PRO-2004 SCANNER REVIEWED

Build Our Simple ATU

+ Seen & Heard
DEWSBURY ELECTRONICS ARE ABLE TO OFFER THE SHORT WAVE LISTENER A FULL RANGE OF RECEIVERS, RTTY, TOR, FAX, ASCII, DECODERS, PRINTERS AND MONITORS.

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Dewsbury Electronics, 176 Lower High Street, Stourbridge, West Midlands. Telephone: Stourbridge (0384) 390063/371228 Telex: 337675 TELPES G

Instant finance available subject to status. Written details on request.
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First Word

THIS IS IT!

Well, this is the new, revamped Short Wave Magazine. In its pages I hope that you will find plenty to interest you, and what your appetite to get into the shack and try your hand at pulling in some rare DX or perhaps try out a mode that you have not considered before.

With this issue the magazine says goodbye to its regular columnists, some of whom have been providing their copy come rain or shine for many years. Paul Essery G3KFE and Norman Fitch G3FPK have moved their columns over to our sister magazine Practical Wireless where they will continue to report on the amateur radio scene in their own special ways. Glen Ross G8MWR has also gone to PW with his "Practically Yours" feature. I am sure that you would like me to wish them, and Nigel Caithorne G3TXF, of "Oblast Corner", all the best.

We welcome to our new feature, "Seen & Heard", some well-known names from PW's "On the Air" section. Ron Ham and Brian Oddy G3FEX are both well respected as is Pat Gowen G3IOR. Mike Richards G4WNC is a new name to readers of SWM, he will be keeping you in touch with the world of amateur radio.

Brian Oddy will be providing a monthly article aimed at the beginner to the world of listening, giving help and encouragement as well as explaining the elementary, but essential, technical side of the hobby.

Peter Laughton, who has been an occasional contributor to PW in recent years, will be contributing a column looking at the background to international communication developments, focussing on broadcasting station news.

With this issue the "Readers Free Advertisements" have been dropped. They will be replaced in the near future with a section based on the "Swap Spot" concept in PW. Also planned for the near future are two regular sections, alternating with each other, called "What Scanner" and "What Receiver". These you will find details of scanners and receivers that are currently available in the UK.

As far as the editorial stance of the new magazine is concerned, we are prepared to acknowledge, and look at, some of the greyer areas of listening. We hope to be able to provide readers with information and articles on all forms of radio communications, unless it is specifically prohibited. We will be prepared to campaign to clarify the existing legislation as it purports to affect the rights of the listener. This does not mean that we will be going all-out to encourage readers to break the law — far from it.

But what harm does it do for enthusiasts to listen to, say, the airbands? As long as they do not divulge the information heard, or use it to "pirate" another person's business, have they really done a dastardly deed?

Some services already acknowledge that enthusiasts find their transmissions interesting and, for a small fee, will give permission for their transmissions to be received for non-commercial ends. Weather FAX transmissions fall into this category, for instance. With the spread of the scanning receiver covering, almost, d.c. to light the problem is going to increase so far as the authorities are concerned.

I hope that you find the new magazine to your liking — please do let me know.

DICK GANDERTON

A Word in Edgeways

Sir

As a short wave listener and a member of the RSGB, I was delighted to read your editorial in the February issue of the SWM. I agree with you that the needs of the s.w.l. have been sadly lacking over the years. I am very interested in amateur radio, but as a listener and not an operator, in fact I am at the present time taking a Morse code course to help further my listening.

I look forward to the new style magazine as I am sure many other listeners will. I wonder whether you will have a readers letter section where we can ask questions and swap ideas. I enclose with pleasure my renewal subscription cheque for 12 months from April 87. Good luck with the magazine, I'm sure it will be a great success.

R E WOODWARD
ESSEX

I have received many letters regarding the change of format of SWM, most of them in favour. A minority, however, were very much against any change to their favourite magazine and some were almost in the "poison pen" category! I selected this letter as being typical of those in favour and also because I gives me the opportunity to show that we will be having a regular readers' letters section where you can air your views on anything to do with radio or TV.

SIR

In the February edition of Short Wave Magazine, on page 449, in the right-hand column immediately under the item on CDXN Deadlines is the statement that G3SEJ/MM is en route to the Falkland Islands to participate in certain activities.

As the holder of the call-sign G3SEJ, I would assure you that I am NOT en route to the Falklands, and do not anticipate being so in the near future.

I have received "bon voyage" messages, and others, from well-wishers which, in some cases, have been amusing.

Yours faithfully
E. C. John G3SEJ
WALLASEY
MERSEY SIDE
Search and DF System

This item is a bit different from your average scanner set-up, and is included for its interest value rather than as a new product! Rhode & Schwarz have sent details of their PA 2000 system for the interception of short-duration signals in the h.f. to u.h.f. ranges.

Intended to cope with the frequency-agile transceivers which can change transmission frequency up to 1000 changes per second, the PA 2000 covers the frequency range 2 to 512 MHz and can cope with transmission durations of a short as 1ms. It can be used for both mobile or fixed applications as well as for remote control and may be used with other PA 2000s in a network.

To cover the entire frequency range of the receiving system, four antenna systems connected in an Adcock configuration are used. For 2 to 30 MHz two systems are available depending on whether it is for mobile or fixed-station use. The other two antennas are for either 30 to 174 MHz or 174 to 512 MHz.

The m.p.u. controlled search and d.f. system is controlled via the touch-sensitive soft keys of a plasma display, the operator being offered a set of displayed control options for each case. Live display of the digital target bearing information and real time signal analysis are presented on a colour c.r.t.

Media Network

Media Network is a weekly survey of communication developments. It runs on enthusiasm, building on more than 25 years of experience in this field of programming. It is fast becoming one of the most popular programmes between 3 and 30 MHz, reflecting the trends within the media business.

Radio Netherlands have sent us advance information on their programmes schedules for April which will be of interest to readers.

April 2: Crystal Clear. Following three very successful programmes on vintage radio last year, they are continuing the occasional series with a look at very early receivers. Gerald Wells will take up some of the questions raised in the programme last October.

April 9: News Update. The programme will concentrate on the latest developments in the media. Arthur Cushen will be filing his monthly look at Pacific media news.

April 23: A current affairs orientated edition, with Andy Sennit looking at the news received by the WRTH editorial office, in the course of moving to Amsterdam.

April 30: Back to the Future. A look at developments towards Satellite radio. What ever happened to France’s DBS plans? The programme will also include a media contribution from Victor Goonetilleke in Sri Lanka.

Publications

Radio Netherlands have produced the 9th edition of their Receiver Shopping List. The booklet which is free for the asking covers 36 pages and includes information on surplus receivers, addresses for further information and a current radio list split into travel portables, serious s.w. receivers, hobby receivers, specialist receivers and semi-professional receivers. You should write to Radio Netherlands if you are interested in this booklet!
Kit News

For those readers interested in kit construction we have just received copies of three companies' kit catalogues.

Cambridge Kits
The first is in the form of a newsletter — Kit News — from Cambridge Kits. This is a small four-page leaflet with ideas, tips, modifications, etc. as well as news of new kits from the company. The kits described are useful additions to the shack covering such projects as a 6kHz Rugby MSF receiver, a v.f.f. receiver and a range of useful converters. An s.a.e. will send your free copy winging its way to you.

Free Kit News
Cambridge Kits
45 Old School Lane
Milton
Cambridge CB4 4BS

C. M. Howes
The Update to the Winter 86/87 Catalogue from this well known kit manufacturer contains descriptions and technical info on the wide range of kits for the radio enthusiast. Their kits are of excellent quality and well worth further investigation.

C. M. Howes Communications
139 Highview
Vigo
Meopham
Kent DA13 0UT

Kit Cat
Greenweld have just sent me a copy of their latest, free catalogue, called simply Kit Cat. This is a single source for an extensive range of electronic kits covering all abilities and interests. Amplifiers, pre-amps, transmitters, power supplies and other interesting projects are included together with a range of interfaces for popular computers and kits utilising plug-in breadboarding systems.

Greenweld Electronics Ltd
443 Millbrook Road
Southampton SO1 0HX
Tel: (0703) 772501

EDXC Helsinki
The 1987 EDXC Conference will be held in Espoo, Finland from June 5 to 8 at the Hotel Korplampi, and hosted by the Finnish DX Association. The provisional agenda shows a reception on the Friday evening followed by items covering m.w. propagation, the role of a foreign service broadcaster, North American DXing, a video presentation of a Expedition and a presentation of Perus with slides. Saturday sees the official opening of the conference, and this will be followed by a number of workshops. In the afternoon there will be the EDXC Forum (exhibition), a volleyball tournament and the results of the workshops. The evening has a panel discussion of EDXC-20 years and the EDXC Banquet.

Sunday has the Annual Meeting of Finnish DXers, and this will be followed by a session on the equipment used by the DXers. The following day is taken up with sightseeing. The evening will have a film presentation, a Crystal Ball presentation, a broadcasting meeting — how DXers have developed over the years — and a presentation of Finnish DXing. On the Monday morning before the closure of the conference there will be a presentation of Radio Finland and of Finnish local commercial radio.

EDXC 87
PO Box 454
SF-00101 Helsinki
Finland

Modified FRG-9600 Scanner
R. Withers Communications have sent us details of their latest h.f. mods for the Yaesu FRG-9600 scanner. When fitted with these mods, which represent months of development, the scanner's coverage becomes continuous over the frequency range 10kHz to 950MHz, the S meter is improved and the typical receiver sensitivity in f.h.f. is better than 2μV p.d. At frequencies of 60 to 950MHz the sensitivity improves to better than 1μV 112dB SINAD.

RWC fit a high performance h.f. front end made for them by A.KD. This is fitted internally with switching circuits and a small toggle switch on the rear apron to enable band changing with the display reading actual frequency (100kHz to 60MHz).

The standard SO239 connector is replaced by an "N" type for the higher band of frequencies from 60 to 950MHz and an SO239 fitted for h.f. coverage.

The fitting of an "N" type connector means that it is now possible to use a wide band discone antenna such as the Icom AH700 which is fitted with low-loss cable and "N" type connectors as standard. A dipole or long wire antenna can be used for the h.f. coverage.

As well as being able to modify your present FRG-9600, RWC can also supply new models, already converted, in two versions. Option 1 is an FRG-9600 Mk 2 series 2 with 60 to 950MHz "N" type connector for £519.00 plus £5.00 carriage. Your standard FRG-9600 can be modified by RWC for £40.00 inc. VAT and return insured carriage.

Option 2 is an FRG-9600 Mk 3 with internal switchable h.f. mods 10kHz to 950MHz, actual frequency readout, "N" type connector for 60 to 950MHz and SO239 for h.f. This costs £626.00 plus £5.00 carriage. Modifying your own set to this level will cost you £129.00 inc. VAT and return carriage. In this case the 950MHz extended coverage will be fitted at the same time. If you already have the Mk2 then fitting the new h.f. mod will set you back £99.00 inc. return carriage.

All mods are fully guaranteed for twelve months from purchase or modification providing RWC's mod seals are unbroken.

R. Withers Communications Ltd
584 Hagley Road West
Oldbury
Warley
Birmingham B68 0BS
Tel: 021-421 8201

Everyone who listens on s.w. knows about VOA, but they also publish and distribute Voice Magazine every two months. If you like hearing programmes about the USA, then this is the magazine for you. Besides programme times and frequencies, there is factual and feature articles — many of which are related to current daily programmes. For a free subscription, write to:

Voice Magazine
PO Box 400
Washington
DC 20044
USA

The latest 1987 receiver guide is now available from the Dutch World Service. Dozens of sets are listed according to price and performance. Some of the receivers mentioned have been put through their paces in the hiller-sum Studios. The same organisation distribution a booklist and includes range from everything in the electronic field to shortwave radio. The address for these booklets is:

Media Network
Radio Nederland
PO Box 222
1200 JG Hilversum
Holland
Award Hunting?
If you like collecting awards, either as an amateur or s.w.l., then Sue Squibb has written the booklet for you. Her booklet details over 250 awards that you can try for. Included in the information is all you need to know, the requirements, addresses, rules, etc.

It costs £3 by post, US $9 or 15 IRCs, well worth it for the awards chaser.

Sue Squibb
36 Frognal Gardens
Teynham
Sittingbourne
Kent ME9 9HU

RAOTA
I have received some very interesting information on the Radio Amateur Old Timers' Association.

Membership of RAOTA is open to all licensed amateurs and short wave listeners who have been actively interested in amateur radio for 25 years or more.

A certificate is available to all licensed amateurs and s.w.l.s who have contacted RAOTA members, with increments for each additional 15 stations.

Members may also receive OT News on tape if they prefer.

You should contact the Hon. Secretary/Treasurer for more details.

Sylvia Havard G4USN
"Altonswood"
Merricks Lane
Bewdley
Worcs DY12 2PA

QRP Convention
The Yeovil Amateur Radio Club is holding its third QRP Convention on Sunday May 10. Normally the event is held in October, but unfortunately seemed to clash with too many other events.

Entrance is £1, including programme with lucky-draw number. There will be GB2LOW operating QRP on h.f. and v.h.f. bands, as well as displays of QRP and home constructed equipment firing yours tool. The G-QRP Club will be there as well as retail kits and component stands, light refreshments are available at the convention.

The programme is as follows:

0900  Talk-in commences on S22 (G8YEO/A)
0930  Convention Opens
1030  Lecture "The theory and incidence of chordal hop propagation" G3MYM (followed by a discussion)
1200-1400  Lunch Break
1400  Lecture "Construction techniques" G4BUR (followed by a discussion)
1600  Prize Draw
1700  Convention Closes
Yeovil QRP Convention
The Preston Centre
Monks Dale
Yeovil

DATACOM Cassettes
DATACOM, the newsletter of BARTG, is now available on cassette for the visually handicapped. It will be produced on 3 C90 cassettes and will cost £5 for the year's issues (cassettes and delivery). It will be produced on 3 C90 cassettes and will cost £5 for the year's issues (cassettes and delivery). Thanks to RAIBC for the information. Subscription to:

Roy G3L/AZ
Tel: 0682 533996 (day)

SARCON 87
This year, the Scottish National Amateur Radio Convention will be held in Europe's largest leisure centre. The organiser have also broken the tradition of holding the convention on a Saturday in favour of Sunday September 13 to cater for amateurs who have to work a six day week.

The choice of venue, the Magnum Leisure centre in Irvine, Ayrshire was taken to make SARCON '87 a day out for the whole family. The centre has two swimming pools and also twin flumes — the first giant water slides to be opened in Scotland. There is a skating rink, indoor bowling greens, bar and catering facilities and a theatre for the lectures.

The Magnum is situated in a vast beach park with boating facilities, river and sea fishing. It is also close to Sea World, a unique sea life centre which is attracting visitors from all over the world.

Talk-in for the convention is being organised by RAYNET and will probably be on the AY or CS repeater and a 144MHz channel. There is ample and secure car parking around the Magnum and the railway station is only a few minutes walk away. A day out for all the family.

Bob Low GM0ECU
2 Craigie Place
Crosshouse
Kilmarnock
Ayrshire KA2 0JR

Multimeters
Hung-Chang multimeters offer the hobbyist a range of low-cost meters.

The latest additions to their range are two digital multimeters which they claim offer facilities matching those of much more expensive d.m.m.s.

The HC5010 EC has all the usual voltage and current ranges as well as being equipped with diode and transistor testing facilities, an audio-visual continuity tester, capacitance and temperature, as well as resistance ranges.

Capacitance measurement is provided in three ranges: 200pF, 2uF and 20uF with accuracies of ± 1.5 per cent on the lowest range and ± 2 per cent on the other two ranges. Conductance is measured in the 200nS range with an accuracy of ± 1.5 per cent and the temperature range is ± 20 to + 135°C at ± 3 per cent. The HC5010EC costs £52.50 plus VAT.

The other new model is a pocket-size auto-ranging digital voltmeter which has high and low power resistance and a.c./d.c. current ranges. It also has a memory mode which can be set manually as well as overload protection.

It has a 3½ digit i.c.d. auto-polarity and mode display and battery state indication. Ranges are: a.c. volts 200mV, 2, 200 and 1000V, a.c. volts 2, 20, 200 and 750V and accuracy is ± 0.75 per cent. The price is £33.50 plus VAT.

Cirkit Distribution
Park Lane
Broxbourne
Herts EN10 7QZ.
Tel: (0992) 444111
SHORT WAVE RECEIVERS

HF125 General coverage receiver made in Britain by Lowe Electronics, 30 kHz to 30 MHz £375.00 £7.00
Options K125 Optional frequency entry keypad £69.50
D125 FM and synchronous AM detector £69.50
P125 Portable pack, includes internal ni-cads, charging system and active whip antenna £69.50

R2000 TRIO general coverage receiver 150 kHz to 30 MHz £637.26 £7.00
Options VC10 VHF converter, adds 118 to 174 MHz £170.76 £2.50
YG485C 500 Hz CW filter £116.22 £1.00

R6000 TRIO general coverage receiver, 100 kHz to 30 MHz £895.00 £7.00
Options VC20 VHF converter, adds 108 to 174 MHz £178.20 £1.00
YK88C 500 Hz CW filter £118.20 £1.00
YK88CN 6 kHz AM filter £200.80 £1.00
SP480 Matching speaker £43.04 £2.50
V81 Voice module £54.02 £1.00

NRD525 JAPAN RADIO COMPANY general coverage receiver, 90 kHz to 34 MHz £1195.00 £7.00
Options CMK165 Optional VHF/UHF Converter, adds 34-60, 114-174, 423-456 MHz £391.35 £1.00
CMH530 Internally fitted RTTY demodulator £102.19 £1.50
CMH532 Internally fitted RS232 interface £91.75 £1.50
CC232 Cable for CMH532 interface £60.25 £2.00
CFL821 300 Hz crystal filter £126.37 £1.00
CFL822 1 kHz crystal filter £126.37 £1.00
NVA88 Matching loud speaker £62.86 £2.50

DATA DECODING EQUIPMENT
(read RTTY, CW or AMTOR using a UHF television or monitor)

CD600 Decoder for CW/RTTY/TOR/AMTOR £215.14 £7.00
CD680 Decoder for CW/RTTY/ASCII/TOR/AMTOR £254.97 £7.00
CD870 As CD680 but with built-in dot matrix two line display £357.77 £7.00

VHF/UHF CONVERTERS
(use your short wave receiver to listen to VHF/UHF signals, check with us before you buy that your receiver is suitable).

MMC50285 6 metre converter, uses 10 metre IF £37.95 £1.25
MMC14428 8 metre converter, uses 10 metre IF £37.95 £1.25
MMC14428HP as MMC14428 but higher specification £47.84 £1.25
MMC4328S 70 centimetre converter, uses 10 metre IF £44.85 £1.25

HEADPHONES

HS7 TRIO miniature head phones £16.66 £1.00
HS8 TRIO Lightweight head phones £25.68 £2.00
HS8B TRIO de luxe headphones £39.67 £2.00

WORLD CLOCK

HS7 TRIO miniature head phones £16.66 £1.00
HS8 TRIO Lightweight head phones £25.68 £2.00
HS8B TRIO de luxe headphones £39.67 £2.00

AERIALS AND ACCESSORIES FOR SHORT WAVE LISTENING

AERIALS AND ACCESSORIES FOR SHORT WAVE LISTENING

HFS 80-10 metres vertical aerial £83.39 £7.00
HFSR Radial kit when HFS mounted on chimney etc £84.61 £7.00
TRAPKIT Trap dipole kit, inc. 7MHz traps £22.51 £2.50
KX3 MIZUHO aerial tuning unit £67.28 £2.50
AL1 Lightning and static protector £54.71 £1.00
CS201 2-way 50 ohm coax switch 0-500 MHz fitted with SO239 sockets £21.90 £2.50
CS201G As CS201 but with N-type sockets £35.01 £2.50
CS401 4-way version of CS201 £59.09 £2.50
CS4 4-way coax switch BNC connectors £30.39 £2.50
CX3A 3-way coax switch 0-30 MHz only £7.35 £1.50

Short Wave Magazine April 1987
## COMPONENTS FOR BUILDING SHORT WAVE AERIALS

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<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
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<tr>
<td>CUWIRE</td>
<td>25 metres of 14 SWG copper wire</td>
<td>£8.50</td>
<td>£1.50</td>
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<tr>
<td>CPC</td>
<td>Centre piece insulator for dipole aerial</td>
<td>£4.96</td>
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<tr>
<td>UR43</td>
<td>50 ohm coaxial cable</td>
<td>£0.30</td>
<td></td>
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<tr>
<td>UR67</td>
<td>50 ohm coaxial cable</td>
<td>£0.85</td>
<td></td>
</tr>
<tr>
<td>PL589</td>
<td>Coax plug for UR67</td>
<td>£0.66</td>
<td>£0.50</td>
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<tr>
<td>REDUCER</td>
<td>Reducing sleeve for PL289 for use with UR43</td>
<td>£0.16</td>
<td>£0.50</td>
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<tr>
<td>TWIN 500</td>
<td>300 ohm twin feeder</td>
<td>£0.20</td>
<td></td>
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<tr>
<td>TWIN 76</td>
<td>76 ohm twin feeder</td>
<td>£0.20</td>
<td></td>
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<tr>
<td>EIS</td>
<td>Small ceramic egg insulator</td>
<td>£0.61</td>
<td>£0.50</td>
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<tr>
<td>EIL</td>
<td>Large ceramic egg insulator</td>
<td>£0.79</td>
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## VHF/UHF MONITORING RECEIVER

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<th>Item</th>
<th>Description</th>
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<tr>
<td>AR2002</td>
<td>Scanning receiver from AOR covering 25-550 MHz</td>
<td>£487.30</td>
<td>£7.00</td>
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<tr>
<td>Options</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>RCPack</td>
<td>RS232 Interface for computer control</td>
<td>£255.63</td>
<td>£2.00</td>
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<tr>
<td>RCAD</td>
<td>RC Pack adapter for use with AR2001</td>
<td>£25.45</td>
<td>£1.50</td>
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<tr>
<td>M22001</td>
<td>Mobile mount</td>
<td>£11.34</td>
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## AERIALS, CABLE AND CONNECTORS FOR VHF/UHF RECEIVERS

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<th>Item</th>
<th>Description</th>
<th>Price</th>
<th>Carriage</th>
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<tbody>
<tr>
<td>REVCONE</td>
<td>Discone aerial, 30-500 MHz</td>
<td>£31.50</td>
<td>£7.00</td>
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<tr>
<td>D130</td>
<td>Diamond wide coverage aerial, 25-1300 MHz</td>
<td>£79.34</td>
<td>£7.00</td>
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<tr>
<td>UR43</td>
<td>50 ohm coaxial cable</td>
<td>£0.30</td>
<td></td>
</tr>
<tr>
<td>UR67</td>
<td>50 ohm coaxial cable</td>
<td>£0.85</td>
<td></td>
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<tr>
<td>BNCPLUG</td>
<td>50 ohm connector for UR43 cable</td>
<td>£1.50</td>
<td>£0.50</td>
</tr>
<tr>
<td>PL589</td>
<td>Standard coax plug for UR67</td>
<td>£0.66</td>
<td>£0.50</td>
</tr>
<tr>
<td>REDUCER</td>
<td>Reducing sleeve for PL289 for use with UR43</td>
<td>£0.16</td>
<td>£0.50</td>
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## AIRBAND RECEIVERS

<table>
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<th>Item</th>
<th>Description</th>
<th>Price</th>
<th>Carriage</th>
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</thead>
<tbody>
<tr>
<td>RS37S</td>
<td>Airband receiver, tunable 118-136 MHz plus 2 crystal controlled channels crystals extra</td>
<td>£69.51</td>
<td>£2.00</td>
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<tr>
<td>Options</td>
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<td></td>
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<tr>
<td>RS37T</td>
<td>Rubber helical aerial</td>
<td>£4.60</td>
<td>£0.50</td>
</tr>
<tr>
<td>RS25</td>
<td>Scanning airband receiver, 6 channels crystal controlled, crystals extra</td>
<td>£125.36</td>
<td>£2.00</td>
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<tr>
<td>Options</td>
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<tr>
<td>PS9</td>
<td>Mains adaptor</td>
<td>£8.50</td>
<td>£2.00</td>
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<tr>
<td>R537L</td>
<td>Soft case</td>
<td>£3.68</td>
<td>£0.50</td>
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<tr>
<td>RX22</td>
<td>Rechargeable nicad battery</td>
<td>£6.95</td>
<td>£1.00</td>
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<td>CH122</td>
<td>Charger for RX22 Nicad</td>
<td>£8.50</td>
<td>£2.00</td>
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<tr>
<td>CRYSTAL</td>
<td>Plug in crystal (state frequency required)</td>
<td>£4.60</td>
<td>£0.50</td>
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<tr>
<td>RS32</td>
<td>Synthesised airband receiver, 100 memory channels, covers 110-139.995 MHz</td>
<td>£224.05</td>
<td>£7.00</td>
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<td>Options</td>
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<td>PS12</td>
<td>Mains adapter</td>
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<tr>
<td>BP532</td>
<td>Rechargeable nicad battery pack</td>
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<td>CH532</td>
<td>AC Charger for BP532 battery pack</td>
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<tr>
<td>LCS32</td>
<td>Soft case</td>
<td>£9.86</td>
<td>£1.00</td>
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<td>BNC6</td>
<td>Telescopic whip for portable use</td>
<td>£7.46</td>
<td>£0.50</td>
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<tr>
<td>RB144</td>
<td>Rubber helical aerial for portable use</td>
<td>£5.44</td>
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## AIRBAND AERIALS

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<th>Description</th>
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<tr>
<td>LAB</td>
<td>Airband ground plane</td>
<td>£18.42</td>
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<tr>
<td>MG125</td>
<td>Car aerial, magnetic base</td>
<td>£16.42</td>
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<tr>
<td>HG3FA</td>
<td>5/8 REVCONE mobile whip</td>
<td>£7.50</td>
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<tr>
<td>SCC</td>
<td>Base for HG3FA</td>
<td>£6.50</td>
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<tr>
<td>SCCB</td>
<td>As SCC but with quick release</td>
<td>£7.80</td>
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<tr>
<td>2068</td>
<td>5/8 ground plane adjustable 118-180 MHz</td>
<td>£31.50</td>
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<tr>
<td>UR43</td>
<td>50 ohm coaxial cable</td>
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<tr>
<td>UR67</td>
<td>50 ohm coaxial cable</td>
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<td>BNCPLUG</td>
<td>50 ohm connector for UR43 cable</td>
<td>£1.50</td>
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<td>PL589</td>
<td>Standard coax plug for UR67</td>
<td>£0.66</td>
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<tr>
<td>REDUCER</td>
<td>Reducing sleeve for PL289 for use with UR43</td>
<td>£0.15</td>
<td>£0.50</td>
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</table>

Prices and specifications subject to change without notice.

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Short Wave Magazine April 1987
ICOM Communications

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

ICOM introduces the IC-R7000, advanced technology, continuous coverage communications receiver. With 99 programmable memories the IC-R7000 covers aircraft, Marine, FM Broadcast, Amateur Radio, television and weather satellite bands. For simplified operation and quick tuning the IC-R7000 features direct keyboard entry. Precise frequencies can be selected by pushing the digit keys in sequence of the frequency or by turning the main tuning knob. FM wide/FM narrow/AM upper and lower SSB modes with six tuning speeds: 0.1, 1.0, 5, 10, 12.5, 25 KHz. The IC-R7000 has 99 memories available to store your favourite frequencies including the operating mode. Memory channels can be called up by pressing the memory switch then rotating the memory channel knob, or by direct keyboard entry. A sophisticated scanning system provides instant access to the most used frequencies. By depressing the Auto M switch, the IC-R7000 automatically memorises frequencies that are in use whilst it is in the scan mode, this allows you to recall frequencies that were in use. The scanning speed is adjustable and the scanning system includes the memory selected frequency ranges or priority channels. All functions including the memory channel readout are clearly shown on a dual-colour fluorescent display. Other features include dial-lock, noise blanker, attenuator, display dimmer and S meter and optional RC-12 infra-red remote controller, voice synthesizer and HP1 headphones.

IC-R71E, General coverage receiver.

The ICOM IC-R71E 100KHz to 30MHz general coverage receiver features keyboard frequency entry and infra-red remote controller (optional) with 32 programmable memory channels, SSB, AM, RTTY, CW and optional FM. Twin VFO’s scanning, selectable AGC; noise blanker, pass band tuning and a deep notch filter. With a direct entry keyboard frequencies can be selected by pushing the digit keys in sequence of frequency. The frequency is altered without changing the main tuning control. Options include FM, voice synthesizer, RC-11 infra-red controller, CK70 DC adaptor for 12 volt operation, mobile mounting bracket, CW filters and a high stability crystal filter.

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Datapost

Thanet Electronics

Short Wave Magazine April 1987
WHERE YOUR POCKET COUNTS...
PHONE THE REST... THEN PHONE US FOR THE BEST 'PRICES'

150kHz to 30MHz and beyond, 'what do I buy', well if you are confused come and see us, we are specialists in short wave communications. If you are confused, our trained staff is always there to help you and show you the vast range of receivers from 60Hz through to 2000MHz. Not only receivers, we specialise in antennas as well, and of course the name Dressler is known throughout the world. Not only will we help, but we also stock many publications to help you on your way. Brand new, just arrived, the 1987 edition of the 'World Radio & TV Handbook'...

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AIRCRAFT, MARINE, SHORT WAVE HAMS.
WORLDWIDE RECEPTION + 32 MEMORIES.

POCKET SIZE. FULL S/W RECEIVER. INCLUDES MAINS PSU.

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DRESSLER
ARA 500
ACTIVE ANTENNA
50MHz to 1300MHz
Gain 17dB Typical
TECHNICAL SPECIFICATIONS FOR ARA 500
Gain 17dB Typical (14-17dB)
Frequency Range 50-1300MHz
Noise Figure 1dB at 50-180MHz
2dB below 300MHz
2.7dB below 400MHz
3.0dB below 500MHz
3.8dB below 650MHz

£139.00
Operation is possible up to 1300MHz with gain of 16dB

THESE ANTENNAS ARE COMPLETE WITH POWER SUPPLY CABLE AND ALL CONNECTIONS.
ARA 500 FOR YOUR SCANNER.
ARA 30 FOR YOUR SW.
dressler - ara 30 - active antenna
200 kHz ... 40 MHz
Professional electronic circuitry with very wide dynamic range. Meets professional demands both in electronics and mechanical ruggedness. 120 cm long glass fibre rod. Circuit is built into waterproof 2.5 mm thick aluminium tube. Ideal for commercial and s/wl-receiving systems. £129.
See Review in August Issue p.35

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FIT THE PCI WITH THE R7000 OR FRG-9600 AND HAVE 100Kc TO 30 Mhz H.F. USB/I.SB/AM/FM FOR
ONLY £137.00 OR WITH THE FRG-9600 AND ALL POWER SUPPLIES £660

YAESU FRG-8800
£575
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FRV8800 CONVERTER
GEN. CONV.

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AIRCRAFT, MARINE, SHORT WAVE HAMS.
WORLDWIDE RECEPTION + 32 MEMORIES.

POCKET SIZE. FULL S/W RECEIVER. INCLUDES MAINS PSU.

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108-136MHz
150kHz-2194kHz

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SONY ICF 2001D
76-108 MHz
162kHz-29995MHz
MEMORIES, FM, AM, SSB.

£169

SONY ICF 7600D
76-108MHz
162kHz-29995MHz
MEMORIES, FM, AM, SSB.

£169

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General coverage

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250kHz - 2000MHz

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SONY ICF 7600D
76-108MHz
162kHz-29995MHz
MEMORIES, FM, AM, SSB.

£169

Short Wave Magazine April 1987
RADIO SHACK

THE FINEST EVER SCANNER AT AN UNBEATABLE PRICE
25-520, 760-1300 MHz, 300 MEMORIES — ALL FOR £329.95

This wonderful new scanner not only has all the facilities found on ordinary scanners, such as: scan, search, lockout, delay, priority, adjustable speed and direct entry keyboard but it also has these additional features:
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PRO-2004 in stock now
£329.95
Post and packaging £3.45

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200 CHANNELS WITH DIRECT KEYBOARD ACCESS

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20-9133 £239.95

(B) Realistic PRO-2021. Superior performance from the very latest in solid-state technology. Features direct keyboard entry, search and scan in two speeds, two-second scan delay so you don’t miss return calls, priority function will automatically switch to the priority channel when a call is received on it and individual lock-outs for temporarily bypassing channels. Scan up to 200 channels in these bands: VHF-Lo 68-88 MHz, VHF AIR 108-136 MHz, VHF HI 138-174 MHz, UHF Lo 380-470 MHz and UHF HI 470-512 MHz. Easy-to-read LCD channel/frequency display with electroluminescent back lighting, squelch control and built-in speaker, telescoping antenna. Jacks for external speaker, external antenna, tape recorder and DC power supply. 3½ x 10¼ x 8". Includes mounting bracket for mobile use and DC power cord. Mains operation (or 13.8 VDC neg. gnd.). Memory back-up requires 9v battery.

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HF RECEIVER — £825

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ICOM'S STATE OF THE ART
SCANNER — £957

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QUALITY HF RECEIVER — £639

YAESU FRG 9600
A FEATURE PACKED SCANNER
FOR VHF & UHF — £495

TRIO R-2000
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OF FEATURES — £639

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MULTIMODE RECEIVE
RTTY / CW / SSTV / AMTOR

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BBC World Map and Locator displays your QTH and the distant location and the great circle between them on the map and prints full details of distances, beam headings, etc. Map-less locators available for CBM64, VIC20, SPECTRUM. All £7 on tape.

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Remember that whatever VHF band you listen or DX on, the best results can always be obtained using one of our converters. We manufacture converters for the six, four, and two metre amateur bands as well as seventy and twenty-three centimeters. All of our converters come in a choice of popular IFs.

Perhaps one of our GaAsFet preamplifiers will enhance your results. Microwave Modules also specialise in linear amplifiers as well as transverters, so if you decide that it is time to 'get your ticket' you may well decide to purchase one of our products to complement your station.

For the enthusiast in amateur TV DXing our company produces the finest 70cm converter commercially available. Priced at £35.65 it will allow the SWL into the exciting new world of ATV transmissions. The converter is simple to use. Just plug into any TV, tune to approximately channel 36, and assuming that you've plugged your seventy centimetre antenna to the converter and supplied it with 12 volts you are ready to receive ATV transmissions.

Are you interested in weather satellite reception? M.M. can offer the best and most competitively priced system on the market. If your club would like a demonstration of METEOSAT and our complete range of products, why not give Mick a ring? You can catch him or the answerphone on 0403 730 767. But hurry, like last year the bookings went very quickly!

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best 73's and good DX de G4EFO.

Price List — February 1987

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Price Incl. VAT</th>
<th>Post Rate</th>
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<td>MMT220/28-S</td>
<td>220 MHz Transverter, 15W o/p</td>
<td>C</td>
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<tr>
<td>MMT422/28-S</td>
<td>70cm Linear Transverter</td>
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<td>MM125/6/144-G</td>
<td>23cm Linear Transverter</td>
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<td>MMX1268/144</td>
<td>1288 MHz Transmit Up-Converter</td>
<td>D</td>
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<td>MMCS50/28</td>
<td>6m down to 10m Converter</td>
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<td>MMC14428</td>
<td>2m down to 10m Converter</td>
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<td>MMC43228-S</td>
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<td>70cm down to 10m Converter</td>
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<td>MMK126/144</td>
<td>23cm down to 2m Converter</td>
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<tr>
<td>MM1691/137.5</td>
<td>1860 MHz WX Satellite Converter</td>
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Postage/Packing Charges (incl VAT): A = £2.35  B = £4.91  C = £5.60  D = £6.98

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Short Wave Magazine April 1987
58 High Street, Newport Pagnell, Bucks. MK16 8AQ.

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To buy this superb new antenna, just send us £25, plus £3 for postage and packing and we will rush one to you.

SPECIAL OFFER
To celebrate the NEW LOOK Short Wave Magazine, we will be giving away absolutely FREE, a ROYAL BLUE SWL aerial with every HF receiver sold.

AERIALS, ANTENNAS AND ACCESSORIES

K32 SWL antenna tuner unit for general coverage receiver £77.00 (3.00)
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PM1 HF FAX receiver. Obtain weather maps, press photographs and satellite cloud cover detail on any Epson FX-80 compatible printer. (IDWS with ANY HF RECEIVER)

£279.85 (3.30)

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Short Wave MAGAZINE April 1987
DRAE WELCOMES THE NEW SHORT WAVE MAGAZINE
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MAKE SURE YOU RUN THE BEST PSU AVAILABLE WHEN DXING. Our range includes ...

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All PSU's are fully regulated, short circuit protected and incorporate an overvoltage crowbar circuit.

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3 WAY VHF SWITCH SO239
£15.40

3 WAY UHF SWITCH N TYPE
£19.90

2 METER PRE SET ATU (not shown)
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... and now the NEW DRAE SSTV SYSTEM

* FOUR STORAGE MEMORIES
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* 13.8 Volts OPERATION

Prices for TX & RX Unit £320.00 RX only £195.00 TX Module £135.00

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Enquiries welcomed from O.E.M. & Commercial Manufacturers: we manufacture: Switch Mode PSUs, DC to DC converters, AC to DC converters. Products already supplied for telecommunications equipment, radio manufacturers, medical equipment used on ships and aircraft. Ring Dave White now for full details

0705 520141
"I, together with millions of others, not only in Australia but scattered throughout the world, particularly in places where the British flag is flying, wish you every success and much good luck in your fine pioneering effort," wrote C. D. Roberts from Sydney, New South Wales in 1927 to Gerald Marcuse of Caterham, Surrey. The event which sparked off the letter began five years earlier in 1922.

1922

It was a time when people's entertainment was usually invested in concerts, theatre, outings and local events. Few people had cars, some had gramophones, but the wireless for the lucky few was probably built by father and the family listened through headphones. A loudspeaker for them to hear in comfort was expensive and meant extra valves and batteries. The programmes were no more than a few hours daily. The BBC in London, the Marconi Company's 5XX from Chelmsford and a few others which could be picked up with very careful tuning. The enthusiast who wanted more - and everyone who builds a wireless set is an enthusiast of sorts - built a short wave set, strung long antennas around his garden or picture window, played his Morse code that his insensitive receiver could not understand. The enthusiast who wanted more - and everyone who builds a wireless set is an enthusiast of sorts - built a short wave set, strung long antennas around his garden or picture window, played his Morse code that his insensitive receiver could not understand. The enthusiast who wanted more - and everyone who builds a wireless set is an enthusiast of sorts - built a short wave set, strung long antennas around his garden or picture window, played his Morse code that his insensitive receiver could not understand. The enthusiast who wanted more - and everyone who builds a wireless set is an enthusiast of sorts - built a short wave set, strung long antennas around his garden or picture window, played his Morse code that his insensitive receiver could not understand.

Test were arranged on 2.3MHz (120m), but successful contact was not maintained until they changed to 3.45MHz, when 2NM "... came in like a ton of bricks and we can easily copy you 'til 3.30 our time..." Excitement mounted as the great day drew near, and... I understand that cameramen from several motion picture news corporations are going to take pictures here, and also on your side... You will probably hear from Pathe News very shortly..." But under the headline, "Chess by Wireless" the Daily Mail reported on 23 December 1924, "The postmaster general has refused to permit a game of chess being played across the Atlantic by means of wireless between Oxford University and Haverford University USA... The Post Office decision is that... an exchange of messages relating to a chess match could not be regarded as a bona fide experiment in wireless telegraphy..."

After Disappointment

Gerald, putting such disappointments behind him, soon established new records in "reradiocasting" - BBC programmes and concerts from the Savoy Hotel to Eastern Canada and the States. "Mr Marcuse has received reports from many of these stations that the vocal part of these reradiocasts have proven particularly satisfactory and likeable in their quality," said the Christian Science Monitor of Boston in January 1925. In that optimistic New Year, the Empire Broadcasting dream turned east, and Gerald sent a cable to E. Benzie in Cachar, India.

"Recommending tests Wednesday until further notice... advise all amateurs..." In April, following the passing of an urgent telegram between No. 63 Squadron RAF based in Mosul, Iraq, and the Air Ministry in London, Gerald set up a test schedule with J. F. Hall in Mosul, who reported that his new Wireless CO was "... a jolly decent sort. He has caught the s.w. fever and is full out for it..."

In 1923/4, tests began that were to lead to his Empire Broadcasts; he showed imagination and flair immediately, taking the most of opportunities. A transatlantic chess match was arranged between Oxford and Haverford College, relayed by the Haverford College Radio Club to Gerald G2NM in England. "The game is assuming quite large proportions, and has already broken into headlines in the local papers. The news syndicates in this country are very enthusiastic about the idea, and they want photos of the stations and persons sharing the event. ..." 3BVN from Haverford Tests were arranged on 2.3MHz (120m), but successful contact was not maintained until they changed to 3.45MHz, when 2NM "... came in like a ton of bricks and we can easily copy you 'til 3.30 our time..." Excitement mounted as the great day drew near, and... I understand that cameramen from several motion picture news corporations are going to take pictures here, and also on your side... You will probably hear from Pathe News very shortly..." But under the headline, "Chess by Wireless" the Daily Mail reported on 23 December 1924, "The postmaster general has refused to permit a game of chess being played across the Atlantic by means of wireless between Oxford University and Haverford University USA... The Post Office decision is that... an exchange of messages relating to a chess match could not be regarded as a bona fide experiment in wireless telegraphy..."

Radio Globetrotting

The antenna globetrotting reached New Zealand in June; Jack Orbell of the Thames Valley Electric Power Board of Te Aroha, wrote, "... My outfit is on high ground but is practically on the side of Mt. Aroha which is very steep (3000ft)... European signs here are best in the early morning, but... I am using your Mullard OM and she's a beauty - better than my M-T valve. I never put over 12 volts on the fils and so far only 15000 volts on plate though I'm going to make a 1000V generator to run in series shortly. I am very careful with that Mullard OM as you can guess... Have you heard FX? He's a US army experimental outfit at Honolulu - I have heard Schnell on American Pacific fleet NRRI. He's very good here and is using a crystal controlled outfit on 39m approximately with a peculiar whining QSB and is on nearly all the evening..."

The New York Herald Tribune reported in the following month that Gerald Marcuse had established a world record telephonic contact on 6.6MHz (45m) with Lieutenant Schnell on the US cruiser Seattle, 120000km away. The British Marconi Company's beam station conversed by telephone with Australia, but used an extremely high power commercial set: The amateur achievement was "... a remarkable feat" said W. E. Downey, radio expert of the Department of Commerce.

Gerald followed this with a concert programme to the Seattle, by then in Wellington Harbour, New Zealand, some 20000m distant. Records of Caruso, Heifetz and jazz were "... All heard excellently aboard the American warship..." said the New York Times. The Marconi and Osram Company used drawings of Gerald's transmitter set-up at the Seattle to advertise the reliability of their valves in a full-page advert in Popular Wireless. 2NM then provided the link for a 22500km press conference between a newspaper correspondent and Commander Crosse of the Seattle; there was no pre-arrangement and contact was established in less than one minute. The antenna set-up was a 22.8m pole with antennas of the same length, and as the Daily Mail reported, "This required 1/4 kW of power compared to 25kW used by the big stations.

The next path of contact was with Radio 62K - J. Spillard of "Signals". Ramleh in Palestine, who had been ordered to stop working on 6.6MHz (45m) and experiment on 12-15MHz (25-20m), but had applied for permission to arrange tests with Gerald. One problem he and others east of Suez frequently experienced was "... heavy QRM from electric fans between 1530 and 2130GMT... In spite of "deafening QRM", 2NM's speech was heard at loud speaker strength. The garrison engineer..."
Mr Paterson writing from the Kanan Devan Hills in South India sent a circuit obtained from the "Zenith Reinartz people" for Gerald's opinion of its merits and his recommendations for two transmitting valves and other components he had ordered. Many people stranded on the fringes of British Dominions and Colonies turned to this noted "amateur" for technical advice, components and circuitry, and he never failed them. The year ended with 2NM's relay of 2L0 London - I then heard a voice announce from the Savoy Hotel orchestra and then dance music burst in, I heard it quite clearly at intervals but the local ships in our dockyard had a great deal to say which ruined an otherwise good reception - it was an exciting moment and I would gladly have ordered those ships to stop talking if only I had the authority - Then came over the wonderful notes of 'Big Ben' striking the midnight hour - you are doing a great work...with best of luck in your enterprise, before long we shall be talking with England daily.

In March 1926, Gerald Marcuse wrote an article for the Christian Science Monitor on his short-wave experiments. He was operating regular scheduled tests with America and Canada to try and solve the problem of difficult telephony over that path. Regular tests were held with an Indian station on the North West Frontier, "never any difficulty", and reradiocasting British and Continental stations. He had a regular schedule of telephony tests on 6.6MHz and welcomed all reports.

E. J. Rockall, Amman, Transjordan, "... Those were decent days down at 6ZK. I might mention I had some very enjoyable nights from your relays of 2L0..." 6ZK was the control station of all RAF commands in every country and only worked traffic, and he himself was an unofficial station. 2NM had been warned not to work RAF stations, because, the letter continued, "I'm glad to see you are trying to make them see that you have a claim to working RAF stations. It really is a shame because you have done a lot for us." He offered to continue testing privately.

Reception Down Under

Down under, the anticipatory thrill of receiving England and the pressure for regular broadcasting was voiced by T. H. Harris of New South Wales. "... at 5.30am Sydney time I heard your carrier good and heard you say 'Hello 2N Emma testing' I hopped on to Det. and 2 audio and shoved the speaker in and easily heard out of the speaker, 'Hello'. Then I rushed in and woke the family up (mother, cousin and brother) and they came in as quickly as possible, and I thought I was in for some good 'fone'. Your carrier was heard for a minute or two, evidently you were testing something, for no more was heard. We hung on expecting you to connect up with someone but our luck was hard... so the family went back to bed... Now OM what about reserving the time, or some of it, between 7 to 8pm GMT on Sunday nights... for special 'fone' to Australia... if you can and are allowed to send out 'fone' say, for 15 minutes at a stretch, great success is assured... Now if your concerts were put on the air regularly at the times stated - I venture to say it would not be long after you started before your concerts would be rebroadcast by some of the Aussie BC stations..."

Hong Kong

A valuable correspondent in tests was W. G. H. Mies, Stonecutters W/T station, Hong Kong, who sent a detailed analysed log of two years' radio traffic with a letter, reporting: "Your set continues to prove a great success and it certainly made the Signal School experts open their eyes when they saw it... it was about the tenth of the size they consider necessary and yet gives results as least as good as, if not better than, Cleethorpes... I recently got a reply back to the Admiralty to a message of theirs within 1 hour 20 min of their time of origin, and they sent out a special message of congratulations." A few months later, he wrote, "... I do
want to thank you for the receiver. We like the condenser control very much and also the antenna coupling condenser, which makes it very selective; we also find it materially more sensitive than other Reinartz type receivers we have built up as it gives results with two valves, what generally need three." How much the ties with home meant to this outport may be guessed from the information, "Matters at Shanghai are quite quiet and we have enough troops there now to protect ourselves, but all business is coming to a standstill. I am afraid things will never be the same again out here, and it will be years before China evolves a stable government. "Claude" your transmitter is full of life still, as you can probably hear. I am making up a rival "Felix" to him."

In July 1927 The Brisbane Courier carried a short report revealing plans to give a nightly talk for an hour. "Mr Marcuse's enthusiasm has given rise to an enquiry as to how far the British Broadcasting Corporation's plan in the same direction has progressed. The corporation's experts say that the difficulty is not a matter of transmission from London, but reception in the Dominions."

The answer to that was contained in 2NM's August mailbag. C. D. Roberts reported from Sydney, NWS. "Your test this morning was well received... Unfortunately you are in the middle of the Australian and NZ band, and consequently QRM very bad. Nevertheless I heard enough to be able to say that your modulation is excellent... the speech and music are both very clear, the former even better than PCSI and that's saying a lot... your test would appear to have been a success in every way except regarding the interference. I think that if your programmes are to be quite successful, the wave will have to be lower than at least 31m or preferably below 30m. 2NM was the first English station I ever heard... one and half years ago. One year later... 1926, 2NM was the first English telephone station. Now 2NM is to be the first English broadcasting station received by me. Congratulations."

From Albany, the southernmost part of W. Australia, C. H. Vernon: "I would like to tell you that amateurs all over this state have been greatly interested by your intended Empire Broadcasting and we wish you the greatest of success. Your strength on this occasion was equal to the American X2AD on 20.02m and practically the same as regards X2AF on 32.77m but your modulation seemed superior to either, once again an amateur leads the way..."

W. A. Bousfield, Tasmania, congratulated Gerald and said, "Although we Britishers out here do not like to criticise the BBC at home, I think that even if it only to maintain British prestige, a short wave broadcast should have been established some time ago. We receive many s. w. BC here... and it can safely be said that your transmission compares very favourably with their commercial broadcasters... Why not rebroadcast 2LO and 2AX?"

Ex-patriots elsewhere expressed similar feelings. "I heard your first attempt on s.w. BC on Sept 1st," wrote R. W. Browne, Assistant Works Manager of the Nigerian Railways from Ebute-Metta,

When Empire Broadcasting first began, many of those who heard the transmissions from Gerald Marcuse 2NM not only wrote him letters but also sent him QSL cards too. They came from all over the world, and from those at sea as well.

"You have no idea how pleasing it is to hear England in a busy country like Nigeria, and I must say the reception was perfect except for occasional fading... I am looking forward to a regular service from England in the near future." R. G. Ellis, Buenos Aires, quoted programme content — "This is 2NM calling on 32.5m... and musical items; F. G. Cornish on the Gold Coast fought his way through heavy atmospheres and weak signals to pick up a little music and a strong carrier, and ended his letter, "I wish you every success. I am sure we shall be very greatful to you if you can send us out the latest news from home if it is only once a week... what a treat it would be."

Enthusiasm abroad marched with caution and caveats at home. Gerald was warned of copyright problems if he broadcast music and other material planned, but such was his popularity with the listening audience that the Brisbane Courier reported, "... it is now certain that the best talent will be available. A first-class orchestra from Dance Land and theatrical and Music Hall artists are offering freely. Talks and plays will be included."

He is working primarily for the Dominion listeners. Gerald told the Evening Standard in August "For the past three years I have been in regular communication with hundreds of lonely wireless men in every part of the British empire. These Empire settlers have been asking for the BBC programmes to be relayed to them. I was quite willing to do that at my own expense, but the BBC objected, and in the end the Post Office allowed me to broadcast if I would provide my own programmes."

The Post Office licence, issued on 1 September 1927, was specific and limited. "Mr Marcuse is authorised to transmit music and speech for a period not exceeding six months, by means of wireless transmission with power not exceeding one kilowatt and waves of 23 and 33m. The understanding is that continuous transmissions will not take place for more than three days weekly, and will not exceed two hours on each occasion." Gerald, at his own expense, set up a "secret studio" in a friend's music room for his broadcasts and rented two Post Office lines to link with his transmitter. The world's press eagerly awaited the event.

The first historic Empire Broadcast was transmitted from the Columbia Gramophone Co studio and included Captain Ian Fraser MP, vice-president of the RSGB and the Australian High Commissioner, Sir Granville Ryrie, then attending the League of Nations meetings in Geneva, who returned to London especially for the broadcast to Australia. Letters and cables praised the achievement. A. R. Maclean in Pointe-a-Pierre, Trinidad, reported exceptionally clear and strong 'phone reception of..."
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signals calling Australia and NZ — the first telephony signal received there from England.

“Our Wireless Correspondent” visited station 2NM and wrote, “Half a dozen switches were thrown over, the valves glowed into life and 2NM was at work. It was hard to realise that experimenters in New Zealand were looking at their watches and saying, ‘Hello! 2NM ought to be starting up now’. Yet so it is; they switch on their receivers and pick up the British station with almost the certainty with which we get Daventry. I looked through a pile of letters – over 100 I should think. There is practically no place from which they do not come.”

Gerald endeared himself to his distant listeners, making them feel close to home and a part of the great adventure by acknowledging their letters and cable in his programmes. The thrill of hearing their name and country called up, and told that the reports were received and appreciated, cannot be imagined in these times of routine phone-ins. A cable arrived in Bombay announcing that Mr Gerald Marcuse proposed to broadcast a special programme for India on the previous day! Although only four days in transmission, his programme was already ancient history long before news of it arrived. Jost’s Engineering in Bombay arranged to take reports of his Indian broadcasts. A telegram via Imperial Wireless Services came from the Ballard Estate, Bombay. “Transmission received not strong fading bad nevertheless very enjoyable stop Nobody Bombay succeeded getting Chelmsford. Herring.” The new link with India was quickly utilised when greetings were broadcast to Mr Valentine in Cawnpore from his son in England. Every enthusiastic listener relayed the message, which Mr Valentine received from several people.

J. C. Standen in Tranvacore, S. India, congratulated 2NM on his broadcast and hoped that he would persuade “The powers-that-be to permit you to relay at least Big Ben if we cannot have one of their programmes per week. It would certainly cheer the lonely Britisher… Although I can get the correct GMT from your pips it is not like Big Ben and that is what most of us want to hear. It brings us nearer home.”

Mr Herring, sending reports received by Jost’s Engineering Company, said that Chelmsford were carrying out tests, but although they were transmitting a 25kW signal, it was not received, whereas 2NM’s 1.2kW signal was tuned in without difficulty.

In November, Gerald received a letter and detailed log from A. Haworth, British Consulate, Teneriffe, who listened from 1.45pm to after 9.30pm and gave precise signal reports. His covering letter had referred to an event “searching the newspapers from England for reference to this but nothing has appeared in them. Anyway, it commenced a few days ago on 24m…”. The event of such interest appeared at the end of the log. “Soon after this, all transmission went right out including yours and I did not hear you again at even good phone strength. KOKA and 2XAD were impossibly weak and a most peculiar silence seemed to come over the whole band between 15m down to about 17m and those stations which were audible, one or two code ones, had a most peculiar empty effect with them… some outside effect is the cause.” The early listener had healthy scientific curiosity and their observations provide valuable data. (Ron, my husband, recognised this as a typical radio blackout caused by a solar event, the “outside event” suspected by Mr Hawthorn.)

Link With Home

Gerald knew it was the link with home that the Colonials were so eager to hear. The Times of India reported in the November 21 issue, “in the early hours of Saturday the Empire Broadcast of the British Legion concert at the Albert Hall, London, was heard at the Bombay Presidency Radio Club. Mr. Atkins heard the whole of the programme with the exception of the first half-hour as follows…” and the programme content was quoted. Mr Herring also heard it. G. H. Joliffe (TVX) in Ceylon phoned the local radio station when he picked up the transmission, and they were able to relay it, while M. G. Eber in Singapore wrote, “I need hardly mention the disappointment arising out of the failure of the BBC to, at the last moment, cancel their proposal to broadcast this programme… to my intense delight I heard you… your transmission was superb, considering the immense distance and the 1kW power. The Armistice programme must have come over to you by landline since it was not broadcast. Please inform me whether this is so.”

Thus Ended The First Year

So ended the first momentous year of Empire Broadcasting. The project continued, and letters of appreciation and thanks came from all over the world. R. G. Collingwood, Helipolis, Egypt, said that the bells of St Martins filled the house when Gerald broadcast a Sunday morning service. Reverend G. H. J. Horam (OCB) asked for details of the transmitter, and informed him that he built a superhet and sent a very detailed four month log. The change from summer and night to winter and short waves, perhaps in a fraction of a metre, and the problem of thermostatically-controlled crystal to keep the wavelength accurate was another pioneering milestone. He spent £6000 and untold hours of night duty on his Empire Broadcasting, often finishing with blackbirds and thrushes singing in the garden relayed across the world.

In 1932 the new BBC transmitter at Daventry was inaugurated, conspiring him to the archives of amateur radio history — but to British settlers in the far corners of the world, Gerald Marcuse had blazed the trail. “You ought to have seen the faces of an old couple at Ealing when I brought them news of their son,” he told The People. It summed up his whole philosophy of Empire Broadcasting. He just wanted to keep people in touch.

A newcutting from 1924 really sums it up, “G2NM is to be congratulated on his pioneering in the realms of high frequency telephone transmission via amateur radio. There is no doubt that the future broadcast station will operate on the low waves, perhaps in a fraction of a metre, and when that time comes we only hope that the listeners of that time will give due credit to the amateurs who worked day and night to enable the successful operation of radiotelephone on the short wave lengths.”

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In the compact little programme booklet for the North Wakefield Amateur Radio Club are details of some interesting lectures and visits. On April 2 they have an ever popular junk sale where members have a chance to swap surplus gear. April 9 brings some vital information - First Aid for the Shack by Tony Dixon - a subject we could all do with knowing more about. A talk by the Radio Interference Service is scheduled for April 16, which should bring a packed house. The most interesting lecture in the near future is Bee Keeping by Dave Marriot, down strand of two security fences as an approach by G3G6Z. The ever popular event — the surplus equipment sale - is what the Southgate ARC has planned for April 16. They meet at 7.30pm in the Holy Trinity Church Hall (upper), Greens Lanes, Winchmore Hill, London N21 G4YLL on 0992 30051 for more details.

Weblyn Hatfield Amateur Radio Club have changed the venue for main meetings (1st Monday) to Lemsford Village Hall, Bedoilet Road, Lemsford, or Welwyn Garden City. The venue for the 3rd Mondays stays the same. Forthcoming attractions are lectures on Basic Power Supplies (April 8), Radio Control (April 24), and a Round of Grass, Badsey (G0DXX on April 28). They meet at the RAF Amenity Centre, Westlands Grove, Fareham at 7.30pm (G3CCB on Fareham 288139 for more details).

The Yeovil Amateur Radio Club have details about their lectures for the next few months. May 4 is An Olympic Signal by G3MLP and June 4 is The Practitioner's T.V. Amplifier by G3YM1. The club meets every Thursday at 7.30pm at the TA Recreation Centre, Chilton Grove, Yeovil (contact G4EVI on 0395 75900). Another club with junk sales on the cards came to light when we opened the Sutton & Cheam Radio Society's Newsletter. Theirs is on April 17. The club is celebrating the 25th Anniversary of their special event station GB25AC throughout the month of May. Congratulations. They normally meet on 3rd Fridays, at the Downs Lawn Tennis Club, Holland Avenue, Cheam at 7.30pm (G0FKA is the club secretary and no doubt has more details).

In Brief
Just before deadlines we received news of a few more clubs, so here are the brief details.

Surrey Radio Contact Club (GB8YS on 01-657 0454), April 8 — AGM and May 11 — Club Constructive Context.

Dorking & District Radio Society (G3AEZ on 0306 77236), Bonsai Aerial Farm by G3OLM on April 14.

Coventry ARS (G3UOL on 0232 414684), 50 years of Amateur Radio by G3BA on April 3, Radio Communications & The Police by Ch. Insp. Hambrock on the 10th.

Missed Clubs
If there are any clubs we have missed, sorry. Your details may not have reached us by the deadlines. The new address to send material to is: Shortwave Magazine, Club News, Enfield House, The Quay, Poole, Dorset BH15 1PF.
A Simple Antenna Tuning Unit

Rev. G. C. Dobbs G3RJV

To attempt to run a short wave monitoring station without matching the antenna is rather like forgetting to tie your shoe laces — you may get somewhere but it won’t half be sloppy.

Some time ago I had a telephone call from a local pensioner who, having decided to return to short wave listening, had bought a general coverage receiver. Then disaster — most of the time his signals were masked by a strong hash-like sound. I looked at his set-up. Ideal. A nice receiver, comfy chair, and a long wire antenna down the garden. However, a street away was an oriental takeaway establishment and the noise seemed to correspond with their opening hours! We tried various combinations of the receiver controls to no avail, so I turned up the next day with an antenna tuning unit (a.t.u.). We added it to the receiver and the problem almost entirely vanished when the wire was matched to the listening frequency.

The a.t.u. is one of the simplest pieces of radio equipment. There are several on the market but most a.t.u.s are so simple that there is little excuse for not building your own. The literature is full of circuits of antenna matchers of various kinds. Many of these are merely variations on a theme but the variety can be confusing for the unwary. Most receiving stations, and indeed many transmitting stations, use a single long, or longish, wire fed against ground. Experience over the years has shown me that a very effective a.t.u. for such a set-up is the L-match. The L-match also has the good fortune to be the simplest of a.t.u. circuits.

The Circuit

The L-match has only two main components, a capacitor and an inductor and is so named because these are connected in an L formation. The usual arrangement for the L-match is shown in Fig. 1(a). The inductor is in series with the antenna and the capacitor between the antenna end of the inductor and ground. This circuit, with variable capacitance and variable inductance, can match a wide range of antennas with impedances of over 50Ω to the usual 50Ω impedance of communications receivers. This is called the L/C configuration. Placing the capacitor at the receiver end of the inductor gives the C/L configuration. This is suitable for matching impedances lower than 50Ω to the receiver. Although the L/C configuration is probably suitable for most wire antennas, it is a relatively simple matter to switch the circuit to provide either facility.

The circuit of the a.t.u. is shown is Fig. 2. This is an L-match circuit with a switchable inductor, L1, adjusted by taps selected by a switch S1. Another switch, S2, allows either the L/C or the C/L configuration to be selected. S1 is a single pole, 12 way switch and S2 a two pole 3 way switch. The extra switch position on USA as “B and W Stock.” These are coils wound with solid copper wire spaced in Perspex and can be bought in various sizes to cut to length to give the desired value of inductance. Sadly they are not available in the UK, but recently I came across a well engineered coil, designed as the inductor for a.t.u. applications, made for, and sold by, J. Birkett of Lincoln.

Fig. 3 shows the construction of the Birkett a.t.u. coil. It is fabricated on a Perspex former of about 32mm outer diameter. This has thread grooves cut at a pitch of ten turns per inch to accept a winding of 18 s.w.g. copper wire. This winding has taps which can be selected to vary the inductance. The whole construction is solid and rigid and would also be suitable for transmitting applications.

The variable capacitor, which has a value of 300pF can also be bought from J. Birkett. Currently he stocks a rather sturdy two gang variable type, the gangs being 200pF and 100pF. Joining these in parallel gives the required 300pF. In the prototype a.t.u. I used an old variable capacitor salvaged from a broadcast receiver. The main tuning capacitors in these usually have two gangs of 300 or 500pF each and one of these gangs can be used for C1. The two switches are standard items, a single pole, 12 way wafer switch and a 4 pole, 3 way wafer switch although only two poles of the 3 way switch are used.

Construction

The most complex part of the construction is the wiring of the switch connections, and Fig. 4 shows how the switches are wired. Before beginning the wiring of the circuit decide upon an enclosure for the a.t.u. The case I used was one I had in stock which had been used before but a mask on the front panel covered the previous holes! However, Minffordd Engineering’s J14 equipment case, which measures 203 x 152 x 76mm would make a suitable and smart housing for the a.t.u.

When the position of the components has been decided the coil taps can be wired to S1. The wires, being stiff are easy to place around the connections on the switch, but adjacent wires must not touch. The switch will have 12 contacts around the circumference and the wiper contact of the switch arranged inside one of these. This contact goes to the connections on C1 and S2. The outer contact adjacent to this connects to Tap 1 on the coil as shown in Figs. 1 and 4. Tap 1 is made to the end of coil winding which has the smallest spaced tappings. Looking at the coil you will notice that Tap 2 is 2 turns above Tap 1, Tap 3 is 4 turns and so on to the end with the widest spaced tappings.

Components

The problem with some circuits is finding suitable components but with this circuit the constructor is in luck, as the two main components are available from one source. I have also admired those nice air-spaced inductors which are available in the

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Short Wave Magazine April 1987
A Simple Antenna Tuning Unit

Caution

A word of caution here. If the wiper switch is of the type which lets you see the action of the wiper moving around the contacts then all is well. But many modern switches are moulded in such a way that the wiper position cannot be seen. If this is so determine which position of the switch gives Contact 1, using a multimeter on the ohms range. I mention this because once all the coil taps have been wired to S1 it will be impossible to find which switch position is which with a meter. Make a couple of marks with a felt-tipped pen on the moving part of the switch and the frame to show this position. With this information the switch positions can be numbered on the front panel. In practice it is not too important what the markings on the front panel are as long as it is possible to return to the correct settings for various bands.

When L1 and S1 have been wired, C1 and S2 are then added to the circuit. The wiring around S2 is shown in Fig. 4. The switch has 4 poles, only two of which are used. Again, the constructor will have to either inspect the switch action or use an ohmimeter to find the switching combinations. The wiring of S2 is very simple because, with the exception of the input and output leads, all the interconnections are between contacts on the switch. Fig. 4 shows the relative positions of the two switch sections, S2(a) and (b) and how the connections are made.

The ATU will require terminations for the receiver and antenna. The lead between the ATU and receiver is coaxial cable and I used a cheap phono plug and socket for this connection, but any suitable screened plug and socket arrangement will serve. A couple of screw or plug and socket terminations are required for the Antenna and Ground — we oldies like to call them Aerial and Earth connections.

Using the ATU

Using the ATU with a receiver is a trial and error process. The ATU is placed in line with the antenna as shown in Fig. 1 and the required band tuned with C1 set to about half-mesh. Using S1, select taps on L1 until the signal strength increases. At the loudest position, adjust C1 to peak up the signals. Once this has been done, it is a good idea to try peaking C1 on the S1 switch position, either side of the one selected. There may be more than one peaking position for L1/C1 combinations so choose the one which gives the best results.

Experiment with the ATU on various bands trying a range of control settings. For the average “bit of wire down the back yard” only the L/C position on S2 will be required. If a very long wire is used the C/L combination may give better results.

Make notes of the settings of L1 and C1 which give the best results for the frequencies and bands which are in common use. It is a good idea to make up a table of settings so that when changing band the settings for the ATU are known in advance.

The L-match is the simplest of circuits, but what an improvement it can make to any receiving set-up.

YOU WILL NEED

Capacitors
300pF variable 1 C1 (1)

Inductors
Tapped a.t.u. coil 1 L1 (1)

Switches
Rotary wavechange
1p 12w 1 S1
4p 3w 1 S2

Miscellaneous
Minffordd J14 Equipment Case 203 x 152 x 76mm (2), Knobs to fit S1, 2, 18 s.w.g. tinned copper wire, Terminals and sockets (see text).

(1) J. Birkett, 25 The Strait, Lincoln LN2 1JF. Tel: (0522) 20767.
(2) Minffordd Engineering, Sun Street, Ffestiniog, Gwynedd. Tel: (07676) 2572.
THE COMPLETE SHORTWAVE LISTENERS HANDBOOK 3rd Edition
by Hank Bennett, Harry and David T. Hardy
Published by Tab Books Inc and the ARRL
Available from John Wiley & Sons Ltd, Baffins Lane, Chichester, Sussex | PO19 1UD. Tel: 0243 784631
130 x 208mm, 294 pages. Price £15.30 (paperback) ISBN 0 8306 2655 7

Shortwave listening is becoming evermore popular, and enthusiasts are always on the look out for more books to help them in the hobby. The newcomer to the hobby always has so many questions they want answered, but where do these answers come from?

Obviously in the States the same thing is happening and that’s why this book has been written. Readers in other countries do need to bear in mind the book is primarily written for the American market. When it comes to talking about periodicals and societies, they are all American addresses given.

Other subjects covered are radio receivers, antennas, radio waves and propagation, f.m. DXing, TV DXing, and logbooks to name but a few.

So, if you have unanswered questions, this reference book could very well be of help to you.

EKR

OLD TELEPHONES
by Andrew Emmerson
Published by Shire Publications Ltd
150 x 210mm, 32 pages. Price £1.25 (paperback)
ISBN 0 85263 781 0

Have you ever wondered how the modern telephone came to look like it does? Well, wonder no more.

Although the telephone is now over 110 years old, according to the author of this interesting little book, one of Alexander Graham Bell’s original instruments could be successfully connected to the modern system.

The book charts the progress of the telephone from its early days until about 1936. It also gives an interesting insight into the users of these early telephones, the switchboard operators (who could forget them) and the design of the ‘phone boxes’ - you can’t beat the old ‘Jubilee’ kiosk of 1938.

The author also gives the reader a list of further reading and interesting places to visit.

EKR

THE SLOW SCAN COMPANION
by C. Grant Dixon G8CGK, John Wood G3YQC & Mike Wooding G6IQM
Published by BATC Publications, 14 Lilac Avenue, Leicester LE5 1FN
147 x 210mm, 100 pages. Price £3.50 inc P&P (paperback)

Anyone interested in SSTV will find this book an invaluable help. It doesn’t matter whether you are a home constructor or a purchaser of “black boxes”, both aspects are catered for.

There are many tried and tested circuits and designs for those who like wielding a soldering iron as well as descriptions of commercial equipment. Quite a large section of the book is devoted to computing in SSTV, as this seems to be the way many participants in the hobby are going.

The book is full of black and white photographs of not only pieces of equipment but some “off-air” SSTV pictures - so you can see what you have been missing. Altogether a very informative book.

EKR
A. KELLY WISH PRACTICAL WIRELESS EVERY SUCCESS WITH THE NEW SHORT WAVE MAGAZINE

FOR THE SWL AND AMATEUR WE OFFER A LARGE RANGE OF NEW AND SECONDHAND PRODUCTS. ALL SECONDHAND EQUIPMENT IS TESTED AND OFFERED WITH A 3 MONTH WARRANTY.

MET ANTENNAS ARE STILL AVAILABLE AT YOUR LOCAL EMPORIUM!

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POWER SPLITTERS

Specification:
- CONNECTORS: 'N' Type Socket
- IMPEDANCE: 50 Ohms
- RETURN LOSS: Greater than 25 dBd Across the Band
- SWR: Less than 1.1 to 1 Across the Band
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Power Handling: Better than 2kw in a system with a VSWR of less than 2.0 to 1.

NON-METALLIC MAST

A non-metallic mast is essential for best results where vertically mounted antennas and crossed yagis are required. MET have released a Reinforced Polyester Pultrusion onto the market with comparable weight per metre as the same diameter aluminium tube. It is available in 1.5m and 3m lengths in both 1 1/2" and 2" diameter.

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<td>R.P.M. 3M (2&quot; dia.) With Joiner and Resin</td>
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NEW HF-125 GENERAL COVERAGE RECEIVER

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12V DC operation (AC mains adaptor supplied)
Made in Britain!

Suggestions for NEW RECEIVERS

ANNOUNCING TWO NEW RECEIVERS

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Dishes up to 2.4 metres dia Infra Red
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We've Got It!!!
Welcome to this new column in which we'll be looking at the background to international communication developments. Whilst the intention is to focus specifically on radio for the time being, it's clear that a lot of international broadcasting is becoming inter-related.

**America Sign-On**

By the time we go to press, WCSN from Boston USA should be reality. Late in 1985, the religious organisation which owns the Christian Science Monitor announced that they had plans to expand their radio activities. As well as weekly news programme over Radio Luxembourg, they planned a short wave broadcast station for Europe and North Africa. A few months later, a plot of land near Scotts Corner in the state of Maine was cleared and a 500kW short wave transmitter ordered from Switzerland. The transmitting facilities are now ready, and test transmissions should have begun by now. These were originally scheduled for late 1986, but heavy snow delayed the building work.

Programmes from Boston are fed by satellite to the transmitter site several hundred miles north. Although the Christian Science Church funds the entire project, the station manager Bob Nunez says that there will be a strict distinction between news and current affairs programmes, and the religious segments. This follows the pattern of their successful newspaper called the Christian Science Monitor. Best times to try will be between 0700 and 0900GMT on 7.365MHz, and again 2000-2300 on the same channel. 9.745, 9.840 and 17.640MHz are possible alternative channels for services to Africa. The contact address is WCSN, 1 Norway Street, Boston MA 02115 USA, and reception reports are appreciated.

**The Beacons**

On American Samoa, plans are now going ahead for a new medium wave religious station after some time in the ice box. John Veeon of Quality Media Corporation says the “Pacific Beacon”, as it's to be called, will be the third of a series. Meanwhile the same organisation has sold its station in the Caribbean to an American religious organisation. Programming on the “Atlantic Beacon” on Turks and Caicos islands, which came on the air late last year on 1.570MHz, is assembled in Florida USA. Buddy Tucker of Christian Radio Productions says they've had quite a bit of response from medium wave listeners in Europe listening deep into the night. If you do hear them, the contact address is via Box 5321, Fort Lauderdale Florida 33310 USA.

**NDXE Global Hoax?**

Only Dickson Norman, an entrepreneur in Opelike Alabama USA really knows if his plans for a global stereo commercial s.w. station are really reality. The construction permit issued by the FCC for his station is still valid, but an FCC spokesman in Washington DC has explained that NDXE is not yet a registered callsign. The play on “in Dixie” is clever, but broadcast station callsigns in the US all begin with a “W” or a “K”. Some US utility services use an “N” callsign, but it will take a lot of lobbying for the rules to be changed to include a broadcast operation along the lines being planned.

Although announced back in 1985, NDXE hasn't got much further than a few publicity releases and promo tapes sent to other short wave stations. The owner says the broadcasts will be in stereo using the Kahn system adopted by some US a.m. stereo medium wave stations. However there are no stereo-capable short wave receivers on the market, and the results are likely to be disappointing bearing in mind the congestion of the bands.

Although NDXE has no transmitter, it has a very active promotion campaign running with T-shirts, stickers and other goods. Membership of a listeners club is offered for a (mere) US$31.00, although audible complaints have started to appear from members that they don't get much for their money. The latest releases say that NDXE will start this year - until you hear a carrier though it might be wise to refrain from joining the “listeners club”.

**Time to Go?**

Time signal stations on shortwave seemed to be a threatened species. Not only do they offer a useful time reference, but the frequency is spot on. But for who? Such services are expensive to run, and it seems that many research institutions and marine traffic need other ways of getting the correct time over the air. Last May, New Zealand shut its standard frequency station ZLF. Others in Europe are considering doing the same thing, or at least reducing their activity to output on very low frequencies only. The latest to be threatened is VNG in Lyndhurst, Australia. Telecom Australia, which runs the service, wrote to a number of Australian scientific bodies asking if they would be interested in contributing towards the cost of maintenance. The response was disappointing. However, Australian amateur radio operators have sent in a plea to keep the service going, and the latest word is that the service will continue “for the moment”.

**Micro-Flares**

In the early hours of Monday February 9, engineers in Alice Springs, in the centre of Australia, let off a very large helium balloon. And so began a flight designed to last between 15 and 20 days and float at heights of some 40km above the earth's surface. The craft belonged to the American NASA organisation, and underneath the 1 million cubic metre balloon was a heavy payload with experiments from the University of California at Berkley.

International broadcasting depends on a refractive layer in the atmosphere to get signals round the globe. This layer, known as the ionosphere, isn't perfect, and its properties are heavily dependent on radiation from the sun. One of the most disruptive solar events that has a direct bearing on the ionosphere is called a solar flare. This is a sudden, unpredictable brightening of the sun's chromosphere, usually in the vicinity of a sunspot group. It mainly consists of an enormous outburst of ultraviolet radiation, together with very energetic X-rays and cosmic rays. The particles take about up to 3 days to reach the earth in the solar wind, and when they interact with the earth's ionosphere, radio
reception is often disrupted. You'll hear people talking about a Sudden Ionospheric Disturbance or "s.i.d".

One of the experiments on the high-flying balloon was designed to make a detailed examination of what are called micro-flares, discovered on a previous balloon experiment. Dr Robert Len, project scientist on the mission, says the information gained from studying these small flares will give us a better understanding of much larger solar flares. At present we know very little about the very complex physical and chemical processes taking place up there.

The balloon transmitted data every 45 seconds back to a command centre in Toulouse, France. When the data is processed in about eight months time, we may know a little more. The term "micro" in micro-flares is all relative. Such an X-ray outburst is still much larger than the size of the earth, though it is not large enough to cause communication problems on earth.

Jamming Update

In January, Soviet jamming of the BBC’s Russian service suddenly stopped, leading to newspaper reports that a partial decrease had occurred in the level of deliberate short wave interference. However, the US financed broadcaster, Radio Free Europe/Radio Liberty based in Munich West Germany has done further monitoring research. They believe the 10 or so jamming transmitters in the Soviet Union that were used against the BBC are now being used to block reception of their station even more effectively than previously. Overall then, the levels of jamming appear to be about the same, though politics could change the situation at the push of a switch.

Goodbye MF and HF

Radio Malaysia's three national networks in Tamil, English and Mandarin have ceased to be heard on medium and short wave. Groups representing Tamil speakers have objected to the change, saying that although the v.h.f. f.m. frequencies give much better quality in city areas, reception is often poor in outlying areas, such as on the rubber plantations. High energy costs and a desire to avoid too much duplication are thought to be the reason behind the decision to move away from the use of medium and short wave.

The Woodpecker Project

Coordinated by the
Association of North American Radio Clubs'
Over-the-Horizon Radar Committee
1634 - 15th St. NW
Washington, DC 20009
USA

ANARC Woodpecker project

The national service in Malay however remains on medium wave as usual. Short wave listeners in the area though aren't complaining, because they can now hear stations previously blocked by the local transmitters!

Words on the Woodpecker

It was back in July of 1976 that complaints were first made about a new form of interference on short wave. Later its activity increased, and amateur radio operators christened it the "Woodpecker" because of its "rat-tat-tat" sound beating 10 times a second. The respected non-government non-profit group in America called ANARC has now come out with a report on the beast. It goes into some depth with charts and detailed text explaining how several hundred volunteers around the world tracked what's widely believed to be an over-the-horizon radar system based in the Soviet Union. Although one of the main sites near Kiev, Ukraine hasn't been heard for some time, as the sunspot cycle takes an upward trend it will probably return. In some parts of Scandinavia when it operated on or near 10.7MHz, the PTT in Norway and Sweden received complaints from the public that it was breaking through onto simple domestic v.h.f. f.m. sets. The 60 page report is offered for cost price to listeners interested in the findings. That works out at US$9.50 including airmail postage in Europe. T-shirts with the "No-Woodpecker" road-sign style logo are being sold for US$10 to raise funds to cover the costs of the project. Further information from Woodpecker Project, 1634 15th Street NW, Washington DC 20009 USA.

Holland's Diamond Jubilee

Radio Netherlands in Hilversum is celebrating a double anniversary on April 15. It's 40 years since the Radio Netherlands foundation was formed, and 60 years since short wave broadcasts began from The Netherlands, indeed Western Europe. Broadcasts from the station PCJJ began in 1927, though one of the famous announcers Eddy Startz quickly dropped the second J in the callsign.

He then referred to the letters as standing for "Peace Cheer and Joy". On the anniversary date the musical interval signal used on air will be changed. A new digital version of the current melody, "Merck toch hoe sterk" recorded at the Carillon in Breda will be used instead. Letters sent in the month of April will get a special Radio Netherlands 40th anniversary postal franking mark. These are expected to become collectors items in a few years time.
C. M. Howes ASL5 Audio Filter

In SWM we will be building and testing a variety of kits which will enable you to add to the versatility and enhance the performance of your receiving station. This month the Editor takes a look at the recently introduced Howes ASL5 audio filter kit.

**SPECIFICATIONS**

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<td><strong>SSB</strong></td>
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<td>&gt; -50dB at 3.3kHz</td>
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<td>-60dB at 3.3kHz</td>
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<td>-52dB at 4.1kHz</td>
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<td><strong>CW</strong></td>
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<tr>
<td>Bandwidth (I=6dB)</td>
<td>300Hz centred on 850Hz</td>
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<td></td>
<td>280Hz centred on 820Hz</td>
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<tr>
<td><strong>Power</strong></td>
<td>12 to 14V d.c.</td>
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(Measured performance in italics)
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Short Wave Magazine April 1987
The Realistic PRO-2004 is the latest programmable scanning receiver from Tandy and covers frequencies in the two bands 25 to 520MHz and 760 to 1300MHz. Designed for monitoring stations such as public utilities, aircraft, CB and amateurs as well as broadcast radio and TV stations it has a lot of useful features claimed to be found only on this set.

Specifications

**Frequency Coverage:**
- 25 to 520MHz
- 760 to 1300MHz

**Scanning Intervals:**
- 5; 12.5; 50kHz

**Modes:**
- Wide f.m.;
- Narrow f.m.; a.m.

**Sensitivity**
- (w.f.m. 30dB signal to noise at 22.5kHz dev.)
  - 25 to 520MHz: 3µV 1.3µV
  - 760 to 1100MHz: 3µV 1.9µV
  - 1100 to 1300MHz: 10µV
- (n.f.m. 20dB signal to noise at 3kHz dev.)
  - 25 to 520MHz: 0.5µV 0.5µV
  - 760 to 1100MHz: 0.3µV 0.5µV
  - 1100 to 1300MHz: 3.0µV
- (a.m. 20dB signal to noise at 60% mod.)
  - 25 to 520MHz: 2µV 1.7µV
  - 760 to 1100MHz: 2µV 2.1µV
  - 1100 to 1300MHz: 3µV

**IF Rejection:**
- (610MHz at 70MHz): 80dB 85dB

**Selectivity**
- (f.m. and a.m.):
  - ±9kHz - 6dB
  - ±15kHz - 50dB
- (w.f.m.):
  - ±150kHz - 6dB
  - ±300kHz - 60dB

**Additional Specifications**
- Squelch Sensitivity
  - (n.f.m. and a.m. threshold)
    - 25 to 520MHz: 0.5µV
    - 760 to 1100MHz: 0.5µV
    - 1100 to 1300MHz: 3.0µV
  - Tight signal to noise 25dB
- Squelch Sensitivity
  - (w.f.m. threshold)
    - 25 to 520MHz: 3µV
    - 760 to 1100MHz: 3µV
    - 1100 to 1300MHz: 10µV
  - Tight signal to noise 40dB
- Scanning Rate: 16 channels/s (Fast)
  - 8 channels/s (Slow)
- Search Rate: 16 steps/s (Fast)
  - 8 steps/s (Slow)
- Priority Sampling: 2s
- Antenna Impedance: 50Ω
- Audio Power: 1.8W 1.8W@3% t. h. d.
- Tape Out: 600mV into 10kΩ
- Power: 220 – 240V a.c. 20VA
  - 13.8V d.c. 12W
- Memory Back-up: 9V
- Dimensions: 75 x 275 x 230mm
- Weight: 3.2kg
REALISTIC PRO-2004 PROGRAMMABLE SCANNER

The review scanner was kindly loaned by Radio Shack, 188 Broadhurst Gardens, London NW6 3AY. Tel: 01-624 7174.

Neatly designed and built in a matt black plastics case, the sloping front panel carries the controls and display panel. The multi-purpose green liquid crystal display is clear and easily read and shows which channel and frequencies are being scanned, monitored or programmed, as well as the status of the channel and the operational mode of the receiver. The brightness of the display can be dimmed with the DIMMER switch.

Keypad
The scanner is switched ON and OFF using the rotary VOLUME control. Alongside this is the SQUELCH control, used to eliminate noise between signals. On the right of the panel is the membrane, pressure sensitive keypad, used to control the operation of the receiver. This keypad is divided into colour coded blocks, with each key clearly marked with its functions. As each key is operated a bleep is emitted to indicate that the key has been operated. The instruction manual describes the purpose of each key in a clear and concise manner - as long as you understand the basics of how to drive a scanner. If this is to be your first scanner then it will pay you to obtain a good book on just what scanners are all about, such as Scanners by Peter House. After all, when you buy a new car you don’t expect the instruction manual to teach you how to drive!

The back panel is equally simple with a 10dB attenuator switch for use with very strong local signals, a TAPE OUT, EXTERNAL SPEAKER and 12V DC jacks. A compartment carries a 9V dry battery for memory back-up in case of power loss or if the scanner is unplugged from the mains. Battery life is quoted as about six months when the main power source is disconnected for a prolonged period. Mains power is supplied via the built-in mains lead - fitted with a moulded-on 2-pin plug which you will have to either plug into a shaver adapter or cut-off and replace with a standard mains plug. A small hole in the panel gives access to the RESTART button to enable the receiver to be reset if it “locks up” for any reason.

Antennas
Finally the back panel carries the ANTENNA socket. This is a standard 50Ω BNC socket and the set is supplied with a telescopic whip antenna with a mating plug. This gave quite good results for local and strong signals but for the best results the scanner should be used with a suitable wide-band antenna mounted as high as possible outside and fed by a good quality low-loss 50Ω coaxial cable. Tandy offer a base antenna for the v.h.f./u.h.f. and airbands in their current catalogue but this has not been tried with the scanner.

Memory Banks
The memories of the PRO-2004 are divided into 10 banks each of 30 channels giving 300 discrete frequencies in all. You could store, say, all the 144MHz amateur repeaters in Bank 1, the 430MHz ones in Bank 2, v.h.f. broadcast stations in Bank 3, Airband frequencies in Band 4, and so on.

Monitor Bank
A further MONITOR bank allows you to store up to ten other frequencies which you may have found during a search and wish to store temporarily. This facility is very useful and saves you the hassle of having to make written notes. The operation of the Monitor Bank is very simple.

Once you have found a frequency that interests you all you have to do is press MONITOR on the keypad and that particular frequency is stored in the next vacant one of the ten Monitor memories. You can transfer any of the Monitor Bank frequencies to any of the 300 main locations as and when you want to.

Any or all of the memory banks may be scanned as desired by entering the appropriate commands from the keypad. Specific channels may be locked out if desired and this is indicated on the front panel display. Frequencies and modes are entered directly from the keypad along with all the other functions such as priority channel, 6, 12.5 or 50kHz search steps and scan speed.

Birdies
All synthesised receivers have “birdies” - the products of internally generated signals that show up as spurious inputs. If the scanner comes across one of these “birdies” it will stop on that frequency, thinking it to be a real signal. If it is strong enough then the scanner will become locked to that frequency and will not continue scanning even if the SQUELCH control is backed right off. The instruction manual contains a table showing the frequencies of the commonest “birdies” to watch out for, and this list is most useful.

Modes
The PRO-2004 automatically selects the mode dependent upon the frequency being received. This function is preprogrammed into the scanner but if it is desired to listen using a mode different to that preprogrammed then it is simply a push of the MODE key to select a different mode. The key operates sequentially to give a.m., narrow-band f.m. or wide-band f.m.
The advent of the modern multi-band transistor portable receiver, with its convenient built-in whip antenna, has enabled many a listener to explore the short wave bands for the first time. The thrill of hearing a direct broadcast from some far-off place in the world can quickly lead to further exploration of the bands and to the discovery that there is a whole new world of listening out there. Before you know it, you could find that you have become a short wave listener (s.w.l.).

Of course the s.w. broadcasters hope that when you hear their signal for the first time you will become sufficiently attracted by their programmes to want to become a regular listener. Consequently they usually offer a wide variety of cultural and religious items, discussion programmes, sports news, also bulletins of local and world news which are often followed by commentaries. However, depending upon your political point of view, these may seem to be purely propaganda.

In an attempt to ensure that their signal reaches their chosen target area, many of the broadcasters use high power transmitting installations, capable of reaching virtually any area of the world provided the reception conditions are suitable.

It is possible to just search the bands for signals in the hope that they will prove to be interesting, without having any idea how the signals are reaching your receiver or how to get the best out of the prevailing reception conditions at the time. Like any other hobby, there are many aspects which need to be considered if you are going to make a real success of short wave listening. In order to help you to get the best out of this fascinating hobby, I will be writing about some of the interesting technical aspects of it each month in this series. So let us now start to look at things in more detail.

What are Radio Waves

Perhaps the first thing that we should consider is the very nature of a radio wave so that the commonly used terms like wavelength and frequency, which are so often quoted by broadcasters and s.w.l.s alike, can be understood and put to practical use. All radio waves have a number of things in common and the basic forces needed to produce them are generated in a transmitter.

It is the job of the first stage of the transmitter, usually called the **master oscillator**, to generate the basic radio-signal. The heart of the master oscillator consists of a coil of wire, called an **inductance** (L), attached to two metal plates which are insulated from each other, call-
Wavelength
There is a simple relationship between velocity, frequency and wavelength, namely,

\[ V = f \lambda \]

Velocity \( V \), or \( V = f \lambda \) \( \ldots (a) \)

By transposing formula \( (a) \) we obtain \( (b) \) and \( (c) \):

\[ \lambda = \frac{V}{f} \ldots (b) \]
\[ f = \frac{V}{\lambda} \ldots (c) \]

To make use of the formula \( (b) \) and \( (c) \) we need only enter the value of either \( f \) or \( \lambda \), since we already know that \( V = 300 \, 000 \, 000 \, \text{metre/s} \), so let us now make some simple calculations.

**Example 1:** What is the frequency of a station operating on a wavelength of 300 metres?

Using formula \( (c) \),

\[ f = \frac{V}{\lambda} = \frac{300 \, 000 \, 000}{300 \, 000} = 1 \, 000 \, 000 \, \text{Hz} \text{ or } 1 \, \text{MHz} \]

**Example 2:** What wavelength corresponds to 10MHz?

Using formula \( (b) \)

\[ \lambda = \frac{V}{f} = \frac{300 \, 000 \, 000}{10 \, 000 \, 000} = 30 \, \text{metres} \]

Note: The formula can be simplified to \( \lambda = \frac{300}{f} \) if the frequency is in MHz, so this calculation could have read \( \lambda = 300/10 = 30 \, \text{metres} \).

**Spectrum**
Armed with the fundamental terms of wavelength and frequency, we can now consider the electro-magnetic spectrum as a whole. The low frequency limit is about 10kHz and it is important not to confuse a 10kHz radio signal with a 10kHz audio sound which consists of compressions and rare factions of the air — you cannot hear a 10kHz radio signal. The upper limit of the spectrum extends beyond 30 000MHz towards the infra-red and visible light regions. The various areas of the radio spectrum are classified into seven groups, as shown in the table.

The frequencies used by broadcast stations in the h.f. spectrum are allocated under agreements drawn up by the International Telecommunication Union (ITU) located in Geneva. This topic will be discussed in a future article.
The inauspicious start to one of the most interesting and unusual pieces of radio restoration to come my way was, improbably, the failure of our central heating system one cold day last February. The fault lay in a worn-out oil pump, but fortunately I am blessed with a circle of friends and acquaintances who are able to supply almost anything at the drop of a hat. A phone call to one of these benefactors resulted in a second-hand pump being delivered that same day. My friend arrived with it whilst I was working on an article dealing with the R1155 Receiver, and we naturally fell to discussing these fine sets.

It transpired that during a recent visit to a client also with heating problems, my friend had spotted an 1155 sitting on a garage shelf, apparently uncared for and unwanted. He recommended me to contact the owner with a view to acquiring the set, which I did as soon as possible. It turned out that the 1155 was definitely not for sale - it was awaiting, and had been for some time, the arrival of someone who could put it to rights. However, the owner said that he had a German communications RX with which he was willing to part, and he invited me to inspect it in its present home, a small garden shed. This is the story of how he restored this interesting set to working condition in spite of some unusual component problems.

When Chas. E. Miller set out on the trail of a replacement oil-pump for his central heating system he little expected to unearth a German receiver collecting dust in a friend's garden shed. This is the story of how he restored this interesting set to working condition in spite of some unusual component problems.

**Exchange**

What I saw was a field-grey cabinet of about AR88 size, housing a receiver of quite modern appearance. A large rectangular dial dominated the front panel, divided horizontally into sections for seven wave-bands, plus a logging panel, divided horizontally into sections for seven wave-bands, plus a logging scale. In large letters at the bottom of the dial was the legend *Scha/eco Escorial*. There was a small meter mounted above the dial and three large knobs beneath it, arranged horizontally. On either side were vertical columns of three smaller knobs, four of them evidently switches. Each control was labelled, in German, but my scanty knowledge permitted me to translate only a few of these at the time. However, what I saw was more than enough to whet my appetite, and it was with considerable pleasure that I accepted the owner's suggestion that I should take the German set in exchange for repairing his 1155. Not surprisingly, this latter operation was carried out in record time!

When I collected the German set the owner had been kind enough to clean it up by blowing out most of the dust and cobwebs, and had even gone so far as to apply mains to it to see if it might emit some kind of noise. As it happened, only mains- and grid-hums resulted, with nary a trace of a station. He was rather concerned about this, but for myself I work on the theory of the greater the challenge, the greater the eventual satisfaction when it is overcome, and I hurried the set home with pleasurable anticipation.

**Side-contact Bases**

My initial inspection of the interior of the RX suggested that it was a lot older than I had at first thought, since it used the old 4V heater side-contact valves that had a brief popularity in the UK at least) at the end of the 1930s and start of the 1940s. Side contact valves in general lasted longer on the Continent than in this country, but for most of that time had either 6.3V heaters or higher still ratings for a.c./d.c. series operation. Thus I provisionally dated the set as circa 1939.

The side-contact base, for the benefit of readers too young to have encountered it, dispensed with the normal contact pins and had, in their stead, a series of small “feet” arranged around the periphery of the valve base, and pointing outward. Only a small amount of metal protruded beyond the base to make contact with strip springs in the holder. The latter was a cup-like construction and was recessed into the chassis. This, together with the smaller base on the valve, reduced significantly the “headroom” required in a receiver, which was especially welcome in compact sets. However, on the debit side was the small contact area of the “feet” which tended to plague many of the sets which used these valves with bad connections and all the resultant crackles and intermittent reception. They could be regarded, one supposes, as the Continental answer to the British B9G base fitted to the notorious EF50.

Ten valves were immediately visible in the *Escorial*, plus an empty socket that I guessed correctly as it turned out might have housed a b.f.o. valve. Those present indicated that there was in all probability one r.f. amplifying stage and, following the frequency-changer, two i.f. amplifiers; and on the a.f. side, one voltage amplifier followed by push-pull output. A closer examination proved this to be so, but before I went into this I had a further look at the front panel.

The wavebands covered, I found, gave virtually uninterrupted coverage from 60kHz to 21MHz, the only small gap occurring between 470kHz and 545kHz. The wavebands are arranged as follows: I, 66 to 175kHz; II, 170 to 470kHz; III, 545 to 1500kHz; IV, 1.45 to 4MHz; V, 3.8 to 7MHz; VI, 6.8 to 12MHz; and VII, 11.5 to 21MHz. On the left hand side of the dial is a vertical indicator showing the bands in
Restoring a Communications Receiver from Nazi Germany

Roman numerals and individually illuminated by miniature festoon lamps selected by an extra wafer on the wave-change switch.

It was now possible for me to identify the controls positively by tracing them back to their spheres of activity within the set, and they turned out to be as follows: The three large knobs are, from left to right, Volume, Wave-change, and Tuning. Around the wave-change main knob is a concentric lever-type control which operated a further series of levers within the set which terminated in a large coil box on the top of the chassis, the purpose not as yet clear. The three small knobs to the left are, from the top, tone control, gramophone pick-up on/off, and mains on/off. The presence of the first two strongly suggested that the Escorial was a dual-purpose receiver, able to be used for communications purposes and for troop information and entertainment work. The incorporation of a push-pull output stage tended to confirm the last supposition. The right-hand set of knobs are, again from the top, r.f. Gain, a.g.c. on/off, and b.f.o. on/off.

Returning to the interior of the set I found an impressive power supply section consisting of a large mains transformer, valve rectifier (AZ1) and dual smoothing capacitors present were of the wet-electrolytic type familiar to radio service engineers in Philips receivers as being held in place by large screw-threads cast into their cases. The case obviously missing had been roughly replaced by a wire-ended type hanging in mid-air. There were also some exceedingly scruffy taped joints around the smoothing chokes that cried out for investigation and re-making.

Trimmer-twiddler

The large coil-box mentioned before lies to one side of the massive tuning condenser, and has a perforated side-plate giving access to the trimmers, etc., within. With considerable heart-sinking I discovered that each access hole had once been covered by a paper seal, and that not one had remained undisturbed. The same applied to the i.f. transformers when I came to examine them. Evidently the set had at some time been in the hands of a dreaded trimmer-twiddler, one of the most pernicious beastsies to be encountered in the jungle of radio repairs!

These discoveries boded along and I decided to rough out a circuit diagram for the h.t. supply and a.f./o.p. stages, followed by voltage checks with the Ammeter. Following my invariable practice, I went first for those odd components that had already been replaced by some former engineer. It is in the nature of things that these are likely to be the most vulnerable in a receiver, and thus ripe for further attention. As usual, I was rewarded by the immediate discovery of two very "leaky" capacitors, both in the anode circuit of the AC2. One fed the coupling transformer, the other the tone control. Replacing both had a significant effect on the h.t. drain in this part of the set and the voltages rose accordingly. I must admit that the appearance of the two output valves was not reassuring, they both had a milky look about them which threatened a "soft" vacuum, but in the event they both gave no cause for alarm in their performance. It was whilst examining these valves that I first noticed that all in the set were overstamped with a word indicating that they had been inspected by the German Army, and this led me on to discover numerous rubber-stamp impressions on the chassis, each depicting the Nazi double-headed eagle and swastika. Even today the sight of that symbol causes me a small frisson of unease, for, as a child of the ‘30s I was just old enough to comprehend what Winston Churchill meant when he spoke of “... the monstrous tyranny, never surpassed in the dark, lamentable catalogue of human crime.” Consequently, when I subsequently came to disturb parts of the Escorial that were patently original, I was constantly aware that the last person to touch them had worked under the yoke of Adolf Hitler, and that the voice of the “Blood-thirsty gutter-snarler” (Churchill’s epithet) must oft have thundered forth via the finished product. Nor was it possible to ignore the fact that a 245V tapping on the mains transformer, in addition to the usual 220V one for German supplies, made the Escorial suitable for use in Britain.

The majority of small components in this RX are mounted on tag panels bolted to the sides of the chassis, with many of the larger-value capacitors being in the form of metal boxes, a little larger than an OXO cube which are screwed to the...
underneath of the chassis. Most of these appear to have been of 0.5 μF capacitance in their youth, but have by now degenerated into low-value resistors! Purists may object, but I have replaced the OXO cubes with large metal-clad tubular units which may not look original but are of a reliable disposition. Similarly, a large number of metal 0.1 μF units have taken the place of rather unpleasant-looking black paper types which also exhibited regrettable "leakiness."

The removal of most of the "unofficial" h.t. consumption upped the h.t. to around 250V, which seemed to be acceptable. At that stage I made good the deficiencies around the smoothing choke and tidied up the wiring in general. I also replaced the original, two-core, mains lead. This entered the set at rear centre of the chassis and was soldered to tags on the same panel as the h.t. decoupling resistors. Each side of the input was decoupled for r.f. to chassis by a small capacitor of exceedingly frail appearance and which I would not have trusted too far. From this point a heavily screened cable took a pair of cables to the mains on/off switch. Again at the risk of upsetting purists, I fitted a modern three-core cable, snipped lines and chassis.

Suitable tweaking was eventually rewarded and I had the offending transformers stripped down on the bench for inspection. As I had suspected, the actual bit of iron-dust that does the tuning had come adrift from the bakelite adjusting knob. There is enough iron in the gap between 470kHz and 545kHz, and as it happened a good dose of 490kHz did give a response in the loudspeaker. Only one of the i.f. transformers, though, showed any sign of being tunable -- that between the two amplifiers. The others could have their iron-dust cores moved throughout their travels without the slightest effect on the response.

Another curious feature was that it was impossible to get a signal to pass through the mixer valve, to inject the 490kHz into the first i.f. amplifier it was necessary to remove the mixer and connect the generator to the anode tag of the valveholder via a 500V wkg. condenser. It became all too evident that the i.f. transformers were going to have to come out and receive major attention. This was not easy. The makers of the Escorial had clearly not anticipated this level of servicing and the unsoldering of the i.f.t. connections, although tedious, was nothing compared with the sheer drudgery of easing off the retaining nuts a fraction of a turn at a time with long-nosed pliers!

Eventually, however, patience was rewarded and I had the offending transformers stripped down on the bench for inspection. As I had suspected, the actual bit of iron-dust that does the tuning had come adrift from the bakelite adjusting screw in both windings of the one transformer. It is always pleasant to find an obvious cause for failure, especially one which could be rectified with the aid of some quick-setting epoxy glue. Ah! but the cores in the other i.f.t. were in perfect order, so something else must be causing the lack of response. The leading can-didates were the small capacitors connected across the windings. They were about as big around as old sixpences and roughly 3mm thick. The two connecting strips were rivetted to the body, which appeared to be made of a ceramic cup filled with some hard cement. According to the value printed around the circumference of each, all should have been of 300pF capacitance, but on the bridge none showed more than about 150pF. (I had by this time decided to try those in the first i.f. as well.) Fortunately I had some 1 per cent silver-mica types to hand and I was able to effect the necessary replacements.

Re-fitting the i.f.t.s took almost as long as the removal, but when at last it had been achieved it was soon evident that the work had not been in vain. Keeping to the 490kHz, I was able to peak up all the transformers, following which a satisfying hiss was to be heard in the loudspeaker, indicative of imminent signals from the r.f. unit. The valves having top-cap grids, by the way, are well screened in the Escorial. The i.f. valves have flexible-metal screens attached to deep top-cap connector/ covers, which gives them the look of Teutonic Michelin men. The three valves on the r.f. sub-chassis have actual copper-tube encased leads to their top-caps, with pig-tail earths at either ends. Consequently there is next to no pick-up of signals when an antenna is not connected to the set, and it was not until I had done this that I realised that the set was going to work, and work rather well, with no more ado.

Tuning Action

All bands proved to be capable of giving results, although I must admit that it took me some time to figure out how to get Band I, as there are only six positions for the wave-change switch. (And oddly arranged at that.) I eventually found that the lever behind the main wave-change knob is used for Band I or Band III; with the switch in the nominal Band II position. The tuning action is first-rate; certainly one of the best that I have ever experienced. It relies on a smooth slow-motion gearing completely free from back-lash, in conjunction with a heavy fly-wheel which permits rapid changes of frequency when required. The drive to the cursor is by fine steel wire which I have no doubt is original. Since a number of s.s.b. signals were in evidence, I was moved to do something about the missing b.f.o. valve. Knowing that I have no 4V side-contact valves, I tried an EF9, which has the same base as the likely AF7, but a 6.3V heater. Much to my surprise, after a warm-up time that little longer than normal, the EF9 got down to the business of injecting a carrier and with a little tweaking of the b.f.o. coil core, s.s.b. was resolved with ease.
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The four stations concerned were the US Government's Voice of America, of course, along with two religious broadcasters and one trying to make a commercial success of shortwave. KGEI (formerly owned by General Electric) operated as a religious-educational outlet by the Far East Broadcasting Company from near San Francisco, California, already had years of experience behind it. The commercial venture, WRUL operated by the large Metromedia communications group, had studios in New York and transmitters in Scituate, Massachusetts.

The fourth had just come on the air. WINB (World International Broadcasters) in Red Lion, Pennsylvania, was a religious station filling its broadcast schedule largely by selling time to other religious groups.

If we make a slight adjustment in the time machine’s controls and skip ahead 20 years we find that not much has changed. By 1982 the Voice of America had taken over direct operation of its older US based transmitters which had formerly been operated under contract to private companies such as the NBC and CBS networks and Crowsley Broadcasting. KGEI and WINB (now of voting age) were still alive and kicking. WRUL, however, had undergone two transformations. First it was sold and became WNYW (Radio New York Worldwide). The new owners, however, couldn’t make it work as a commercial venture either so it was sold again, this time to Family Stations, Inc. and the call sign changed to WYFYR (Your Family Radio). Later the broadcasting organisation was moved to Okechobee, Florida and several new 100 kilowatt transmitters placed in operation. But, other than that, things were running along at their usual ho-hum pace.

Not for long, though! During 1982 businessman and broadcaster Joseph Costello III succeeded in getting a licence to put WRNO Worldwide on the air from New Orleans where he already owned WRNO a.m. and f.m. WRNO, the Rock of New Orleans, is a strictly religious station, initially carrying programmes for WRNO f.m. later selling time to religious groups and, still later, creating more and more programming especially for the short wave audience. In 1985, a second 100 kilowatt transmitter was placed in operation. As the first new US voice on short wave in twenty years, WRNO’s arrival did not go unnoticed, particularly by the evangelists. In getting WRNO airborne Costello had cracked the Federal Communications Commission’s longstanding reluctance to grant short wave licences and the crack grew larger and larger.

WRNO was soon followed by giant religious broadcaster Trans World Radio which got the go-ahead to put a station on the US Territory of Guam. TWR already had large installations in Monaco, the Netherlands Antilles and Swaziland. From Guam, KTWR began programming using four 100 kW transmitters serving audiences in Japan, Asiatic Russia, Indonesia, Malaysia, China, Southeast Asia, India and Australasia with broadcasts in a dozen languages.

Then another commercial concern got into the game. Marcom, Inc., based in Hawaii, put KYOI on the air from the US Trust Territory of the Northern Marshalls (Saipan Island). The idea was to capitalise on all those short wave radios owned by youngsters in Japan. Since there was no non-stop Top 40 music service available to them and especially no American-style station broadcasting in Japanese, Marcom felt it couldn’t miss. It might have worked except for Japanese restrictions on promoting the station within Japan which left KYOI and its “Super Rock” format unable to build an audience. By early 1986 the station was appealing for donations to help keep it on the air. By the fall of 1986 there were unconfirmed rumours that the station had been sold (about which more later).

The next blip on the screen showed up in Alaska. Texas-based World Christian Broadcasters (now of Anchor Point) to construct its KNLS (New Life Station). Not without a good deal of difficulty, however. Some staff members were killed in an air crash and later the uncompleted transmitter building was the target of an apparent arsonist. KNLS got past the setbacks and now airs some 14 hours of programming daily, beamed to Europe, Asia, China and the Central USSR. Experiments in reaching Europe via an over-the-pole path have not met with very much success. KNLS was one of the first religious short wave stations in the US to take a “soft sell” approach and the listener is just as likely to hear a program of big band jazz music as he is a religious show.

Back on Saipan Island, KYOI was about to get a new neighbour. The Far East Broadcasting Company, which already owned KGEI in San Francisco, FEBA in the Seychelle Islands, FEBC-Philippines and several medium wave stations as well, opened KFBS with three 100 kilowatt transmitters (a fourth has recently come on the air and a fifth is planned) to reach China, Indonesia, Malaysia, Vietnam, Poland and the USSR. The first transmitter of KFBS came into use in 1984 and was an old Voice of America unit. In just two years the number of US short wave outlets had doubled over what it had been during the previous 20 years.

In contrast to the large, world-based religious broadcast groups which were getting into short wave under a US-granted licence, a much smaller group was preparing to give short wave a try. The Assemblies of Yaweh, a religious sect in Bethel, Pennsylvania purchased a 50 kilowatt transmitter and installed it in an abandoned petrol station on the
edge of Bethel. During the following months radio engineers, who were also members of the group, worked to change what was a medium wave transmitter into one which would operate on short wave frequencies. WMLK finally got on the air for tests in 1985 but most of the broadcasts are still of limited length and the full schedule has yet to be implemented. When it is, the broadcasts will consist largely of sermons and classes from the Assembly's Bible School and news related to Bible prophecy. The group believes salvation awaits only those who worship God by His Old Testament name: Yaweh. The call letters are a contraction of the word "malek" - messenger.

Unlike WMLK whose main target is Assembly members worldwide, many of those in the new crop of religious short wave stations are recognising that programming in today's environment has to be aimed at a wider segment of the potential audience, and has to be attractive, even if somewhat on the secular side. That was the track taken by the Criswell Center for Biblical Studies when they put KCBI in Dallas, Texas on the air. The Centre already had an f.m. station there which had achieved a number one ranking in listenership among the nine religious f.m. stations in the area. KCBI tosses in country/western music and seeks to take advantage of the mystique of Texas and Dallas while promoting "free people working in a free society." The station has been on the air with 50 kilowatts since early 1985.

The midwestern part of the country was the next area to sprout short wave broadcasting antennas. Reverend Lester Sumrall's LeSea Broadcasting put WHRI (World Harvest Radio) on the air from Nobelsville, Indiana on Christmas Day, 1985. WHRI is part of a growing broadcasting group operated by LeSea which includes a couple of a.m./f.m. stations, four television stations and a burgeoning satellite network. Programming comes from LeSea's radio-TV centre in South Bend (northern Indiana). If nothing else, WHRI was unique in that it was the only station which met its pre-announced on the air target date.

As the fall season began to grace the landscape in the United States, tests were being expected at any time from still another religious broadcaster. Evangelist George Otis and his High Adventure Ministries based in Van Nuys, California, were nearing the sign on of their 50kW KVOH (Voice of Hope) at Rancho Simi, California. Initially, KVOH will air programmes mostly in English but also with some Spanish. The Otis organisation already operates the King of Hope/Voice of Hope stations in

LeSea Broadcasting's WHRI signed on Christmas Day, 1985 southern Lebanon. After KVOH is launched, Otis won't be at the end of his short wave plans. He plans to put a high power religious station on board a ship and beam programs to Asia from the South China Sea and is already busy raising money to finance that project.

Early in 1987 two more short wave stations will take to the airwaves. Adventist World Radio, which does extensive programming on existing short wave stations and also owns a few smaller short wave stations, including the new Radio Lira in Costa Rica, will go on the air with KSDA in Guam. KSDA's 100 kilowatt signal will be beamed largely to audiences in Asia, in a variety of languages.

A major US newspaper - the Christian Science Monitor, is well along into the construction of a station that will operate with 100 kilowatts from Maine and has plans for a second site later, in the southern part of the country. The project initially called for expanding to a third site which would serve Asia and, as this is written, the rumours involving the sale of KYOI indicate that the purchaser is the Christian Science Monitor station. Although owned by the Christian Science church, the station will stick largely to a news and feature format - a sort of audio version of their well-known newspaper.

Once these two stations get into operation that may be the end of the activity for awhile. Or, it may not. A number of other individuals and groups have expressed an interest or announced plans or filed papers with the FCC. These include H. Dickson Norman's "NDEX Global Radio" in Opelika, Alabama; KRSP Worldwide Radio in Salt Lake City, Utah; Radio USA based in San Francisco (all commercially orientated), Van Heaton International, a proposed religious outlet in Holmwood, Louisiana and Susquehanna Broadcasting of Miami, Florida. None of these, however, appears to be moving very steadily towards getting on the air and plans for some, at least, may exist mostly on paper.

But even if none of them ever put a single programme on short wave, short wave broadcasting in the United States has still seen a dozen new stations on the air in just five years - a 300 per cent increase over 1982. Admittedly it is early yet. Some of the new stations are still largely untested from a viability standpoint but, so far, only one of them has failed and that facility (KYOI) perhaps rescued by another buyer. Most of the others have sold backing so it would appear that these 12, at least, are here to stay. How many more there may eventually be is anyone's guess. Our Tardis, unfortunately, only operates in a reverse mode.
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Letters
The ones we have this time were all aimed at John GOAPI, and your scribe feels a little guilty to read them, but some are in any case old friends, so we hope they won’t mind.

Angie Sifton (Stevenage) has already passed the RAE, and her letter indicates that the J.C. brand of joss-sticks weren’t much good on the day, as Angie came unstuck on the Morse, after a late arrival at the test centre thanks to Angie Sitton (Stevenage) has already passed the RAE, and her letter indicates that the J.C. brand of joss-sticks weren’t much good on the day, as Angie came unstuck on the Morse, after a late arrival at the test centre thanks to....

M. Hudson (Canterbury) sticks to a s.b., and uses a Trio 9R59DS receiver to an end fed wire. Mick spreads his listening around the hours from 0700 to after midnight.

Deadline Dates

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AMATEUR BANDS ROUND-UP

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

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except for work times, and thus has managed to collect up countries in all continents but South America on 3.5MHz, while 14MHz yielded a full house.

Next we hear from Robert Watters of St. Austell who has recently started to send out QSL cards to DX stations he hears. This raises a few points of interest which perhaps we should mention. Many of the DXpeditions call for QSLs to be accompanied by an s.a.e. and/or IRCs or "green stamps" otherwise known as dollar bills, to help to defray the costs of the DXpedition and the printing of the QSLs; if such is not included, some just don’t respond at all, others put the return QSL into the Bureau system. Thus, even if you OSQ direct, it pays to have a membership of some group, such as for instance RSGB or ISWL in UK, who have a QSL Bureau operational. Personally, since the demand for IRCs and green stamps became general, your J. C. has stopped sending QSLs out to all but the most rare DX.

We should also mention here just what should appear in a s.w.l. report for it to have a chance of getting a return QSL. That can be summed up in three words - "Useful and interesting". Useful implies that you listen to several QSOS, and compare them; that you compare the DX signal report with others from the same area, that you indicate what you thought of band conditions at the time, and so forth. Interesting can cover all sorts of things from a note of how his signal strength went up and down as he rotated his beam, right back to the personal things outside of the hobby if you are sure they will be of interest from somewhere. Mike has said. The thing to bear in mind is that a DX station knows very well that he can work anywhere in the world, so a report on a simple contact that was RS59 both ways isn’t useful or interesting. On the other hand, if he is a couple of S-points down on his usual, and obviously failing to hear stations calling him, your detailed report may help him to a decision to lower the antenna and repair whatever’s gone wrong, and he’ll thank you for your help with a QSL.

Leighton Smart (Trelewis) is jubilant at hearing his first VK signal, and we notice from his log that he heard his Australians at a rather odd time - mid-afternoon - which suggests some rather weird propagation, or a very potent signal being radiated. This is the sort of thing which makes you wish for a beam, so you can swing it right round to see where the signal is best. Robert listens on most bands where he can find activity, but finds 7MHz rather noisy. True enough, but on 7MHz and 3.5MHz, it is often the case that careful use of the attenuator or the r.f. gain control will make a spectacular improvement, indicating that the receiver is overload due to nearby signals not in the f. passband. This of course is a fundamental design problem which has only been seriously addressed in amateur radio gear in the last few years. Indeed, before then, it was normal to find that the valve receiver was, in general, better than the solid-state one. Nowadays the ads make much of this question of dynamic range, but quite cleverly "expand" it by indicating a figure artificially increased by the presence and absence of the front-end attenuator or pre-amp.

Next Time!

In our piece next month, we will be introducing new readers to the delights of the HPX game; HPX refers to hearing prefixes, rather than countries. This gives you something in excess of 3000 plus to have a go at, and can be quite good fun as readers of the old Short Wave Magazine demonstrated many years ago. Those of you who know how it went, or who are already on the ladder will know how to play; for the others we will be running the rules next time around.

Club

Those of you who are new to the hobby will be well advised to join a club of some sort. There is one in most areas of the country, and members are always pleased to have new recruits; it is at the local club that you can find a solution to your starting problems by talking to those who have been at it longer, and of course it is the most likely spot to find out about the way to "join in" but if you don’t speak or you hide away in the corner they will respect your privacy – so don’t sit in the corner silently and then say the club members are unsociable.

Deadline

This will be found in the "box" in the piece for the next three months, to give a chance to you folk in faraway places. It is, as we have said, for arrival, addressed to F. J. C. to Short Wave Magazine, Eneco House, The Quay, Poole, Dorset BH15 1PP. See you then.

DECODE

Mike Richards G4WNC
200 Christchurch Road, Ringwood, Hants BH24 3AS

2: Detail interesting stations heard, including mode, speed and format etc.
3: Provide up-to-date info on the regulatory aspects of listening.
4: Provide information on specialist user groups and information suppliers.
5: Provide details of latest equipment and accessories.
6: Beginners intro section.
7: Introduce simple methods of trying out new modes along with technical details of mode.

Keen as I am, the success of the column depends very much on the input from readers. Please send in your observations here on your frequency, mode, date and time as well as any special characteristics of the transmission. I would also like to feature listeners stations from time to time, so your details and a photo would be much appreciated. I am a member of most of the user groups but any "Hot News" will be included if received in time.

Hints & Tips

First tip for any newcomers is to join the specialist user group for your prime listening modes. I hope to run a feature on these groups to keep you informed. If you know of new groups then please let me know.

All you listeners who own computers running CP/M or IBM clones of the Apple that includes Amstrad PCW ones - there is a group you may not know about. There is a vast quantity of Public Domain i.e. nearly free software available including radio programs from the Public Domain Software Interest Group.

Packet News

The Packet scene seems to be growing rapidly at the moment. It seems that v.h.f. activity is concentrated on the repeaters (144.650MHz) with little activity on the simplex channels. There is a trend towards repeaters for general contacts and simplex channels for swapping large quantities of data, i.e. computer programs. On the h.f. bands packet operation is also developing rapidly with activity centred around 14.103MHz. In one evening I logged 14 stations such as EV3I0X (USSR), HA5XY (Hungary), 4Z42B (Israel), KA3MRX (USA), OE30US (Austria), YU1AOE (Yugoslavia), SK2GJ (Sweden) and CE6AAA (Bahamas) amongst others - all spread over three continents.

One of the main reasons for the increased activity must surely be
the availability of very reasonably priced TNCs (terminal node controllers).

RTTY & AMTOR

There hasn't been much time to do any logging this month (decorating seriously interferes with your hobby!). A few interesting stations I did log on 14MHz were W5LSF, NA3W, VE8RCS, 5H3ZO (Tanzania), ZS1AK and IT9SDA. On the amateur scene RTTY and AMTOR are still popular modes, although quite a few amateurs are concentrating their activities on Packet so things do seem to be quieting down particularly on v.h.f. The commercial TOR activity is likely to continue as it is well suited to the long haul unattended message service demanded by so many users.

FAX

There is a wealth of FAX activity from l.f. to microwave. The main content is weather information, but news pictures are also transmitted. If you are interested in receiving weather charts the first thing you will need (other than the radio gear) is a licence. To get this you need to write to the Met Office in Salford. The programme you want to listen to and how you intend to use the received information. The licence cost is currently £5 (not renewable annually) and is actually issued by the DTI.

Book of the Month

This month's book is Guide to Utility Stations 1987 distributed by Interbooks. This publication covers non-broadcast transmissions from l.f. to 30MHz. The range of information contained in this book is really very comprehensive and must be considered to be an "s.w.l. bible". As well as the expected comprehensive list of frequencies and satellites there are chapters dealing with specialist transmissions only. To cover press broadcasts there are two sections, one listing stations in alphabetical order the other showing chronological order. Similarly there are sections dealing with meteors and the propagation of meteorological FAX and RTTY. In addition to all of this there are sections dealing with all manner of miscellaneous information. The book has been used in the shack for several weeks now and has proved to be extremely useful and very accurate. I would recommend this as an essential reference book for the keen s.w.l.

Featured Station

As its my column I get first shot at this section! My station has been aquired over a period of many years and seems to be continually changing. Basic equipment is an Icom IC720A h.f. transceiver (100kHz-30MHz), Yaesu FTV-107 transverter for 144MHz and 50MHz and icom 2E and 2Q2 (his and hers!) v.h.f. handheids.

When it comes to specialist mode reception the accessories are brought into action. The main units are shown in the photograph. For RTTY and AMTOR operation the receiver audio output is fed to a GPSIV active filter terminal unit which converts the recovered audio into a t.t.l. compatible data signal. This signal is then passed to the AMTOR decoder which is switchable between AMTOR and RTTY. I use the old AMTOR M42 board which actually converts an AMTOR signal to standard RTTY so that both modes can be received by running a standard RTTY receive program on the computer.

As for the computer I use either an Amstrad PCW8512 or the trusty old VIC 20. The VIC was chosen because it's cheap, reasonably compact and produces minimal r.f. interference. As for the Amstrad, well I'm still working on software for it at the moment but hopefully some will be forthcoming from the public domain CP/M groups.

When it comes to FAX reception I have built a device that was described in a radio magazine a few years ago. It is a stand alone unit that takes a 9MHz i.f. f.s.k. signal and drives an Epson compatible printer via a Centronics parallel port. The main problem is that the i.o.c. (index of cooperation) is a bit of a bodge to suit the printer which results in the picture being rather squashed!

Finally Packet radio is received using a generously loaned TNC-220 from Siskins Electronics (thanks to Phil). Initial results are very encouraging and I shall be giving a full report in a later column.

Well that's about it for this month but don't forget I need your reports and station details to make a success of this column.

Addresses

(1) Public Domain Software Interest Group, 90 Braybourne Close, UXBRIDGE. Midd, MBB 1LU.
(2) Meteorological Office, Met Office, London Road, Bracknell, Berkshire RG12 2SZ.
(3) Interbooks, Lynton Industrial Estate, Blackfriars, Perith PH1 4GG.
pictures where possible.

Your weather satellite pictures are invited for publication, again with equipment details and advice, especially as your score claims no expertise on this particular facet of the wider hobby. Your questions and queries, where possible, will be answered and, if not, will be published to ask for answers and help from those with experience and knowledge. Do not be demure or modest in helping us to fill the pages and, as what may be commonplace to you may be vital information to many other followers, what you think may be a small snippet of information, when put into context, may lead to some exciting discoveries.

Readers will be familiar with the world-famous Ketteringham group, whose work and study of satellites have revealed findings unknown and undiscovered by commercial sources and scientific groups whose resources are so much greater. Such an example shows the value of small groups using simple equipment, and the respect and recognition of achievement that can result. Since the launch of the world's first satellite, SPUTNIK-1, amateurs and short-wave listeners have been involved, as it was then in October 1957, that all of the initial information on the orbit, height, inclination, etc., was first performed by home listeners, long before the specialised trackers were even equipped for this new field of study.

In this column we shall tend to specialise in the weather satellites, and leave most of the dialogue on the communication and AMSAT satellites for readers of our Practical Wireless column on "Amateur Satellites". This page will, however, not be exclusive, as all general items of interest that arise will be reported, but with the concentration of input based upon the incoming information from you, the observer, listener and reader. It is YOUR column!

To get started, Table 1 is a listing of weather satellites sent to us from John Branegan GM4HJJ, of Saline, Fife. John is a long time satellite follower, and is currently mainly engaged on following the Russian SALTUT-7 space station, that has a large module which transmits f.s.k. on 19.95MHz. John is collating some fascinating data on the sub-horizon propagation of this beacon, as it is telling us some of the little fully understood behaviour of the ionosphere at low incidence levels.

All of the satellites under Table 1 have been known to operate in the WEFAX Weather picture role. WEFAX, short for "Weather FAX", or "Weather Facsimile" or "APT" (Automatic Picture Transmission) system. It is not dissimilar to amateur radio slow scan television, inasmuch as the frames of pictures of the earth and its cloud cover that are sent from the satellite include start and stop tones that are automatically received by the ground station equipment to line frame the receiving equipment used for producing the eventual photographs. At the ground receiving station titles and land/sea outlines, lines of latitude and longitude may be added, and then returned to the satellite so that it acts as a repeater, transmitting completed pictures to the observer.

You will see that our listing contains the familiar USA NOAA and the USSR Meteor circular orbiters, as well as the Geostationary European Meteosat. These Geosats can see virtually the whole hemisphere at a time, but this is not always good enough for the weathermen, because the Geosats stuck over the equator of earth cannot see the all-important weather determining areas around the poles of earth. The circular orbiters not only fill this gap, but also provide an important overhead view, which is vital to measure parameters such as water vapour content and earth heating budget.

It is some of these "special tasks" which account for the several families of weather satellites you may never have heard of. The "DMSP" satellites are a good example of this type, as they operate in circular polar orbits providing standard weather pictures for the United States Air Force and for the aircraft carrier fleet of the United States Navy.

They monitor cloud cover in step with the orbits of the US Photographic Reconnaissance Satellites. In addition, these satellites provide a wealth of data on the ionosphere. This data is used by military, f.f. communications operators and the many over-the-horizon radar operations that have started up in the last few years. Furthermore, they provide invaluable data on ionospheric transparency for the operators of the electronic intelligence-gathering satellites.

Some of these DMSP satellites have been reported as being good visual targets, clearly visible to the human eye when the satellites are in sun and the sky clear and dark, but what is actually being seen is invariably the much larger upper stage rocket, which is often left in space with the weather satellite, because it (the third stage rocket case) carries communications equipment and arrays for the US military.

Other weather satellite special packages include the joint USSR/USA COSPAS/SARSSAT rescue beacons, but more on these next month, hopefully with some of your input, which should be with G3OR by April 23.

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Orbit (c - c) or g - g</th>
<th>Name/User</th>
<th>Remarks</th>
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<tr>
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<td>C</td>
<td>NOAA DMSP</td>
<td></td>
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<td>Nimbus DMSP</td>
<td></td>
<td></td>
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<td>136.95</td>
<td>Nimbus DMSP</td>
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<td>137.08</td>
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<td></td>
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<td>NOAA HPFS</td>
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<td>NOAA DMSP</td>
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<td>Nimbus DMSP</td>
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</tr>
<tr>
<td>1702.5</td>
<td>Nimbus DMSP</td>
<td>+ or -50kHz doppler</td>
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</tr>
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</table>

Any additions you have to this list will be gratefully received.

Table 1 Weather satellite frequencies

During my 10 years writing about them for our sister magazine, Practical Wireless, I found that the f.m. broadcast band (88 - 108MHz) held a fascination for a wide variety of readers, especially when conditions were good and signals from overseas stations were being heard in most parts of the UK.
With your radio and your RADIO DATABASE INTERNATIONAL, you'll be ready to enjoy the wide world of shortwave listening. The 1987 RADIO DATABASE INTERNATIONAL also features a hard-hitting Buyer's Guide with ratings and reviews of all the leading brands of receivers.

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The RADIO DATABASE INTERNATIONAL 1987 Edition includes a new and updated Guide to Utility Stations which has been fully revised for easier and quicker access. In minutes you can identify transmitting stations in each country, including frequencies, power, callsigns, and locations. Whether you want to stay current with political events in Europe, cultural happenings in Europe, or music anywhere on earth, WRTV saves you hours of searching and gives you more time to listen. And to improve the quality of listening there is a careful survey of the world’s most up-to-date Worldscan schedules presented in clear, easy-to-read graphics in handy frequency order.

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Use your computer with your receiver to decode the RTTY signals. Four Baud rates, 45.4, 50, 75 and 110, except ZX81 which has only 50 Baud. Spectrum, MSX and CBM64 have QSO store : £6.00

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(Monday: CLOSED. Tuesday—Saturday: 10.00am to 5.00pm.)
Through the band, each time I stop on high ground. When the R2 was manufactured, some 30 years ago, there was only a few BBC stations to be heard in Band II. However, although the band today is crowded and many frequencies are shared, all works well until nature takes a hand and upsets a carefully planned area of the radio frequency spectrum.

**Sporadic-E**

During the mid-summer months a disturbance known as Sporadic-E can occur suddenly during the hours of daylight and cause v.h.f. signals to travel well beyond their normal range. Past experience has shown that as Band II is near the upper frequency limit for Sporadic-E, the main effect only lasts for about an hour, but in that time, strong signals from radio stations in Italy, Spain and Yugoslavia and the R4 (91.75MHz) and R5 (89.75MHz) television sound channels, are often heard. Under these conditions the Ch. R5 vision pulses, a varying low pitched buzz, are audible on 93.25MHz.

Certain spots in Band II are used by stations in the Azores, Belgium, Finland, France, E. and W. Germany, Greece, Holland, Iceland, Ireland, Luxembourg, Malta, Portugal, Scandinavia and Switzerland and are worth looking for when an intense Sporadic-E is present.

Readers with a scanner or a v.h.f. communications receiver and a copy of the *World Radio TV Handbook* may like to select some of the frequencies, between 66 and 73MHz, that are used for i.m. broadcasting in the UK and Well Transmitted. If reinforced with a mirror, the km of Sporadic-E are usually seen rising and falling in ampple period, which are often observed. Apart from the R4 and R5, the strong signals from radio stations in Italy, Spain and Yugoslavia and the R4 (91.75MHz) and R5 (89.75MHz) television sound channels, are often heard. Under these conditions the Ch. R5 vision pulses, a varying low pitched buzz, are audible on 93.25MHz.

In the 1960s a change to 625-line transmissions in the v.h.f. band began and by the mid-1980s, the 405 line systems still remain even more people by carefully sharing 18 channels in Band IV (47-1-08MHz) and 30 channels in Band V (61-856MHz). Throughout this period, other countries were broadcasting their own systems, mainly using 625 lines and sharing large numbers of channels in Bands I to V.

Owing to the limited frequency space available, the channels must be allocated on an international basis. Therefore, if the planners are to avoid co-channel interference, they must rely on the known short range of v.h.f. and u.h.f. signals and keep the locations of similar frequency transmitters as far apart as possible. Note, I emphasised Normal, because when natural disturbances, such as aurora, Sporadic-E and tropospheric openings occur, within the earth’s atmosphere, the accepted range of signals can increase tenfold and cause chaotic results at the receiving end.

**Band I**

Many countries share the allocated portions within Band I (40-68MHz). For example, Channels E2 (48.25MHz), E3 (55.25MHz) and E4 (62.25MHz) are used by stations in Belgium, Denmark, Finland, Germany, Holland, Iceland, Norway, Portugal, Spain, Sweden and Switzerland, Chs. A (45.75MHz), B (53.75MHz) and C (61.75MHz) are for Ireland, I (53.75MHz) and I (62.25MHz) are used in Italy and Chs. R1 (49.75MHz) and R2 (59.75MHz) are used in Czechoslovakia, Hungary, Poland, Romania and the USSR. In Austria 49.75MHz is known as Ch. E2a.

Obviously, there are many more around the world, but it is the pictures from these countries that are usually logged in the UK when Sporadic-E is present. Although a few events do occur during the winter months, the main Sporadic-E season falls between April and September and the most vulnerable frequency, to even the most sensitive equipment, is around 50MHz. In view of this, the first place to look for DX signals is on Chs. E2 and E1. Sporadic-E openings, can occur at any time and normally last for about 3 hours. However, during the peak

**Tropospheric**

The reception of line-of-sight v.h.f. signals will always depend upon the location of your QTH, its height above sea level and whether or not it is shielded in certain directions. With this in mind, most readers know what local or national stations they can receive under normal atmospheric conditions. However, when the weather is settled and the atmospheric pressure is well above 30.0in, the tropospheric path is often extended and signals from broadcasters in Belgium, France, Germany, Holland, Ireland and Luxembourg can be heard in many parts of the UK.

Finding and identifying these overseas stations is all the fun for DXing so I look forward to receiving your reports.

At 1600 on January 16, Sean Regan, (Halifax) received a good stereo signal from Manx Radio on 97.2MHz. Sean uses a Marantz ST-64 tuner and a 7-element rotatable antenna and, in the past, has received Dutch, French, German and Swedish stations in addition to a good catch of UK locals. “The quality of the stereo sound that can be obtained from a modern tuner is quite amazing,” said Sean.

I found continental stations, plus inter-station “warbles”, scattered through the band on January 26, 30 and 31 and February 1, 7 and 13.

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**STANDARD FEATURES INCLUDING SHORT-WAVE RECEIVER TEST REPORTS**

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**SPECIAL FEATURES INCLUDING SHORT-WAVE RECEIVER TEST REPORTS**

**WORLDWIDE BROADCASTER ADDRESSES**

**AND SHORT-WAVE BROADCASTERS BY FREQUENCY, TIME AND LANGUAGE.**

**COMPREHENSIVE COUNTRY-BY-COUNTRY LISTS OF LONG, MEDIUM, AND SHORT-WAVE BROADCASTERS BY FREQUENCY, TIME AND LANGUAGE.**

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**TELEVISION**

Ron Ham
Faraday, Greyfriars, Storrington, West Sussex RH20 1HE

In the 1960s a change to 625-line transmissions in the v.h.f. band began and by the mid-1980s, the 405 line systems still remain even more people by carefully sharing 18 channels in Band IV (47-1-08MHz) and 30 channels in Band V (61-856MHz). Throughout this period, other countries were broadcasting their own systems, mainly using 625 lines and sharing large numbers of channels in Bands I to V.

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**Band I**

Many countries share the allocated portions within Band I (40-68MHz). For example, Channels E2 (48.25MHz), E3 (55.25MHz) and E4 (62.25MHz) are used by stations in Belgium, Denmark, Finland, Germany, Holland, Iceland, Norway, Portugal, Spain, Sweden and Switzerland, Chs. A (45.75MHz), B (53.75MHz) and C (61.75MHz) are for Ireland, I (53.75MHz) and I (62.25MHz) are used in Italy and Chs. R1 (49.75MHz) and R2 (59.75MHz) are used in Czechoslovakia, Hungary, Poland, Romania and the USSR. In Austria 49.75MHz is known as Ch. E2a.

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months of June and July, this phenomena can ebb and flow all day and provide some excellent DX throughout Band I.

Simon Hamer (New Radnor) received pictures from Norway (Kongsbergs), Spain (TVE) and Sweden at midday on February 6, a test card from Poland and a documentary programme from the USSR on the 8th and an ident from Iceland around midnight on the 12th.

For short periods between January 21 and February 15, Edwina and Tony Mancini (Belper) logged test cards from Austria (ORF-FS1), Czechoslovakia (CST and RS-KH), Denmark (DR), E. Germany (DDR-F1), Holland (PTT-NED-1), Iceland (RUV ISLAND), Ireland (RTE-1), Norway (NORGE-Bremanger, Galen, Hennes, Kongsberg and Melhus), Poland (TPV-1), Sweden (TV1 SVERIGE), Switzerland (PTT-SRG1) and W. Germany (ARD Grunten and SWF-BADN and RBG).

Bands III, IV and V

The normal range of the line-of-sight signal paths, used by stations on frequencies above 100MHz, is often enhanced by complex changes within the troposphere. These events, which can last anything from a few hours to a few days, are called tropospheric openings and usually follow a spell of settled weather accompanied by high atmospheric pressure. Indications of this will be seen on your home barometer or in greater detail on the television weather charts. Generally speaking if the pressure remains high, say around 30.4in, for a few days, watch out for an opening when it starts to fall.

Television pictures, often in colour and at varying strengths, are usually received from Austria, Belgium, France, Germany, Holland, Ireland, Luxembourg and Scandinavia in various parts of the UK while a tropo-opening is in
progress. A typical event occurred at the end of January, when Mike Bennett (Slough), Simon Hamer, Peter Lincoln (Aldershot), the Mancinis and I received programmes and test cards from stations in Belgium (BRT) and RTBF, Denmark (TDF A2), Canal Plus, FR3 and TF1, Holland (NED 1 and 2) Luxembourg (RTL +), Switzerland and W. Germany (NDR, WDR and ZDF).

Results

First of all be patient, because you will not receive DXTV signals on any band, every day, you must wait for those abnormal conditions to prevail. However, openings are exciting and although you can’t always receive the sound and pictures together, it is fun to log and test cards from stations in the UK and Europe.

Each month there will be a guide to the prevailing conditions on the bands, what you can expect to hear, where and when to listen for particular stations and details of what other listeners have in fact been hearing. Some of the news, views and ideas sent in by readers will also be included in the text, along with details of m.w. and s.w. awards, DX clubs and their publications and broadcast station addresses so that you can send along your reception reports to them.

Since the information contained in the text is not intended to be in any way competitive, every report received here is important - so no matter how new or experienced you may be in this great hobby of ours, please send regular reports along to me to help make this new magazine the best ever for the listener.

Long Wave DX

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

The first stage of a new l.w. band plan came into effect on 1 February 1986. This moved the lower limit of the band to 153kHz and required the broadcast stations below 200kHz to change their operating frequency slightly, so that they are spaced 5kHz apart. The second stage of the plan will occur on February 1 next year and will affect the stations operating below 245kHz - this includes the BBC, West German 245kHz, Bristol transmitter, which will move to 198kHz. The third stage is due to take place on 1 February 1990 and will affect the broadcasters using 245kHz upwards.

Some of the transmitters operating on the l.w. band use very high power and their signals cover considerable distances by day or night. A Toshiba RP-F 11L portable receiver was used by Robert Taylor to take a look at the band in Edinburgh. He logged stations as far as the Azores, France 182 (2000kW), Motala, Sweden 189 (300kW); Roumoules, Monaco 218 (1400kW); Kalundborg, Denmark 245 (3000kW) and Moscow, USSR 263 (2000kW). John Nash in Brighton cannot hear the International Service of Radio Finland on 254, due to the very strong signal from Tipaza, Algeria on that frequency.

Some of the other interesting I.w. signals which Philip Rambaut noted in Macclesfield were Donebach, W. Germany 153 (500kW); Kaliningrad, USSR 171 (1000kW); Grannienburg, E. Germany 177 (750kW); Saarlious, W. Germany 183 (200kW); BBC Droitwich 200 (400kW); DLF Munich, W. Germany 209 (500kW); Konstantynow, Poland 227 (2000kW); Junglinster, Luxembourg 236 (2000kW); Tipaza, Algeria 254 (1500kW); Bahia, E. Germany 263 (2000kW); Topolina, Czechoslovakia 272 (1500kW) and Minsk, USSR 281 (500kW).

MW Transatlantic DX

Due to the generally excellent conditions just now, the signals from a number of broadcasters in Canada, the USA and S. America have bridged the Atlantic well before midnight. No doubt it is this factor which has encouraged many new to this aspect of our hobby to try their hand at transatlantic DXing. The excitement of hearing a transatlantic signal for the first time is difficult to describe, but once experienced can quickly lead to further attempts to find out what else can be heard - and late nights too!

Broadcasts are not always what they seem, for example David Edwardson described how he was tuning into various m.w. stations with his Trio R600 in Wallsend one night at 2300 when he came across a broadcast in French on 1570kHz. To his amazement it proved to be CKLM in Montreal, Canada! He listened to their signal for nearly 45 minutes before being tempted to look around the band to see what else he could find and at 2359 picked up the Caribbean Beacon, Anguilla on 1610.

...
languages other than English, French, and Spanish.

For many years the signal from CJYO 930 in St John’s, NF, has been used by DXers in the UK as a useful pointer to band conditions elsewhere, having been the first transatlantic station to be heard here in the evening. Quite recently George Millmore picked them up at 2230 GMT. However, there seems to have been a change in the overall pattern during the last few months, because WINS 1010 in New York has often been heard here well before CJYO puts its appearance and at far greater strength!

Writing from Port Glasgow, Rab Freeman says “I recorded WINS on 1010 at 2158 and have heard it earlier – it seems to give me the best indication that the band is opening up.” In contrast, the signal of CJYO has been rather weak before midnight. Alan Curry described them in his report from Stockton-on-Tees as “poor at 2330”. Their signal has been rather better in the early hours of the morning as can be ascertained from the SIO 333 which Jim Willett noted in his log at 0150 in Greymouth.

Alan Jarvis says he has been hearing WINS 1010 quite regularly in Cardiff and has not been able to hear CJYO once this winter. A good indication of one of the most important aids in separating the transatlantic signals from the European stations which are very much in evidence before midnight. The construction of loop antennas was mentioned in several reports – one of the most interesting came from Alan Scholfeild of South Shields. He has a hexagonal loop with a mean dimension of 1.3m nearing completion.

George Morley of Redhill has been using a home-made loop antenna with his Trio R2000 receiver. Between 2330 and 0150 he logged four stations in New York, namely WNBC 660, WINS 1010, WHN 1050 and WNEW 1130 also WCAU 1220 in Philadelphia and Boston’s “memory station” WMRE 1510. From Canada he heard CJYO 930; CBN 940 in Montreal; CKCW 1220 and CKLM 1570 and several stations in the USA – WABC 770 NY; WINS 1010; WHN 1050; WHDH 850 Boston; WCAU 1210; WTOP 1500 Washington and WMRE 1510. Also noted were the Caribbean Beacon; Anguilla on 1610 and Global Rio in Globo in Banco in Brazil on 1220.

Morley recently purchased a Sony ICF-2001D receiver and says he is impressed with its performance – he finds the e.c.c. s. mode of reception very good for DXing. Alan Jarvis says “I am more and more using e.c.c. s. for DXing. It has often enabled me to hear stations not readable on a.m.” In fact it is possible to use “exalted carrier” reception with any s.s.b. receiver, selecting either the upper or lower sideband depending upon the interference from adjacent stations – it is certainly well worth trying this mode if you have a suitable receiver.

Using a loop antenna with his Selena B210 receiver in Glasgow, Alexander Little has also been hearing some interesting transatlantic signals. In addition to VOCM 590; CKNX 610; CDSW 710; CHCJ 920; CJYO 930; WIN 1010; WHN 1050; WCAU 1210; WTOP 1500 and WMRE 1510 which he logged between 2200 and 0345, Alexander also picked up CBM 640 in St. Johns, NF; CJFR 1060 Quebec, PO; WHAM 1180 Rochester, NY and WPTO 1440 1900.

In an interesting report from Loughborough, Paul Barnett says that he is amazed at the number of DX stations that he has been able to hear when using just the built-in antenna with his Sony ICF-2001D receiver. Many of them have been coming across early, even before 2230 on some nights. His list includes Canadian CJFJ 580 Antigonish; CKYO 610 Grand Bank, NF; CJCH 920 Halifax, NS; VOCM 590 St John’s; CKVX 710 Clarenville, NF; CFBC 930 St. John NB; CJYO 930; CFBR 1010 Toronto; CKLM 1570 and several stations in the USA – WABC 770 NY; WINS 1010; WHN 1050; WHDH 850 Boston; WCAU 1210; WTOP 1500 Washington and WMRE 1510. Also noted were the Caribbean Beacon; Anguilla on 1610 and Global Rio in Globo in Banco in Brazil on 1220.

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73 from Dave G4KQH, Technical Manager.

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Short Wave Magazine April 1987

The PA-3 is mains powered for economy and there is no need to run a power cable to the unit at the masthead as the coaxial cable is used to carry the supply voltage.

The PA-3 will not only improve the performance of wideband scanning and monitor receivers, it can also be used to improve the sensitivity of 17mA at 5V and the temperature range is -20°C to +85°C.

The PA-3 covers DC to 1000 MHz with a minimum of 13dB gain, NF 5dB and an intercept point 3rd order 15dB typical. Current compensation for the losses that can occur in long cable runs. The PA-3 has been designed in coaxial fashion to connect directly to as broadband antennas usually do not have any gain, it is often desirable to use a pre-amplifier to boost weak signals. The REVCO PA-3 in-line masthead pre-amp plugs straight into the SO 239 socket on the base of the REvcone and because it is fitted at the antenna end of the feeder cable, it compensates for the losses that can occur in long cable runs. The PA-3 has been designed in coaxial fashion to connect directly to the REvcone and similar disc type antennas with an SO 239 connector and an N-type option is available for improved UHF performance. The PA-3 covers DC to 1000 MHz with a minimum of 13dB gain, NF 5dB and an intercept point 3rd order 15dB typical. Current consumption is just 17mA at 5V and the temperature range is -20°C to +85°C. The PA-3 will not only improve the performance of wideband scanning and monitor receivers, it can also be used to improve the sensitivity of RF instrumentation such as spectrum analyzers, etc.

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**MW Local Radio DX**

There have been many stations logged — see chart! Don’t forget to let me know all about your local radio DXing.

**Short Wave DX**

Although there are indications that we may be entering the upward slope of cycle 22 in the 11-year sun spot cycle it is unlikely that the m.u.f. will rise sufficiently to enable a reliable broadcast service to be established on the 25MHz (11m) band for some time to come. Consequently, the broadcasters are forced to use lower frequencies in order to ensure that their programmes reach the listeners in a chosen target area, so let us now examine the conditions on the lower frequency bands where things are a good deal more interesting!

The conditions on the 21MHz (13m) band have been generally unstable and daily variations in the strength of the signals received during dayling hours have been noted — the band closes very soon after dark here in the UK. The most frequently received signals stem from southerly directions — David Middlemiss of Eyemouth was one of the many DXers to log UAE Radio Dubai on 21.605, beaming programmes in Arabic and English towards Europe from 1100 until 1500.

The most southerly station to be heard on this band just now was mentioned by Bill Stewart in his report from Lossiemouth, namely Radio RSA in Johannesburg, S. Africa. Their broadcasts in Portuguese, English and French are beamed towards Europe on 21.590 from 1000 until 1556. Usually their signals are well received here and tend to peak up around mid-day. Radio RSA welcomes comments about their programmes and uses a variety of attractive and colourful GSL cards to confirm reception reports — the one illustrated confirms reception of their signals in Scarborough by Leslie Lyon.

Philip Rambaut has been busy logging some of the other broadcasters who use this band — Radio Cairo, Egypt on 21.465, with programmes in Thai, Indonesian and Malay which are directed towards Asia from 1115-1445; Radio Netherlands broadcasting in English to Asia on 21.480 via their relay station in Madagascar from 1100 until 1500.

If you have a suitable receiver you might find the u.s.b. signals of interest. Although the transmission is intended for the Middle East from 0930 until 1200 and for...
Wireless
The Radio Magazine

MAY '87 ISSUE

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A number of broadcasters direct their signals towards Europe during the day but many of their programmes are in foreign languages. Urdu is the language used by Radio Pakistan, Islamabad during their broadcast to Europe from 0715 until 1115 on 17.660, however there are two brief periods in English at 1005 and at 1100. Their signal is often quite good, writes Julian Wood of Buckie. Using a Trimode receiver with an indoor trap dipole antenna in Inverness, Julian says their signal suffers from considerable interference when a VOA relay transmitter in Bethesda, USA comes on the frequency at 1600, beaming to W. Africa.

The propagation conditions on the 11MHz (125 metre) band have not been particularly poor but during the morning there have been some interesting signals from unusual DX spots to look out for on this band, for example KTWR on Guam way out in the Pacific, which Sheila Hughes heard at 0830 on 15.115 or KYOI in Siapan. N. Mariana Islands on 15.190 which Davy Hossack picked up at 0645 while testing a new Dressler 30 active antenna with his receiver in Winchburgh.

Radio Japan can also be heard broadcasting to Europe via their relay in Mombasa, Gabon on 15.230 from 0700 until 0830 – not surprising, as Andries logged them at SINPO 24344. Although the broadcast from Radio Australia on 15.415 at 0900 is intended for Asia, their signals can often be heard here until 1100. Tim Shirley is a regular listener to this transmission and has noticed that the strength of their signal often improves around 1000.

Using a Grundig 1400SL receiver in Trelewis, Wales, Leighton Smart has been listening to the BBC World Service via their Ascension Island relay station in the S. Atlantic – although their transmission on 15.400 is beamed towards Africa between 0615-1130 and 1430-2030 it makes a good guide to conditions from the south to the UK. Leighton has also been hearing the Madagascar relay of Radio Nederlands broadcasting their programmes in English to E. Africa on 15.570 from 1630 until 1725. Broadcasting to Europe from Johannesburg, Radio RSA can be heard on 15.220 with programmes in English and French from 1100 until 1556 – Tim Shirley listens to their Mail Bag programme hosted by the popular Kathy Frich and Shirley Veal. The broadcast in French from Africa No. 1, Gabon commence at 1700 on 15.475 and can usually be heard quite well in the UK. David Edwardson, who uses a Trio R600 receiver and trap dipole antenna; picked up their brief news bulletin in English at 1850 so SIO 343.

Africa from 1200 until 1600 it can often be heard well in the UK.

The propagation conditions on the 17MHz (16m) band have also been rather unstable, however it has been possible to receive the signals from broadcasters in several continents during the hours of daylight in the UK. The most distant signal to be heard here in the morning originates from 0309, Carcarnov, Western Australia on 17.715, which beams Radio Australia’s programmes in English to Asia from 0100 until 0910 – John Nash has picked them up at 0800, but their signal only rated SIO 222.

The conditions on 11MHz (25m) have been particularly good during the morning, sometimes permitting the bird call station announcement and the time signal for 0900 to be heard from Radio New Zealand on 11.780. Their signal is not too strong, Alexander Little logged them as S3NO 22222 with his new Sony ICF-7600D receiver.

Although there have been many broadcasters active on 25m during the daytime, the conditions during the evening have enabled DXers to log some interesting signals. Stations such as the Voice of Nigeria, which Alexander Little logged on 11.770 at 1722, or RHC Habana, Cuba relaying Radio Moscow to N. America on 11.840 at 1857 which Colin Diffell picked up on his Sony ICF-200D receiver in Inverness. Leslie Biss logged on 15.265 in English and German from Radio New Delhi on 11.620 at 2345 and Radio Bravo on 11.805 at 2345 and Radio Bandeirantes, Brazil on 11.925 at 2215. Robert Taylor has been listening to some of the popular programmes from Radio RSA in Johannesburg on 11.900 at 2100 - their signal is often good. Using just the whip antenna with his Toshiba RF-P11 L Portable Robert noted SINO 43444 in his log.

The bird call from Radio New Zealand has also been attracting many listeners to the 9MHz (31m) band in the morning! Their signal on 9.600 is often weak with interference present. One of the lucky ones to hear their time signal for 0900 and news bulletin was Michael Osborn, who noted SINPO 32333 in his log in Chelmsford. "I didn’t expect to hear it, but got a definite ident on the 9 MHz" writes Jim Willet. Not everyone who has listened for their bird call has been lucky. Stewart Russell says he cannot hear it in Forfar, but has enjoyed the good reception of the broadcast to Europe from Radio Australia on 9.655 from 0700 until 1030.

If you have been wanting to hear Short Wave Radio, try taking a trip from Gerry Lovell of Weston-Super-Mare and tune to 9.720 at 0145. Their transmission in English takes place from 0025
### Seen & Heard

**DXers**

- A: Gregory Adrian, London
- B: Leslie Bick, Bishopsstour
- C: Alan Curry, Stockton-on-Tees
- D: Roy Degg, Stoke-on-Trent
- F: David Edwardson, Wallasey
- G: Davy Hossack, Winchburgh
- H: Bill Kelly, Belfast
- I: Alexander Little, Glasgow
- J: Gerry Lovell, Weston-Super-Mare

**Freq MHz Station Country UTC DXer**

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<th>Freq MHz</th>
<th>Station</th>
<th>Country</th>
<th>UTC</th>
<th>DXer</th>
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<td>3.200</td>
<td>TWR</td>
<td>Swaziland</td>
<td>1815U</td>
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<tr>
<td>3.290</td>
<td>R. RSA</td>
<td>S.Africa</td>
<td>0301I</td>
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<td>Liberia</td>
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<td>India</td>
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<td>Namibia</td>
<td>2300I</td>
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<td>Republic</td>
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<td>4.970</td>
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<td>PBS Lanzhou</td>
<td>China</td>
<td>2336F</td>
<td>J,H,O,S</td>
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**until 0430.**

Gerry also picked up the Kavala, Greece relay of VOA on 9.740 at 0305. John Court has been listening to TWR, Bonaire, Netherlands Antilles on 5.535 at 0300.

The 7MHz (41m) band is also used by Radio Australia to beam their programmes towards Europe 1530 and 2040. Alan Curry has been hearing them at 0900 on 7.205 and noted SINPO 43233 in his log. At 2200, Karl Niemann logged the Voice of Greece on 7.215, they beam programmes in Greek, German, French and English to Europe between 1900 and 0355. Using a Yaesu FR-101 receiver plus a 1.2m wire antenna in Finchampstead, Bill Reid picked up WRNO in New Orleans, USA on 7.355 at 0015 — their broadcast in English ends at 0400.

Writing from Johannesburg, Simon Illingworth says that due to the overcrowding and jamming on 41m, DX reception is just about

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- H: Bill Kelly, Belfast
- I: Alexander Little, Glasgow
- J: Gerry Lovell, Weston-Super-Mare

K: David Middlemiss, Eyemouth
L: John Mooney, Redhill
M: John Nash, Brighton
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Q: John Parry, Northwich
R: Philip Rambaut, Macclesfield
S: Bill Reid, Finchampstead
T: John Sader, Bishops Stortford
U: Tim Shirley, Bristol
V: Leighton Smart, Trellebo.
W: Jim Willett, Grimsby.

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**DXers**

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- F: David Edwardson, Wallasey
- G: Davy Hossack, Winchburgh
- H: Bill Kelly, Belfast
- I: Alexander Little, Glasgow
- J: Gerry Lovell, Weston-Super-Mare
May 3: Following another successful event in 1986, radio amateurs in the Scottish Borders will again be acting as hosts to the 4th Anglo-Scottish Rally in Kelso’s Tait Hall. The doors will be open from 11am to 5pm. There will be the usual talk-in on S22, traders stands, club stands, hot and cold snacks, bar, raffles and Morse Tests. Entrance will be £1, juniors and accompanying YLs and XYLs most welcome and admitted free. There is something to do for everyone.

Andre Saunders GM3VLB Tel: 0573 24664

May 3: The Swansea ARS Rally is in the Patti Pavilion, adjacent to the County Cricket Ground (on the A4067 Swansea to Mumbles coast road). There will be the usual trade stands, bring and buy c.w. tests (pre-book with RSGBI), bar, full catering, free lucky programme prizes plus lots more. The rally will be open from 10.30am to 5pm.

Roger Williams GW4HSH Tel: 0792 404422

July 12: The Worcester and District ARC are holding their Drotch with Rally at the High School, Droitwich. Entry to the rally is free, as is the parking. All the usual trade stands will be there, as well as entertainment for the rest of the family. They have even laid on free transport to the local strawberry fields.

Steve Colledge G0AOE 6 Tweed Close Worcester WR5 1SH

May 17: The Mid-Ulster ARC will be holding their annual rally at Parkanour House near Dungannon on the Ballygawley Road. The starting time is 12 noon and the entrance fee is £1. All the usual trade stands will be there as well as bring & buy, RSGB Bookstall, QSL Bureau, etc. Talk-in is on S22.

The entire proceeds of this rally go to the Stanley Eakins Memorial Fund.

Sam White GI1B1W Tel: 076 22 22865

May 24: The Maidstone Mobile Rally is scheduled for this date, unfortunately I have no further details at the moment.

Alan Judge G6FZD Tel: Maidstone 50709

June 21: The Denby Dale Radio Rally starts at 11am at Shelley High School, which is on the B6116 near Skelmanthorpe. Talk-in will be on S22, SU22 as well as 28MHz FM.

Gerald Edinburgh Tel: Huddersfield 602905

August 16: The Wight Wireless Rally will be held at the Wireless Museum, Arreton Manor near Newport. The rally opens at 11am and closes at 5pm, with talk-in on S22 and GB3iW. They hope to have the special event call GB7WM active on 3.5MHz (3.670MHz). All the usual trade stands will be there and they hope to run some demonstrations on the day.

Douglas Byrne G3KPO Tel: 0983 67665
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