.

As the organisation grew, more studios were built, and in 1971 the service was extended to include Asia and Africa. In 1978 the service was officially renamed ‘The Red Cross Broadcasting Service’ and the regular broadcasts were made monthly.

Budget Restrictions

Decisions over the amount of air-time allocated are still made by the Swiss PTT, and at present, the Red Cross Broadcasting Service is on the air for only 78 hours a year, the time period being determined largely by budget restrictions. Broadcasts go out in English, French, German, Spanish, Portuguese and, appropriately enough in view of the Middle East problems, in Arabic, and considering that the entire staff comprises only one producer, a studio technician and a few part-time journalists, it is quite a remarkable effort. The programmes deal with the work of the Society, whose principal task is to protect and assist victims of conflict. Coverage is also given to National Red Cross groups, with interviews, news reports and answers to listener’s queries making up the balance of the programme.

There are currently two transmitters in operation, one at Scharzenburg which is used for directional broadcasts, and another at Beromunster for non-directional transmissions. The table gives the English language transmission details for Europe and the Americas.

The International Red Cross Broadcasting Service will QSL your reports, which should be sent (enclosing 1 IRC), to: The Red Cross Broadcasting Service, 19 Avenue de la Paix, CH-1202, Geneva, Switzerland.

DIY Chart Recorder

CONTINUED FROM PAGE 43

of iterative changes have to be made, first at one end and then the other, until the best setup is obtained.

Applying signals to the inputs instead of the short-circuits should then make the pen follow whichever input is selected by the settings on points A and B of the switch. A convenient way of doing this is with an external potentiometer connected between +5V and -5V. The gain controls of each channel can also be checked at this point.

To check the channel sequencer insert only the 556 timer chip and look at the outputs on pin 9 and pin 5. The changes on these pins are slow enough to be seen easily with a meter. The output on Pin 9 should be set to change once every minute or so using R28 for adjustment, while Pin 5 should change level every 1 - 2 seconds.

Next insert the 4013,4017 and 4001 chips and check that the level goes high on pins 2, 4, 7 & 10 of the 4017 chip, in that order, every minute or so, depending on how often you have set the pin 9 output of the 556 chip to change. Connect the solenoid and motor, solenoid do their ritual dances while plotting your two traces.

Note: A convenience kit of all mechanical parts, finished and drilled, including both p.c.b.s, motor, solenoid, clock, paper roll, pen, etc., but no electronic components other than the slider potentiometer, is available from the author. SAE for details to: R & W Noble, Penbidwal House, Pandy, Abergavenny, Gwent NP7 8EA.
Toroidal Transformers for 13.8V DC Power Supplies
9T845 16.1 VOLT at 42 AMPS
(PW MARCHWOOD PSU)
8C267 18 VOLT at 27.8 AMPS (500VA)
Complete standard range of 107 types of ILP Toroidal Transformers and the full range of ILP Audio Amplifier Products
Low Profile Encapsulated Transformers
A range of 30 types from 4VA to 30VA suitable for PCB mounting

Write or phone or fax for free Data Pack

UK DISTRIBUTORS FOR

Raytee Electronic Services
143 Reculver Road, Herne Bay, Kent CT6 6PL
Telephone: (0227) 375254 Fax: 0227 365104

THE KITS WITH ALL THE BITS!
Guaranteed complete to the last nut!
COMPACT 80m CW QRP Tx/Rx

- QTR kit - £63.50 P&P £8.00 Ready built - £140.00
- Stable VFO
- Simplex
- Audio Filter
- Requires 12/14 VDC
- Very detailed instructions
- Build steel case
- Printed panel
- 45mm & TOP RANG VERSIONS
- ALSO AVAILABLE

ANTENNA TUNING UNITS

TU1 Kit - £41.25 Ready Built - £57.50
TU2 Kit - £51.05 Ready Built - £152.00 P&P £3.00
- Large dia. coil
- High grade capacitor
- Built in balun
- Circuits to match your antenna
- Up to 30 Watts of CW
- TU2 has sensitive ORP/SWR meter
- TU1 is ideal for SWL

QRP SWR METER

- Specially designed for QRP
- HP 1-30MHz
- Can be set down to 0.1 Watt for FSD
- Ideal for QRP
- Low Insertion loss 0.2dB

CARLTON (Receiver)

80-40-20m Dc Rx
- Receiver LSB, LSB and CW
- Very sensitive and selective
- Simple modular construction
- 12-14 volt battery operated
- Printed facia
- Kit complete with case - £68.50 P&P £3.00

PSU 15 REGULATED POWER SUPPLY

- Ready built
- Mains input 13.8V @ 1.5A output
- Ideal for QRP & Carlton
- Fully protected
- Supplied ready built - £52.00 P&P £4.00
- Send SAE for brochure or call Alan G4DFN on 0602 382509

LAKE ELECTRONICS
7 Middleton Close, Nuthall, Nottingham NG16 1BX
(callers by appointment only)
by Ron Ham
Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

Thanks to your letters, we can see how frequent Sporadic-E disturbances have influenced the paths of radio signals throughout the month of June. But first, let's look at the reports from the solar observers.

Solar

During May, Ron Livesey (Edinburgh), using a 25-in refractor and a 4.0-in projection screen, located three active areas on the sun's disc on days 8, 9, 10, 11, 29, 30 & 31. The latter days lead to the drawing of the sun, Fig. 1, made by Patrick Moore (Selsey) from his projection box at 1335 on June 1. While using his spectrophotometer at 0930 on May 29, Cmdr. Henry Hattfield (Sevenoaks) located two sunspot groups, 12 filaments and three slightly active plages. In addition to the 2grps and 9fs seen at 0943, on June 4, Henry found an active plage, almost floaring, near a double spot and a medium sized prominence on the south-west limb that looks like an almond.

He logged 3grps and about 12fs early on the 5th and 6th and at 0936 on the 7th, there were 2grps, 15fs, two active plages and the remains of two flares on 18/19, 'active forms pulsating' on 7/8, 9/10, 11/12, 13/14, 19/20 & 27/28 and 'half sky' on 9/10, from observers in North America and Scotland.

Magnetic

The magnetometers used by, Tony Hopwood, Karl Lewis, Saltash and Ron Livesey between them recorded magnetic disturbances on May 1, 7-10, 13, 14, 16, 19, 21, 26-29 & 30.

Propagation Beacons

First, my thanks to Gordon Foote (Didcot), Ian McDermid (Comrie), Ted Owen (Maldon), Ted Waring, Ern Warwick (Plymouth) and Ford White (Portland) for their 28MHz beacon logs from which I compiled Fig. 3. Between them, they added the beacons CT9APD (20.20MHz), DF0THD (28.325MHz), HBP (Bordighera) (28.180MHz) and 9552RS (28.251MHz) plus the return of old friend 4N2ZH.

Ron Livesey, the auroral co-ordinator for the British Astronomical Association, received reports described as 'glow' for the overnight period on May 3/4, 'homogeneous arc' on 18/19, 'active forms pulsating' on 7/8, 9/10, 11/12, 13/14, 19/20 & 27/28 and 'half sky' on 9/10, from observers in North America and Scotland.

Auroral

Ron Livesey, the auroral co-ordinator for the British Astronomical Association, received reports described as 'glow' for the overnight period on May 3/4, 'homogeneous arc' on 18/19, 'active forms pulsating' on 7/8, 9/10, 11/12, 13/14, 19/20 & 27/28 and 'half sky' on 9/10, from observers in North America and Scotland.

Band II

"Fluctuations of signals from nothing to full stereo", remarked David Edwardson (Wallsend) when he heard Portuguese and Spanish stations, around 95 and 105MHz, at 1100 on June 19. David used an elderly Decca music centre with a 4-element beam for Band II DXing. When he checked the band again from 1500 to 2000 he logged Italian and Portuguese stations and lost count of the signals from Spain.

While another event was in progress between 1650 and 1720 on the 12th, Ian McDermid found the bottom of Band II jammed with signals. "Spanish stations were coming in like locals," said Ian, as he was trying to separate them on his Roberts RC818 receiver with its own rod antenna laying horizontal.

While tuning the h.f bands around 0900 on the 12th, S.M. Hockenhull (Bristol) noted that the 21MHz band was full of strong European signals and Radio France International was coming in on 25.620MHz. He rightly assumed that all this activity was due to Sporadic-E, then checked Band II and found two Italian stations around 88MHz.

Tropospheric

S.M. Hockenhull, received BBC Radio 4, at varying strengths, from the transmitter at North Hessary Tor, on 92.5MHz, from 2310 to 2340 on June 7. "I think this was caused by a ridge of high pressure giving way to a low pressure moving in from the Bay of Biscay," he reported. He added, "This lead to the storms that wreaked havoc throughout Wales and the West-Country during the following week." This fall can be seen on the atmospheric pressure chart in my Television column elsewhere in this issue.

While on holiday in the Isle of Arran, on June 15, George Garden (Edinburgh) took his Sony portable to the top of Goat Fell, some 880m a.s.l. and logged Maxy Radio on 103.7MHz. Leo Barr (Sandford) found it possible to receive distant UK stations in Band II on May 30 and June 12. On those days, he heard BBC and IBA stations, fluctuating in strength, from Ashkirk, Blackhill and Holme Moss. Leo logged Minster FM on his car radio, for the first time, on the 30th while driving through intermittent fog and remarked, "every time I drove through a fog-bank, reception conditions for that particular station improved".
**SUMMER 1993 CATALOGUE**

The new enlarged Cirkit Catalogue is out now!

- 32 more pages
- New range of Kenwood 'scopes
- The latest scanning receivers and accessories
- New section of low cost security products
- Extended range of Velleman kits including: 250W 12Vdc to 220Vac inverter, in-car amplifier power supply, 200 and 400W amplifiers, suppressed lamp dimmer, halogen lamp dimmer, day/night thermostat and telephone remote control unit
- New test equipment, includes: 2.3GHz bench frequency counter, EPROM emulator/programmer, portable 'scopes and bench function generators
- Host of new components, including: compression trimmers, variable capacitors, connectors, fuses, and fuseholders, potentiometers, IC s, soldering irons and lead free solder
- Published 27th May 1993
- Available from most large newsagents or directly from Cirkit
- **Send for your copy today!**

**SHORT WAVE MAGAZINE PCB SERVICE**

Printed circuit boards for SWM constructional projects are available from the SWM PCB Service. The boards are made in 1.5mm glass fibre and are fully tinned and drilled. All prices quoted in the table include Post and Packing and VAT for UK orders.

<table>
<thead>
<tr>
<th>Board</th>
<th>Title of Article</th>
<th>Issue</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR10</td>
<td>A Green Bandspread Dipper</td>
<td>Jun 93</td>
<td>5.75</td>
</tr>
<tr>
<td>SR08</td>
<td>Experimental VHF Receiver</td>
<td>Jun 91</td>
<td>5.61</td>
</tr>
<tr>
<td>SR07</td>
<td>VLF Receiver</td>
<td>Dec 90</td>
<td>5.24</td>
</tr>
<tr>
<td>SR06</td>
<td>Medium Wave AM Radio</td>
<td>Nov 90</td>
<td>3.34</td>
</tr>
<tr>
<td>SR05</td>
<td>R210 Converter</td>
<td>July/August 90</td>
<td>6.67</td>
</tr>
<tr>
<td>SR04</td>
<td>PRD-2004 Modifications</td>
<td>Oct 89</td>
<td>6.63</td>
</tr>
<tr>
<td>SR03</td>
<td>HF to VHF Converter</td>
<td>Aug 83</td>
<td>5.72</td>
</tr>
<tr>
<td>SR02</td>
<td>Weather Satellite Reception</td>
<td>Jun 88</td>
<td>3.88</td>
</tr>
</tbody>
</table>

Orders and remittances should be sent to: Badger Boards, 87 Blackberry Lane, Four Oaks, Sutton Coldfield B78 4JF. Tel: 021-353 9326, marking your envelope SWM PCB Service. Cheques should be crossed and made payable to Badger Boards. When ordering please state the Article Title as well as the Board Number. Please print your name and address clearly in block capitals and do not enclose any other correspondence with your order.

Please allow 28 days for delivery. Only the p.c.b.s listed here are available.

**Madvertisements**

Most advertisements are legal, decent, honest and truthful. A few are not, and, like you, we want them stopped. If you would like to know more about how to make complaints, please send for our booklet: 'The Do's and Don'ts of Complaining'. It's free.

**The Advertising Standards Authority.**

We're here to put it right.

ASA Ltd., Dept. Z, Brook House, Torrington Place, London WC1B 7HN

This space is donated in the interests of high standards of advertising.
It's an unfortunate fact that council planners lack enthusiasm when it comes to DXing. Radio amateurs will be aware of the planning restrictions that relate to high (and often not so high) lattice masts and it will come as no surprise that even satellite dishes sitting in your garden - perhaps no harm for your dish of any size - are subject to restriction and regulation. Odd to relate that a large wooden garden shed is permitted development under Town and Country Planning Commissions whilst a non-conservation area you are permitted a single dish within the garden or on the house (preferably rear) provided that a house mounted system does not project above the nearest point of the roof - the dish not exceeding 700mm in diameter in the South/Central UK or 900mm north of a line approximately between The Wash and Aberswth. If you're domiciled in a conservation area, the Norfolk Broads, an area of outstanding beauty or a National Park you will, in theory, need permission before satellite is installed.

Practically, if a dish is carefully positioned, is unseen from the road and the neighbours are happy then I would go ahead with your installation. Planning Commissions are obviously prevalent - a 5m dish will attract attention, but a dish of 1.2 or 1.5m, if discreetly sited, should cause no anguish. If your conservation area neighbour is the local council planning officer then obviously it's wise to proceed through appropriate channels.

There's a free booklet - A Householders Planning Guide for the Installation of Satellite Dishes ref: 91 PLAN 0084 issued by the DOE at PO Box 135, Bradford, West Yorkshire BD9 4HU, which is a very useful guide.

If, by local environmental problems, you are restricted to a small dish, satellite reception performance can be enhanced with the use of a very low noise LNB (low noise block down converter). With improvements in HEMPT technology it is now possible now to obtain Ku-FSS band low noise LNBs commonly down to 0.7dB noise levels at £30 trade + VAT! (Protel Distribution 081-445 4441) and most LNAs considered for 'DXing' should feature under a 1dB noise figure - for a price of just under £200 an LNB with maximum noise figure of 0.5dB is now available! Such low noise figures coupled with high gain should put you up into a higher DXing league - though a small dish will never perform like its big brother in terms of beamwidth, side lobe radiation pattern, etc., by virtue of the dimension small dish intended beamwidth. Another remedy for sparkly signals is a Threshold Extension Board, a small p.c.b. circuit that fits within the satellite receiver and improves signal threshold performance; typically a receiver threshold of 7-8dB can be improved to 4dB. Chapparel manufacture an outboard threshold extenders that fits in the 70MHz i.f. loop; Echosphere feature internal circuitry and Eurosat have available a 70MHz threshold extension board each which can be fitted to many receivers. A u.h.f. i.f. board is now under development. Improvements are dramatic, very weak noisy signals can now be picked up virtually noise free clear colour pictures.

The last few weeks have been quiet across the Clarke Belt, but perhaps June 26 was memorable - the hijack of America's satellite, Vanguard II, by Saddam Hussein on Baghdad. Sky, CNN and the American networks went live with updates though I missed the SNG feeds incoming ex Baghdad via Eutelsat, etc., and remain unseen. There are at least two SNG trucks stationed in Baghdad since this is a news breaking location. The 11.6176GHz transponder on 13°E was extended the SNG activity happened that night with NBC, ABC and WTN feeds. A report via SNG concerning the Baghdad attack was seen over Washington. The same evening the same transponder at 233OUTC - was carried over the ReutersNisEurope communications link. A report via SNG concerning the Baghdad attack was seen over Budapest. Andrew Sykes uses his SNG capability ex Baghdad since was a Muslim Ahmadiyya TV, various activity this past month. Apart from the normally low level transmissions, the SNG feeds for UK insertion have been noticed.

Our old friend Bindu Padaki in Bangalore writes to update the Asian/UK/Europe market. She reports satellites have been switched down into India. The 714MHz bird at 99°E still carries the Russian Orbital TV channel but the 754MHz satellite is now transmitting the Asianet Malayalam language TV service, again from 99°E and intended for the Southern Indian state of Kerala using PAL. A press release from Colombo speaks of the associated improvements to its TV services with other Ekran birds at 95, 84, 69, 64, 48°E. The latter is well above the UK horizon and may well offer TV7/M3x potential if and when on-stream. Additional channels are planned in English/Hindu, a data channel and an entertainment mix of Star TV/MTP/Prime Sports/BBC WS TV. Signal strengths are from 46-56.5dBW and will provide easily received u.h.f. signals for domestic or Cable head end systems.

Another follow up, President Clinton spoke to the 'Nation' (and indeed the rest of the world), through satellite communications. The west - east circuit into Europe was carried in C Band (4GHz), but trans-European broadcast service have also carried the over the Reeves/VisEurope transponder at 12.52GHz 13°E. Rehearsals were also carried of the address on the World feed out of Washington. The same evening the European feed of Pavarotti in Central Park was carried via Intelsat K 121°W 11.530GHz vertical late evening. Very spectacular camera shots were taken, one showing the whole park and the NY skyline, possibly from a tethered blimp.

A letter arrived from a subscribeb st. Pauls reader concerning his subscription to 'Red Hot Television', the 'nothing left to the imagination' adult movie channel! The lack of arrival of the Smart Card seems related to the Danish government withdrawing RHT's licence following the lack of payments to Danish Telecom for uplinking services. Certainly in mid-July, the 13°E transponder was lacking any sign of c:rambied programming (either SAVE or ENIGMA) from 0015 hours!

With the BT business feeds transferring to Eutelsat II F3 at 16°E from II F1 at 13°E - thus leaving the 13°E bird another hot TV transmission in the sky - check out on 16°E trdr 22 - 11.163GHz horizontal that has seen much BT activity this past month. Apart from the normal low level transmissions, the SNG feeds for UK insertion have been noticed.

Our old friend Bindu Padaki in Bangalore writes to update the Asian/UK/Europe market. She reports satellites have been switched down into India. The 714MHz bird at 99°E still carries the Russian Orbital TV channel but the 754MHz satellite is now transmitting the Asianet Malayalam language TV service, again from 99°E and intended for the Southern Indian state of Kerala using PAL. A press release from Colombo speaks of the associated improvements to its TV services with other Ekran birds at 95, 84, 69, 64, 48°E. The latter is well above the UK horizon and may well offer TV7/M3x potential if and when on-stream. Additional channels are planned in English/Hindu, a data channel and an entertainment mix of Star TV/MTP/Prime Sports/WW BBC WS TV. Signal strengths are from 46-56.5dBW and will provide easily received u.h.f. signals for domestic or Cable head end systems.

Alan Smith in Sri Lanka, Tharanga, has upgraded his receiving system with a Monterey 40 + TAD, a new Ku/C Band feed into a Swedish Microwave 0.8dB noise Ku band LNB + a C Band LNB. Nottingham has been seen at Ku band, but he hopes for Thaisat reception when it launches this autumn. One new signal received is EMTV Papua New Guinea from Palapa B4 118°E.

Satellite News

A cutting from the Saudi Gazette, Jeddah, suggests that a future ArabSat may transmit in Ku Band rather than the present S and C Bands. This will open the market to dramatic expansion with the advent of small dish reception without a high tower. At the present time, dishes in excess of 2m are needed to receive ArabSat, AsiaSat and other transmissions totalling up to 26 transponders.

Astra 1D and 1E satellites launching later in 1994 use digital compression, the on-board transponders have 33MHz rather than 26MHz bandwidths. Oddly, Japan reckons not to be digital until well past 2000 and then at the higher 21GHz band using 100MHz transponder bandwidths. Already the BBC WSTV are transmitting digitally compressed TV programming into CBC Canada via Intelsat 513 at 53°W using a 38MHz transponder, relaying up to four video and 16 audio channels based on Digicipher encoding equipment. Digicipher will be used in SE Asia for the Hong Kong based Star TV service which broadcasts across the region to over 11 million homes.

Satellite delivered BBC WS TV have ousted CNN is becoming the main news source for the terrestrial Channel 2 in Bangladesh. Previously CNN had been active on their Channel 1 but had their hours halved in favour of the BBC.

And finally on the digital compression theme, the Ukrainian, Moldavia, Slovenia and Belarus have all recently commissioned 9m satellite earth stations (13m in the Ukraine) for use with the new digital compression services of the European Broadcasting Union (EBU) which start early 1994. Scientific Atlanta won the contracts with financial loans for construction coming from the European Bank for Reconstruction and Development.
ne of the surviving pre-1939 combined radio and television receivers. Fig. 1, is currently on display in the Vintage Wireless building at the Amberley Chalk Pits Museum, Houghton Bridge, near Arundel, West Sussex.

When television programmes began, from Alexandra Palace, on 45MHz, in 1936, some manufacturers decided to add a TV sound band to their standard broadcast receivers. This was a big step forward because it was nearly 20 years previous to a v.h.f. band (88 to 100MHz) being fitted to a domestic set. I was reminded of this by Tony Hopwood (Upton-on-Severn) after he found a 1937 Pilot U106 receiver, in a 'junk shop'. "There is a separate ultra short wave band for BBC TV sound reception," said Tony and added, "this allowed radio licence holders to eavesdrop on TV sound that was of much higher quality because of the bandwidth available on Band I."

VHF Receivers

Other set makers such as Cossor, Marconiphone and Mid-West did the same, which no doubt encouraged more people to buy a television. Owing to the outbreak of war, the new television service was closed from September 1939 to June 1946. However, during the war, v.h.f. communications receivers, like the Hallicrafters S27 and S36, were made for the US Navy. Later, in the early 1950s, came the Eddystone 770R and the military R216. Each of the sets can tune through Bands I and II independently of a television receiver, can greatly assist the TVDxr. Let’s suppose you had a Band I TV set and a radio receiver that covered 40-10MHz working side by side and fed by the same antenna through a ‘Y’ distributor. Now, if, during the Sporadic-E opening, your TV is receiving a picture from Hungary on Ch. R1 (46.75MHz) you should also hear the synchronising pulses from the vision transmitter by tuning your radio to 49.75MHz. Also, by tuning to 56.25MHz you should hear the associated sound. This also applies to the other channels such as: E2 (48.25/53.75MHz); E3 (55.25/60.75MHz); E4 (62.25/67.75MHz); Ia (53.75/59.25MHz); Ic (62.25/67.75MHz); and R2 (53.25/55.75MHz).

Separate antennas are better for a dual arrangement, because one can be rotated whilst the other remains stationary. If the TV set shows heavy pattering on a picture or an obvious signal from another station on the same channel, then, by carefully tuning the radio around the vision frequency and adjusting the antenna direction, it is possible to identify the ‘intruder’. Take a look in the TV section of the World Radio TV Handbook and see just how many countries actually share the same channel. Under normal atmospheric conditions these stations do not interfere with each other because of the distance between them, but, when Sporadic-E is present, television signals in Band I can increase their range tenfold.

Special Day

A variety of early post-war television receivers made by Philips, Bush and Pye, left to right in Fig. 2, are on display in the Amberley Museum, where a special Vintage Wireless Day has been arranged for September 12. The Hon. Curator of the Wireless section, David Rudram, and radio engineer Ron Weller, left and right respectively in Fig. 3, are organising the event. They plan to have 405-line television among the working equipment plus a number of special exhibits by members of the British Vintage Wireless Society. The museum’s own extensive wireless collection, a part of which is the subject of Fig. 4, plus a few extras, will be on show for all to see. I have been invited to represent my columns in PW and SWM and, along with Dave and Ron, I look forward to meeting some of you at the opening of June 1, Disney Club and Wheel Of Fortune from Norway or Arab stations on Chs. E2 and E3.

Back in the UK, Richard Bell (Melton Mowbray) saw a sports programme from an unidentified source at 1601 on the 15th, he tuned to Ch. A2 and found a rolling 525-line transmission, possibly Vietnam, which he studied with the vertical hold control. During the Sporadic-E openings on May 7, Rana saw children’s programmes, films, football, music and news from Sporadic-E openings on May 7, Rana saw children’s programmes, films, football, music and news from Arabic stations on Chs. E2 and E3.

Band I Reports

Pictures in Band I from South-East Asian TV were received via Trans-equatorial Propagation (TEP), on Ch. E2, on April 7, 8, 12, 15 & 16, by Lt. Col. Rana Roy (Meerut, India). Often these pictures were smears and fluttering. However, at 1615 on the 15th, he tuned to Ch. A2 and found a rolling 525-line transmission, possibly Vietnam, which he studied with the vertical hold control. During the Sporadic-E openings on May 7, Rana saw children’s programmes, films, football, music and news from Arabic stations on Chs. E2 and E3.

Back in the UK, Richard Bell (Melton Mowbray) saw a sports programme from an unidentified source at 1601 on May 31, an advert, a trailer for a show called Martes, programmes called Colarin Colorado, Magyver, Pinnic, Telediario, and a weather forecast from Spain (TVE1) during the evening of June 1, Disney Club and Wheel Of Fortune from Norway or
**South Essex Communications Ltd**

**New DRESSLER Active Antennas**

**ARA 100 HDX**
- 40KHz – 200MHz
- Gain: 9dB to 100MHz
- £299

**ARA 2000**
- 50MHz – 2000MHz
- Gain: 19dB to 1000MHz
- 18dB to 1400MHz
- 16dB to 2000MHz
- 11.5dB
- 100-1500 11.0dB
- 50-1000 11.5dB
- 100-1500 11.0dB
- £299

**ARA 60**
- Active Antenna
- 50KHz-60MHz with limited performance up to 100MHz
- £169

**ARA 1500**
- 50MHz-1500MHz
- Frequency
- Gain
- 50-1000 11.5dB
- 100-1500 11.0dB
- £89

**WIDE-BAND MAST-HEAD PREAMPLIFIERS ALSO AVAILABLE**
- 50MHz – 550MHz
- £69

**ARA 60** and **ARA 1500** are still current and available at **£169.00** each. *We also are now specialising in TSM range of antenna products.*

This month’s special offer: MVT 7100 scanning receiver with ssb £394.95 and the MVT 7000 £324.95

Prompt mail order service, finance facilities available, interest free credit on selected items. Prices correct at time of going to press, E&OE

191 Francis Road, Leyton, London, E10 6NQ
Phone: 081-558 0854 081-556 1415
Fax: 081-558 1298 08953609 leighton G

Opening hours: Mon-Fri 9.00am-5.30pm
Sat 9.30am-4.30pm

**Scanning Owners**

**TURN YOUR 'SHACK' INTO A MONITORING STATION!**

Connects to any radio and is very cost-effective. The AUTO-VOX will automatically pitch your tape recorder on and off as signals are detected. A must for all scanner owners. Return to a neatly compressed tape of all the action. Supplied as a kit with full instructions or ready built and tested.

**Kit £12.50**
**AUTO-VOX Built £25.00**

**Radio Research, SWMS, 3 Pasture Close, Whitmore, Staffs, STS 5DQ**
Spain for short periods on the 4th, advertises and cartoons from Spain on the 5th, and Popeye, a large analogue clock on the right of the picture from an unidentified station and CNN and Shogun and Magyver again from Spain on the 7th.

Early on the 12th, S.M. Hockenhull (Bristol), using his portable TV with 3m of wire hooked over a curtain rail and for antenna, found weak-to-strong pictures between Chs. E2 and E4 and on E4 he saw the Pope conducting a service.

John May 30 to June 22, Bob Brooks (Great Sutton) received signals, spread over various days, from stations in the Commonwealth of Independent States (CIS), Czechoslovakia (CST), Finland (YLE TV1), France (Canal+), Germany (ARD Bayern Studio and Grunten), Hungary (MTV), Italy (RAI), Poland (TVP1), Nigeria (NTA), Norway (NRK and Humann), Romania (TVR), Spain (TVE) and Sweden (SVT).

Among the programmes he saw were ballet, basket-ball, cartoons, church services, circus, cookery, films, Murder She Wrote, news, orchestral, the Pope’s visit to Spain, singing, sprinting, tennis and weather. In addition to clocks, various logs and text-cards, he saw the news captions HOBOCTN (CIS), Telediaro (Spain), and the Spanish regionals, Andalucia and Catalonia.

John Woodcock (Basingstoke) talked about the Spanish elections from TVE1 at 1835 on June 1st, pictures from Italy (RAI) at 0658 and 0851, and receiving pictures in Band III, from Russia (TSS/OK1) on June 12th.

Weather

“We have had some very unusual weather conditions,” wrote Rana Roy on May 20 and explained, “It was cool until April 20. It suddenly warmed up from April 21 and became very hot in a few days with temperatures going to 44°C. This unusual heat continued till May 7 when we had thunderstorms almost every evening till the 17th, bringing the temperatures down.”

While at the Chelsea Flower Show on May 28, Joan and I visited the stand of Dux Ltd to see their range of weather instruments. In addition to a variety of thermometers (max-min, wet & dry) rain gauges, etc., there was an instrument screen, in kit form and a selection of attractively styled barographs. The screen measures approximately 330 x 230 x 130mm which, to me, looks easy to assemble and sells for £19.50, post free. The barographs range from a miniature (Cat.2020), with brass fittings on a mahogany base, at £175, through a new medium size (Cat.2016), Fig. 5, with a brass base and components at £250 to larger versions for home and marine use between £335 and £435. For instance, Cat.2003 which has a mahogany case, gold plated components and 8 vacuum capsules is £420. The price of these instruments includes VAT, carriage and packing, 52 charts and an article entitled ‘The Uses Of A Barograph’. The chart drums are driven by a quartz clock with a 1.5V battery (AA) and the stylus is a replaceable red fibre pen. (No more dirty fingers or forgetting to wind the clock!). Both the battery and the pen last about one year. It found the people on the stand very knowledgeable and only too pleased to help. Readers interested can get more detailed information and advice from this 50 year old firm can get more detailed information and advice from this 50 year old firm.

Mid-Summer

I recorded 2.59in of rain at my home in Sussex in June compared with 3.8bln for the same period in 1992. The largest amounts of 0.90 and 0.81in fell on the 12th and 16th respectively. It was well reported that parts of UK were subjected to severe flooding around the 11th and 12th. While the pressure was falling on the 2nd, I watched black clouds coming in over the South Downs, Fig. 6. The daily variations in atmospheric pressure for the period May 25 to June 28, Fig. 7, were taken at noon and midnight from the recording chart of my own barograph.

Tropospheric

In the early mornings of April 21 to 23 and 30 and May 3 & 5, Rana Roy received pictures in Band III, from Lahore on Channel E5, Amritsa (E7), Marhi (Pakistan TV) (E8), Jalandhar (E9), Sialkot (E10), STN (Pakistan TV) (E11) and Bhatinda (E12). On May 5 he saw Delhi, Fig. 7, on Ch. E7 between 0930 and 1005 when the signals faded away.

While on holiday in the Isle of Arran, on June 13 and 15, George Garden (Edinburgh), using a JVC 610 portable, received Eireann TV, (RTE1) on Ch. E10, which he identified by confirming the programmes he saw with the list in the Daily Telegraph. On the 26th, Tim Bucknall (Congleton) found that the u.h.f. signals from The Wrekin and Winter Hill were subjected to co-channel interference. When tropospheric conditions improved on June 29, Simon Hamer received pictures from Denmark (DR) on Ch. E8 and their TV2 in the u.h.f. band, on Chs. E30 and 35.
The age of serial communications has finally hit my place. I had been feeling out of step with the modern world by too often having to confess to not owning a FAX machine and decided to take the plunge. That may seem like an everyday decision but when your house electricity supply is low voltage direct current and all available FAX machines can be counted on the fingers of one thumb. After a great deal of market research I found an Australian designed 'uni-connected' manufactured machine called a Microfax. The Microfax will fit into a shirt pocket and turns my bubble jet printer into a plain paper FAX receiver. It comes in a tiny little machine works as a modem as well. Now I'm busy spending time investigating local bulletin boards and what they have to offer. Anyway that's all a little removed from transmissions through the ether, so I will get on with it.

Pay TV

Readers of this column will be familiar with Australia's pay television saga. I definitely don't use the word 'saga' in the OED sense of 'a story of heroic achievement' here but rather to mean a long and complicated series of more or less loosely connected events.

This story will just not go away no matter how hard the players try. I noted in 'Bandscan Australia' for June 1993 that the tussle between the proponents of pay television by satellite and of pay television by a ground based microwave frequency multi-point distribution system (MDS) was before the courts. That challenge to the government's decision to postpone the introduction of MDS until 1995 is still underway.

During all this the government discovered what it claimed were technical legal flaws in the MDS tendering process and abrogated the whole process. These flaws were tied up with the way frequencies were to be allocated to successful tenderers. This abrogation was in turn subject to another legal challenge. That challenge was eventually withdrawn and the government issued a consultation paper to canvas views on the allocation of MDS licences. The cynics, of course, would argue that the government was introducing yet another tactic to slow acceptance of MDS in favour of its preferred direct broadcasting by satellite (DBS).

Almost simultaneously with all this the two highest bidders for the commercial and available DBS licences were announced to a fresh uproar. According to most commentators on the matter, the bids were too high for the possible discount and the promise to hold off and questions were raised as to the financial viability of the two previously unknown bidders.

The short story is that the government was approached on deposits made by the tenderers during the bidding process. Reportedly to allow new players to enter the media field the deposit was presented by the Department of Transport and Communication (DoTC) was a mere A$500 (about £200) rather than the government's preferred 5% non-refundable deposit. This most definitely did not please Keating government hit its way through opposition questions on the tendering process; that committee being involved in the following.

The Minister for Transport and Communications, Senator Collins and his House of Representatives colleague managed to fend off the questions by dint of considerable weaving and due to the promise to hold off and the two commercially available DBS bids were too high for the possible discount and the promise to hold off. The DoTC have previously unknown bidders.

The question, of course, remains as to whether the government is so keen for DBS to go ahead as to be prepared to spend millions of dollars into the project. Is it really worth the potential for being operational and when forcing potential customers to satellite technology opens up the possibility of foreign ownership and when potential customers to satellite technology opens up the possibility of foreign ownership, is it really worth the potential for being operational and when forcing potential customers to satellite technology opens up the possibility of foreign ownership, when the government is in the business of providing information direct broadcast by satellite (DBS).

No doubt this story will continue in the months and years ahead as the public works through whatever Machiavellian plans it has afoot. Mind you, what may seem to be Machiavellian may be good old fashioned bungling.

In the meantime Australia's radio amateurs are fearful of losing their status in the 2300 - 2450MHz band even as secondary users and are weighing in on the side of DBS. As it is currently proposed there will be fourteen MDS channels in the frequency range 2302 - 2400MHz and amateurs are worried that future developments will allow MDS into the 2400 - 2450MHz segment as well.

Flying Doctors

Mike le Vesconte reported what he thought was the Royal Flying Doctor Service's (RFDS) most recent 'SSB Utility' column in SWM for June 1993. While I was musing on checking that one out the latest copy of the Australian magazine CB Aircraft's radio contact worldwide in the 14Mhz band.

Dick Smith created a furor in the media here over his decision to use a British manufactured balloon for his crossing of the continent rather than a locally made product.

Met Satellites

Recent satellite images of New Zealand and the south west Pacific in 'Info in Orbit' in SWM have prompted me to check into the satellites accessed by the Australian Bureau of Meteorology. For domestic purposes, the met bureau taps directly into the Japanese Geostationary Meteorological Satellites (GMS) and the USA polar orbiting satellites of the USA's National Oceanic and Atmospheric Administration (NOAA). For international purposes, the met bureau here is one of the three world centres of the World Meteorological Organisation and for these purposes accesses in addition the geostationary GOES weather satellites, the USSR METEOR satellite and the European ERS satellite. It also uses data derived from METEOSAT and INSAT and will use data from the Chinese Feng Yun 2 after it is put into orbit next year. Although pictures of the earth's surface are amongst the most spectacular output from these satellites it is the data stream that holds the main interest for the met bureau. These data include for example information on surface and upper level winds, on sea surface temperatures, on volcanic ash and on vegetation. Satellites are used too over this area to retransmit information from data collection platforms located on buoys, atolls and islands throughout the oceans surrounding Australia and Antarctica.

Balloon Crossing of Australia

Prominent Australian millionaire adventurer Dick Smith VK2DIX took his amateur radio equipment aloft for a 7000 mile crossing of the continent by balloon in June. Working via ground based net control special callsign station VK2ZBS he was able to make amateur radio contacts world-wide in the 14Mhz band. I am in contact with co-ordinator Stephen Pall VK2PS and will report more details in due course.

Dick Smith created a furor in the media here over his decision to use a British manufactured balloon for his crossing of the continent rather than a locally made product.

Radio New Zealand

The Radio New Zealand (RNZ) 6.05MHz transmission reported in SWM for June 1993 operates from 1850 - 1850UTC daily except Sunday. It features Pacific regional news at 1700 and 1800UTC and sports news at 1730 and 1830UTC.

Other RNZ frequencies are 11.735MHz daily except Saturday 1850 - 2137 (2138 Friday)UTC, 15.120MHz daily 2137 (Saturday 2135) - 0558 (Sunday 0728)UTC and 9.700MHz daily 0658 (Sunday 0758) - 1206UTC. RNZ is closed each day after 1206UTC. The frequency 9.510MHz is occasionally used in the period 1207 - 1648UTC for national and international sports broadcasts. The RNZ programming guide and frequency schedule can be obtained from Radio New Zealand International, PO Box 2092, Wellington, New Zealand. Letters and reception reports are welcome to the same address. RNZ says that reports must contain detailed programme information for verification and be accompanied by three (3) IRCs for a QSL.
Short Wave Magazine, September 1993

Note: Remember to remove the ABF125 from the aerial when monitoring signals other than VHF Airband or signal strength will be dramatically V.S.W.R. of 2:1 resulting in a loss of only about 4dB.

ABF125 in band attenuation level is very small due to the excellent in band aerial signal path some reduction of signal is resulted (attenuation) however the receiver, and reduce it's effectiveness. When any connection is fitted to the situa-tions by removing unwanted strong signals which may overload the receiver.

The ABF125 is not an amplifier so will not 'boost' signals, however the external aerials and for connection directly under the whip aerial of a hand-held out of band attenuation typically of 25dB from 0.3 - 75 MHz and 20dB from 500 kHz - 1300 MHz. Many accessories supplied as standard including Charger, NiCads etc. Suggested Retail Price £309.00 inc VAT. (UK Carriage free)

New ABF~125 VHF Air Band Filter for better strong signal performance...

The ABF125 is a receive bandpass filter especially designed to improve receiving signal handling characteristics of receivers for VHF commercial Airband listening. The ABF125 is suitable for connection to most airband and wide range receivers on the market, it is not designed just for AOR branded products. The addition of this filter to the aerial signal path will provide additional selectivity which will enable the receiver's circuitry to cope much more easily with strong interfering signals such as Band-2 Stereo or Shortwave broadcast transmissions which can be manifest in many ways such as 'hissing', mixing of many signals together, music breakthrough and desensitisation of the receiver.

The ABF125 will provide useful additional selectivity (in many situations) to any receiver's 'front end' by reducing the multitude of unwanted strong signals from reaching and saturating the receiver's first mixer stage... this results is less interference and improved reception.

Of course 'stubb filters' can provide a degree of rejection to unwanted signals but tend to be bulky being suitable for bulkier station applications and usually to have to be hand-made. The ABF125 on the other hand is ready made and very compact measuring only 7.35mm and weighing a mere 52g yet offers excellent out of band attenuation typically of 25dB from 0.3 - 75 MHz and 20dB from 190 - 400 MHz. This makes the ABF125 suitable for connection to both external aerials and for connection directly under the whip aerial of a hand-held receiver. A BNC socket (female) is fitted to the top of the ABF125 and a BNC plug (male) to the other making connection to an aerial easy and straight forward.

The ABF125 is not an amplifier so will not "boost" signals, however the additional selectivity offered can significantly improve reception in many situations by removing unwanted strong signals which may overload the receiver and reduce it's effectiveness. When any connection is fitted to the aerial signal path some reduction of signal is resulted (attenuation) however the ABF125 in band attenuation level is very small due to the excellent in band V.S.W.R. of 2:1 resulting in a loss of only about 4dB.

Note: Remember to remove the ABF125 from the aerial when monitoring signals other than VHF. Airband or signal strength will be dramatically reduced.

Suggested Retail Price £24.50 inc VAT. (UK Carriage £1.50)

Radio Communication Products from AOR

AR1500EX - One of many receivers & products produced by AOR. The very compact AR1500EX handheld wide range receiver offers all mode reception including SSB as standard. Newly designed printed circuit boards have been incorporated to ensure this new version offers the very best performance. Frequency range is 500 kHz - 1300 MHz without any gaps in the range. The AR1500EX offers full coverage of the VHF, UHF and Shortwave Airbands plus broadcast, amateur band, utility services etc. Many accessories included: NiCad pack, Charger, Dry battery case, DC lead, Soft case, Belt hook, DA900 VHF-UHF aerial, SW- wire aerial, Earphone, Comprehensive Operating manual... Suggested Retail Price of £349.00 inc VAT. (UK Carriage free)

AR2000 - this popular receiver continues and remains a firm favourite with listeners and enthusiasts. Features include coverage from 500 kHz - 1300 MHz and reception of AM, FM(N) & FM(W). Many accessories supplied as standard including Charger, NiCads etc. Suggested Retail Price £309.00 inc VAT. (UK Carriage free)

With the AR3000A (base-mobile receiver) your listening horizons are truly extended providing receiving coverage from 100 kHz all the way up to 2036 MHz without any gaps in the middle. The AR3000A offers the widest coverage on the market today with a high level of performance and versatility from long wave through shortwave, VHF and onward to the upper limits of UHF and SHF. Not only will the AR3000A cover this extremely wide range it will allow listening on any mode: NFM, WFM, AM, USB, LSB AND CW. The AR3000A also features an RS232C port for computer control. Suggested Retail Price £949.00 including VAT. (UK Carriage free)

AORS~ Spectrum Coordinator
IBM-PC computer control of the AOR AR3000A, AR3000 & AR2500 receivers

AORS is a powerful program for the IBM PC (and 100% compatible) computer, which allows you to control an AOR scanning receiver using a serial port (RS-232 interface) of the computer. Many facilities are offered to provide you with a high performance radio monitoring system. It is possible to switch instantaneously between the two VFOs with a single key press. A fixed VFO offset may be entered into the system and the VFOs locked together using the "tracking" facility so that an offset is maintained while tuning across the receiver's spectrum. Three thousand mode sensitive memory channels are provided in each memory file, each with dual VFOs and a 50 channel comment. A selection of these memories is displayed on the screen so that you may review memory contents easily. The display of memories may be paged up or down so that it is possible to check on the contents of the entire bank of 3900 channels from the VDU. You may expand the memories by creating new memory files, each with 3000 channel as above. There is no limit to the number of files you can create, unless you run out of disk space. A comprehensive range of scanning facilities is provided with the software. It is possible to scan memories, freeze or perform band limited scans. A descriptive 8 page booklet is available to request. The software is priced at £75.00 plus £2.00 P&P. AORS is supplied on both 3.5 & 5.25 inch media for installation onto a hard drive. A DEMO disk (without RS232 support) is available on a 3.5 inch disk for installation onto a hard drive, Price is £5.00

ACEPAC3A ~ IBM-PC control...

For those with a larger budget, ACEPAC3A is also available for the AR3000A & AR3000 receivers. Installation is recommended on a hard drive but can be run from 3.5 or 5.25 inch floppy drives depending on machine compatibility. Features are similar to AORS but ACEPAC3A has a more versatile spectrum graph type display. A descriptive leaflet is available to request. Suggested Retail Price £139.00 plus £2.00 P&P.

"Nearly New" stock offers substantial savings

Occasionally we are able to offer "Nearly New" equip-ment with full 12 months' AOR warranty at attractive prices. There can be many reasons for this stock, but most important for 'you' is that we can offer substantial savings from Suggested Retail Price. All equipment is thoroughly tested before despatch to ensure full conformity to specification. (Carriage £6.00 extra). For those with a larger budget, ACEPAC3A is also available for the AR3000A & AR3000 receivers. Installation is recommended on a hard drive but can be run from 3.5 or 5.25 inch floppy drives depending on machine compatibility. Features are similar to AORS but ACEPAC3A has a more versatile spectrum graph type display. A descriptive leaflet is available to request. Suggested Retail Price £139.00 plus £2.00 P&P.

MODE DESCRIPTION

AR3000A The ultimate. Unique all mode extremely wide band multi-mode receiver. Coverage is 100 kHz - 2036 MHz with no gaps

AR1500e Compact all mode handheld receiver. Coverage 500 kHz - 1300 MHz... AM/NFM/WFM & SSB using BFO.

AR1500e Exposed all mode handheld receiver. Coverage 500 kHz - 1300 MHz... AM/NFM/WFM & SSB using BFO.

AR1500e Exposed all mode handheld receiver. Coverage 500 kHz - 1300 MHz... AM/NFM/WFM & SSB using BFO.

AR2000 Hand held receiver 500 kHz - 1300 MHz without gaps. AM/NFM/WFM.

AR2800 Competitively priced full featured base mobile scanning receiver. All mode operation AM/NFM/WFM & SSB using BFO. Coverage is 500kHz - 600 MHz with no gaps. Includes internal NiCad battery.

AR2500

"Nearly New" equipment is truly supplied as-new and is not the result of worn out equipment through trade-in etc. Offered only available directly from AOR UK and subject to supply availability. Please phone or send a large S.A.E. for full details of New and "Nearly New" equipment, there are many models in the range.

Many other receivers and products are available from the AOR range. Please phone or send a large S.A.E. (34p) for full details. Dealers throughout Europe... fast mail order available for direct orders.

AOR (UK) Ltd.
Adam Bede High Tech Centre, Derby Road, Wirksworth, Derby. DE4 4BG. Tel: 0629 - 825926 Fax: 0629 - 825927
AOR (UK) Ltd is a subsidiary of AOR Ltd Japan. All Trade Marks acknowledged. E&OE.

Short Wave Magazine, September 1993 55
This month we take a look at some recently announced changes in the UK Search and Rescue set-up, and take a look at some of your questions from recent letters. I have been asked to explain my policy on personal replies, now that I am compiling this column each month. Unfortunately, due to pressure of work, and the need to produce this column within the magazine deadlines, personal replies cannot be made. I will, however, try to answer as many questions as possible within this column each month. I will combine similar questions together so that the same kind of questions are not mentioned every few months.

UK SAR

Within the United Kingdom, air-sea rescue cover is provided by the RAF, RN and HM Coastguard. Recently, the MOD announced some changes to the structure of the RAF SAR equipment and bases; some of these have already taken place, and others will happen over the next 3 years. The fixed-wing element of UK SAR cover is provided by Nimrod MR.2s operated from RAF Kinloss in Morayshire. The fleet used to be split between here and RAF St Mawgan in Cornwall, but during late 1992 the aircraft at St Mawgan all moved north to Scotland. During major incidents, one of these aircraft usually flies around coordinating the movements of the helicopters; they are frequently heard on h.f. using two-digit ‘Rescue’ callsigns (e.g. ‘Rescue 11’, ‘Rescue 51’). These aircraft pass an arrival message to the UK SAR Command Post.

The helicopter element is provided by 22 Squadron operating a fleet of Wessex HC.2s and 202 Squadron operating Sea King HAR.3s. Each squadron operates from a number of ‘flights’ around the UK, principally at RAF airfields near the coast. Each ‘flight’ usually has two helicopters at any one time although some have more due to their training needs (e.g. RAF Valley has extra helicopters because they train crews in mountain rescue techniques).

The MoD announcement stated that the remaining Wessex HC.2s would be phased-out and replaced by additional Sea King HAR.3 helicopters; this was to be accomplished by 1996. Also, a number of ‘flights’ would be moved, stood-down or changed from one helicopter type to another; these are listed in the adjacent box. All these helicopters need a lot of maintenance, and the SAR Engineering Wing provides this; they themselves moved from RAF Finningley to RAF St Mawgan during 1992. With all these changes, the h.f. frequencies used by the SAR aircraft and helicopters have not changed. These frequencies are well known, but worth repeating; the most active appears to be 5.680MHz.

One piece of information that I have never seen printed is a list of callsigns used by the RAF SAR helicopters when they are not on a rescue flight. ‘Rescue’ callsigns are frequently reported by numerous people, but this callsign is only used when the helicopter is on a rescue mission. At other times, they use a standard three-letter prefix to their flight number. These are as follows:

<table>
<thead>
<tr>
<th>Call Sign</th>
<th>Unit</th>
<th>SAR Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRG</td>
<td>22 Squadron</td>
<td>SARW Engineering Wing</td>
</tr>
<tr>
<td>SAR</td>
<td>22 Squadron</td>
<td>Engineering Wing</td>
</tr>
</tbody>
</table>

One of the best times to hear these callsigns on h.f. is at weekends. The crews need to fly regularly to maintain proficiency; they regularly train at weekends using their ‘SRD’/‘SRG’ callsigns. Typical examples might be ‘SRG 191’, a Sea King from 202 Squadron ‘B’ flight at RAF Brawdy, or ‘SRD 125’, a Wessex from 22 Sqn ‘B’ flight at RAF Coltishall. This information updates the excellent Rescue book by Paul Beaver & Paul Barriff (available from your local library).

Questions

Ron Galliers writes with some answers to earlier questions. The callsign ‘Dusty Dog’ was mentioned a few months back; Ron reports that he heard ‘Dusty Dog 610’ on 11.175MHz make a phone patch to Norfolk NAS in the USA, and then made some morale phone-patches. This would indicate that the callsign ‘Dusty Dog’ is something to do with the US Navy, and the ‘610’ part would indicate that the callsign was used by a US Navy Sea King helicopter.

Ian Lockwood asks “What are HR’s?"; he recently heard a USAF aircraft pass an arrival message to a USAF base in the USA, and said that he had “2 DV’s and 0 HR’s on board”. Any suggestions? Also, in the July issue Mike le Ves Conte was asking after a logging program for his PC. Jim Dunnet (5 Queens Rd, Wellington, Somerset TA21 9AW) writes offering various ‘shareware’ logging programs. Jim says that he can read/write any size and capacity of disk, and his offer is open to anyone who would like any radio-related software from his collection (please write direct to Jim, not me!).

The subject of the r.f. power used by aircraft and ground stations has been answered by Peter Nicholson, Stations in the North Atlantic network (Shanwick, Gander, Santa Maria, etc.) use 5kW according to their QSL cards, as do Gulf Air (‘Falcon Ops’) in Bahrain. The RAF Volmet uses 3kW, while Sydney Volmet uses 10kW. The ICAO manual for Aeronautical Telecommunications says that h.f. transmissions from aircraft should not exceed 400W p.e.p. Peter asks about the callsigns ‘Shark’ and ‘Skua’ heard on 11.176MHz during the evening. Both made phone-patches to Howard AFB (Panama) Command Post. I can answer the ‘Shark’ question myself, and I assume that the ‘Skua’ callsign belongs to the same user. ‘Shark’ is the callsign used by the 310th MAS (Military Airlift Squadron) based at Howard AFB, they operate a fleet of C-130 Hercules and C-27 (Fiat G.222) aircraft to fly around south and central America. Their callsign used to be ‘Omni’, but it changed to ‘Shark’ on 1 June 1992. Peter also asks about the callsign ‘Ninja Control’, which is probably in Europe somewhere; it is frequently called by Incirlik, and USAF RC-135 (callsigns OLIVE, BAMA and SNODIP) often ask for messages to be passed to ‘Ninja’. It is certainly a ground station, but where?...
Edward Sheeley in Ely, Cardiff, wrote in asking about amateur radio, having seen a previous column, and we were pleased to pass him on to GW4YKL who runs a class near here.

Westcliff-on-Sea is home to Rona Gappy, whose first name constitutes DX. A very good question! Robin included a short log - short as he had just got married - and on 14MHz found such as KIPS, FK2Q, T4AF, NQ1DM, VK600, VK6AGP, JA9G, VE2AFL, ZL400, 9AIU, WA4AF, NCI2, S90KR, 9HI1E, GB2SM (Science Museum), JAUJK, P2AQG, LY2BJ, 42AUR, VE7 and a odd VP2APB. On 3.8MHz he hooked GB2PHI, BG5RAF, VO1PG, GU4WRO and 7JACE on 7MHz. Finally, to 18MHz where OZ2PZ was being heard.

Next we turn to H Richards of Barton-on-Humber who says he is a 'listener' rather than a 'callsign collector'. For example, U85BEC was heard, seemingly from Berlin, and apparently arranging a sked for 7MHz. In fact, U85 is the prefix for Ukraine, so U85BEC was probably talking to a DL station in Berlin. On a different tack, Richards asks about nets. A net is a group of stations all on the same frequency (they hope!) and all taking it in turn to have a say. Many local club nets can be heard on, say, Top Band and Eighty; for example, some Powys ARC members gather around 3.794MHz at 2200 UTC and 7.290MHz at 2300 UTC are used but on 1930MHz on Tuesday evenings at 1900 UTC there is a mixture of amateurs talking about nets. A lot of us are the culprits. And there is a lot to be said about nets. A net

Calling Dennis Sheppard!

We have a letter from Mr J. Fletcher, 14 Hawthorn Walk, Eastfield, Scarborough, N. Yorks Y01 3HW in which he says he has a JR310 such as Dennis mentioned he was looking for a couple of months back. Perhaps if Dennis who lives at Earl Shilton cares to get in touch with Mr Fletcher, they might both be pleased!

Leighton Smart in Trelew is having QRT because his youngsters has been hospitalised; however, he does mention in his letter that he has a home-brew vertical for 28MHz and around 60MHz of wire-end fed on Top band. Nice to hear the harmonic is fully recovered.

In Iceland's Hafnarfjörður Geoff Crowley has observed how the low band activity is not as lively as for which he comes 24 hours daily in midsummer! Also of course, June and at least the first part of July have been mostly poor in terms of summer conditions, at least when yours truly has been active. Highlights WA1HMW's English accent, VK6UN, P19DQA, VE7IM, JA3DQW, JK6WR, KJ6MY, VK6AJ, K0XKX, P2TEL at 59 plus a lot, loads of Europeans, and a lot of East Coast WSs. On the technical front, Geoff has spent more time playing with his antenna. He often hears CB signals when 28MHz is open. This happens when the sun on the path is above the CB and below 28MHz, and at this stage of the cycle it may happen more often.

Oh, those birds and bees!! Simon Gripps (Chelsford) has a new lady friend and this has put a decided crimp in the receiving activity level. However, a listen on Eighty MHz just before midnight UTC, 11/07/93, seemed a good idea, so he received amateur radio equipment. The name and address of your MEP can be obtained from your local public library.

Letters

We kick off with Phil Townsend from London E17, who wrote that he had got his UE2AW with the 9K2CW and K0XKX antenna attenuator. The attenuator is to reduce all signals when one big one is overpowering the receiver front-end - probably the mixer stage. The big one makes the stage go non-linear, and every signal beats with every other one to create noise. The offender is maybe many tens of kHz away from the signal you want to listen to. Thus, the idea is to reduce the strength of all signals until the cause of the problem is reduced below the overload limit, when the noise level suddenly falls and signals pop up out of the noise. This scheme is particularly useful on the lower bands, notably 3.5 and 7MHz where megawatt broadcasters outside our bands are usually the culprits.

Still with noise, much is picked up on mains leads and coaxial cable screens, and a lot is to be said for coiling these up wherever possible, both on the station receiver and nearby TV, video and computer devices. The coil should be located as near to the TV, video, computer or communications equipment, if possible. It makes the place tidier anyway, and can make a considerable improvement to the rumpus that emanates from, for example, a TV timelapse.

We now come to Gerald Bramwell's gleanings from Swinton. Gerald's enquiries about IARR nets has been yet unanswered, but he has found them on 3.795, 14, 175, 28.745MHz at 1000, 1300, 1700, 2100 and midnight UTC. In addition 3.890 at 2200 UTC and 7.290MHz at 2300 UTC are used but on a.m., these

Clubs

Have you ever thought of joining either a local or national club? Listeners to the amateur bands often join a national club, in essence, a choice of either ISWL or RSGB. Which to choose? Personally I chose RSGB, though I was for several years in ISWL as well. That having been said, nowadays I suppose RSGB because it is my belief that without the RSGB and all other national societies we could well loose our bands to commercial pressures. At a lesser level, the fight against the EE bureaucrats, and his wish that all our equipment have his rubber-stamp of approval seems to be - if it goes through - the end of home-brew and the smaller suppliers. RSGB President G3RZP is, as it happens, professionally engaged in this area, and he tells us that at least we have the backing of the British Euro-MPs. You can help by writing to your Euro-MP to say that in your view, the proposed amendments to the Telecommunication Equipment Directive (91/236/EEC) should not cover amateur radio equipment. The name and address of your MEP can be obtained from your local public library.

Great Harwood next, to Mark Malone, who seems to have heard mainly Europeans on his DX302 receiver and random wire antenna. However, we note 8K2JG and VB9WVO for Asia, 3C1TR for Africa and shoals of the 'rare' Europeans. One wonders whether Max has a Skywave which 'looks' in a less than favourable direction, or whether an improvement would be obtained by a change of listening time. For example, there is the morning period; if you can't hear VK and ZL working into UK around 14.150kHz, the band is not too hot or you have a receiver fault. The mornings are in fact also better, partly virtue of an absence of European signals to blot out the more distant stuff.

So, there you have it for another month, Letters as always is the address above to arrive at the beginning of the month. Remember for the record that your mention will appear some six weeks after the letter reaches me.
**AIR TRAFFIC CONTROLLERS**

On hand to help you towards an interesting and rewarding pastime. Specialists in AIR BAND RADIOS and SCANNERS. Handheld, mobile or base - AOR, Signal, Yupiteru, Icom, Uniden, Sony, Nevada. HF receivers from Sony, Icom, Lowe.

Everything you need - contact us.

---

**PC GOES/WEFAx**

PC GOES/WEFAx enables you to receive both FAX and SATELLITE images on your PC using a 1200 baud modem. Suitable for system designers, re-broadcast satellite images, press and amateur enthusiasts. In FAX mode it will display weather charts, re-broadcast satellite images, press and amateur transmissions. In SATELLITE mode it will capture images from both METEOSAT and any Polar orbiting satellites. Some of its many advanced features are:

- Image resolution: 640x800x16 standard, 1280x800x256 with VGA and 1MB RAM
- 240V mains adaptor
- Complete with 3 AA size ni-cad batteries.
- £165 inc VAT

**PC SWL 3.0**

PC SWL is a complete package allowing decoding of data sent over radio.

This new version contains the following features:

- RTTY (600 baud) 4, 9, 27 and 600, or user selectable rate and ASCII 75, 110, 150, 300, or user selectable rate - FEC/ARQ including AMTOR/SITOR 75 and 100 baud.
- RTTY CODE with automatic and manual select control.
- METEOSAT marine weather and navigational information.
- RAW HEX for manual decoding.
- Improved automatic signal analysis.
- Integrated 32k hardware buffer.
- Upgrade for existing SWL users £40 inc VAT

Order PC SWL and PC HF FAX together for only £178 inc VAT £3.25.
My Museum celebrates its 10th anniversary on March 29 next year. Has anyone a suggestion as to way to mark the occasion on that Sunday?

Talking of history, it's about time I replaced my h.f. receiver with something more up-to-date. I suggest getting rid of my old HRO (mid-war vintage) and replacing it with, say, a Trio TR-390S (from perhaps the late 1980s) thus making my station about two decades more modern!

General coverage with b.f.o. is required, valves are preferred (to cope with overloading from strong signals) and funds are short! If you can offer a suitable rig, please contact me.

There is presumably charged at a premium!

You Are (Not Necessarily) Clear to Display

During September, the Red Arrows are expected to visit Kinloss on September 4, Manston & Shoreham on the 5th, and Cranfield on the 9th, Benson & Bristol on the 10th & 11th, Duxford & Southport on the 12th, Guernsey & Jersey on the 16th and Finsingeld & Leuchars on the 18th. In October, the team heads for the USA and, traditionally, its membership changes as some pilots finish their three year tour at the end of that month.

Then follows intensive training to bring the new recruits up to standard; the leader of the 'synchro trio' is selected his Number 2. Final training pairs to standard; the leader of the 'synchro training' to keep all metal panels electrically conductive braid is used to bond in such as bolts appear on both sides of the vehicle are bonded to the earthy side of the metal case feed-through, not, cause widespread interference in any neighbourhood through which the vehicle is driven. Likewise, resistive spark plugs are available, their type number often being prefixed by letter R. If not, then resistive suppressors are made which connect between the h.t. lead and the top of the plug. I doubt if a ferrite placed over the h.t. lead will be effective. Remember also that the distributor and coil can be enclosed in a screen. Aircraft h.t. leads are covered in an earthed coating, and you could try this technique. Finally, have any non-ignition sources of interference, such as an electronic tachometer, been missed?

A Cry for Help

'How can I suppress vehicle ignition interference when a v.h.f./a.m. receiver is operated from a car?' asks Nigel Tucker (International Short Wave League ZZ-20061) in Zimbabwe. For starters, all metal parts of the vehicle are bonded together, which is to say that thick electrically-conductive braid is used to run all metal panels that are interconnected. Note that the braid must be thick, well-sealed (by more than just a self-tapping screw) and attached to a conductive point (such as paint scraped away). Then, to preserve the connection, waterproofing paint or covering (such as Finnigan's Waxoyl or a bitumen-based product) must be applied. Remember that fasteners such as bolts appear on both sides of the panel and both surfaces need protection. The most important panel to bond in this way is the engine compartment lid. The result is an electrically-screened box surrounding the engine.

On its own, this is not enough. The screened box has a hole in it where the power lead to the receiver. This should be filtered in order to keep interference from entering the radio. In-line chokes can be purchased for vehicle use, but make sure that they can handle the current drawn by the vehicle (especially if a transceiver is involved). Where the power leads enter the equipment, they should pass into the radio's metal enclosure via feed-through capacitors. If one power rail of the radio is bonded to the earthy side of the vehicle supply then only the other needs a feed-through, assuming the metal case is not floating (it shouldn't be)!

How this is arranged varies from one set to another because drilling holes might involve the guarantee and/or maintenance contract.

There are other ways of keeping the noise level down as well. The ignition leads should be a suppressing type, so pure copper will not be outside the question. These latter are fashionable among drivers who think that they improve engine performance. I don't believe in them; the high-voltage, low-current ignition system is inherently high impedance anyway, so copper leads won't confer any benefit. They will, however, cause wideband interference in any neighbourhood through which the vehicle is driven. Likewise, resistive spark plugs are available, their type number often being prefixed by letter R. If not, then resistive suppressors are made which connect between the h.t. lead and the top of the plug. I doubt if a ferrite placed over the h.t. lead will be effective. Remember also that the distributor and coil can be enclosed in a screen. Aircraft h.t. leads are covered in an earthed coating, and you could try this technique. Finally, have any non-ignition sources of interference, such as an electronic tachometer, been missed?

Follow-Ups

Shackletons have received numerous recent mentions. Andy Keddie (Luton) knows about the two Paphos examples (July). Years ago a Cypriot businessman bought them at auction but his plans for running pleasure flights probably haven't come to fruition. The aircraft are WL 747 and WR 963.

During a visit to the island in April, Fred Wilson (London SE2) observed that they were still there.

Information Sources

Various airport ground services have short-range communication allocations typically around 456MHz. Some of these frequencies relay Ground or Tower as these two controllers share responsibility for movement of aircraft and vehicles on the ground. This enables service vehicles to coordinate their movements during taxiing whilst traversing the taxiways and apron. The Tower has the special function of safeguarding the runway, and vehicular access might be needed in order to remove debris or scare off birds. R. Keary (Manchester) points out that the third edition of Peter Rouse's Scanners (temporarily out of print), details some of these uh.f. channels. Look out for this, and other books by the late author, from the SWM Book Service.

Living in Lincolshire, Frank Slater has plenty of nearby airfields. Manham, Mildenhall and the others provide Frank with frequent sightings of tankers, Starlifers and so-on. I don't know how the military keep track of their wide range of call signs, which seem to vary so much! Various specialist hobby-orientated magazines and clubs offer information on such call signs. As for the frequencies allocated to such aerodromes, the best guide is the RAF Flight Information Publication. In your case, Frank, try the En Route Supplement; British Isles and North Atlantic, which is sold to the public by mail order from 1 AIDU, RAF Northolt, West End Road, Ruislip, Middlesex HA4 6NG. Telephone (081) - 845 2300 ext 7209.

As stated at the end of this column, I regret being unable to send out direct replies to individuals, so watch future issues if you want to...
YUPITERU
MVT-7100
Hand-held.
Covers 530kHz to 1650MHz

MVT-8000
Mobile or base wide band scanner

YUPITERU
MVT-7000
Hand-held. Probably the UK’s most popular hand-held scanner!
£320 incl. VAT.

FAIRMATE
HP-2000
One of the most popular scanners on the market.
£260 incl. VAT.

YAESU
FRG-1000
The most promising general coverage receiver yet.

ALINCO
DJX1E
Hand-held scanner.
Covers 500kHz to 1300MHz, receiving AM/FM/ WFM with 100 memories.

ICOM
ICR1
Wide band receiver.
Covers 100kHz to 1300MHz receiving AM/FM with 100 memories.

ALINCO
AR-1500
Hand-held. Covers 500kHz to 1300MHz receiving NFM, WFM, AM and SSB.

AR-3000A
Multimode scanner covers 100kHz–2036MHz. Modes: USB, LSB, CW, AM, FM, WFM

AR-2000
Hand-held wide band scanning receiver 1000 memories.

PHONE FOR BEST PRICES ON ALL OTHER ITEMS

ALAN HOOKER
42 NETHER HALL ROAD, DONCASTER, SOUTH YORKSHIRE, DN1 2PZ
TEL/FAX: (0302) 325690
Open: Mon-Sat 10-5pm Closed Thurs
Due to imminent price rises the above prices are held only while stocks last

ARCOM
COMMUNICATIONS '92
"The shop with the smile"
6 Royal Parade
Hanger Lane, Faling
London W5A 1ET
Fax: 081-961 2365
OPEN MONDAY-FRIDAY 9.30-5.30 SATURDAY 9.30-1.00pm EASY PARKING AT THE REAR OF THE SHOP

FRG-100 SPECIAL OFFER
This month only £485 (without power supply)
or FRG-100 incl. PA11C at £525
plus stock of good 2nd hand receivers & scanners at realistic prices

Part exchange and equipment purchases welcomed! Credit facilities available subject to status. APR from 37.8%. Located next to Hanger Lane Tube Station (Central Line) and on the junction of the A406 & A40.

PHONE NOW ON – 081-997 4476
After hours – 0836 550899
73s - Alan and Jez.
A.R.E. modifications still available for Icom receivers

OPEN MONDAY-FRIDAY 9.30-5.30 SATURDAY 9.30-1.00pm EASY PARKING AT THE REAR OF THE SHOP

Part exchange and equipment purchases welcomed! Credit facilities available subject to status. APR from 37.8%. Located next to Hanger Lane Tube Station (Central Line) and on the junction of the A406 & A40.

PHONE NOW ON – 081-997 4476
After hours – 0836 550899
73s - Alan and Jez.
A.R.E. modifications still available for Icom receivers

OPEN MONDAY-FRIDAY 9.30-5.30 SATURDAY 9.30-1.00pm EASY PARKING AT THE REAR OF THE SHOP

Part exchange and equipment purchases welcomed! Credit facilities available subject to status. APR from 37.8%. Located next to Hanger Lane Tube Station (Central Line) and on the junction of the A406 & A40.

PHONE NOW ON – 081-997 4476
After hours – 0836 550899
73s - Alan and Jez.
A.R.E. modifications still available for Icom receivers

OPEN MONDAY-FRIDAY 9.30-5.30 SATURDAY 9.30-1.00pm EASY PARKING AT THE REAR OF THE SHOP
B y now most readers will have read about the situation that has arisen in America, where the powerful cellular telephone companies have appealed to sneak legislation through the House of Representatives to restrict the importation, sale and design of equipment capable of receiving cellular transmissions. In addition, it will no longer be permissible to sell scanners where cellular frequency coverage can be restored by simple hardware or software modifications. A good example of this would be the Tandy PRO-2004/5/6 series where the cellular band is locked out on US versions by the inclusion of an additional programming byte.

Because of the size of the American market for scanning receivers it could mean the end of continuous coverage scanners such as the IC-IRL or AOR 2/13000 series as the FCC would no longer be able to certify them.

The way the legislation has been worded it is unlikely to have much impact on cellular monitoring, and is seen by many to be just a cosmetic exercise on the part of cellular companies to make systems appear more secure to their customers.

Let us hope that the imminent arrival of digital cellular systems in this country will forestall any similar laws being considered this side of the Atlantic.

Intercepting Communications

You may remember in the January column I mentioned a unit that has now become available in America that works on the Optoelectronics range of hand-held frequency counters. The front panel has two large bargraph displays, one indicates the f.m. deviation and the other the received signal strength, a loudspeaker grill occupies the remainder of the front panel. The top of the unit has controls for volume, squelch deviation, measurement sensitivity, and a button to 'skip' to the next transmission. Sockets are provided for a BNC antenna connector and earphone output. This is connected by an internal NiCad battery pack that can be recharged with the supplied mains charger.

The unit can detect signal levels of around 1mV at 100MHz to 50MHz-2GHz on 1GHz that makes it much less sensitive than an average scanning receiver, but it should be remembered that the unit is only designed to receive very local transmissions. As a typical detection range is in the order of 50-150m from a SW v.h.f. or u.h.f. transmitter, a lot depends on the terrain and the level of other signals (including f.m. and TV broadcast stations) that may be present. The unit is primarily intended for use in semi-professional applications, such as maintenance of radio communications systems or counter-surveillance operations, so the UK price tag of £289.00 may seem a bit steep for the average ham, but I am sure there will be several readers who would like to try one. You can obtain further details from Waters & Stanton Electronics, 22 Main Road, Hockley, Essex. SS5 4QS. Tel: (0702) 20843.

Reading the Digits

Another new product that may be of particular interest to owners of scanning receivers is the Universal M-Accessory described in the August issue of SWM. As far as I am aware this is the only device available to the hobbyist apart (from perhaps a unit made by Scanmaster) that is capable of decoding the POCSSAG/GOLAY data format used to send information to message display pagers.

This could be the start of a trend where manufacturers add f.m. decoders for scanners as more and more users change over from voice based communications to digitally transmitted textual information services. Several companies are now operating national mobile data networks including Paknet around 164kHz, Cognbit around 178kHz, RAM mobile data in the lower part of the 453MHz band and Hutchinson mobile data in the upper part, a few regional networks also operate around 440kHz. All of these systems use an adaption of the industry standard X-25 digital communications protocol and offer very secure communications. Other digital transmissions include signalling systems used to provide control information for trunked networks. Most of these appear in the 200.5 - 207.5kHz band and follow a standard defined by the DTI Radiocommunications Division in specification MPT1217.

It is often not possible to recover data once it has passed through the audio stages of the receiver unless it is specifically designed to receive digital signals. The raw data could then be manipulated by the decoder using Digital Signal Processing (DSP) techniques that are capable of producing results almost independent of the receiver performance, which normally tends to be the limiting factor.

Frequency Counters

A number of readers have written to me asking for advice on the use of frequency counters to determine transmitter frequencies. Often, this is not quite as straightforward as advertisements may suggest. A lot depends upon the location of the transmitter and the frequency it is operating on.

A frequency counter is essentially a broadband device. It cannot discriminate between multipath signals if they are of comparable signal strengths, so if you are trying to measure a particular transmission in the presence of other signals the chances are that you will be unsuccessful. The majority of radio sites have more than one service operating from them. They may also make use of point to point radio links that can permanently lock the counter.

Another factor is the level of transmitter power used, as this may be very low. For example, the power transmitted by office-based control stations operating on community repeaters is restricted so that they do not interfere with other users. Some base stations are remotely sited and controlled over private telephone lines, the antenna on the control centre roof may not be used for transmission purposes and could just feed a monitoring receiver.

Antennas mounted on high structures are not intended to give strong signal levels at ground level, they are designed to concentrate most of the transmitted power towards the horizon, in order to overcome this phenomena, so it doesn't help if you only have a 'rubber duck' antenna on the counter.

You can improve your chances by using a tuned antenna with some gain. This will help to reject unwanted signals and maximise the level of the desired transmission. If you have a telescopic antenna try altering its length to be a 1/4 wavelength at the desired frequency, this may marginally improve the performance.

Tracking Stolen Vehicles

One of the predictions I made in the January column is about to come true. Tracker Network has commenced operations in the UK. This is the British version of a stolen vehicle tracking system that has already been successful operating in America, where it is...
called Lo-Jack. Persons subscribing to the system have a miniature unit hidden inside their vehicle. If it is stolen the owner can notify the police and Tracker Network who will remotely activate the unit. Once this is done the unit transmits a coded radio signal that can be detected by specially designed direction finding equipment. The great advantage of the system is that the thief is not aware that the car is being remotely identified.

Even if the car has been hidden it will continue to signal its location to the police. This should permit recovery of the vehicle and capture of the thieves without the necessity for dramatic car chases.

The system has had extensive TV and press coverage including plenty of pictures of the direction finding equipment fitted in a police vehicle. The four roof mounted antennas used as part of the d.f. system would seem to be tuned to the d.f. equipment will only be fitted to selected police vehicles such as motorway traffic cars or at fixed locations like major motorway intersections or ports. As the system increases in popularity the number of d.f. receivers is likely to be extended.

If you are sceptical about the scheme working, it does seem to have been very successful in America where the relative simplicity of the system has made it popular with police officers. In one instance, a car was recovered within seven minutes of it being reported stolen - not bad going!

The system costs £160.00 plus an annual subscription charge of £61.10, or alternatively you can make a one-off payment of £350. Further information is available from the AA who are distributing the system and you can contact them on (0800) 980009.

I-Spy Books
Whilst looking through the publications on display at one of this summer's many amateur radio rallies I came across an intriguing title that I am sure will be of interest to many readers. Called Latest Intelligence by James E. Tunnell, published by TAB books, ISBN 0-8306-3531-9, the book (available from the SWM Book Service) is an international directory of codes used by Government, Law Enforcement, Military and Surveillance Agencies. The listings follow an A-Z format with over 250 pages of concise explanations and descriptions. Although the majority of entries are of American origin, many of the terms and abbreviations are used extensively in other countries. If you try to follow the exploits of agencies such as the DEA or American Customs on the short wave bands then this is an ideal book to keep beside your radio.

Whilst we are on the subject of books the third edition of The UK Scanning Directory (available from the SWM Book Service) seems to be proving very popular with readers. The content being well ahead of its rivals in terms of quantity and detail. The only small criticism I have heard relates to the number of errors that have inevitably crept in due to the list being compiled from many different sources. Perhaps one way of improving this would be for people submitting contributions to include a date alongside confirmed frequencies in order to give an indication of when the information was valid. This would help to keep the listing up to date and eliminate some of the very old (and no longer used) frequencies, which always seem to appear in just about every list I have ever seen.

Peter Rouse
Whilst writing this column I was saddened to hear of the death of fellow SWM columnist Peter Rouse. I got to know Peter during my earliest involvement with scanning receivers. I can remember our excited telephone conversations when the latest piece of gear became available, the thrill of monitoring the Space Shuttle and the exchange of stories, many of which have since passed into scanning folklore.

Peter, more than anyone, was responsible for promoting 'scanning' in this country. His best selling Scanners books were many enthusiasts' introduction to the hobby, as his wit and writing style made complicated subjects easily understood. He will be greatly missed by all his fellow radio enthusiasts.
SOLID STATE ELECTRONICS (UK)
6 The Orchard, Bassett Green Village,
Southampton SO2 3NA
Tel: (0703) 769598

GOT A SCANNER? NEED A FREQUENCY?
VHF/UHF AIRBAND FREQUENCY GUIDE. UK Military and Civil.
Tower/Approach and Talkdown £3.95. VHF/UHF FREQUENCY GUIDE
27 to 1,300 MHz. Services covered include land, sea and space £3.95.
LOOSE LEAVES SPOTTERS LOG. Royal Air Force/Navy/Army
Operational Aircraft, A4 format £9.50. Other guides available.
S AE for details. All prices including p&p.
DG ANTILL, Dept SWM 1 CHURCH LANE, MUNDESLEY NR11 8AU

SPECTRUM FAX
TRANSCRIBE OR RECEIVE ONLY
Our FAX programs now cater for the three popular line
speeds, 60, 120 and 240 lines per minute. As always, received
screens can be saved to tape, and/or sent to your printer.
Everything you need to receive FAX..............£44.00
Complete Transcribe System..........................£71.50
Please add £4.00 Post & Packing
We offer a generous trade-in allowance to customers wishing
to up-grade their systems. Ring or write for details.
Send large SAE (39p stamp) for details of all our products.
J. & P. ELECTRONICS LTD.
Unit 45, Meadowmill Estate, Dixon Street,
Kidderminster DY10 1HH Tel: (0562) 753893

Do you need a scanner or receiver?
Do you need amateur radio equipment?
"Kenwood, Icom, Yaesu, Alinco, Yupiter, Aor etc"
But most of all do you need equipment serviced?
We have up to date test equipment, fully equipped
workshop for all types of radio equipment.
TEL: OR FAX: 0603 788281
Prop. P. Gunther G4XBT, 95 Colindeep Lane, Sprowston, Norwich, Norfolk NR7 8EQ. VAT No. 595 1239 21
"PHONE US NOW FOR
BEST PRICES"
NEW RADIO CONTROLLED CLOCKS
+ WATCHES FROM AMDAT

The latest digital Radio Controlled clock from the Junghans stable breaks the price barrier for this quality of product. We are offering this amazing new clock at an introductory price of only £32.95 inc pp.

These new products add to our already extensive catalogue of Radio Controlled clocks and watches. Send a large SAE for full details.

The Radio Controlled watches pictured below reduce the price of these amazing products to an affordable level. We are offering this amazing digital watch at an introductory offer of only £139.95 inc pp.

AMDAT
4 Northville Road
Northville, Bristol, BS7 0RG
Tel: 0272 699352
Fax: 0272 236088

ENTERPRISE
TEL (0925) 573118

CONGRATULATIONS TO
JOHN ROBERTSON
OF NORTHUMBERLAND —
WINNER OF ISWL YEAR ROUND RTTY
CONTEST WON USING A
MKII MICROREADER

A complete self contained decoder that simply plugs into your speaker socket. No computers or programs needed. Decodes C.W. RTTY, AMTOR, SITOR + built in morse tutor and RS232 port backlit LCD display.

Price still £170.00

MKII MICROREADER (Version 4.1) now with backlit LCD display £170.00
RS232 DISPLAY UNITS limited numbers now in stock £185.00
Serial to Parallel PRINTER CONVERTERS £38.00
Convert to Version 4.1 with the UPGRADE KIT £20.00
Computer TERMINAL PROGRAM for RS232 to computer screen £10.00

To order or for more information including sample printouts write or call.
All products are guaranteed for two years.
Prices include VAT and delivery
This month I am including notes on the new METEOSAT transmissions, particularly for the benefit of beginners and those contemplating purchasing suitable equipment to receive the new images. I continue to receive numbers of high quality photographs from regular readers of this column. Many will appear during future months.

Current WXSATS

The last few weeks have included at least one occasion where the CIS WXSAT METEOR 3-3 remained on during its passage through the terminator. All of the METEOR WXSATS are in orbits that slowly precess - that passes over any specific location (such as the UK) gradually move to earlier or later times, during a period of a few weeks. In the case of the series three WXATS, this means that passes gradually move forwards by between 10 and 20 minutes per day. Being earlier, they are approaching the morning terminator (the night-day boundary), so now following weeks each satellite passes through it and is therefore illuminated rather poorly by the sun.

At such times they are usually switched off, but on this occasion METEOR 3-3 was left transmitting on 137.85MHz, so we saw very contrasty pictures as the WXATS slotted into this regime. METEOR 3-4 uses 137.30MHz and has been on and off during recent weeks. In early July it went off but came back on within a few days. I have not received any recent infra-red images from it - merely blank pictures with only the phasing bars.

Listening carefully, monitors probably noticed occasional bursts of white, suggesting to me that it was trying to start the infra-red imager but never succeeded. On these occasions 3-4 was usually passing near the command stations so it was wondered whether ground controllers were trying to correct the problem as we watched.

NOAA 13

I must tell of events in early July when the launch of NOAA 13 was imminent. Having visitors staying with us for a few days, my WXATS monitoring temporarily stopped. Two minutes after my folks had gone I switched everything back on and ran my predictions program. During the same day a caller told me that signals from NOAA 13 had been heard, and that same evening I picked up a NOAA transmission not shown on the list. I therefore assumed it was NOAA 13. Fortunately, I chose to wait for another pass to confirm it. Suspicious of my ‘find’ I re-ran the predictions. No joy. Then I tried a different predictions program. Violà! I simply had not noticed that my normal program was set to ignore passes having elevations of less than two degrees, hence it had not shown up these NOAA 11 transmissions received on a far west pass from Labrador! Perhaps this illustrates how careful one should be. My stored image from ‘NOAA 13’ was quickly deleted!

Launch date for NOAA 13 was advanced to July 21 after a faulty crystal was identified, so if all goes well it should be operational by the time you read this.

Future Launches

Launches currently scheduled include a new METEOSAT (probably 3-6 i.e., series three, number six) for both late July and early September. The long awaited GOMS geostationary WXATS for the CIS is now scheduled for early August.

DMSP Satellites

These are satellites in the Defence Meteorological Satellite Program. They are Advanced TIROS-N type satellites, similar to the NOAA WXATS but have different sensors. They transmit signals not unlike NOAA h.p.t. format, and some also have an a.p.t. capability. One carries a low-light visible band sensor which can apparently pick up city lights, aurorae, etc., on the night side of the orbit. Receiver re-sets some of the documentation and comments coming out of NOAA, I would not be surprised to see one or more of these satellites becoming part of the WXATS network. Time will tell.

Listen Out For...

Many non a.p.t. satellites can be heard near the 138MHz band. MOS 1 and 1B can be heard on 136.11MHz; and there is a constellation of navigation and other satellites to be heard between 144.9 and 150.03MHz several times per day.

METEOSAT

With the introduction of a new transmission schedule that started on July 8, it may be a suitable time to review the pictures that we can now receive from METEOSAT 4. For beginners, it is worth mentioning that METEOSAT 4 forms one part of a system of global, geostationary WXATS, all collecting and disseminating meteorological information, including many virtually live images, to any location suitably equipped to receive and decode the information.

METEOSAT 4 is positioned near longitude 0° and is the European WXATS. America operates a number of similar WXATS positions over its continents but unfortunately most are operating in a greatly reduced capacity due to ageing. This series is called GOES and replacement spacecraft are planned for launching, but are way overdue. Currently, METEOSAT 3, an earlier European WXATS has been manoeuvred to America to enable them to maintain a reasonable monitoring service. Positioned near METEOSAT 4 is METEOSAT 5 which would now be in service replacing number 4 but for faults affecting its imagery. From time to time METEOSAT 5 is powered up for certain operations, and when this happens some interference with WEFAX reception will be experienced.

I have described some of the WEFAX transmissions from METEOSAT in previous columns, to summarise - it provides almost continuous broadcasts of near real-time pictures as seen in visible, infra-red and water vapour images, of much of the visible side of the hemisphere. The main areas - Britain, Europe, etc. - are imaged every 30 minutes. In addition to broadcasting its own pictures, it collects data from the American side of the Atlantic and from Japan.

METEOSAT 3

This geostationary WXATS is currently positioned over America near longitude 70° and remains just detectable from my westerly location in Devon. It replaces a GOES WXATS that is not yet ready for launch. Images from M3 are included in the METEOSAT 4 schedule, under the titles LY, LR and LZ (for WEFAX transmissions). They are infra-red images of North and South America and visible North America respectively.

GMS Re-transmissions

The GMS-4 (Geostationary Meteorological Satellite) is positioned over New Guinea, a little north of Australia, near longitude 140° east and is operated by the Japanese. From this position we cannot see it directly from Britain, but from July 8 a regular series of WEFAX images has been included in the schedule broadcast by METEOSAT 4. These are four images, all infra-red, called GMSA, GMSB, GMSC and GMSD, covering the north-west, north-east, south-west and south-east sections of the globe as seen from above New Guinea. Interestingly though, the sections overlap, unlike pictures from either METEOSAT or the GOES group. GMSA includes New Guinea, Japan and right across the Chinese mainland, therefore including Vietnam, an area I have never seen before.

Those readers who remember the GOES transmissions of a few years back will recall that the GOES schedule includes not only the American continent but re-transmitted images from other geostationary satellites. Pictures of these areas are still available to people monitoring FAX broadcasts, but how nice it is to see them now on METEOSAT. I watched (and recorded) the first images from GMS. The first GMSA showed a typhoon approaching Vietnam, with...
other vigorous weather systems over both India and China. GMSB covers all of India, GMSA covers Australia and Indonesia. There was a large, low pressure region over the eastern part of Australia. GMSD covers the south-east portion. again included Australia looking eastwards into the Pacific, where a tropical storm was in progress.

**Animating GMS**

Never having seen this region in such detail, I set up the equipment to animate all of the sections. This can be done with most computer software. The transmission time of every GMS frame was entered into the program, ignoring the fact that they cover different sections of the globe. By running the computerized images overnight, then carefully listed each one with its time of storage. By renaming them into separate groups it was easy to make a set of separate animated sequences - I called them GMSA, etc. Running each sequence, which included approximately eight images, the first thing that I noticed was Australia warming up during our night, just like D2 images of Britain when recorded during the day from METEOR 4. By 0230UTC it was hot. The weather systems were intense and the typhoon could be seen gathering strength as it headed for Vietnam. My impression of all of the tropical storms in that region was one of vigour - they appeared to develop very quickly.

**Letters**

Mark Pepper of Cambridge has sent me a batch of high quality printouts received by his WXSAT setup. He recently expanded his polar WXSA SAT system to include METEOSAT, using a TH2 loop Yagi and RIG down-converter to feed the 137.5MHz signal into his Cirkit receiver. METEOSAT 5 was switched on during May, and is positioned very close to METEOSAT 4, so Mark adjusted his Yagi slightly to confirm that he could resolve both satellites. Other SWM readers report this interference problem at that time. Mark also collected images from METEORS 3-3 and 3-4 some weeks ago and Fig. 1 shows his 3-3 image including the area from the top of north Africa, right up to Norway. Extensive sea fog covers the North Sea.

For beginners, it is worth mentioning that the sensors onboard the METEOR WXSA TS differ somewhat in their spectral sensitivity from that of the NOAA's. They respond less to land brightness levels except for desert regions. Snow and cloud show up very well, so this picture includes detail in the Italian Alps and the snowy peaks in Norway. Marks comments on the 'negative' images received from the METEORS during the night. These are very variable! The American NOAA WXSA TS provide us with both visible and infra-red images, but the METEORS behave in an (apparently) unpredictable manner. For many months METEOR 3-3 provided i.r. images during the night-time part of its orbit. These images have better resolution than the NOAA's because the latter include two separate sections transmitted during the same half-second. METEOR i.r. images are transmitted in reverse, with respect to the NOAA's. A NOAA image displays cold clouds as white and warm deserts as dark - the same as the METEOSAT/GOES WXSA TS.

Contrastingly, the METEORS show warm water (like the Mediterranean) as white, and cold clouds as dark - essentially a negative image. This is why software often includes a facility to reverse the image grey levels. You can normally identify the type of image (visible or i.r.) by looking carefully. The i.r. image tone is a brief burst, whereas the visible format image includes a tone burst, plus grey scale, plus aperture bars, all of which combine to sound rather like a croaking frog! When you hear this croak you know the METEOR is in daylight. I shall include some more of Mark's pictures in future editions.

Dave Wilkins G5HY of Watford is following a common route into WXSA T monitoring. He already has a fairly powerful PC system and is running satellite tracking software as I suspect! A preliminary to setting up a receiving system. Coincidently, Dave expressed an interest in obtaining elements from me for the GMS satellite (described earlier in this column), although at the time that Dave wrote, this was of academic interest only.

Jim and Hilda Richardson of Stratkniness in Fife have collected and processed some excellent images from METEORS 3-3 and 3-4 recently. They sent me a batch from which came Fig. 3 and 4. Living in Scotland they see more of the area around Greenland than one can from the south. They identified Jan Mayen Island and others, after noting that they appeared static over a few days! They have been delighted about the improvement in their knowledge of geography since taking up WXSA T monitoring. Two or three people have SATCOM. This is a perennial problem experienced all over the country. If anyone knows of any cure I will be happy to publish or pass on the relevant information.

**Receiver IF**

From time to time I mention the need for WXSA T receivers to have permanently installed circuits, particularly emphasising the special i.f. requirements. My main reason is that I do receive many letters from newcomers describing problems with decoding pictures when using general purpose receivers, most of which have unsuitable i.f.s. Richard Atkin lives near Holsworth in north Devon and sent me a picture that he actually obtained using his unmodified GQW 7000, which has a bandwidth of about 15kHz - see Fig. 4. Yes, this seems to contradict my comments because it actually shows a fair amount of detail, it is the first picture that I have received (I think) taken under such conditions. What it illustrates is that it can be done, despite the difficulties of persuading the hardware/software to recognise the synchronising tones, which cannot normally be extracted from such narrow bandwidth receivers. Richard has shown the possibilities!

**UTC and BST**

Some correspondents run their computer clocks on BST and may forget to set their satellite predictions programs to do the same! One or two people have commented on picking up WXSA T transmissions that don't match known operating satellites. Because of the problems in remembering to adjust all the clocks every few months, I leave my computer clock permanently on UTC. Chatting with SWM Editor Dick Ganderton recently, Dick tells me that he has heard that apparently we are going to have a double summer time next year! Oh dear!

**Acorn Computers**

Although most WXSA T monitors who use computers are using the PC type, I have received a few letters from non-PC users. For readers wanting to find more information about Acorn WXSA T software and hardware contact Spacetech Space Science Resources at 21 West Wools, Portland, Dorset DT5 2EA. Tel: (0305) 822753.

**Kepler Elements**

I will send a print-out of the latest elements upon receiving an s.a.e. and extra stamp. All known weather satellites plus MIR can be included, together with their transmission frequencies if operating. This data originates from NASA and is normally accurate but errors sometimes creep in.

**Frequencies**

NOAAs 9, 11 a.p.t. on 137.62MHz; NOAAs 10, 12 on 137.50MHz; NOAA beacons on 136.77 and 137.77MHz; METEOR 3-4 on 137.30MHz; METEOR 5-3 on 137.85MHz.

*Fig. 3: A GOES image (after editing), from Jim & Hilda Richardson.*

*Fig. 4: A NOAA image from Richard Atkin.*
**GUIDE TO FACSIMILE STATIONS**

13th edition • 400 pages • £22 or DM 50

The recording of FAX stations on longwave and shortwave and the reception of meteorological satellites are fascinating fields of radio monitoring. Powerful equipment and inexpensive personal computer programs connect a radio receiver directly to a laser or ink-jet printer. Satellite pictures and weather charts can now be recorded automatically in top quality.

The new edition of our FAX GUIDE contains the usual up-to-date frequency lists and precise transmission schedules - to the minute - of 90 FAX stations and meteor satellites. This includes Bracknell Meteo, Royal Navy London, METEOSAT, and a detailed description of the new Bracknell and Washington meteo telefax polling services! It informs you with full details about new FAX converters and computer programs on the market.

The most comprehensive international survey of the "products" of weather satellites and FAX stations from all over the world is included: 337 sample charts and pictures were recorded in 1992 and 1993! Here are that special charts for aeronautical and maritime navigation, the agriculture and the military, barographic soundings, climatological analyses, and long-term forecasts, which are available nowhere else. Additional chapters cover abbreviations, addresses, call sign lists, description of geostationary and polar-orbiting meteo satellites, regulations, technique, and test charts.

Further publications available are Guide to Utility Radio Stations (11th edition), Radioteletype Code Manual (12th ed.) and Air and Meteo Code Manual (13th ed.). We have published our international radio books for 24 years. They are in daily use with equipment manufacturers, monitoring services, radio amateurs, SW listeners and telecom administrations worldwide.

Please ask for our free catalogue, including recommendations from all over the world. For a recent book review see the Decode section in Shortwave Magazine 3/93, and RSGB's RadCom 6/93.

Our prices include airmail postage within Europe and surface mail elsewhere. Payment can be by £ or DM cheque, cash, International Money Order, or postal orders (account Stuttgart 2353 75-769). We accept American Express, Eurocard, Mastercard and Visa credit cards. Dealer inquiries welcome - discount rates on request. Please fax or mail your order to 

Klingeffuss Publications
Hagenloher Str. 14
D-72070 Tuebingen
Germany
Fax 01049 7071 600849 • Phone 01049 7071 62830

---

**Prosat II** is used by most leading Weather Satellite enthusiasts. Lawrence Harris, Roger Ray and Brian Dudman are just a few who have come to rely on the vastly superior features of Prosat II. Features such as 1,000 frame full screen full colour animate, 3D, direct temperature readout and Windows export make Prosat products preferred by most users. All satellites are catered for including all the awkward Japanese GMS and the very infrequent Soviet Ocean series. All current SVGA cards are supported. NOAA images contain full resolution visible and infrared data in a stunning 2.4Mb file!

If you really are serious about Weather Satellites, phone or write to Sub Logic's ATP or if you require any radio related but other 'games' as well. Choose anything from F15 Eagle III to Sub Logic's ATP or if you require something specific just ask!

**Javiation**

**THE AIRBAND SPECIALISTS**

At the time of writing our combined VHF/UHF frequency guide and UHF only supplement are dated mid December however we expect new editions to be available from late February.

**IF YOU WOULD LIKE THESE LISTS IN FULL A4 FORMAT JUST LET US KNOW WHEN ORDERING.**

**NEW EDITION VHF/UHF LIST:** £7.50 including p&p

**UHF ONLY LISTING:** £4.00 including p&p

From the comments we receive I would like to think that our guides are the most comprehensive and accurate listings available, if you are not familiar with them then please give them a try, we are sure you will find them both informative & interesting. They include airfield, en-route ATCC centres, Range, Ops, Display and other frequencies whilst also giving Stud/channel tie ups.

**LEATHER CARRY CASES**

We have real, yes real leather carry cases available for the VHF/UHF range (AR1000/2000 series) and AOR/Fairmate AR1000/2000 series.

All the same price £14.99 each.

If you don't like the smell of leather please don't buy one as we have had one returned by the purchaser as it stank too much like leather!

**SOFTWARE**

We now stock a wide range of IBM PC software, mainly aviation related but other 'games' as well. Any radio purchase over £200 entitles you to purchase any PC software within our range for £20.

Choose anything from F15 Eagle III to Sub Logic's ATP or if you require something specific just ask!
Control for distributing next month.

Take full that's being operated, it's difficult to have a press transmission running baud. 18.7024MHz (DG70H3), FEC-A 96 details are:

'lost'

appropriate printer drives and can sure that your decoder includes the printer. With both of these options should be considering either a 24-pin printer would printing better results. The answer is yes, avoiding you're decoding software supports it. Without knowing the software package that's being operated, it's difficult to give a positive answer, but I know many people are unsure what type of printer to select. Generally speaking, a 9-pin printer gives very good results that will satisfy the requirements of most listeners. But, if higher quality is sought, you should be considering either a 24-pin printer or ultimately a laser printer. With both of these options it's important to make absolutely sure that your decoder includes the appropriate printer driver and can take full advantage of your new (and expensive) printer. I would strongly recommend contacting the decoder manufacturer before splashing out on a new printer.

Day Watson of Clevedon writes reporting the reappearance of the lost PIAB transmissions. The details are:

To Near East 16.0138MHz (DG21L5), 0730UTC, FCA-96 baud.

To Middle America 16.0174 (DG22L1) and 18.7024MHz (DG30H3), FCA-96 baud.

Day also reports that Xinhua have a press transmission running 50 baud/400Hz on 17.443MHz.

He has also sent me the latest copy of his Beginners frequency list, which I'll be translating ready for distributing next month.

HF-150 Computer Control

Lowe's excellent HF-150 receiver has just been supplemented by the release of a new computer interface. This interface enables many of the HF-150's settings to be controlled by a separate terminal or computer. The interface is supplied as a lead with a 25-way D connector at one end and a 3.5mm jack at the other. The clever bit is contained within the very substantial D connector. A look inside the die cast aluminium connector revealed a mass of surface mount electronics. This provided the conversion from the RS-232 serial signal to that required by the HF-150. The beauty of this system was that it was entirely stand alone with no awkward boxes or separate power supplies.

The demands on the computer were very modest requiring a simple serial interface running at 1200 baud, 8 bit, no parity and one or two stop bits. It will also operate with seven data bits and odd or even parity.

For those readers with IBM PCs or compatibles the interface is supplied with a very effective control program. The program has been released as public domain remains (expensive) printer.

The Modemaster is very professionally presented and includes a comprehensive manual of some eighty-five pages. This covers all aspects of the program and features several tutorials to help the new user better understand the various modes. There were also lots of diagrams available to help clarify many of the operations.

Once loaded onto your computer the Modemaster's facilities are accessed via a system of drop down menus. These can either be accessed by key presses or by using the computer's mouse.

Moving on to the other modes, the Modemaster proved to be very comprehensive. The standard RTTY mode featured all the usual extras plus a few that are not so common. So that you don't miss that interesting news item, all the received text is automatically stored in a buffer. This can be reviewed at any time without interrupting the receive process.

Finally, Modemaster features NAVTEX and FAX reception. This was well implemented and included a selection editor where you could choose which stations and message types to receive.
Aeronautical RTTY

Since my request for more information I've received reports, logs and decoding data from many readers. It's good to see it all come together here. Let's start by giving a frequency list of active aeronautical stations. Although I've titled this section Aeronautical RTTY, there are a few stations using the more complex ARQ modes. The list uses my normal format of frequency mode speed shift, call and notes.

All of these stations send a mix of information, much of which is weather data. However, David Murphy of Sale has a few recommendations that may prove helpful. If you're looking for North Atlantic information, the Shannon - Santa Maria circuits usually contain a high proportion of flight plans. For monitoring African traffic, Nairobi (13.366MHz) provides plenty of flight plans from about 1500UTC into the evening. The best time apparently is the first twenty minutes past each hour. Both Khartoum and Tripoli can be received throughout the day, but the information can be limited. It would appear perhaps it is a race for the aeronautical RTTY pioneer!

Satellite Utilities

Regular readers will no doubt have realised by now that there is a general migration of utility transmissions from h.f. to satellite. I'm sure many believe this is the end of the line and there's little we can do - wrong!! Most of the signals that have been lost from h.f. are sitting in amongst the TV stations using the geostationary satellites in the Clarke Belt.

The utility signals are transmitted using what are known as sub-carriers located within the satellite transponder's frequency range. To try and explain this, each satellite carries a number of transponders, each of which can transmit a band of frequencies at least 40MHz wide. Within this band are contained the normal video signal plus the sound channels. However, this does not require the use of the full 40MHz + that's available. The remaining bandwidth can therefore be used to carry other signals. To help visualise how this is done we can treat each satellite transponder as a separate channel.

From this you can see that each transponder in each satellite is like a new h.f. band! This gives tremendous potential for introducing new high quality services to customers and explains why the system is so popular. Your next question I'm sure is - how can I receive these? The answer is I'm still working on it, but the basic requirements are a tunable satellite receiver, steerable dish and an h.f. decoding system. In simple terms you point the dish at a specific satellite, tune the receiver to one of the transponders and connect your h.f. receiver to the i.f. output and see what you can find. Before doing this you need to make sure that your h.f. receiver won't be damaged by the satellite receiver and vice versa, (this is unlikely). The ideal type of satellite receiver for this should be manually tuned and feature as wide a tuning range as possible. An excellent starting point is the Echostar SR-500 receiver that is supplied in modified form by Aerial Techniques of Presstone (see their regular ad in SWM for more details).

Over the next few months I will be seeking more information and giving a few suggestions on how to access these signals. The good news is that many of your existing decoding systems may be usable for satellite systems. If you have any ideas or suggestions that may help, I'd be very pleased to hear from you.

Frequency List

My thanks to all the many readers that responded to my request for logs last month. The response has been very good and, following my summer holiday, I'll be updating my 'Decode' list to include the new logs.

Now for this month's offering which has been selected from logs submitted by Lee Williams, Day Watson, Andy Keddie and Geoff Gowley.

If you would like a copy of my Decode, or the Day Watson Beginners list, just send three first or second class stamps to the address at the head of the column (an address label would be appreciated too).

Aeronautical Decoding

Now you know where to look for the signals, you will also need to understand format and coding used for these messages. Those with a copy of the Klingenfuss Air and Meteo Code Manual should refer to sections nine and ten. To illustrate how the coding operates, I'll use an example supplied by Jim G4RGA of Wellington.

Message:
1) ZCZC VZCZ VLA009
2) FF EDDYUZ EGGTT2 ZEGGDOZ EGGDFL0 EDGFHLF0
3) 251513 LDOWS2G
4) [FPL=FL200=1]
5) =BAA148/R/JU
6) =LWOS 1712 EDDY 1815 EGGT 1836
7) =4002F270 SDC DT MUN 0180 UDKS FFM UG108 SPI UG1 KOK BIG CPT
8) =EGGD 1855 EGGH
9) =REG/GBPNT

This apparent gibberish decodes to mean the following:
1) ZCZC message start code followed by the message serial number.
2) FF is the message precedence code. In this case FF means immediate (flight safety)
3) Is the date (5th) and time (1513UTC) of the originating message plus the originating authority LDOWS2G (Saltzburg Ops).
4) These lines contain the text of the message and break down into the following.
5) Flight plan for flight FL205 using I (IFR) rules.
6) The aircraft is a BA148 Whisper Jet, using RNAV route equipment.
7) Departing airfield LDOWS (Saltzburg) and time (1712)

8) Destination EGGD (Bristol) arriving time (1855) and alternative destination EGHH (Bournemouth Hurst). If you're serious about this mode of listening, you really ought to arm yourself with a copy of the 'Air and Meteo Code Manual' available from the SWM Book Service.

9) Additional information - in this case the aircraft registration (G-BPN)

10) The standard end of message code is NNNN.

Intermediate control EDDY (Maastricht), EGGT (London)
### Medium Wave Chart

<table>
<thead>
<tr>
<th>Freq (kHz)</th>
<th>Station</th>
<th>Country</th>
<th>Power (kW)</th>
<th>Listener</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>Al-Arabiya</td>
<td>Lebanon</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>540</td>
<td>Saudi Radio</td>
<td>Saudi Arabia</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>590</td>
<td>BBC World Service</td>
<td>United Kingdom</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

### Long Medium & Short Wave Reports

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

Since the early days of broadcasting many listeners have searched the bands for new stations and those in distant or unusual locations. For years they have experienced a thrill when receiving direct transmissions from stations located many hundreds or even thousands of kilometres away. Such thrills are unlikely when the programme reaches the listener on an audio channel of a TV broadcast satellite. When planning new services, should international broadcasters bear this in mind?

### Long Wave Reports

Note: i.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GTM). Unless stated, all logs compiled during the four period ending June 30.

The 10kW transmission from Caitsissata, Italy on 198kHz was logged at 2029UTC on June 1 by Roy Merril in Dunstable, but reception was very noisy. He also picked them up on June 11 & 14. Whilst checking 189 on June 4 he heard Georgarian R-1 at 2238.

Rather unusual conditions were noted on June 23 by Henry Richards of the Maltese Broadcasting Corporation. At 2130 he found he could null-out the signal from Atlantic 252 completely and hear the broadcasts from Tipaza, Algeria, rated SINPO 2122. Under normal conditions this is not possible at his location.

Coming to the continental daylight in Iceland during June, Geoff Crowley (Hafnarjóður) was unable to hear any i.w. or m.w. signals from outside the country.

<table>
<thead>
<tr>
<th>Freq (kHz)</th>
<th>Station</th>
<th>Country</th>
<th>Power (kW)</th>
<th>Listener</th>
</tr>
</thead>
<tbody>
<tr>
<td>1403</td>
<td>BBC World Service</td>
<td>United Kingdom</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>1404</td>
<td>Russian R</td>
<td>Russia</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Note: Entries marked "*" were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

<table>
<thead>
<tr>
<th>Listener</th>
<th>Country</th>
<th>Power (kW)</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>N: Sheila Hughes. Morden.</td>
<td>United Kingdom</td>
<td>10</td>
<td>BBC World Service</td>
</tr>
<tr>
<td>D: Vera Brindley, Woodhall Spa.</td>
<td>United Kingdom</td>
<td>10</td>
<td>BBC World Service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listener</th>
<th>Country</th>
<th>Power (kW)</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>P: Stephen Jones, Oswestry.</td>
<td>United Kingdom</td>
<td>10</td>
<td>BBC World Service</td>
</tr>
<tr>
<td>O: Susan Bate, Shrewsbury.</td>
<td>United Kingdom</td>
<td>10</td>
<td>BBC World Service</td>
</tr>
<tr>
<td>R: Ronald Klig, Co-londonderry.</td>
<td>United Kingdom</td>
<td>10</td>
<td>BBC World Service</td>
</tr>
</tbody>
</table>


Note: Entries marked "*" were logged during darkness. All other entries were logged during daylight or at dawn/dusk.
## Medium Wave Reports

Very poor conditions for the reception of m.w. transatlantic signals were noted during June by Ron Damp in Worthing. Despite frequent checks on 500kHz he heard CJYQ in St John’s, on one occasion and then with difficulty. At best their signal rated 12222 at 0043. Ron is about to construct a large loop (2m or more) in readiness for the winter DX season, it will be mounted outside on a flat roof.

Poor conditions were also observed by Ted Barry in N.London. Around 0115 on June 2 & 4 he picked up the broadcasts from the Caribbean and South America, Anguilla on 1610, at best they rated 23322. CJYQ was logged at 0040 on June 3 & 4 as 23222. Slightly better conditions were noted on June 5, when he heard CJYQ at 0155; VOCH St John’s, 590 at 0033; CPCR Brandon, 1380 at 0215; also CHYQ Sydney, 950 at 0135.

In contrast, George Millmore (Wootton, iow) noted good reception after dark from some stations in Africa and the Middle East. He logged Dammm, Saudi Arabia on 783kHz for the first time, rating their signal S10222 at 2125.

The broadcasts from two new m.w. stations have been attracting the attention of local radio DXers. BBC R Gloucester closed its outlet on 60kHz to make way for CD603 in Cheltenham. Their broadcasts are being received over a wide area during daylight (see chart). R. Maldwyn has studios in Newport, Powys. David Porter (Ludlow) informs me that a new 613 mast, erected some 2.4km north of the tower, radiates their programmes on 756kHz. The e.m.r.p, is about 630W. The ground wave is reaching places well beyond the intended service area! No doubt both stations will welcome reports. Send them to CD603, Churchill Studios, Churchill Road, Cheltenham, Gloucestershire GL53 7EP. Radio Médaloun, The Studios, Newport, Powys FY16 2NZ.

### Short Wave Reports

Although the level of solar activity is decreasing, it is still having a marked effect upon propagation in the higher frequency bands. Such effects are most noticeable in the 25MHz (11m) band, where daily variations in reception have been evident.

Four broadcasters are still using 11MHz to reach areas outside Europe: UAE R, Abu Dhabi 25.690 (Ar to Far East 0900-1100), 25322 at 1000 by Simon Hockenhull in E.Bristol; R Australia via Darwin 25.750 (Eng to NE Africa 0800-0855), 22122 at 0800 by Chris Shorton in Norwich; DW via Julich 25.740 (Ger to Asia 1100-1355), 54444 at 1300 by Robert Connolly in Kilkeel; also RFI via Issoudun, 25.820 (Fr to Africa 0900-1545), S10222 at 1130 by Kenneth Bell in Edinburgh.

In the 21MHz (15m) band UK DXers have noted good reception of some of R.Australia’s broadcasts: Darwin on 21.525 (Eng to SE Asia 0200-0800) rated 44334 at 0701 on Barton-on-Humber; 21.745 (Eng to Asia 0900-1300) as S10222 at 1030 by Philip Rambaut in Macclesfield and 35553 at 1300 by John Patterson in Northwich.

Also noted in the morning were R.Prague, Czech Rep. 21.705 (Eng to Pacific areas 0700-0900) 54444 at 0730 in Worthing; 21.745 (Eng to Asia 0900-1300) as S10222 at 1030 by Philip Rambaut in Macclesfield and 35553 at 1300 by John Patterson in Northwich.

In contrast, George Millmore (Wootton, iow) noted good reception after dark from some stations in Africa and the Middle East. He logged Dammm, Saudi Arabia on 783kHz for the first time, rating their signal S10222 at 2125.

The broadcasts from two new m.w. stations have been attracting the attention of local radio DXers. BBC R Gloucester closed its outlet on 60kHz to make way for CD603 in
### Short Wave Magazine, September 1993

#### Table: Tropical Bands

<table>
<thead>
<tr>
<th>Freq</th>
<th>Station</th>
<th>Country</th>
<th>UTC</th>
<th>DXer</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.220</td>
<td>SWF, New Delhi</td>
<td>India</td>
<td>0735</td>
<td>L</td>
</tr>
<tr>
<td>5.770</td>
<td>SWF, New Delhi</td>
<td>India</td>
<td>1130</td>
<td>K</td>
</tr>
<tr>
<td>10.030</td>
<td>SWF, New Delhi</td>
<td>India</td>
<td>1630</td>
<td>L</td>
</tr>
<tr>
<td>13.750</td>
<td>SWF, New Delhi</td>
<td>India</td>
<td>2030</td>
<td>L</td>
</tr>
</tbody>
</table>

#### Radio Australia

Radio Australia has also been reaching the UK in the 17MHz (16mb) band. Their transmission to S.Africa on Darwin at 17.099 (Eng to 0700-0900) was noted at 07335 at 0700 in Wellington. Also logged during the morning were FEA B, Seychelles 17.790 (Eng to M.East 0500-0553, Fri only) rated during the morning were FEBA R, Seychelles was 33533 at 0705 in Wallsend. Also logged in Woking.

#### DXers

- **A. Tim Aldred, Aldridge, Middlesex:** N. Sheila Hughes, Hoddesdon.
- **B. B. Barwick, York:** N. Sheila Hughes, Hoddesdon.
- **C. R. V. Blake, Woodford:** E. Edith Milton, Littlehampton.
- **D. W. Bayley, Hove:** R. Cyril Pollard, Sheffield.
- **E. H. B. Child, Reading:** E. Edith Milton, Littlehampton.
- **F. M. D. Cooper, Woking:** R. Cyril Pollard, Sheffield.
- **G. H. G. Cowson, York:** R. Cyril Pollard, Sheffield.
- **H. D. G. Gurney, Hoylake:** G. John Eaton, Woking.
- **I. E. J. Gurney, Hoylake:** G. John Eaton, Woking.
- **J. K. S. Johnson, Kent:** G. John Eaton, Woking.
- **K. J. K. Smith, York:** G. John Eaton, Woking.
- **L. W. K. Smith, York:** G. John Eaton, Woking.
- **M. J. G. Smith, York:** G. John Eaton, Woking.
- **N. R. G. Smith, York:** G. John Eaton, Woking.
- **O. J. J. Smith, York:** G. John Eaton, Woking.
- **P. G. S. Smith, York:** G. John Eaton, Woking.
- **Q. J. R. Smith, York:** G. John Eaton, Woking.
- **R. J. S. Smith, York:** G. John Eaton, Woking.
- **S. J. T. Smith, York:** G. John Eaton, Woking.
- **T. J. T. Smith, York:** G. John Eaton, Woking.
- **V. J. W. Smith, York:** G. John Eaton, Woking.
- **W. J. W. Smith, York:** G. John Eaton, Woking.
- **X. J. W. Smith, York:** G. John Eaton, Woking.

#### Later, HCBJ Guino 17.790 (Eng to Europe 2000-2300) 03333 at 2020 by Robin Harvey in Birmingham; BOFC Taiwan via Okechobee 17.750 (Eng to Europe 2000-2300) 03202 by Julian Wood in Epsom.

Good reception from many areas has been noted in the 15MHz (15mb) band. The New Zealand Int on 15.120 (Eng to Pacific areas 2133-0658) was 33333 at 0630 in Bushey Heath. R. Austin was noted on several frequencies: 15.575 via Darwin (Chin to Asia 2200-2300) as 33433 at 2200 in Chester; 15.320 via Shepparton (Eng to Asia 2000-0700) as 32222 at 0131 in Worthing. 15.240 (Eng to Pacific areas 0300-0830) 23322 at 0830 in KikKeith; 15.170 via Carnarvon (Eng, Chin to Asia 0900-1430) as 24432 at 1135 in Wallsend.

During the morning HCBJ Guito, Ecuador 15.270 (Eng to Europe 0700-0830) 43333 at 0730 in Ross-on-Wye, R. Austin Int via Moosbrun 15.450 (Eng, to Australia 0800-1100) 43433 at 0842 in Oxted; DW via Antigua 15.205 (Sp to S/C America 1100-1150) 45454 at 1120 in Norwich; DW via Julich 17.860 (Eng to Africa 1100-1150) 03433 at 1300 in Rowley Regs.

In the afternoon, the AWR via Gabon 17.890 (Eng to W.Africa 1200-1300, Sun only) 23422 at 1200 in Stirling; RTV Tunisia via Sfax 17.500 (Ar [Home Service] 1100-1700) was rated 44444 at 1244 by Zacharias Lianas in Thessaloniki, Greece, and SIO444 at 1320 by John Coulter in Winchester; RTV Tunisia via Stav 21.595 (Ar [Home Service] 0700-1800) SIO333 at 1435 by Peter Pollard in Rugby; BBC via Ascension 21.250 (Eng to Africa 0730-1745) 32222 at 1830 in Oxted; VOA via Tanger, 17.955 (Eng to N.W.Africa 1600-2300) 34444 at 1706 in Co.Londonderry.
Long Medium & Short

[Excerpt from a radio transmission schedule listing frequencies and times for various radio stations.]

Bandscan
CONTINUED FROM PAGE 54

Other News

According to CB Action there is a new New Zealand short wave pirate station called "New Zealand Coast" broadcasting between 0630 and 0830UTC Sundays on 7.445MHz. The station address is announced on air as PO Box 1437, Hastings, New Zealand. The National Transmitters Association (NTA) has launched the ABC's 200th Radio National transmitter at Mount Panorama near Bathurst, New South Wales. Radio National can now be heard in most parts of Australia; the state of Queensland has 69 RN transmitters. NTA transmitters for ABC currently 18222 amateur licence licences, 3390 are limited licences and 1538 are combined licences, 3390 are limited licences and 1538 are combined licences.

According to statistics released by the Department of Transport and Communication (DoTC) there are currently 18222 amateur licence holders in Australia. Of these 10634 are unrestricted licences, 2633 are novice licences, 1538 are combined licences, 3390 are limited licences and the remaining 27 are for beacons. There are 4107 CB amateur repeaters and 427 h.f. CB repeaters.

Also from CB Action, Qantas is logged in Hafnarfjordur as 14432 at 1102. R.Australia's broadcast to Pacific areas via Shepparton on 9.580 (Eng 0800-2130) was 31321 at 0739 in Bushney Heath. Better reception was noted later from Carnarvon on 5.101 (Eng to S.Asia 1430-1800), 5443 at 1624.

Also noted were WCSN Scotts Corner, 9.840 (Eng to Europe 0800-0800) SI0444 at 0740 in Macclesfield, R.Nederlands via Eindhoven 7.100 (Eng to Europe 1130-1235), 4444 at 1224 in Basingstoke, Polish R, Warsaw 9.525 (Eng to Europe 1900-1955) SI0432 at 1955 in Rowley Regis, R. Jordan via Al Karanan 8.560 (Eng to Europe 0830-1830) SI0332 at 1830 in Dunstable, VOIRI Tehran 9.022 (Eng to Europe 1930-2030) SI0222 at 2033 in Redhill, WSB Clyde Cypress, 9.465 (Eng to USA 2200-2355) SI0222 at 2244 in N.Bristol, WSB Scots Corner 8.850 (Eng to Africa 0000- 0044) at 0044 in Baton-on-Humber.

The 7MHz (41m) logs included WWCR Nashville, 7.435 (Eng to Europe 0000-1000), rated 4444 at 0400 in Ross-on-Wye; Voice of Nigeria via Ikorodu 7.255 (Eng to W.Africa 0900-1025) SI0444 at 1025 in Chester; R.Japan via Skelton, 7.230 (Jan, Eng to Europe 0700-0830) SI0444 at 0700 in Suffolk; KBTA Santa Ana, 7.510 (Eng to USA 0200-1600) 43544 at 1600 in Miami; R.Japan via Fenland, 8.465 (Eng to Europe 1400-0000) 43544 at 0000 in Chester; R.Japan via Merv, 8.465 (Eng to Europe 1400-0000) 43544 at 0000 in Sydney; RTF to Africa 0000-1200, rated 4444 at 1200 in Wellington, also 7.255 from Darwin (Eng to S.Asia 1800-2100) was 31321 at 0759 in Bushey Heath. Better reception was noted later from Carnarvon on 9.510 (Eng to S.Asia 2200-0000), 14444 at 0000 in Hafnarfjordur.

In the 6MHz (49m) band R.Australia via Carnarvon 6.000 (Eng to S.Asia 0900-1025) 43544 at 1025 by George Tellclipse in Penmaennawr, AIR via Agadir 7.421 (Eng, Hi to Europe 1730-2230) 43533 at 1730 in Oxford; R.Ukraine via Kiev 7.240 (Eng to Europe 1800-2100) SI0432 at 2100 by Georgie Bontells in Braidwood, NSW 2622, Australia. For personal replies please send two IRCs.

Short Wave Magazine, September 1993
Quantek Electronics

YUPITERU MV7100
- 530kHz - 1650MHz
- 1000 channels
- NFM/VFM/AM/LSB/USB
- Built-in TNC comm program
- Supplied with: Nicads, UK charger, antenna, carrying strap, belt clip

SPECIAL OFFER £399 incl. p&p

OPTO ELECTRONICS 2300
- Frequency counterfinder: An extremely sensitive hand-held frequency counter. It will display the frequency of a 2 watt transmitter at 1000Hz!
- LCD display
- Easy-to-use
- Built-in TNC comm program

SPECIAL OFFER £49 incl. p&p

SCANNER AUTO-VOX
- Connects to and works with any receiver which has an 'ear' socket and squelch control. Simply plug the AUTO-VOX into the 'ear' socket of the receiver, then plug the output leads from the AUTO-VOX into the microphone and remote sockets of a tape recorder. The AUTO-VOX will then automatically switch the tape recorder on when a signal is received and off when there is no signal present - result: a tape full of all the action!
- Kit £15.95 assembled £24.95 incl. p&p

Please add £5 p&p

YUPITERU MV7100  £329
YUPITERU MV7200  £349
YUPITERU VT125  £179
YUPITERU VT225  £269
FAIRVATE HP2000  £289
NEVADA MS1000  £269
AOR 3000A  £899

THE AVIATION HOBBY CENTRE
1st FLOOR, MAIN TERMINAL BUILDING, BIRMINGHAM INTERNATIONAL AIRPORT
BIRMINGHAM B26 3QJ
Telephone: 021 782 2112 or 021 782 6580
OPEN 7 DAYS A WEEK (including bank holidays)

THE AVIATION HOBBY CENTRE
1st FLOOR, MAIN TERMINAL BUILDING, BIRMINGHAM INTERNATIONAL AIRPORT
BIRMINGHAM B26 3QJ
Telephone: 021 782 2112 or 021 782 6580
OPEN 7 DAYS A WEEK (including bank holidays)

Why not pay us a visit and watch the aeroplanes at the same time. We have two shops, one on the first floor by Mag-Lev (have a free ride to BR station and back) and one in the Airport's Viewing Gallery (Viewing Gallery open everyday - Admission 50p).

Airband Radios from £9.95 and Scanners from £189.00 plus a variable selection of good secondhand and part exchange models usually available.

We stock radios by Fairmate, Jupiter, Icom, Uniden, Steepleton, Texet etc., Models and Prices to suit you.

Come and see the finest range of books on Aircraft and associated subjects there is, by publishers such as Ian Allan, Airlife, Putnam, PSL, Haynes, MCP and many more.

Air Maps, Frequency Charts, Books on ATC, even books on how to fly a Cessna or a Jumbo Jet, we stock 'em all.

Associated subjects there is, by publishers such as Ian Allan, Airlife, Putnam, PSL, Haynes, MCP and many more.

Air Maps, Frequency Charts, Books on ATC, even books on how to fly a Cessna or a Jumbo Jet, we stock 'em all.

Books for the Student Pilot and PPL, Checklists, Flight Cases, current Topo Charts always in stock, Nav-Flight Computers and much more. We also stock aviation postcards, posters and badges (callers only). Can't visit?

Then send £1 for our mail order catalogue or telephone us on:

021 782 2112 or Fax: 021 782 6423

We accept all major Credit Cards and Cheques with Bankers Card Number (up to £500 for Personal Callers with I.D.)

JUST STARTING OUT? Why Not Try:-
Our most popular Multi-band Radio with a 'rubber duck' aerial -
Airband - FM - PSB, batteries included.
12 months guarantee - £24.95 POST FREE!
There is a growing interest in this aspect of our hobby and the latest report mentions that the band is now being checked at all hours of the day and night! An impressive first list was compiled by Michael Wright in Howth Village, Dublin. A S.O.S. beacon is now in S.Yorkshire. Having studied the quarterly beacon charts in SWM he decided to explore the band. Initially he used a 15m random wire antenna with a home-built audio filter. He had a 3000 receiver, but results were disappointing. A marked improvement was noted when he tried a Datong active antenna erected outdoors. He was surprised to hear some of the beacons at Nash Point, SW.Wales and at night. Eighteen of the beacons were noted at night. W.France on 312.0, which he had not logged after dark. His daytime entries ranged from 290.5 to 302.0 kHz. Some DXers may be unaware that stations transmit supplementary frequencies stored in the memory and sometimes be slightly off-tune. To avoid these, some of the entries in the impressive log from Jim Edwards in Wigan were also noted at night.

An extensive log was compiled by Brian Oddy G3FEX, Three Corners, Merryfield Way, Storrington, West Sussex, RH20 4NS. He has found that a drift of only 15Hz will cause co-channel interference to some of the beacons. The many entries in his log included the beacon at Dunkansby Head (DY) on 290.9 kHz, which has been 'silent' for several months.

Kenneth advises caution when listening to beacon frequencies. He says that a narrow audio filter is needed. Some DXers may be unaware that beacon stations use "Minimum Shift Keying" (m.s.k.) in their c.w. mode and he was disappointed by these results. He found the 800Hz c.w. off-set of his Trio R600 receiver confusing when searching for beacons on known frequencies, so he used the u.s.b. mode. It soon became apparent that a narrow filter is needed. When using a home-built audio filter (BW 30Hz) with his HF-225, Kenneth has found that a drift of only 15Hz will result in a signal decrease of -6dB. Experiments have confirmed that signals retrieved from memory can sometimes be slightly off-tune. To avoid missing a beacon he uses the built-in 200Hz a.f. filter when checking frequencies stored in the memory and the 30Hz filter only for manual tuning.

The position of these stations is given in Table 1. M.Ø. has prepared a useful list of European marine & aeronautical beacons. It is available free. Send an A4 size s.a.e. to him via me.Over 1000 European maritime and aeronautical l.w. beacons (Iceland to N.Africa) are detailed in 34-page booklet produced by Robert Connolly in Kilkeel. For further details send an s.a.e. to him via me.
FOR SALE

Alienco DJ560 dual band hand-held, extended receive and transmit ranges, as new, hardly used, original packing, £300 (no offers). John. Tel: (0203) 4653529 Coventry.

AOR AR-2000 hand-held scanning receiver plus charger batteries, antenna, little use, boxed, as new, £220. Lyndon or Janet. Tel: (0443) 422406 Tonypandy.

AOR AR-2000 scanner, good condition, boxed, all accessories, plus books, Sigma SE-700 discone, £250 o.n.o. Buyer collects. Also some u.h.f. receivers, £25. Hayward. Tel: (0304) 853375.

EC10 complete with a.c. battery packs, re-aligned, £70. 940 receiver, v.g.c., £120. Both with manuals. Capeo SPC300D new, £120. Tel: 041-649 4345.

Eddystone 1000 general purpose communications receiver, 550kHz to 30MHz, in five ranges, a/c/viCad c.w., a.m., s.s.b. manual, a.g.c., switching, variable b.f.o. a/f/f.gain control (inc manual), will accept £75 plus carriage. Tel: (0769) 574659 South Molton, Devon.

Eddystone 1650 memories auto/manual scanning, direct entry, 5 filters, cost over £500+. Recal 1792 100 channel non-back-lit memories, direct entry, auto/manual tuning, both receivers have too many functions to list. Offers? Tel: 081-812 9193.

Fairmate HP-2000 scanner, good condition, 0.5 - 1300MHz, no gaps, n.f.m., w.f.m., a.m., 100 memory channels, 10 search banks, cost £315 new, will accept £200 o.n.o. Only 14 months old. Graham Burgess. Tel: (0260) 276469 after 6pm.

Ferguson SR81 satellite receiver with compact dish. Full Trac update to receive PAL, D2-MAC and D-MAC transmissions, never used. Full instructions and fitting kit included, as new, £75. Tel: 091-388 8003 anytime, Co. Durham.


IBM PC 286 s.v.g.a. colour monitor, 1Mb RAM, 4 Mb extended, 20 Mb hard drive, 3.5 and 2.5 floppy drives, h.f. fax JVFax PC Tools DOS6, £475. Digital 220 comms terminal with manuals, suit Microreader packs, £30 o.n.o. Wanted MVT-5000. Tel: (0709) 700775 after 6pm.


Icom IC-718, £50. £60! I won't accept £30. £120. Grundig 6000 m.w./f.m., £200. £300. TS-940SAT, £1450. FT-101ZD with external v.f.o., £500. FT-101, £225. Richard. Tel: (039986) 215 anytime, Taunton area.


Recal RA1792, 100 channel memories, auto/ manual tuning direct entry, back-lit, self-test facilities, 6 filters, finest receiver, offers? Grundig 530 International, unmarked, like new, £250. Grundig 6000 m/w Lw./f.m. £1.6-30MHz, £250. s.s.b. unit, a.c./d.c. £75. Tel: 0181-813 9193.

Radio Shack PRO-41 hand-held scanner. Unwanted prize, complete with accessories, £55 as new. Books, mags - radio & computer, a.s.a.p. for list. Maplin notch filter, complete kit unstarted. John Gilbert. 24 Wolsey Road, Newark, Notts NG24 2BN.

TRADING POST ORDER FORM

Please insert this advertisement in the next available issue of Short Wave Magazine.

FOR SALE/WANTED/EXCHANGE maximum 30 words

(a) photocopy of this form is acceptable, but you must still send in the corner flash below, as proof of purchase. Address

Name

Address

Signature

Expiry date of card

J&P Electronics FAX receive set-up for Spectrum including interface for £128+2, £135 complete, plus postage. Tel: (003) 537555.

Kenwood Trio R-2000 receiver 150kHz to 30MHz, m.ton condition, manual, boxed, £280. Tel: (0403) 262882 Horsham.

Lowen HF-125 with keypad, direct entry, new 1990, only six months use. No faults, buyer to call, price, £130. Saunders. Tel: (0568) 612880 near Hereford.

Lowen HF-150 receiver with power supply with 10 month warranty, £285. Yupiteru MVT-7000 with accessories, £200. Buyer to pay shipping. Tel: (0473) 9853898 evenings. Suffolk.

Lowen HF-225 with D225 sync detector immaculate condition, £350. National HRD receiver (working) complete with p.s.u., and 8 coils, any reasonable offer. Tel: (07984) 88457 Cumbria.

Philips 1875 short wave radio, excellent radio, l.w., m.w., £40. £120. Robert 86B new, v.g.c., £75. M. Allen. Tel: (0742) 464186.

Racal RA1792, 100 channel memories, auto/ manual tuning direct entry, back-lit, self-test facilities, 6 filters, finest receiver, offers? Grundig 530 International, unmarked, like new, £250. Grundig 6000 m/w Lw./f.m. £1.6-30MHz, £250. s.s.b. unit, a.c./d.c. £75. Tel: 0181-813 9193.

Realistic (Tandy) PRO-41 hand-held scanner. Unwanted prize, complete with p.s.u., batteries, manual, £55 as new. Books, mags - radio & computer, a.s.a.p. for list. Maplin notch filter, complete kit unstarted. John Gilbert. 24 Wolsey Road, Newark, Notts NG24 2BN.

Closing Date for Adverts: October Issue - 1st September, November Issue - 1st October.
Short Wave Magazine, September 1993
RADIO AMATEURS EXAM? PASS FIRST TIME!
Before you enrol check the benefits of RRC’S unique Home Tuition Service

RRC has helped thousands of students to success in their examinations with this unique system of postal tuition, one which guides you, step-by-step, to qualify in the shortest possible time. Only The Rapid Results College offers you all these advantages:

- A qualified personal tutor
- Study material prepared by specialists
- Completely self-contained courses
- Handy pocket-size booklets
- Personal study programme
- Regular marked tests
- Courses regularly updated
- 48 hour despatch

- Free advice before you enrol
- Telephone Helpline
- ‘How to Study’ Guide
- Insitment Plan
- Free Postage on course material
- Worldwide Airmail Service
- Extra tuition free if you don’t pass first time

POST COUPON TODAY FOR FREE RADIO AMATEURS PROSPECTUS
Please send me my prospectus as quickly as possible.
Mr/Mrs/Miss/Ms

Address

Postcode

The Rapid Results College
Demp IV 138, Tuition House, London SW19 4DS. FREE ADVICE: 081 947 7272 (9am-5pm)
PROSPECTUS: 081 946 1102 (24 hour Recordacall Service quoting Dept. No. above).

NEW
FAX and WEATHER SATELLITES
Full resolution charts and greyscale pictures from any SPECTRUM computer to a dot matrix printer. Basic system £40 plus interface for FAX £40 or WX SATS £59.

APT-1 WEATHER SATELLITE MODULE
Enables all weather satellite signals to be displayed on any FAX system. Plugs into RX-8 system direct. £59 or £39 if ordered with RX-8.

RX-8 8-MODE RECEIVE
Every possible feature and performance to receive FAX, HF & VHF PACKET, COLOUR SSTV, RTTY, CW, AMTOR, UoSAT and ASCII on any BBC computer. Reviews Oct. 89 Ham Radio Today and July 91 Rad Comm. Complete system of EPROM, interface, instructions, leads and demo cassette £259.

RX-4 RTTY CW SSTV AMTOR RECEIVE
Performance, features and ease of use make this still a best seller. Needs TIF1 interface. BBC, CBM64 tape £25, disk £27. VIC20 tape £25. SPECTRUM tape £40, + 3 disk £42 inc adaptor board (needs TIF1 also) or software-only version £25. TIF1 INTERFACE has 4-pole filtering and computer noise isolation for excellent HF and VHF performance. Kit £30, ready-made, boxed with all connections £40. Available only with software.

Also MURSE TUTOR £8, LOGBOOK £8, RAE MATHS £8 for BBC, CBM64, VIC20, SPECTRUM. BBC LOCATOR with UK, Europe, World maps £10. All available on disc £2 extra. Full info available on everything. Please ask.

PRICES INCLUDE VAT AND P&P BY RETURN

Tel: (0286) 881886

| DATONG ELECTRONICS LIMITED |
| Claywan Wood Close |
| West Park |
| Leeds LS16 6QJ |
| Tel: 0532 744822 |
| Fax: 0532 742872 |

For products you can rely upon to give amazing results

For information on Active Antennas, RF Amplifiers, Converters, Audio Filters, the Morse Tutor and Speech Processors send or telephone for a free catalogue and selective data sheets as required.

All our products are designed and made in Britain. Orders can be despatched within 48 hours subject to availability.
**Trading Post**

**Realistic DX-302 digital f.h.c. receiver, absolutely unmekked, £95. MBRR all purposes receiver, good condition, £37.50. Eddeystone EB3 f.h.c. receiver, broadcast bands only, £50. Prices include P&P. Tel: (0244) 310271 after 6pm, Chester.**

**Sale HROs p.s.u., complete Q.H coils for 05 - 30MHz, price when seen and tested about £150 complete.**

**Selling out 81 HRO p.s.u. 4 coil tested about £150 complete s.w.l. for 05 - 30Mc/s, price when seen and sold.**

**Selling out HROs p.s.u., complete 0/H coils**

---

**Sony SW55 portable shortwave receiver, 15kHz to 30MHz, a.m., s.s.b. 75 to 108MHz, v.f.h., world clock, 125 memory presets, case, p.s.u., excellent condition, 6 months old, cost, £270, accept, £190. Tony. Tel: (0271) 985598 Ilfracombe, North Devon.**

**Swinhurme DR-600 airband scanner, five fixed crystals, one tuneable channel, scans on all six, plus spare crystals including NCiad pack and mains charger, £70. Chris Perkins. Tel: (0834) 512054.**

**Sстро Tri-1000 communications receiver with Global AT1000 antenna coupler and frequency lists all v.g.c., £190. (0253) 875127 anytime, Fleetwood.**

**Sony 2001D Global AT-1000 a.t.u., m.w., s.w., a.m., Yaesu FRG -9600, 60-950MHz, £300. Will pay up to £100. Tel: 051-649 9324.**

**Sony ICF SW771 portable shortwave receiver, 15kHz to 30MHz, a.m., s.s.b. 75 to 108MHz, v.f.h., world clock, 125 memory presets, case, p.s.u., excellent condition, 6 months old, cost, £270, accept, £190. Tony. Tel: (0271) 985598 Ilfracombe, North Devon.**

**Yuipiteru MVT-7100 scanner three Satellit model 2400 and Grundig 601500, Soundmaster 75, Explorer Radionette. Advise condition, price to include postage air mail or surface. Sabino FINA, Via Cesinali 83042 - Atripalda (AV), Italy.**

**General coverage f.h.c. communications receiver. Perhaps 90-500ES. Prefer valves! Available later: my old, but working, HRO. Godfrey G44LM. Tel: 081-958 5113 Edgeware.**

---

**Grundig short wave stereo radio Satellit model 2400 and Grundig radio cassette model C5800 or model C9000. Must be new, in exchange for AOR AR-3000 scanner, prefer interested party to collect. Tel: 0983 756533 Isle of Wight.**

**Optilith Spotscopes 30X75 made in West Germany, cost £500 in West Germany, £100 in the UK. Will consider working or for spares. Lyndon or Janet. Tel: (0494) 422406 Tonypandy.**

**Sony 320/8000, Panasonc 8000/9000, Eddystone 940, old wireless sets transmitter and large tube used. Advise price to include postage air mail or surface. Sabino FINA, Via Cesinali 83042 - Atripalda (AV), Italy.**

**Sony 320/6800, 8000/8000, Eddystone 9400/9900 R/S, Philips 2999, old Satellite, Bearcat 1000, Soundmaster 75, Explorer Radionette. Advise condition, price to include postage air mail or surface. Sabino FINA, Via Cesinali 83042 - Atripalda (AV), Italy.**

**Sony 320/6800, 8000/8000, Eddystone 9400/9900 R/S, Philips 2999, old Satellite, Bearcat 1000, Soundmaster 75, Explorer Radionette. Advise condition, price to include postage air mail or surface. Sabino FINA, Via Cesinali 83042 - Atripalda (AV), Italy.**

**Realistic Patrolman PRO-2025 16-channel programmable scanner. Used condition. Peter. Tel: (0624) 623350.**

**Realistic PRO-2006 or 2004 consired, Lodon or Janet. Tel: (0494) 422406 Tonypandy.**

---

**Sony 9R-59DS. Prefer valves! Available later: my old, but working, HRO. Godfrey G44LM. Tel: 081-958 5113 Edgeware.**

**Tandy PRO-2002 working display driver or model to use for spares. Mike. Tel/FAX: (0333) 315013.**

**Top prices paid for your German gear for WWII vintage. Looking for receivers, transmitters, accessories. Will collect. Lisok, Rue M. Peudot 9, B-1169 Brussels, Belgium. Tel: 010-322-673115.**

---

**Zenith Trans-Oceanic radio or fiscal 1752 model receiver. Tel: (0462) 414867.**
The books listed have been selected as being of special interest to our readers. They are supplied direct for the travelling listener. Articles that the various station types are included in the guide discuss v.h.f. radio networks. Useful information, practical constructional requirements, aerials and much more are given for a further selection of antenna types you can build. 226 pages. £9.95

BEAM ANTENNA GUIDE
W. J. i r w s i & D. S. Cowan YLX
Design, construction, adjustment and installation. This book contains a complete listing of beam antennas. The cover of this book was compiled from the data entered in experiments conducted by a group of 200 MHz specialists. It is intended for antennas and covers the subject of beam antennas. £6.95

C-QRP CLUB ANTENNA HANDBOOK
Compiled and edited by P. Lindsay, W6RJ & T. Nicholson, W9NLE
This book is a collection of antenna and receiving circuits from the C-QRP Club's journal. Although most of the circuits are aimed at the low-power fraternity, many of the interesting circuits are also useful for general use. Not intended as a text book, but offers practical and proven circuits. 188 pages. £12.00

HF ANTENNA COLLECTION
(RSGB) Edited by Erwin David G4LQI
This book contains a collection of antenna articles first published in the RSGB's Radio Communications magazine, between 1868 and 1869, along with other useful information on the mobile environment. £3.50

INTRODUCTION TO ANTENNA THEORY
(RP) N. G. Wing
This book deals with the basic concepts relevant to receiving and transmitting antennas. £12.00

YAGI ANTENNA DESIGN
Dr. James L. Lawton WPW
This book is a well written and expanded version of a series of articles first published in QST magazine on a series of lectures by the author, who was well known as the expert on Yagi design. Chapters include the design of Yagi antennas, loop antennas, effect of ground, stacking and practical efficiency of different Yagi antennas. £6.95

25 SIMPLE AMATEUR BAND ANTENNAS
RPB125
E. N. Stimson
How to build and simple method of building antenna is described, from a simple dipole through beam and triangle designs to a mini-antenna. Dimensions and specific spot frequencies including the VHF bands are also given. 67 pages. £1.95

Short Wave Magazine, September 1993
Be sure of your copy of Short Wave Magazine every month and qualify for the Subscribers' Club as well. Special offers and discounts are normally available to all members, including those abroad.

This month members of the Short Wave Magazine Subscribers Club can take advantage of yet another very special offer.

We are offering readers the chance to buy a Steepletone MBR7 multi-band radio. This general coverage receiver offers wide coverage on l.w., through short wave broadcast to v.h.f. and f.m. bands. The fine and course tuning allows easy resolution on the crowded short wave bands. Other features include telescopic antenna, p.a. facility, a.m. direction finder and external mic, antenna and earpiece sockets.

Specifications

Frequency Coverage:
- m.w. 535-1630kHz
- l.w. 150-315kHz
- s.w. 1. 7-22MHz
- s.w.2/MB Marine Band 2.3-7MHz
- f.m. 88-136MHz
- Airband 108-136MHz
- f.m. Marine & p.m.r. band 136-176MHz

This radio will be of particular interest to airband, marine and short wave broadcast enthusiasts.

The Steepletone MBR7 normally sells for £76.40 plus £4.75 P&P including VAT, however, we are able to offer it to SWM Subscribers' Club members for £65.00 including VAT and P&P (UK), giving a saving of £16.15. Overseas readers please apply for prices.

This offer is open until 24 September 1993 (UK), 28 October 1993 (overseas).

ORDER FORM FOR ALL MAIL ORDER PURCHASES IN SHORT WAVE MAGAZINE

CREDIT CARD ORDERS TAKEN ON (0202) 659930
FAX ORDERS TAKEN ON (0202) 659950

Or please fill in the details ticking the relevant boxes, a photo copy will be acceptable to save you cutting your beloved copy!

To: PW Publishing Ltd., FREEPOST, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

SUBSCRIPTIONS

SHORT WAVE MAGAZINE 6 MONTHS £11.00 (UK)
SHORT WAVE MAGAZINE 1 YEAR £22.00 (UK)

Please start my subscription with the ________________________ issue.

SUBS CLUB OFFER

☐ Please send me ...... Steepletone MBR7(s) @ £65.00 inc. VAT and P&P (UK). (£65.00 inc. VAT and P&P (UK)).
(overseas prices on application)

My Subscriber Number is........

BINDERS

☐ Please send me ..... PW Binder(s) @ £5.50 each. (£5.50)

Postal charges:
- £1 for one, £2 for two or more (UK), £1.75 for one, £3.50 for two or more (overseas).

BOOKS

☐ Please send me the following book/s,

Postal charges:
- £1 for one, £2 for two or more (UK), £1.75 for one, £3.50 for two or more (overseas).

GRAND TOTAL £

PAYMENT DETAILS

Name
Address
Telephone No
Postcode

I enclose cheque/PO (Payable to PW Publishing Ltd) £

Or

Charge to my Access/Visa Card the amount of £

Card No.
Valid from 
to
Signature
Tel
ASSISTANT EDITOR

ARE YOU ORGANISED? CAN YOU COPE IN A CRISIS?

Britain's leading monthly magazine for the radio listener, Short Wave Magazine, is looking for an Assistant Editor.

You will need to work to monthly deadlines that include feature writing, product and news reporting, subbing freelance authors' work, answering readers' letters and generally keeping the magazine on an even keel, as well as organising the Editor!

An enthusiastic knowledge of radio, together with Apple Macintosh experience, would be advantageous.

If you think that this job is for you and can start yesterday, send your CV to Dick Ganderton, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Tel: (0202) 659910. FAX: (0202) 659950

PW Publishing Ltd. is an equal opportunities employer.

ANORAK MAGAZINE

FOR ALL YOUR RADIO NEWS!!! RADIO CAROLINE, NATIONAL, LOCAL, SATELLITE, SHORT WAVE, IRISH SCENE, DUTCH SCENE FREE RADIO AND MORE!!! ALL YOU WILL EVER NEED IS A £1.00!!!

PLEASE SEND £1.00 PLUS SAE OR £2.00 PLUS FIVE SAE'S FOR NEXT FIVE ISSUES.

OUR PREFERRED METHODS OF PAYMENT ARE A COIN TAPED TO A PIECE OF CARD FOR BANK NOTE, STAMPS OR UNCROSSED POSTAL ORDER.

CM LEISURE SALES, DEPT. SW, P.O. BOX 46, ROMFORD, ESSEX.

INDEX TO ADVERTISERS

A.O.R. ... 55
A.O.R. ... 55
Aerial Techniques ... 52
Air Supply ... 56
Alan Hooker ... 60
Amral ... 64
ARE Communications ... 60
ASK Electronics ... 23
Aviation Hobby Centre ... 74
BARTG ... 74
C M Leisure ... 64
CB37 ... 56
Chevet Books ... 77
Cirkit ... 49
Colomer Electronics ... 58
Comar Electronics ... 58
Datong ... 78
D G Anthill ... 63
ERA Ltd ... 64

Index to Advertisers

F G Rylands ... 53
Flightdeck ... 58
Flying Shop ... 58
G3RCQ ... 84
Garex Electronics ... 77
Haydon Communications ... 47
Howes, C M ... 44
I C S ... 84
icom ... 32
Interproducts ... 74
J & J Enterprises ... 74
J & P Electronics ... 63
Javilation ... 67
Jaycee Electronics ... 52
Jaytee Electronics ... 47
Klingenfuss Publications ... 67
Lake Electronics ... 47
Link Electronics ... 77
Lowe Electronics ... Cover iv, 8, 9, 38, 46

Marty Lynch ... 14, 15
Microgate Services ... 77
Midac Systems ... 52
Momentum Communications ... 44
Nevada Communications ... Cover i, iii, 20, 21
Photo Acoustics ... 29
Quanteck Electronics ... 74
R & D Electronics ... 74
Radio Research ... 52
Rapid Results College ... 79
Roberts Radio ... 17
Short Wave Centre ... 63
Solid State Electronics ... 63
South Essex Communications ... 52
South Midlands Communications ... 12
SRP Trading ... 37
Technical Software ... 78
Timespec ... 57
Waters & Stanton ... 30, 31

Published on the fourth Thursday of each month by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW, printed in England by Southernprint (Weetwood), Factory Road, Upton Industrial Estate, Poole, Dorset BH16 5SH. Tel: (0202) 622025. Distributed by Seymour, Winton House, 1279 London Road, Netley, Southampton S04 8HS. Tel: 051-799 1956, Fax: 051-799 1967, Telex: 813348. Sold Agents for Australia and New Zealand - Gordon & Gotch (AUS) Ltd; South Africa - Central News Agency Ltd; Subscribers for ISLAND (EU), EUROPE (EU), OVERSEAS (by ASH) Ltd, payable to SHORT WAVE MAGAZINE, Subscription Department, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. SHORT WAVE MAGAZINE is sold subject to the following conditions, namely that it shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of trade, or affixed to or as part of any publication or advertising, literary or pictorial matter whatsoever.

Short Wave Magazine, September 1993
The Ultimate in Mobile Scanners

1,000 Channel Wideband Scanner
Frequency Range: 500kHz - 600MHz
800 MHz - 1300 MHz
Receiving Modes: AM - FM - Wideband FM
Search Steps 5kHz to 995kHz
Selectable 10dB Attenuator
Tape Recorder Output Socket
Automatic Tape Recorder Switching Circuit
Keypad or Rotary Tune Controls
Switchable Audio Switch
All Metal Case For Improved EMC Compatibility

AVAILABLE FROM YOUR LOCAL DEALER OR DIRECT FROM
NEVADA COMMUNICATIONS
189 LONDON ROAD, NORTH END,
PORTSMOUTH PO2 9AE
USE YOUR CREDIT CARD FOR SAME DAY DESPATCH
ORDER HOTLINE
(0705) 662145

SUPPLIED COMPLETE WITH
★ 240V mains adaptor
★ Mobile fixing bracket
★ Telescopic antenna
£299

Wideband Scanning Receiver MS 1000 —
All across the world, users and reviewers are singing the praises of the Lowe Short Wave receivers. You can join the happy band by calling in at any of our branches to try them out. Remember - you are buying direct from the manufacturer, and not some importer.

LOWE ELECTRONICS LTD. Chesterfield Road, Matlock, Derbyshire DE4 5LE
Telephone 0629 580800 Fax 0629 580020

London 0753 545255 ♦ Newcastle 0661 860418 ♦ Cumbernauld 0236 721004 ♦ Bristol 0272 315263
Cambridge 0223 311230 ♦ Bournemouth 0202 577760 ♦ Plymouth 0752 607284 ♦ Leeds 0532 452657