

MARCH 1997 £2.20

THE UK'S BEST SELLING MAGAZINE FOR AMATEUR RADIO ENTHUSIASTS

practical **Wireless**

8 pages of

*antennas
in action*

WIN
A YAESU
FT-8000R

UPWARDLY MOBILE

REVIEWED

Two VHF/UHF
Transceivers

Yaesu FT-8000R
&
Kenwood TM-V7E



**LONDON
SHOW
ISSUE**

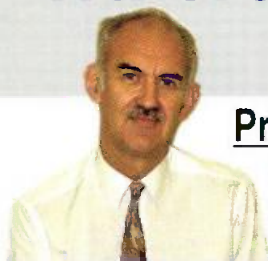


Plus All Your Regular Favourites

FREE
READER'S
ADS

Waters & Stanton **NEW** FREE-PHONE ORDER LINE 0500 73-73-88

22, Main Road, Hockley, Essex. SS5 4QS



Price Match - and 10-Day Approval!

We Promise to try and match or beat our competitors' prices. Most of our staff are licensed either class A or B - so we understand your needs. G3OJV / G0PEP

SEE US AT LONDON HAM RADIO SHOW 8/9th MARCH

Standard C-108 2m FM



W&S
£169

- 2m FM Handy
- Ultra small size
- 230mW
- LCD display
- 1750Hz tone
- 20 Memories
- Scanning
- 2 x AA cells

A micro sized handheld that has a great performance. Ideal for local repeater use, rallies etc.

Standard C-156 2m FM



W&S
£149

- 2m FM Handy
- 2.5W Output
- 1759Hz tone
- 100 memories
- 8 tuning steps
- 3 power levels
- Keypad entry
- LCD readout
- Supply - AA batts.

A great little handheld that has just been introduced into the UK. Complete with dry cell box and antenna

ADI AT-200 2m FM



W&S
£129

- 2m FM Handy
- 2.5W output
- 5W on 13.8v
- 1750Hz tone
- Illuminated keypad
- Ultra sensitive
- Wideband Rx
- 20 memories
- Keypad entry
- DTMF
- Uses AA cells

This has proved to be our most reliable handheld. It has a very sensitive receiver and is built to professional standards.

ADI AT-400 70cm FM



W&S
£169

- 70cm FM Handy
- 2W output
- 5W on 13.8v
- 1750Hz tone
- Illuminated keypad
- Ultra sensitive
- Wideband Rx
- 20 memories
- Keypad entry
- DTMF
- Uses AA cells

This has become the standard radio for Novice hams. Its the most sensitive and cost effective way of getting on 70cms.

ADI AR-146 2m Mobile

"Beats the Japanese Rigs for Sensitivity and Adjacent Channel" QST Nov. 1996



W&S
£249

ADI AR-446 70cms Mobile



PRICE DOWN

W&S
£269

ALINCO DR-610 2m & 70cms



W&S
£449

FREE Remote kit Exclusive to PW!

- Detachable front head unit.
- 2m & 70cms (50W 2m & 35W 70cms)
- CTCSS Encode, 1750Hz tone
- 100 Memories, 9600 bps for Packet

DR-130 2m FM Mobile



PRICE DOWN

W&S
£229

- 20 memories
- 50 / 10W
- CTCSS encode
- 1750Hz tone
- Wideband Rx
- Time out etc.

DR-150E 2m FM Mobile



PRICE DOWN

W&S
£269

- 100 memories
- 50 / 25 / 10W
- CTCSS encode
- 1750Hz tone
- Wideband Rx
- Time out etc.

WATSON Dual Band Amp.



30W
2m &
70cm

W&S
£139

Completely auto switching, this dual band amplifier is an absolute bargain. Ideal for all modern dual band handhelds. Requires 13.8v and 1-6W input

Orders: 0500 737388
01702 206835
Enquiries 01702 206835
01702 204965
FAX 01702 205843
Open Mon-Sat 9.00AM - 5.30PM

50W of Pure Performance Lowest UK Price

QST reviews are respected and accurate! This rig beat the more expensive ALINCO DR-150 for sensitivity and adjacent channel performance - the most important features that customers look for. Ask for laeflet. (Source QST).

Both rigs feature:

- 3 Power levels - Wideband receive
- 40 Memories plus call channel
- 7 Programmable steps
- Channel or frequency display
- The best sensitivity in the business
- 24 months warranty
- Keypad mic and mounting kit

ADI AT-600D Dual Bander



W&S
£279

Alpha Numeric Display

- 2m & 70cms tcv.
- 5W on 13.8V
- Full duplex
- AM/FM Rx
- Rx up to 990MHz
- DTMF fitted
- CTCSS fitted
- 1750Hz tone
- Auto power off
- Batt. volt meter
- Illuminated keypad
- Battery saver
- Ni-cad & charger

Delivery Mar.

Wonder why Alinco is being dumped at silly prices? - wait till you try this one!

ALINCO DJ-G5 2m & 70cms



W&S
£269

A compact dual band handheld that is offered by us direct from factory. Why pay more?

- Up to 5W output
- CTCSS & DTMF
- 1750Hz tone
- Electronic controls
- 100 Memories
- AM airband
- Channel scope
- Programmable steps
- Extended receive
- Full scanning
- Ni-cads and charger

ALINCO DUMPING FACTORY DIRECT

ONLY WE HAVE THE
EXPERIENCE TO SERVICE
ALINCO - OTHERS DON'T!

DJ-S41 70cms



Price Match

W&S
£119

- 430-440MHz
- 340mW output
- CTCSS
- 1750Hz tone
- 20 memories
- 6 Steps
- 3 x AA cells

PRICE DOWN

DJ-G1E 2m



Price Match

W&S
£199

- 144 - 146MHz
- 108-174MHz Rx AM/FM
- 400 - 510MHz Rx
- 800 - 950MHz Rx
- 80 Memories
- 5W on 12v DC
- CTCSS + 1750Hz
- Ni-cads & charger

PRICE DOWN

DR-430 70cm Mobile

PRICE DOWN

W&S
£249

- 430 - 440MHz
- 20 Memories
- 25W output
- 20 Memories

- CTCSS Encode
- Time out feature
- Wideband Rx
- Inc. Mic and kit

WATSON

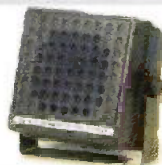
FC-128 Counter

1MHz - 2.8GHz

This new model has a wide frequency range and is powered by internal ni-cads. External BNC socket with aerial makes it very sensitive. Supplied with AC charger, it is very well built. Don't be fooled by the price!

W&S
£79.95

Remote Speaker Offer



W&S
£4.95

£14.95

- Up to 10 Watts
- 4" Driver
- 111 x 111 x 64mm

- Adjustable bracket
- 3.5mm plug
- Use mobile or base

WATSON

Base Mic. WM-308



Built-in buffer amplifier provides matching. Modern rigs will power it direct from mic socket - otherwise use 2 x AA cells. Includes connecting cable for 8 pin rig sockets wired ready for Kenwood - info provided for Yaesu & Kenwood changes.

W&S
£59.95

HF RIGS We've got the DEAL PHONE!

KENWOOD HF RIGS



PRICE DOWN

NEW TS-570

TS-570 RRP £1400 but PHONE!

It's causing a lot of excitement, and rightly so. A lovely clear display with full DSP built-in. This is a serious rig. TS-870 RRP £2300 - £1949

This is the big "daddy" of Kenwood's latest offering. It's got so many features that you first need the brochure and then you need a demonstration. Don't worry, we're not pushy here, take your time and enjoy a cup of coffee whilst you operate.

YAESU PRICES DOWN We've smashed Yaesu Prices until end of March!

YAESU HF RIGS



SAVE £850!

FT-1000MP

FT-1000MP Technical Overview Manual available for loan 46 - pages - Phone

FT-1000MP	£2849	£1999
FT-1000MPDC	£2599	£1849
FT-990AC	£2199	£1499
FT-900AT	£1299	£1049
FT-840	£959	£695
FT-3000	£479	£359

Yaesu FT-8500 2m/70cms Mobile



SAVE
£300!

W&S
£449

- 50W 2m 35W 70cm
- Smart control mic.
- 9600 bps ready
- Spectrum Display
- 53 Function Prog.
- 110 Memories
- Alphanumeric display
- Detachable Front
- CTCSS - 1750Hz
- Full Duplex

Yaesu FT-2500 50W 2m

SAVE
£140!



W&S
£259

- 3 Power levels
- CTCSS & 1750Hz
- 31 memories
- Alphanumeric display
- US Mil. Spec.
- Mic. and hardware

Yaesu FT-50R 2m/70cms



Save
£60!

W&S
£269

- Wideband Rx (AM Airband)
- CTCSS & 1750Hz
- 112 Alphanumeric Memories
- Dual Watch - Military rated
- 5W from 12v DC input
- Superb sensitivity
- Ni-cads and AC Charger

1997 Catalogue

144 pages full of rigs accessories and articles
Send £2.50 in stamps, or cheque or credit card.



ICOM HF RIGS



IC-706

IC-706 OUR PRICE £995

All the way from 1.8MHz to 144MHz in one box. A great little design at a great little price - 100W HF-6m + 10W 2m



IC-756

IC-756 RRP £2195 - But PHONE!

Just arrived, this is the new 1.8 to 50MHz super rig. Band scope, full DSP, 100W all bands etc.

CALL NOW FOR A GREAT DEAL!

NEW IC-207 2m/70cms Mobile 50/35W Below £400! Phone for full details

NEW KEN-



W&S
£599

TM-V7E

- 144 & 430MHz FM 50W / 35W
- Dual receive on same band + full duplex
- 280 Multi-function memories
- Detachable compact command panel
- Cool large blue LCD with contrast adjust
- CTCSS and 1750Hz tone
- 8 channel steps - voice synth option
- 9600 baud Packet ready
- Graphic scan display
- Auto simplex checker - a unique feature!
- 4 page colour brochure on request

REMEMBER at W & S

- * We PRICE MATCH
- * Give you 10 days approval
- * Have 4 Service Engineers
- * Still offer help after the sale!

MFJ

Ham Radio Accessories

ORDERS ONLY ON:
FREEPHONE
0500 73 73 88

MFJ-784B Filter



- Works with any rx. or tcvr.
- DSP filter, fully programmable
- 16 Factory pre-sets
- Plugs directly into audio out
- Drives speaker or headset
- Requires 12v at approx 500mA

MFJ-1278DSPX Data Unit



- Multi-mode Packet
- Amtor
- Pactor
- Colour SSTV
- 10 Modes total
- DSP filtering
- Tuning scope
- Simple to us
- Software

MFJ-948 HF ATU



- 300 Watts PEP 150W CW
- 1.8 - 30MHz - with ease!
- Wire, coax or balanced line
- Balun included for best match
- 30 / 300W power meter - PEP / RMS
- Antenna selector, by-pass etc.

MFJ- 8100k HF Rx



- 3.5 to 23MHz SSB and CW
- Smooth regenerative control
- Ultra sensitive - even on 10ft wire!
- Kit includes everything - as pictured.

MFJ- 949 HF ATU



- 160 to 10m 300W PEP 150W CW
- Wire, coax or balanced feed
- Built-in Dummy Load
- 30 / 300W power meter - PEP / RMS
- Antenna selector, by-pass etc.

MFJ- 492 Keyer



- Electronic memory keyer
- 192 Character memory
- Easy to programme with messages
- Chain regular phrases - QTH, name etc.
- Tutor mode for practice
- Semi-auto, Auto and Iambic modes

MFJ-812B 2m VSWR



- 144 - 148MHz 30 / 300W
- Forward & Reflected Power
- Reads field strength
- Easy to use - convenient size
- Low cost - efficient accessory

MFJ-914 Auto Match



- Auto-Tuner Extender
- Connect between auto tuner and transceiver
- no more problems with G5RVs and all those difficult antennas - 160 to 10 metres

MFJ- 864 160M to 70cm



- All bands from 1.8MHz to 440MHz
- Cross needle meter - 30 / 300W
- Comprehensive user calibratable.
- Separate HF and VHF/UHF sensors
- Illuminated meter (ext. 12V)
- Everything you need in one box
- 185 x 65 x 75mm

MFJ-259 HF Analyser



- 1.8MHz - 170MHz
- Digital Readout
- Resonance
- VSWR
- Impedance
- AA batteries or 12v external

Connect to aerial or coax and adjust it in seconds. Turns hours into minutes and ideas into antennas!

Ameritron 811 1kW



The only currently available HF linear to have passed a full lab. CE test

- 1 kW linear 9dB Gain
- Like a 5 element Monobander!
- Uses low cost 811A tubes
- Built-in rugged AC Supply
- Instant by-pass switch
- PA V/A meter + Grid meter
- Over rated variable capacitors
- Fan cooled for long life
- Very efficient - 600W output
- Easy to tune and connect
- Size 16" x 13.75" x 8"

160 to 10M of DX-Getting Power
Perfectly matches all 100W rigs

£799

MFJ- 407C Keyer



- Self contained - ext 12 or internal batt.
- Semi auto and full auto modes
- Dot dash memory - self completing
- Weight, tone and Vol. controls
- Just plug in paddle and connect to rig
- Works with all modern rigs.

MFJ- 260C 300W



- Dummy Load
- 50 Ohm
- 300W
- OK to 450MHz
- Air cooled
- SO-239
- Totally enclosed
- Essential item

MFJ- 264 1kW Load



- Dummy Load
- 50 Ohm
- 1.5kW
- OK to 650MHz
- Air cooled
- SO-239
- Ideal for linears
- Ruggedly built

MFJ-781 DSP Filter



Just arrived, this new DSP filter that is specially designed for CW and data modes.

- Digital Audio Filter
- CW 50, 100, 200, 500Hz
- Amtor, fax, GTOR, PACTOR
- RTTY, SSTV, We-FAX

MFJ- 704 LPF Filter



- Low pass filter
- 1.8 - 30MHz
- Cleans up output
- Reduces TVI
- 1kW rating
- SO-239 sockets
- Fully shielded

MFJ- 901B HF Atu



- Complete 12V distribution system
- 5 Output terminals - RF by-passed
- Built-in 0 - 25V Volt meter
- Fused input and outputs
- Master switch and LED indicator
- Super heavy gauge DC input cable
- Max current 35 Amps
- Heavy metal shielded case

MFJ-1118 Dis. Board



- 144 - 146MHz
- 0 - 5 Watts
- BNC Handheld fitting
- Reads power out
- Checks all handhelds

MFJ- 941E Atu



- 160m to 10m ATU - 300W
- Wires, Coax and Balanced Feed
- Cross Needle VSWR & Power
- 3-Way antenna selector
- By-pass position - Dummy load socket
- Internal Balun - 30 or 300W position
- 260 x 180 x 70mm

MFJ-840 Handy Meter



MFJ-9406 6M Trancvr.



- 50 - 50.3MHz 10W SSB
- RF speech processing
- 10MHz xtal filter
- Super performance
- Ideal way to 6M DXing

MFJ- 250X 1kW load



* Oil is not supplied

Waters & Stanton

Enquiries: Tel. 01702 206835 / 204965
Fax. 01702 205843
22, Main Road, Hockley, Essex SS5 4QS

Wireless

MARCH 1997
ON SALE FEBRUARY 13
VOL. 73 NO 3 ISSUE 1080
NEXT ISSUE (APRIL)
ON SALE MARCH 13

EDITORIAL & ADVERTISEMENT OFFICES

Practical Wireless
Arrowsmith Court
Station Approach
Broadstone
Dorset BH18 8PW
☎ (01202) 659910
(Out-of-hours service by answering machine)
FAX (01202) 659950

PW's Internet address is:
@pwpub.demon.co.uk You can send
mail to anyone at PW, just insert their
name at the beginning of the address,
e.g. rob@pwpub.demon.co.uk

Editor

Rob Mannion G3XFD
Technical Projects Sub-Editor
NG ("Tex") Swann G1TEX
Production/News
Donna Vincent G7TZB
Editorial Assistant
Zoë Crabb
Art Editor Steve Hunt
Page Layouts Jon Talbot & Paul Blachford

Advertisement Manager

Roger Hall G4TNT
PO Box 948
London SW6 2DS
☎ 0171-731 6222
Mobile (0585) 851385
FAX 0171-384 1031

Advert Sales and Production

(Broadstone Office)
Chris Steadman MBIM (Sales)
Carol Trevanion (Production)

☎ (01202) 659920 - 9.30am - 5.30pm
FAX (01202) 659950

Books & Subscriptions

Michael Hurst:
CREDIT CARD ORDERS

☎ (01202) 659930
(Out-of-hours service by answering machine)
FAX (01202) 659950

Front Cover Photography:
Craig Dyball

Copyright © PW PUBLISHING LTD, 1997. Copyright in all drawings,
photographs and articles published in Practical Wireless fully protected
and reproduction in whole or part is expressly prohibited. All reasonable
precautions are taken by Practical Wireless to ensure that the advice and
data given to our readers are reliable. We cannot however guarantee it and
we cannot accept legal responsibility for it. Prices are those current as we
go to press.

Published on the second Thursday of each month by PW Publishing Ltd,
Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Tel:
(01202) 659910. Printed in England by Southampton Web Offset Ltd.
Distributed by Seymour, Windsor House, 1270 London Road, Norbury, London
SW16 4DH. Tel: 0181-679 1899. Fax: 0181-679 8907. Telex: 8812345. Sole Agents
for Australia and New Zealand - Gordon and Gotch (Asia) Ltd., South Africa -
Cardinal News Agency. Subscriptions INLAND £25 EUROPE £30. REST OF
WORLD £22 (Airfreight). REST OF WORLD £11 (Airmail), payable to PRACTICAL
WIRELESS, Subscription Department, PW Publishing Ltd., Arrowsmith Court,
Station Approach, Broadstone, Dorset BH18 8PW. Tel: (01202) 659930.

PRACTICAL WIRELESS is sold subject to the following conditions, namely
that it shall not, without written consent of the publishers first having been
given, be lent, re-sold, hired out or otherwise disposed of by way of trade at
more than the recommended selling price shown on the cover, and that it
shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated
condition or in any unauthorised cover by way of trade or offered to or as
part of any publication or advertising, literary or pictorial matter whatsoever.
Practical Wireless is Published monthly for \$49 per year by PW Publishing
Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset

BH18 8PW, Royal Mail International, c/o Y&R
International, 19 Parkway Court, Haverhill, NJ 07601, UK.
Second Class Postage paid at South Hackensack, NJ.
address changes to Royal Mail International, c/o Yellowstone
International, 2375 Pratt Boulevard, Elk Grove Village, IL
60007-8207. The USPS (United States Postal Service) number
for Practical Wireless is 007075.



- 7 EDITOR'S KEYLINES
- 8 RECEIVING YOU
- 10 SUBSCRIPTION OFFER
- 14 CLUB SPOTLIGHT
- 18 RADIO - DISCOVER THE
BASICS
Rob G3XFD uses simple analogies to explain
electron theory.
- 21 NEWS 1997
- 22 RADIO AMATEURS ON
TRACK
Bruce McCartney GM4BDJ goes on a railway
holiday to Lithuania.
- 24 RADIO DIARY
- 25 ANTENNAS IN ACTION
Eight pages of antenna and associated
action!

antennas in action

8 pages of
antennas

- 37 REACTIVATING AN
ANCIENT RECEIVER
Walter Farrar G3ESP brings back to life an
ancient HRO receiver.
- 38 NON-LINEAR SCALES
Andy Gayne G7KPF draws power scales
using his computer.
- 40 STRUCK OFF ALMOST!
When Ben Nock G4BXD was asked to provide
radio props for a TV drama he realised
things are not often as they seem!
- 46 CARRYING ON THE
PRACTICAL WAY
George Dobbs G3RJV shows you how to
'roll' your own filters.
- 50 LONDON AMATEUR RADIO
& COMPUTER SHOW FLOOR
PLAN
- 52 FINDING YOUR WAY TO
PICKETTS LOCK
- 54 TRADERS' TABLE
Your guide to second-hand equipment.
- 57 WIN A YAESU FT-8000R
MOBILE TRANSCEIVER
- 58 LONDON SHOW NEWS
- 60 NEW FROM PW PUBLISHING -
FERRELL'S CONFIDENTIAL
FREQUENCY LIST



- 61 OF SPECIAL INTEREST
An Insight into some of the Specialist
Interest Groups attending Picketts Lock.
- 62 VALVE & VINTAGE
Phil Cadman G4JCP opens up the PW vintage
wireless shop.
- 66 REVIEW - THE KENWOOD
TM-V7E DUAL-BAND
TRANSCEIVER
Leighton Smart GW0LBI goes mobile with
the latest from Kenwood.



- 70 VHF REPORT
- 73 REVIEW - THE YAESU FT-
8000R DUAL-BAND
TRANSCEIVER
Richard Newton G0RSN puts our
competition prize through its paces.



- 77 HF FAR & WIDE
- 80 BITS & BYTES
- 82 PACKET PANORAMA
- 85 BROADCAST ROUND-UP
- 89 BARGAIN BASEMENT
- 95 BOOK STORE

104
Page
Bumper
Issue

100 ADVERTISERS' INDEX

SOUTH MIDLANDS CO

AOR ★ KENWOOD ★ DAIWA ★ COMET ★ YAESU ★ STRUMECH VERSATOWER ★ LAFAYETTE ★ HY-MOUND ★ CUSHCRAFT ★ TAIWAN SERENE ★ HOKUSHIN ★ ICOM

THIS MONTH'S SPECIAL OFFERS

Kenwood TS-450S

HF general coverage transceiver



only £999 **save £500**

While stocks last

SMC UHF Mobiles

Brand new commercial



from £39

SMC 545L1/N (B) single channel spacing crystal 10W 12.5kHz. **£39**

SMC 1045 L2 (B) 2 channel crystal 10W 25kHz channel spacing suitable for setting up on packet. Mics if required £10 extra. **£49**

Yaesu FT-900

HF remote controllable transceiver



only £849 **save £450**

Standard C-188

2m handi



only £99 **save £180**

Tereleader TNC-24 Mk II



only £149 **50% off**

Multimode data terminal packet CW, RTTY, PSK modem, etc.

12 month warranty on all transceivers except surplus items

OTHER BARGAINS WHILE STOCKS LAST

TS-690S	HF + 6m transceiver	£1199
FT-416G	2m 5W handi	£199
FT-650/PS	24-56MHz transceiver.....	£1299
938V	2m handi S22.....	£59
GEE-890	2m handi S20/22.....	£55
AR-303	Rotator	only £39
FT-10R/A06	2m handi.....	£199
FT-5200	2m/70cm mobile	£429

ANTENNA BARGAINS

R5	Cushcraft	save £60 £239
R7	Cushcraft	save £70 £319
SQ-144	2m Swiss quad.....	£35
GP-23	2m colinear.....	£35
88F	2m 8/8 mobile.....	£13
12SE	12m mobile whip	£13
15SE	15m mobile whip	£13
17SE	17m mobile whip	£13

SEE US AT THE LONDON SHOW STAND M IN THE RED HALL

All discounts are based on RRP's. CARRIAGE: ROTATORS/PSUs £13.50 BASE ANTENNAS £9.50 TNCs £8.50 MOBILE

Showroom/Mail Order 9.30-5pm, 9-1pm Sat Tel: (01703) 251549 Service Dept Tel: 0113-235 0606 9-5 Mon-Fri SMC Sisk

SMC Ltd HQ Southampton: S M House, School Close Chandlers Ford Ind Estate, Eastleigh,

ARE Communications: 6 Royal Parade Hanger Lane, Ealing, London W5A 1ET. Tel. 0181-997 4476 9.30am - 5.30pm Monday-Friday 9.30am - 1

SMC (Northern): Nowell Lane Ind. Estate, Nowell Lane Leeds. Tel. (011

★ AOR ★ KENWOOD ★ DAIWA ★ COMET ★ YAESU ★ STRUMECH VERSATOWER ★ LAFAYETTE ★ HY-MOUND ★ CUSHCRAFT ★ TAIWAN SERENE ★ HOKUSHIN ★ ICOM ★ TELEX ★ AEA ★ TOKYO HY-POWER ★ MFJ ★ MIRAGE KLM ★ HENRY ★ MANSON ★ REXON ★ AOR ★ KENWOOD ★ DAIWA ★ COMET

COMMUNICATIONS LTD

SERENE ★ HOKUSHIN ★ ICOM ★ JRC ★ TELEX ★ AEA ★ TOKYO HY-POWER ★ MFJ ★ MIRAGE KLM ★ HENRY ★ MANSON ★ REXON



Cushcraft Antennas are one of the best range currently available. They offer superb performance, innovative design, excellent build quality and outstanding value for money.

HF Antennas

R5	10/12/15/17/20 vertical	£295.00
R7000	10 thru to 40m vertical	£369.00
R80	Radial kit for R7000	£129.00
AV-3	14-21-28MHz vertical 4.3m long	£99.00
AV-5	3-5-7-14-21-28MHz vertical 7.4m long	£169.00
AP8A	8 Band Vertical	£229.00
APR18A	Radial Kit	£54.00
40-2CD	2-ele 40m Yagi	£499.00
A3S	14-21-28MHz Yagi	£389.00
A3WS	12/17m 3-ele Yagi	£299.00
A103	30m Extension A3WS	£119.00
204CD	4 ele 20m Yagi	£499.00
154CD	4 ele 15m Yagi	£289.00
D4	Dipole 10/15/20/40m	£259.00
D3W	Dipole 12/17/30m	£199.00
A4S	3-4 ele Yagi 10/15/20m	£449.00

VHF Antennas

AR-270	2/70 Dual Band Vertical 1.13m long	£69.00
AR-270b	2/70 Dual Band Vertical 2.3m long	£95.00
AR2	2m Vertical 1.2m long	£39.00
AR6	6m Vertical 3.1m long	£59.00
A144-10SN	2m 10-ele Yagi 13.2 dBd	£89.00
A144-20T	2m 10-ele Cross Yagi 12.2 dBd	£105.00
13B2N	13-ele 2m Yagi	£135.00
17B2	17-ele 2m Yagi	£199.00
A50-3S	3-ele 6m Yagi	£89.00
A50-5S	5-ele 6m Yagi	£149.00
A50-6S	6-ele 6m Yagi	£249.95
22XB	2m 22-ele Yagi c/w polarization switching	£229.00
738XB	70cms 38-ele Yagi c/w polarization switching	£219.00
719B	19-ele 70cms Yagi	£109.00
729B	29-ele 70cms Yagi	£169.00

Taiwan Serene

MOBILE ANTENNAS

TSM-1005	2m 7/8 1.89m	£29.50
TSM-1316	2m/70 0.44m	£18.00
TSM-1339	2m/70 0.89m	£22.50
TSM-1312	2m/70 0.89m	£23.00
TSM-1309	2m/70 0.93m	£25.00
TSA-5004	Mirror/R rack mount	£16.00

BASE ANTENNAS

TSB-3301	2m/70 G/Fibre 3.18m	£68.00
TSB-3302	2m/70 G/Fibre 1.79m	£59.50
TSB-3303	2m/70 G/Fibre 1.15m	£42.50
TSB-3603	2m/70/23 G/Fibre 3.07m	£85.00
TSA-600/C	Duplexer 2/70 'N'-N/PL leads	£25.00
TSA-601/E	Tmplexer 2/70/23 'N'/PL,N,N	£43.00
TSA-6601	2/70 mini PWR/SWR meter	£29.00

HANDHELD/SCANNER ANTENNAS

TSC2601	BNC Whip 144/430/900MHz 0/1.5/3.4dBi	£15.95
TSC2602	BNC Whip 144/430/1200MHz 2/3/5.5dBi	£21.50
TSC2603	BNC Whip 144/430/900MHz 2/3.4/5.5dBi	£22.50

DATA PRODUCTS

We now have the widest range of data products in the UK, and with our specialist knowledge of the products we must be by far the number one choice for packet equipment.

PacComm

Tiny 2	1200 baud TNC	£139
PicoPacket	12 baud portable TNC	£119
Spirit 2	9600 baud TNC	£219



Kantronics

KPC3	1200 baud TNC	£139
KPC9612	1200+9600 dual port TNC	£275
Kam+	Multimode data modem	£395



AEA

PK12	1200 baud TNC	£129
PK96	9600 baud TNC	£219
PK232/MBX	Multimode data modem	£319
*DSP232	Multimode data modem	£479
*PK900	Multimode data modem	£479

* Free Pack - Win software

Symek

TNC2H	9600 baud TNC	£179
-------	---------------	------

BayCom Modems

USCC 4 port plug in card W/O Modems	£107
-------------------------------------	------

Modems

1200 baud	Plug in for USCC	£39
HF	Plug in for USCC	£59
9600 baud	Plug in for USCC	£79
Mini-Pak	1200 baud 9 pin 'D' plug	£69.95

Custom-made leads available for most leading brands of transceivers. £14.95.

Only £7.50 if purchased with a TNC.

Siskin Multi Cat

Computer interface suitable for most HF & VHF Transceivers with CAT interface socket.

£69.95

(Now includes beacon software)



NEW
PS400X slimline 40A PSU 1-15V
32/40Amax.....£169.00

NEW
CM-700 H/D magmount C/W
4m cable.....£25.00

PS120MIIA	PSU 3-15V 9/12A	£69.00	D
PS140MIIA	PSU 13.8V 12/14A	£72.00	D
PS304IIA	PSU 1-15V 24/30A	£129.00	D
RS40XII	PSU 1-15V 32/40A	£169.00	D
CN101L	1.8-150MHZ 15/150/1500W	£59.50	B
CN103LN	150-525MHZ 20/200W 'N'	£68.00	B
CS201	2 Way Switch SQ239 1KW	£17.50	B
CS201GII	2 Way Switch 'N' 1KW PEP	£23.50	B
LA2080H	2M L/AMP 1.5-5W IN 30-80W OUT	£136.00	B
DLA80H	2M/70CM Dual Band Amp 0.5-25W IN 80-60W Out Pre Amps	£345.00	C
DX10N	2m/70cm Duplexer UHF/N	£25.00	B



NEW
DAX1000 2/70cm mobile whip 50W 2.15/5.5dBi 0.95.....£28.00

NEW
DAX1500 2/70cm mobile whip 50W 3.5/5.8dBi 1.07m.....£29.50

NEW
DAX3000 2/70 mobile whip 150W 3.5/6dBi 1.06m.....£33.50

HOKUSHIN ANTENNAS

HS-702S	2M/70CM Whip BNC	£12.50
HS430	5/8 Wave Whip BNC	£8.50
HS320	2M 1/2 Wave Whip	£6.50
2NE	2M 3/4 Wave Whip	£19.00
88F	2M 8/8 Wave Mobile Whip	£16.50
HS-727SS	2M/70CM Mini Mobile Whip	£17.00
EX104B	2M/70CM Mini Mobile Whip	£22.50
EX601B	6M 1/2 Whip	£37.00
SMC12SE	12M Mobile Whip	£16.50
SMC15SE	15M Mobile Whip	£16.50
SMC17SE	17M Mobile Whip	£16.50
HF3	12/17/30 Base Vertical	£59.00
28HS2HB	10M 2EL ZL Beam	£65.00
HS-GP62	2 X 1/2 Base Colinear	£65.00
GP23	3 X 1/2 Base Colinear	£39.00
SQ144	2M SWISS QUAD	£45.00
WX1	2M/70CM Base Colinear	£75.00
WX2N	2M/70CM Base Colinear	£99.00
WX4N	2M/70CM Base Colinear	£129.00
WX6S	2M/70CM Base Colinear	£189.00
NEW GD30	Discone 100-1500MHz c/w 10M RG58U	£59.95

ANTENNAS £5.00 STATION ACCESSORIES £5.00 MODEMS £3.50 TRANS/BASE/MOBILES £13.50 HANDIES £9.50

(SMC HQ) Data Communications Hotline Tel: (01703) 254247 9.30am - 6pm for personal callers 9.00 - 6pm for telephone queries.

Ants SO5 3BY. Tel: (01703) 255111 Fax: (01703) 263507 Email: amateur@smc-comms.com

90pm Saturday Reg Ward & Co: 1 Western Parade, West Street, Axminster, Devon EX13 5NY. Tel. (01297) 34918 9.00am - 5.15pm Tues-Sat

3) 235 0606 9.30am - 5.00pm Monday-Friday 9.00am - 1.00pm Saturday

★ YAESU ★ STRUMECH VERSATOWER ★ LAFAYETTE ★ HY-MOUND ★ CUSHCRAFT ★ TAIWAN SERENE ★ HOKUSHIN ★ ICOM ★ JRC ★

The indispensable tool for DIY enthusiasts, hobbyists and students, amateurs and professionals in the world of electronics...

It's all in here!

It's at your local Maplin store

With more than 40 stores nationwide and many new stores on the way, there should be a Maplin store near you.

Same day despatch

Every order is processed on the day of your call. 24 hour ordering – see catalogue for details.

Free technical support

Available on all products. Call 01702 556001

New! Updated twice a year

Now it's produced in March and September, you can be sure the products are right up to date.

Only £3.45

Available at WH Smith, John Menzies or any Maplin store, or you can order your copy direct on 01702 554000 (add 50p for P&P).

If you live outside the UK send £8.45 or 21 IRCs for airmail in Europe or surface mail outside Europe; £16.00 or 37 IRCs for airmail outside Europe to: Maplin MPS, P.O. Box 777, Rayleigh, Essex, England SS6 8LU.

Over 18,000 high quality products

Everything you could want from the fascinating world of electronics, – and all in full colour.

Over £50 in discount vouchers

There's more than £50 in vouchers inside to save you even more money.

Free delivery

There's no delivery charge on orders over £30 (inclusive of VAT) or any size business account order.

MPS

MAPLIN PROFESSIONAL



THE COMPLETE CATALOGUE FOR ELECTRONICS

1997

March '97 – August '97

Visit our Web Site
<http://www.maplin.co.uk>



1972-1997

25 years of experience

Britain's best selling electronics catalogue is now in its 25th year. Nobody can match our experience.

Save £50+ Vouchers Inside
FREE DELIVERY*
* See inside for details

MPS

MAPLIN PROFESSIONAL

Priority Reference Code MA003

EDITOR'S Keylines

Rob Mannion's viewpoint on the World of Amateur Radio



Many readers seem to have been particularly interested in the PW 'Cadet' receiver kit which we've recently introduced in our continuing efforts to encourage newcomers to the radio hobby. And I'm pleased to say that this innovation is proving popular, and the series I'm writing - which actually introduced the Cadet to readers - is also proving to be of interest to readers judging by the letters I've received!

The PW 'Cadet' kit will continue to be available for beginners and instructional purposes to those who require a 'starter' constructional idea. And along with the other projects we've done (and will continue to do) we hope this kit along with the many major kits available from the specialist suppliers - some resulting from PW commissioned projects - will continue to encourage readers to carry on enjoying the 'practical' side of the radio hobby.

Price Of Kits

Among the letters I received about the new 'Radio - Discover The Basics' series and the PW kit, was one from John Noble in Kent who was commenting on what he thought was the relatively high price of the Cadet kit. Unfortunately in one sense...I had to agree with him that relatively speaking such kits are expensive and the reasons behind the expense are the same facts which are increasingly effecting the 'home-brew' side of the radio hobby.

I replied to John - who lives near Rainham in Kent - that when you compare the price of a kit such as the PW Cadet (£23.95 plus postage) with that of a Far Eastern import there's no comparison. Obviously, when you realise that you can buy a very reasonable long,

medium, short wave and v.h.f. Band II (the so called 'FM' radios) portable for less than £20 - a d.i.y. kit for a very simple receiver cannot compete technology or price wise.

However, the benefits in self-training, discovering technology and understanding physics and enjoyment offered from building something yourself are immeasurable! And even though I'm sitting writing my editorial while listening to classical music from a complex modern Japanese made v.h.f. Band II radio - I get even more enjoyment designing and building (relatively) small radios. (I can't get them much smaller because of the infamous 'bifocal specs' problem that comes to us grandfathers!).

When I originally started the process off to introduce a PW commissioned kit the eventual price was very much a concern. The designer and I discussed the pricing and we worked carefully on the project to ensure the very best value for money for all concerned.

The basic problem involved with our specialised hobby is that of volume sales. If there was the demand (such as that for the ready-made products from 'sweat shop' factories in low wage earning countries) I've no doubt prices could be much lower. You've only got to see the remarkably lower priced multi-mode CB radio transceivers to realise the effect a mass market has on equipment prices and availability.

However, my feelings on the price of the kit available through PW and those from our specialist advertisers can be summed up simply: I think they offer good value for money and many other

advantages (some of which I've already outlined).

My thoughts on the value-for-money subject have been backed up recently when I saw extremely basic crystal sets (comprising literally of just a 'crystal' diode, a cardboard former coil, sliding inductance type tuner and 'crystal' earpiece) selling via promotions in weekend newspapers for up to £15!

The 'Crystal Set' kits I've seen advertised in 'weekend supplements' and the specialised marketing catalogues are beautifully presented and marketed in a very clever way. But I wonder how many of the receivers have acted as radio 'turn-offs' for the recipients of the gifts?

Of course diode only receivers do work - but you can imagine the effect on a keen young builder when they can only hear one very faint station on their birthday or at Christmas. I think that once they've been built many of the 'Christmas Crystal Sets' are consigned to the attic, while the young person returns to the computer keyboard to carry on working while listening to their nice shiny stereo radio (like me at the moment perhaps!).

No Choice

Like many people I had no choice as a youngster. Any radio for my own use, I had to build. The radio in our living room was a part of the house furniture and I wasn't allowed to do anything other than 'twiddle the knobs' and even then only when Dad was around to supervise me.

Nowadays young people have no incentive to build radio or electronics themselves unless they

have an instinctive or natural interest. And perhaps rather surprisingly I've found that one of the routes into radio is now turning out to be via computers!

Many of the younger radio enthusiasts I'm meeting have 'discovered' radio as a hobby when they've delved into the accessory market for their computers. When they come across problems interfacing computer equipment, radio receivers and associated electronics they're beginning to realise there's a great deal of interest waiting behind the screen and under the keyboard!

And continuing on the computer theme. The Internet is now playing a tremendously important part in learning, communications and our hobby. There's a large number of Amateur Radio related 'Web' sites. At the moment this is only available for most people via telephone lines...but I wonder how long it will be until an 'International' h.f. frequency for computer users (a 'Radio Internet') will be set up?

Once 'on air' with low power fixed frequency radio links (similar in concept perhaps to CB radio regarding 'free access') I think many computer users will be attracted to radio as a hobby itself. I think it's only a matter of time and I think it's up to us to encourage the newcomers to the further delights of Amateur Radio communications in general when the time comes. And I feel it will come sooner than we think!

Rob Mannion
G3XFD

The Star Letter will receive a voucher worth £10 to spend on items from our Book or other services offered by Practical Wireless. All other letters will receive a £5 voucher.

RECEIVING You

Letters Received Via The 'Internet'
Many letters intended for 'Receiving You' now arrive via the 'Internet'. And although there's no problem in general with E-Mail, many correspondents are forgetting to provide their postal address. I have to remind readers that although we will not publish a full postal address (unless we are asked to do so), we require it if the letter is to be considered. So, please don't forget to include your full postal address and call sign along with your E-Mail hieroglyphics! Editor

PW's Postbag. If your letter is published you'll win a prize.

Looping Again

Dear Sir

I was interested to read the article in *PW* by Ben Nock G4BXD called 'Looping Over The Lawn' (*PW* July 1996), which he wrote for Robin Wood G4UDK about a Ferrite transformer coupled Magnetic loop. This antenna undoubtedly stems from a QSO I had on the 14th March 1994 with Robin G4UDK and G0EVY when I described my antenna to them.

I explained that it was a wire loop, a tuning capacitor and the coupling device was a Ferromagnetic transformer. I also pointed out that I had already filed a Patent Application No. 9400764.8 and GB 2285712.

However, I would like to point out that with the one-to-one ratio transformer, as shown in the article, the loop will not match to the 50Ω coaxial feeder well enough to work on both 1.8 and 3.5MHz. To use the loop for both 1.8 and 3.5MHz, a transformer needs to be constructed, which is capable of matching the loop when it is at resonance to the 50Ω coaxial feeder, this also means that an a.t.u. will not be required.

The stations that I have worked on my loop include North America on Top Band, New Zealand, America and the Caribbean on 3.5MHz without the use of an a.t.u. As the construction details are too long to go through in this letter, I will send full details to anyone who sends a stamped addressed envelope to me at: Micro Museum, 54a Load Street, Bewdley, Worcestershire DY12 2AP.
Ben Edginton G0CWT
Worcestershire

HF Data Card

Dear Sir

Some years ago *PW* issued a free insert card listing all the h.f. frequencies and their recommended user allocations. On the back was a short summary of band propagation characteristics.

I would very much like to see an updated edition of this card, to keep in a clear plastic photographic frame on my rig. Please give serious consideration to a re-issue!

Although retired and a full licence holder for some years, I never tire of reading basic practice and theory articles - something I missed out on during my working life as an architect.
Raymond Fuller G0KXK
Surrey

Editor's comment: Glad you still find your Data card useful Raymond. I occasionally meet readers at shows and rallies who suggest the same as yourself. Readers who would like to see a new card issued are invited to send a postcard (only postcards please) to me, with name address, so we can evaluate the interest.

The 934MHz CB Band

Dear Sir

I wonder why the Government gave us 934MHz CB, just to take it away again? After all, it was the government that chose 934 in the first place. (Well, in fact it was 928MHz and then went on to include 934MHz in their final decision).

The main plus of the system which featured strongly in the Government's considerations was that it

would be less likely to give interference to other users of the radio spectrum. And, the expected sensible use of the frequency was, and still is, one of the reasons we should not give up our fight to save what I believe to be one of the most friendliest frequencies of all time.

So, please keep those letters coming and let's hope that the death sentence we have been given will be extended to life on the 'airways'.

Bill Reynolds
Northants

Arranging Skeds On 23cm

Dear Sir

As everyone knows, all contacts on higher frequencies start with a telephone call, so I thought I would go one better and advertise in the press for

contacts. There are two excellent 23cm repeaters here in Yorkshire just waiting for someone to use them.

We have GB3UY in York on 1297.325 which is working well and GB3WC on 1297.375, which is now back on horizontal polarisation. This repeater is on Emley Moor television mast and has a tremendous signal and coverage area.

I monitor GB3WC most of the day and call on both after 2000hrs and 2230. There is also a daily Net on 1296.210MHz u.s.b. at 0925 and 1925hrs.

Roy T. Oxley G0FYM
Yorkshire

Editor: Best of luck! If Roy or anyone makes a successful 'sked' through *PW*...David Butler G4ASR of 'VHF Report' would be very interested to hear about it.

No Plugs?

Dear Sir

I thought it might be a good idea to write to warn would-be buyers of new rigs that they find their new kit comes with no plugs. Last October an insurance policy matured, so I had a rush of blood (Hi!) and decided to plan an update my station. The h.f. rig was seven years old, the v.h.f. 144MHz rig was ten years old.

I bought an FT-1000MP. It's a great rig, the best I have ever used. In the kit was a bag of plugs so that I could use all the outlets of the rig.

In mid November, an FT-8000R v.h.f./u.h.f. rig arrived as part of the plan. Alas, not a single plug in the kit. The rig has an N socket, being an h.f./v.h.f. operator, I didn't have an N plug in my stock. My friend MOANM loaned me one so I got back on the air, thanks John. The

This Month's Star Letter

Under £1

Dear Sir

I am writing in response to the letter from Tony Green GW4JGU in the 'Receiving You' of the January 1997 edition of *PW*. With him commenting on an old *PW* series called 'Under Twenty Shillings'. Being only a Novice holder and someone that does not have a great deal of money to spend on equipment I'm interested in the possibilities offered with the idea.

Personally, I think that any section in *PW* similar to the ones that he suggested would be a great help. Not just to me, but to many other people who are on tight budgets like I am, it could also help the Novice licensees. You currently produce construction slots in *PW*, but one of these are really aimed at the younger and novice class reader.

When you do one of these articles the writer uses jargon that I understand, (only because I have gained a B grade at GCSE Electronics). But I know people (younger than me) who don't understand them, and they have to ask their technology teacher at school to explain. So, please can you give this a great deal of thought and if you do, can you please put it in language that the younger reader will be able to understand.

Even people with limited technical knowledge would be interested in knowing how to build their own radio equipment. Many people, of all ages, have an interest in radio, but find it too complicated and costly to fulfil their dreams of being able to achieve such a complex object.

Matthew Lawrance 2E1FIF (aged 17)
Essex

Editor's comment: All noted Mathew, thanks for writing. Any other comments on this subject readers? I'd be interested to read your suggestions.

Packet Problems

Dear Sir

I would like to reply to **Roger Cooke G3LDI** ('Receiving You' January 1997) by saying that the password system is just a way of denying access to parts of the Packet radio system to licensed amateurs and reserving portions of the amateur bands for their friends or people approved by them. It would seem that according to Mr Cooke, that after obtaining a radio licence, one must obtain a password in order to operate on packet radio and after having to write off to get this password one also receives a letter asking for a subscription.

Fair enough, but many people find it hard to find where to send to. I suggest the only jingle bells are in Mr Cooke's head as many of us have been on packet for some time. Far from ensuring the use of the bands for radio amateurs, a report said that packet radio proved their suitability of the band for private digital modes.

I would suggest to Mr Cooke that packet be available for all of us and the password control is a denial of the right to do so. Being just an ordinary chap, I cannot see why I should be prevented from doing so by anyone but the authorised Radio Agency.

It is a frightful pain finding out who to contact and how many people to contact in order to operate on packet radio. I suggest a central source for this information.

M. Charlton G0MDF
Nottinghamshire

Again, we asked our Packet Radio specialist author **Roger Cooke G3LDI** to reply directly to Mr Charlton via 'RY'.

Dear Sir

Thank you for passing the letter from **G0MDF** onto me for reply. I think Mr Charlton is somewhat over concerned about the 'password' access to a BBS. Let me try and explain yet again for him and quote a scenario that could happen.

Firstly, NO sysop would wish to deprive Mr Charlton access to the BBS. In fact most sysops are 'Elmers' in their own right and go to great lengths to help newcomers to enjoy this facet of our

hobby. Let us assume that Mr Charlton has just purchased a TNC and has got onto packet. Now, if he wished, he could operate with impunity on a user channel, with other users and never use a BBS. He would not need permission, or a password to do that.

If he then decides to use the local BBS to send mail to other amateurs in any part of the world, making use of the BBS, the Network and possible satellite gateway, he could log onto the BBS, read and follow the registration instructions and then, if he wishes, for full access, send a message to the sysop and apply for a password.

The password is installed for the reasons I gave in my previous response to Mr Charlton, and it is there for the users' protection as much as the sysop's protection. In no way does it reserve portions on the bands to friends, etc. This is just a silly statement to make.

The password would only be issued on a personal basis to again prevent any fraudulent use of the system by some unlicensed person. I can also assure Mr Charlton that no sysop will issue a letter to him asking for a "subscription". Obviously the BBS does take a lot of the owner's reserves of time and money, as it runs 24 hours per day. Donations are very welcome, but are not solicited by sending letters to users.

I would agree again with Mr Charlton that "jingle bells" are probably in my head, as I have operated digital modes since 1957. I was also one of the first UK stations to operate packet radio and have been running my BBS on both v.h.f. and u.h.f. and h.f. since 1984.

Finally, I would suggest that if Mr Charlton has any problems at all that he contacts his local DCC representative, or the sysop of his local BBS who I'm sure would be only too pleased to help. He can also contact me if he wishes to do so on (01508) 570278 and I would be only too pleased to discuss the matter with him.
Roger Cooke G3LDI
Norfolk

Editor's Note: The correspondence on this subject in 'Receiving You' is now closed. However, there's nothing to stop interested parties writing directly to each other or sending packet messages!

We asked Barry Cooper G4RKO of Yaesu (UK) Ltd. to reply:

Albert raises some interesting points in his letter. What is supplied or not with your radio transceiver is invariably determined by the staff of Marketing Departments who decide how a product should be 'packaged' for a particular market. However, to get direct customer feedback is always useful as it helps us to 'get it right' for the most important person,

you, the customer.

As regard the specifics raised by Albert, these serve to illustrate the point. The FT-1000MP, the 'Rolls Royce' of the range comes fully equipped with very conceivable accessory plug.

The FT-8000 mobile, aimed at the fiercely competitive low-cost dual-band mobile market, is supplied only with spare fuses and the mounting hardware for the mobile mount included in the package. No 6-pin mini-DIN! The reason for this

omission is that Yaesu provides an optional CT-39 Data/packet leads terminated with a 6-pin mini-DIN plug and, of course, to include the mini-din adds further cost.

Having used the rig, I am sure Albert now appreciates the wisdom of fitting an N type connector rather than the much less expensive SO-259. In doing so, Yaesu is providing a much better signal path for those u.h.f. signals, which, on the FT-8000 receive-side, go all the way up to 1.3GHz!
Barry Cooper G4RKO
Yaesu UK Ltd.

Can You Help?

Dear Sir

As a committed and enthusiastic reader of the best amateur radio magazine this side of the Atlantic, I wonder if you can help?

Though very comprehensive, your book pages cannot provide me with a source for a book that I am trying to obtain a copy of. The publication in question is *The Hut Six Story* by Gordon Welchman.

The Title has been published in both hard and paperback versions as far as I know. The hardback version was first published by McGraw Hill in the US the paperback version in the UK by Penguin.

I wonder if any of your readers has a copy that they no longer want, I would be very grateful if anyone could help.

Thanks and keep up the hard work.

73

Kevin (full name and address supplied)

Editor's comment: How could we resist Kevin's request? Can any reader help him find this book which features the exploits of the famous Bletchley Park and the 'Enigma' decoding organisation. We'll pass on details on this book and any other details you have to our keen reader!

Lacking Information

Dear Sir

Under the 'Receiving You' heading in January's issue of *PW* was an article by **Roy Maskey G4TDW** about which the Editor asked for comments. I heartily agree with Roy. There are so many sets on the market lacking sufficient information as to their performance that life gets confusing.

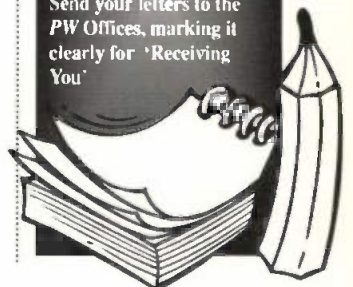
If, like me, money is not exactly growing on trees, the outlay for a modern short wave receiver is a consideration that requires some serious thought. One does not wish to arrive home to find one has bought a 'pup'.

Like Roy, I have retained my old receiver which, believe it or not (I can see lips curling) is a one transistor and one i.c. home-brew job. It has good selectivity, good audio response and rakes in some really out of the way stuff, so why should I change?

At least what I receive is obtained by my own efforts and not (as is so much the case with today's so-called Amateur Radio) dependent on the size of your wallet's contents.
John Noble
Kent

Reader's letters intended for publication in 'Receiving You' must be original and not be duplicated. Letters are accepted on the understanding that they have only been submitted to *Practical Wireless*. Please ensure that your letter is clearly marked 'for publication in Receiving You' and that it has not been submitted to other magazines. We reserve the right to edit or shorten any letter. The views expressed in letters are not necessarily those of *Practical Wireless*.

Send your letters to the *PW* Offices, marking it clearly for 'Receiving You'



crunch was that the rig required a 6-pin mini DIN plug for packet operation.

Local shops don't have them, and it proved difficult to find any. The moral is to ask your dealer to include all plugs with the deal, so that you can use the rig when you get it. The FT-8000R is a nice rig ready for 12.5kHz spacing and 9.6kb on packet. But it cost me about £3 on telephone calls and postage to get a 75p plug. Come on Yaesu, gizza plug. Hi!
Albert Heyes G3ZHE
Cheshire

SUBSCRIPTION OFFER

SAVE OVER £11

WHEN YOU SUBSCRIBE TO

PRACTICAL WIRELESS

AND

SHORT WAVE MAGAZINE

Joint Subscription Rates

£45	UK
£54	Europe Airmail
£58	Rest of World Airmail
£67	Rest of World Airmail

Please arrange a Joint Subscription to PW & SWM for just £

Name:

Address:

Tel:

I enclose a Cheque/PO payable to PW Publishing Ltd.

Please charge my Access/Visa card the amount of £.....

Card No:

Valid from: to

Signature:

Did you know that by taking out a subscription to *Practical Wireless* and its sister publication *Short Wave Magazine* you can save £11.40 over a year? If you were to buy both magazines individually every month it would cost you £56.40 (UK), but take out a joint subscription and it will only cost you £45!

By subscribing to *PW* & *SWM* you will be ensuring that you keep up-to-date, not only with the latest in Amateur Radio, but also with the latest developments in the world of short wave listening.

Short Wave Magazine is packed every month with items of interest and includes features and regular columns on Airband, Satellites Broadcast, DXTV and Scanning, as well as reviews of the latest equipment, a comprehensive Frequency Exchange and all you need to know to keep you in touch with where to listen for what interests you.

Take advantage of this offer and your radio hobby will be complete, with not one but two radio magazines dropping through your letterbox every month! It also means that by subscribing you'll be exempt from any cover price increases during the period of your subscription and that you'll have all the 'radio reading' you need to hand for under £4 a month!

So, what are you waiting for? Fill in the form below or call the Subs Hotline on (01202) 659930 TODAY! Then sit back and wait for your double dose of radio every month.

HAYDON COMMUNICATIONS

The accessories specialists

SERENE BASE ANTENNAS

Beware of cheap copies (P&P £8.50) OUR PRICE

TSB-3001	AL	144MHz 3.4dB (1.4m)	£29.95
TSB-3002	AL	144MHz/6.5dB (2.8m)	£42.95
TSB-3301	GF	144/70, 6.5/9dB (3m)	£69.95
TSB-3302	GF	144/70, 4.5/7.2dB (1.7m)	£54.95
TSB-3303	GF	144/70, 3/6dB (1.1m)	£39.95
TSB-3315	GF	144/70, 8.5/11dB (5.4m)	£149.95
TSB-3608	GF	50/144/70, 2.15/6.2/8.4dB gain	£89.95
V-2000 Diamond		6m/2m/70cm, 2.1/6.2/8.4dB (2.5m)	£134.95
GP15N Comet		6m/2m/70cm 3/6.2/8.6dB (2.4m)	£124.95

ACCESSORIES

P&P £2.00 on the following

TSA-6001N	Duplexer (+Coax) 2/70 (N/N/259)	£24.95
TSA-6003	Duplexer (Coax) 2/70 (PL/259's)	£19.95
CFX-514	Triplexer (6/2/70) (Coax)	£56.95

MOBILE ANTENNAS

HIGH QUALITY NISSEI MOBILE ANTENNAS

P&P £4.50

DB-7900	144/70 cms, (5/7.6dB) 1.5m	£49.99
DB-770M	144/70 cms, (3/5.5dB) 1m	£24.95
DB-1304	144/70 cms, (2.15/3.8dB) .41cms	£19.95
DB-EL2E	144MHz, Xths, 4.5dB (1.8m)	£29.95
DB-285	144MHz, Xths, 3.4dB (1.3m)	£15.95

ACCESSORIES

P&P £2.50 on the following

MT-1301	H/Duty Mag Mnt + Coax	Top Quality £24.95
MT-3302	H/Duty Hatch/Trunk Mnt	Top Quality £24.95
CF-BPF2	2m band pass filter	£49.95

HF ANTENNAS

R5	10/12/15/17/20 vertical	P&P £10	£295.00
R7000	10 thru to 40m vertical (80m optional)		£369.00
AV-3	14-21-28MHz vertical 4.3m long		£99.00
AV-5	3.5-7-14-21-28MHz vertical 7.4m long		£169.00
AP8A	8 Band Vertical		£229.00
A3S	14-21-28MHz Yagi		£389.00
Carolina Windom '2'	40-10m (66ft)		£88.95
Carolina Windom 80-10m	(132ft long)		£84.95
CBL-30	1.1 balun (1-30MHz)		£24.95
Comet CAHV HF	6m/2m mobile antenna. Gain 2.15dB		
50MHz, 3.4dB 2m. Length 1.9max			£99.95

SECTIONAL MASTS

Aluminium mast sets available in 4 x 5 foot sections. Each section is swaged on its end so that they slide into each other. The final section is left plain to allow for a mast cap or pulley assembly. Each mast totals 20 feet in height and is available in the following sizes:

- 1 1/4" dia £18.95.
- 1 1/2" dia £28.95.
- 1 3/4" dia £36.95.
- 2" dia £45.95.

Carriage £8.00.

HANDHELD ANTENNAS

T-2602

2m/70cm/23cm (2/3/5.5dB) flexible antenna with wideband receive (14" long BNC).

OUR PRICE
£22.95
P&P £1

DB-770H

High gain 2m + 70cm telescopic antenna with wideband receive.

OUR PRICE
£24.95
P&P £1



TSA-6671

New ultra small BNC magmount. Allows you to use any existing BNC antenna from your scanner to transceiver on your car without having to purchase a car antenna. OUR PRICE **£22.95** P&P £1

TELESCOPIC MASTS

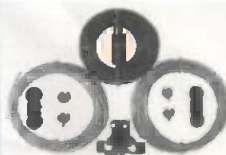
QUALITY PRODUCTS AT AFFORDABLE PRICES
TELESCOPIC MASTS

5 section telescopic masts. Starting at 2 1/2" in diameter and finishing with a top section of 1 1/2" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and stainless steel pins for locking the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 10 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

8 mtrs **£69.00**. 12 mtrs **£99.00**. Carriage **£8.00**.

★★★★★ **STAR BUY** ★★★★★★
★ **URM-76** We have 700 rolls of the
★ above high quality military speck coax to sell
★ off at a very special price (first come first
★ served). Spec: Black 50Ω coax, 5mm O/D,
★ capacitance/foot 29pF. RRP £70 per 100mtr.
★
★ SPECIAL PRICE **£35.00** post £7
★★★★★★★★★★★★★★★★★★★★

DELUXE G5RVS



Multi-stranded plastic coated heavy duty antenna wire. All parts reusable. Stainless steel and galvanised fittings.

Full size - 102ft. **Only £39.95.**

Half size 51ft. **Only £29.95.**

Carriage **£6.00**.

ACCESSORIES



Nissei RS-402

125-525 MHz (200W) FWD/REV/AVE/PEP PWR +

Full SWR indicator and meter illumination.

RRP **£69.95** P & P £4

RS-102 1.8-150MHz (200W).....£69.95

RS-502 1.8-525MHz (200W).....£129.95



TSA-6601

144-44MHz (60W) pocket PWR/SWR meter

£34.95 (P&P £1.00)

TSA-6602 VHF/UHF ant matcher.....£34.95 (P&P £1.00)

MFJ-259

HF digital SWR analyser + 1.8-170MHz counter/resistance meter.

RRP **£249.95** P&P £5

VECTRONICS VC-300DLP

UK's best selling ATU. 300W (PEP), dummy load, VSWR meter, 3 way ant, switch & balun for open wire feeders.

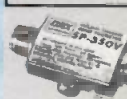
RRP **£149.95**

VC-300M 300W mobile ATU.....£119.95

COAX SWITCHES

(P&P £2.00)

CX-401	4 way (SO-239)	£44.95
CX-401 'N'	4 way (N TYPE)	£49.95
CX-201	2 way (SO-239)	£18.95
CX-201 'N'	2 way (N-type)	£24.95



SP-350V

Be protected this summer! In-line lightning surge protector.

INTRO PRICE **£19.99** P&P £1

ROTATORS



AR-300XL

Low cost, high quality VHF rotator. (Don't be caught out by cheap alternatives).

OUR PRICE **£59.95**

Yaesu G-250.....RRP £149.95

Yaesu G-450XL.....RRP £289.00

Yaesu G-800SDX.....RRP £459.00

GET THE ACCESSORY CATALOGUE

Send £1 in stamps refundable against any purchase.

Full with masts, brackets, aerials and accessories. EVERYTHING NEEDED FOR THE RADIO AMATEUR.

LONDON SHOWROOM & MAIL ORDER:- 0181-951 5781/2

Address:- 132 High St. Edgware, Middx HA8 7EL



HAYDON COMMUNICATIONS

ALINCO PRICES



ALINCO DX-70

100W HF + 10W 6m transceiver with detachable head for mobile or base operation. Includes wide and narrow filtering, QSK, 100 memories, reverse CW, speech processor and pass-band tuning.

RRP £899. OUR PRICE **£695.00**



ALINCO DR-605

Dual band mobile transceiver 50/35W full duplex mode. RRP £495.

OUR PRICE **£399.95**



ALINCO DR-130

2m FM mobile transceiver. 50W. RRP £329.

OUR PRICE **£249.95**

DR-150	RRP £359	OUR PRICE £279.95
DR-M06SX	RRP £339	OUR PRICE £249.95
DR-430	RRP £389	OUR PRICE £259.95



ALINCO DJ-G5

Dualband handheld transceiver. Includes:- twin band Rx (wideband Rx) - full duplex + band scope and much more. RRP £399.

OUR PRICE **£299.95**



ALINCO DJ-190

2m FM handheld transceiver. The best value 2m handheld transceiver on the market includes nicads & charger. RRP £199.

OUR PRICE **£149.95**



ALINCO DJ-S41

70cm handheld transceiver with full CTCSS encode. 1.6MHz shift program steps, 300MW FM. Ideal for novices. RRP £149.

OUR PRICE **£129.95**

ADI AT FACTORY DIRECT PRICES



AT-200

2m handheld RRP £149.95.

New low

RRP **£129.95**



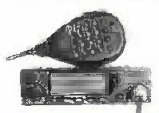
AR-146

2m mobile. RRP £249.95

New low

RRP

£219.95



AR-446

2m + 70cm mobile. RRP £269.95

New low

RRP

£239.95



AT-600

2m + 70cm handheld.

RRP £279.95

New low

RRP **£229.95**

HF TRANSCEIVERS



ICOM IC-706

RRP £1195

SALE PRICE

£1049.00 + FREE PSU worth £90.

PICKETTS LOCK SHOW SPECIAL
£999 + FREE PSU WORTH £90



ICOM IC-756

New HF/6m DSP transceiver.

SHOW PRICE **£1879.99**



KENWOOD TS-570D

New HF transceiver

with built in ATU.

RRP £1499. SHOW PRICE **£1279.95**



YAESU FT-1000MP (AC)

State of art HF transceiver.

RRP £2049. **£2199.95**

FT-1000MP (DC) RRP £2599Our price £1999.95
FT-840 RRP £959Sale price £699.00

VHF/UHF HANDHELD'S



YAESU FT-50R

New ultra compact dual band transceiver with wideband RX. 76-990MHz (AM, FM, FM-N).

RRP £239.

OUR PRICE **£285.95**

IC-T7EShow special£279.00

ATTENTION KENWOOD USERS

New NBP-34 high power nicad pack for TH-79E/22E.42E gives 5W o/p. £48.95

SPECIAL OFFER **£38.95**

P & P £1.50



NB-30W

2M FM handheld amplifier 1.5-5W input 30W output (for 5W ip).

RRP **£49.95**

NBD 30 dual band version of the above£119.95



Nissei EP-300T

Over the ear earpiece with lapel mic & PTT. Fits Kenwood, Alinco, Yaesu or Icom P & P £1

£22.95

This Ear/Mic comes with an "over the ear" earpiece as EP-300

VHF/UHF MOBILES

KENWOOD TM-V7E



Dual band mobile RRP £649.

PICKETTS LOCK SPECIAL

£519.95

SAVE £120



YAESU FT-8000

Dual band mobile transceiver with

wideband RX: 110-550/750-1300MHz. RRP £549

PICKETTS LOCK SPECIAL **£449.95**

FT-2200 RRP £419Our price £339.95



YAESU FT-290RII

2m multimode includes FREE FL-2025 25W matching linear. RRP £759. £549.95.

2 YEAR GITEE

PICKETTS LOCK SPECIAL + FREE LINEAR AMPLIFIER

£499.95



ICOM IC-821H

The very latest all mode dual band base. RRP £1595.00.

INTRO PRICE **£1395.95**

LONDON SHOWROOM & MAIL ORDER:- TEL: 0181-951 5781/2

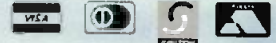
Address:- 132 High St. Edgware, Middx HA8 7EL. FAX:- 0181-951 5782

Open Mon-Fri 9.30-5.30pm Sat 9.30-4pm. Close to Edgware underground station (Northern line) close to M1, M25, A406.



WEST MIDLANDS BRANCH:- Tel: 01384 481681

Unit 1, Canal View Industrial Estate, Brettel Lane, Brierley Hill, W Mids DY5 3LO



ACCESSORIES



POLICE STYLE HOLSTER HHC-2

Matches all hand helds. Can be worn on the belt or attached to the quick

release body holster. **£19.95** +P&P £1

HANDHELD MOUNTS (P&P £2)

MA-399 Mobile holder. Fits all h/held radios. Sticks onto dashboard of car.

RRP **£9.95**

QS-200 Air-vent h/held holder..... £9.99
QS-300 Desk top h/held holder..... £19.99

MULTI-BUY EP-300

Deluxe over the ear earpiece.

Buy 1 **£9.95** + £1 P&P.

Buy 2 **£15.00** + £1 P&P.

POWER SUPPLIES



PORTABLE 12V POWER STATION

The ideal rig companion. Charges from AC mains or trickle charge from car cigar lighter using lead supplied. (Capacity - 12AH)

RRP £54.95. OUR PRICE **£46.95**

CARRIAGE £8.00



NEW MODEL

P-2512 'M'

25-30 amp power supply with variable volts (3-15). Dual meters (Volts + amps). The UK's best selling power supply.

Most of our competitors are selling the 20A versions for the same price.

RRP £99.95. OUR PRICE **£89.95**

DIGITAL AUDIO FILTERS

DSP-599ZX RRP £369.00.....OUR PRICE £349.95
DSP-59 PLUS RRP £299.00OUR PRICE £269.95
DSP-9 PLUS RRP £239.00OUR PRICE £179.95
MFJ 784B RRP £259.95.....OUR PRICE £249.95



A.E.A. PRODUCTS

DSP-232 RRP £479.95Sale price £469.95 Free P&P
PK-232MBX.....Our price £319.95 Free P&P
PK-96.....Our price £219.95 Free P&P
PK-12Our price £129.95 Free P&P



MOST AEA PRODUCTS INCLUDE SOFTWARE

QUALITY USED EQUIPMENT QUALITY USED EQUIPMENT QUALITY USED EQUIPMENT QUALITY USED EQUIPMENT

IC-728	As new	£629.95	TS-850S	VGC	£999.95	FT-900AT	With Collins filters as new	£949.95
IC-735	VGC	£649.95	TS-450SAT	As new	£949.95	FT-990AC	Immaculate	£1099.95
IC-751	Excellent condition	£699.95	TS-680S	HF + 6m	£749.95	TS-930SAT	As new	£799.95
IC-471	70cm all mode base	£649.95	TS-530S	VGC	£499.95	FRG-100	Comms receiver	£349.95
IC-R7000	Wideband receiver	£749.95	IC-729	As new. HF + 6m	£729.95	FRG-7700	Comms receiver	£299.95
IC-R7100	Wideband receiver	£999.95	TR-751E	2m all mode	£499.95	AR-3000	Wideband scanner	£649.95
IC-R70	SW receiver	£399.95	R-5000	SW receiver + VHF conv.	£799.95	AR-3030	SW receiver + VHF conv.	£599.95
IC-R1	Miniature h/held scanner	£199.95	R-2000	Communications receiver	£399.95	ICF-2001D	SW portable + airband	£219.95

THE SCANNER AND SHORTWAVE SPECIALISTS

OPTOELECTRONICS



OPTO SCOUT 3.1-Mk2

10MHz-1.4GHz frequency finder. Will capture and memorise up to 400 frequencies. Supplied with

ANT, nicads + charger. RRP £299.

SPECIAL OFFER **£349.95**



NEW OPTO CUB

From 10MHz-2.8GHz. The Cub has maximised sensitivity for detecting RF in the near field and displaying the frequency detected. The cub features a digital filter that reduces false counts and random noise, digital auto capture that acts like an intelligent hold button allowing any frequency captured to remain displayed as long as needed.

RRP **£139**

Opto-Xplorer.....RRP £899.95.....SALE PRICE £799.00

Optolinx A universal interface.....RRP £129.00



NEW DB-32

Beware of cheap copies!

A miniature wideband antenna. Receives 30 - 1200MHz. BNC fitting only 1.5" long. It's superb (for its size).

RRP **£29.95** P & P £1

SCANNERS



YUPITERU MVT-7100

Wideband handheld scanner covers 100kHz-1650MHz. (All mode). Tried and tested *and still number 1*.

RRP £299. OUR PRICE **£259.95**

AOR AR-8000

The ultimate h/held scanner covers everything from 500kHz-1900MHz without gaps. All mode AM, NFM, WFM, USB, LSB + CW. RRP £410.

SALE PRICE **£299**



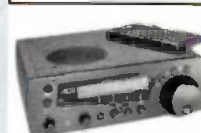
ICOM IC-R8500

The ultimate all mode base receiver. 100kHz-2GHz. Part-ex your old receiver and move into the 21st century. RRP £1695. OUR PRICE **£1439**

Interest free credit available.

Send us four post-dated cheques for £362.50 (incls. P&P UK mainland).

COMMUNICATION RECEIVERS



AOR AR-7030

Brilliant new all mode short wave receiver with synchronous AM +

remote control. RRP £799.

PICKETTS LOCK SHOW SPECIAL

£699.95



YAESU FRG-100

UK's best selling SW receiver. RRP £599

OUR PRICE **£449**



TARGET HF-3

Communication receiver covers 30kHz-30MHz. Complete with power

supply and long wire aerial.

RRP **£159.95**

ORDER YOURS TODAY AND CLAIM FREE P&P.

Zoë says:
"keep the News and
those Club
magazines coming!"

CLUB Spotlight

Compiled by Zoë Crabb

Swindon's Origins

The Swindon & District Amateur Radio Club (SDARC) traces its origins to before the Second World War. But the club, as it is known today, was inaugurated in August 1955 in what was then the Connaught Restaurant in Cromwell St. (now the site of Marks & Spencer's food hall).

The club has met at several other venues since, including The Cold Harbour Public House in Blunsdon, Oakfield School in Park North and, most recently, at Rowborough Farm in South Marston. In November 1994, the club made its most recent move, taking up residence at the Eastcott Social Hall, Savemake Street, off Eastcott Hill, Old Town.

The club meet every Thursday from 7pm to about 9.30pm, with refreshments available from 7.15pm. The activities of the club have always been centred on amateur radio with support for a broad range of members' interests, including antenna and equipment construction and operating.

Indeed, those considering preparing for the Radio Amateurs Examination or the Novice Examination will always find experienced operators and skilled technicians willing to provide support and advice. It has become the club's practice to organise a talk on an aspect of Amateur Radio or a related topic on the 1st and 3rd Thursday of each month (except during August) and to provide what the club describe as 'Natter Nights' on the remaining Thursdays.

Talks begin at 8pm and are generally arranged to last

Colchester Radio Amateurs Honour G3FIJ

Recently, Colchester Radio Amateurs decided to make a presentation to their long serving Honorary Secretary to commemorate two of his many remarkable achievements. Firstly, the organising and teaching of the RAE Course in Colchester by Frank Howe G3FIJ over a period of 40 years without a break from 1955-1996.

Frank started classes for the Amateur Radio certificate and training for the Morse test in 1955 to enable interested persons to become licensed Radio Amateurs. These have continued every year until now, with no breaks. Indeed, for some years, it was said that the only day without Morse Practice Transmissions in Colchester was Christmas day!

In the years up to 1979, more than 300 people had obtained their Amateur licence. From 1979 on, the Multiple Choice Examination was introduced and to date there have been over 900 entries with around 750 first time passes and 180 referrals on one paper. Most of these managed a pass at the next attempt.

In one year, there were over 100 candidates taught in three classes per week on three evenings. New courses were devised for the Novice Licence Amateur Radio Examination, with similar success.

Candidates, of both sexes, aged from 9-70 years have travelled from various parts of East Anglia, from as far away as Norfolk, Southend in Essex and Newmarket in Suffolk. Many Morse candidates have listened to Frank and Ted G4LFD (144.160MHz daily at 9.15pm) from Kent to Lincolnshire and have had their efforts corrected and speed improved.

just over an hour. 'Natter Nights' allow members to exchange information informally, to seek help with special projects and for the club to keep members up-to-date with developments, both of local issues and those on a wider horizon.

As a further service, members provide Morse Code classes on Natter Nights from 7.15pm, targeted at all levels of experience and on request, members will find experienced Morse operators

willing to send practice transmissions locally using v.h.f. The club has two active callsigns G8SRC and G3FEC and these are used to provide facilities for the operation of a full h.f. station and a packet station every Natter Night using club equipment.

In addition, the club uses its callsigns to enter several of the annual operating contests where members who are interested, work together as a club team, spending from a few hours to a complete

Some candidates are physically handicapped or partially sighted and therefore unable to attend classes. Frank Howe has tutored them personally in their homes so that they have obtained Amateur Radio Licences and thus widened their horizons considerably.

For the disabled group particularly, Frank has recorded six long play cassette tapes to enable them to cope with RAE theory. Copies are loaned whenever needed.

Under Frank's direction and organisation, with this team of helpers from Colchester Radio Amateurs, it is likely that the achievement of training more than 1200 Radio Amateurs will not be surpassed.

Secondly, in 1965 Frank helped form Colchester Radio Amateurs and became Secretary. He still holds this office and his guidance has been the key to the club's success. It has gone steadily from strength to strength, participating in many Amateur Radio activities and is one of the largest in East Anglia, with a membership of over 70.

Frank is a natural teacher in some demand, particularly for his antenna demonstrations, which he gives freely to many schools and clubs in North Essex and Suffolk. He is always ready to assist other amateurs from the newly qualified licensee to advanced operators, attempting satellite communication for the first time. All benefit from his support and encouragement.

The value of Frank Howe's efforts should be seen in the context of the Amateur Radio Service being officially recognised for maintaining communications in times of a national disaster, when the essential services communication systems have been unable to cope in an emergency.

The club would like to wish him well in the continued enjoyment of the Amateur Radio hobby to which he has given so much.

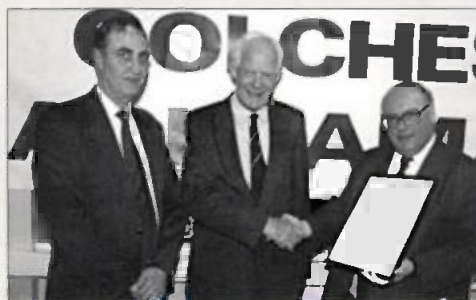
weekend at one of the local contest sites 'playing radio' competitively and attempting to contact as many other stations as possible, both within the UK and beyond.

Over the past few years, the SDARC's efforts have led to the club appearing in the top dozen stations in the UK results list of several v.h.f. contests. With a suitable level of interest, the club's next goal might just be to enter one of the h.f. contests, again just for a bit of fun - the basic

philosophy for all their contest activity.

Membership of the SDARC is available to anyone interested in radio and allied subjects. New members, whatever their experience in amateur radio, are always welcome, as are visitors who are considering the hobby.

One of the delights of amateur radio is the breadth of activity which it encompasses. If you live in the Swindon area and are



(L to R) Colin Smith G0LIN (Chairman of Colchester Radio Amateurs), Frank R. Howe G3FIJ (Hon. Secretary of Colchester Radio Amateurs) and Peter Chadwick G3RZP (Ex RSGB President and member of the RSGB Council).

Heart Charity To Benefit From Amateur Radio

The Wincanton Amateur Radio Club have announced the launch of their VHF Postcode Charity Challenge. This is an annual event, 1st January to 31st December each year. The event is specifically v.h.f./u.h.f., with emphasis on the lesser used bands to try to increase general levels of activity.

The challenge is based on postcodes and IARU squares. These references are constant and not susceptible to changes in county or district boundaries.

The primary motivation in the further development of the challenge was to

honour a founder member of the Wincanton Club, **Dave Sugden G4CGS**, a good friend was lost to the club as the result of a heart condition. Dave was always prepared to help others, had an active interest in v.h.f. and microwaves and was very knowledgeable on matters associated with these bands - both operational and technical. He was also instrumental in the development of the 70cm repeaters GB3WY and the soon to be operational GB3TC.

The secondary motivation behind the development was to try to stimulate activity through direct communications on what seem to be becoming the lesser and lesser used v.h.f. and u.h.f. amateur bands.

The basic concept is similar to WAB and comparisons will be made. However, the

challenge is based upon Locator Squares and Postcodes, these being unaffected by changes to country, county or district boundaries. It is anticipated that, since the majority of amateurs are likely to know their primary postcode area, eg. BA or LE, etc., and v.h.f. operators are likely to know their principle locator square, eg. IO81 or JO03, etc., it should be very simple for all v.h.f. operators to participate.

Participating UK amateurs purchased a Postcode Charity Challenge book for the sum of £5.50. Cheques and postal orders should be

made payable to the Wincanton Amateur Radio Club and crossed Postcode Charity Challenge. Overseas amateurs are requested to send 16 IRCs.

The Postcode Charity Challenge book contains all the documentation that will be required for full participation, including: The Rules, a General Postcode/Locator Map, Multi-band Cross Referenced Logging Sheets and an Entry Form.

For those who are contest minded,

there will be an annual contest on each band covered by the challenge and therefore the book also contains a Contest Log Sheet, Cover Sheet and Scoring information for both UK and Overseas entrants. Particular encouragement is given to participating stations to contact Novice stations.

Further information may be obtained by sending an addressed A4 envelope with attached postage stamps for 100g 2nd class postage (currently 31p) to: **The VHF PCC, The Wincanton Amateur Radio Club, c/o King Arthur's Community School, West Hill, Wincanton, Somerset BA9 9BX**. Brief details may also be obtained on Packet via **G300L @ GB7BNM** or via E-mail from **warc@timanmar.demon.co.uk**

The challenge is open to all, with special emphasis being given to Novice operators.

Fully licensed amateurs, Class A or B
Novice class amateurs, A or B
s.w.l.s and also
Overseas amateurs and s.w.l.s

Fixed station, portable and mobile operation

All mode operation

a.m., c.w., f.m., RTTY, s.s.b. and TV modes

Operation on the principal v.h.f. and u.h.f. bands

6, 4, 2m, 70cm and 23cm

Recognition for ALL

A trophy or certificate will be awarded to every participant who submits a duly completed entry form

ALL profits go to the British Heart Foundation

Committee Change

The Aberystwyth & District Amateur Radio Society now have a new committee,

consisting of Chairman - **David Williams GW4TUC**, Secretary - **John Woodward GW6IDK**, Treasurer - **Chris Davies GW7HAE**, Ordinary Members - **Bob Southwood GW7GNF** and **John Barrett GW7OZP**, Membership Secretary - **Wyn Williams GW4TUD**.

Katy GW0SFO will

continue to organise the West Wales Amateur Radio & Computer Rally this year, on Saturday 1 March 1997 (see Radio Diary for more details), and in conjunction with Martin GW0RBZ to produce the club Newsletter. Contributions are welcomed from anyone on Amateur Radio topics, serious or otherwise. Contact Katy, QTHR, or telephone on (01545) 580675.

The Society meet on the 2nd Thursday of each month (except July and August) at

interested in amateur radio, the club would love to hear from you! Find out more from **Den Forrest M0ACM**, Secretary, on (01793) 822705.

If you are uncertain about whether amateur radio really is the hobby you have been searching for, you, and your friends, are very welcome to go along as visitors for several meetings to meet active local amateurs and to see whether the programme of activities offer what you need.

The Spotlight's On Again!

Yes, it's true, this is the 2nd year of the Spotlight Trophy, awarded to the Radio Club magazine of the year by *Practical Wireless* and Kenwood (UK). Last year, the Hoddesdon Club won, but who will have their club name engraved on the cup this year?

How did it all start I hear you ask? Well, **David Barlow G3PLE**, a retired Marketing professional and former member of the Birmingham Press Club, who now lives in Cornwall, wrote to **Rob Mannion G3XFD**, Editor of *PW*, and myself, suggesting a special trophy for the best radio club magazine or newsletter.

Both Rob and I thought David's idea was an excellent way of encouraging the often (hard-pressed) magazine and newsletter editors. **David Wilkins G5HY** of Kenwood (UK) thought so too! So, a new competition was borne!

So, let's see your magazine, whether it be weekly, fortnightly or monthly, glossy, duplicated A4, PC produced or whatever. They're all of interest and yours could win!

To enter your club magazine for the award, all you have to do is to send in two of your most recent club magazines and details of how they're published to the *PW* Editorial Offices. Most importantly, remember to mark your envelope 'Spotlight Club Magazine Competition'.

The panel of judges (as last year) are: **Dave Wilkins G5HY**, myself, (**Zoë Crabb**), **Jim Bacon G3YLA**, **David Barlow G3PLE** and last, but certainly not least, **Rob Mannion G3XFD**. We're all looking forward to receiving and reading your club magazines, and as we want to receive more than last year's ten entries, you'd best get busy, the spotlight's now on!

Zoë

P.S. Please note, the closing date for entries is Friday 25 July 1997

the Scout Hut, Plas Crug, Aberystwyth. Special events are held during the summer months at various locations. Members have a wide range of interests and visitors are always welcome.

Club night on the air takes places on S17 every last Thursday in the

month at 8pm throughout the year, under the auspices of **Les GW3SON**, listen out for GW0ARA on 2m. Other club members are also welcome to join in.



Editor of *PW*, **Rob Mannion G3XFD**, receiving a FADARS hat from **Dennis G0SLJ** at his recent club visit to the Folkestone & District Amateur Radio Society. Sitting down, behind the hat, is **Stan G6ZNV**. (photo by Harry G3SBV)

DX

new



DX-70 TM High Power 6 m + HF Transceiver

A superb compact, a mode 100W transceiver covering all HF bands plus 6 metres. Excellent receiver with narrow filters fitted as standard.

£775.00



EMS-14
Base Mic for DX-70

£79.95



ALINCO

- All HF Bands 100W output
- 50MHz 10W output
- General coverage receiver
- Removable front panel
- Receiver pre-amp
- Filters fitted as standard
- Superb TX audio and RX
- Good RX sensitivity
- Full break in on CW
- Speech compressor
- 100 memory channels
- All modes: USB, LSB, CW, AM, FM
- All mode squelch
- Noise blanker
- Scan facilities
- Quick offset for DX pile-ups
- IF shift control
- Separate antenna sockets for HF+ 6 Meters



DR-140 2 Meter Mobile

A no nonsense rugged 50W 144MHz mobile transceiver that's easy to use on the move and comes with CTCSS as standard

£249.95

- 51 memories
- Programmable Time Out
- Alpha numeric display
- 50W FM output
- CTCSS encoder
- Electronic squelch



DR-150 2 Meter Mobile

A full featured 50W 144MHz FM mobile radio that's crammed full of extras. The DR-150 takes mobile radios into the 21st century!

£279.95

- Extended receive AM/FM 135-174MHz
- 400-480MHz
- 109-137MHz
- 800-950MHz
- Channel Scope - view activity either side of your channel
- 1200 and 9600 bps packet
- Channel or Frequency display
- Programmable timer
- CTCSS encoder
- Dual VFO
- 100 memory channels
- Search and Scan facilities
- Squelch timer
- On air cloning facility



DR-430 70cms Mobile

A 70cms version of the DR-140 above. 35W RF output and extended coverage available.

£259.95

- 51 memories
- Programmable Time Out
- Alpha numeric display
- 35W FM output
- CTCSS encoder
- Electronic squelch



DR-605 Dual Band Mobile

Easy to use twin band mobile transceiver that delivers both high power and performance with user friendly features.

- 50W (2m) - 35W (70cms)
- 100 memories
- Ready for 9600 bps packet
- Cross band repeater mode
- Extended receive range
- Tone search function
- Full Duplex between VHF & UHF
- Channelized mode programmable
- Time-out timer and penalty programmable
- PC programming via optional cable ERW-4
- CTCSS encoder (50 tones) comes standard, decoder with optional EJ-24U
- Busy channel Lock out

£399.95



DR-M06 6 Meter Mobile

6M FM mobile - 50-54MHz, low output - nice to use!

£249.95

- 100 memory channels
- CTCSS encoder (50 tones), decoder as an option
- Time-out timer
- Output 10W
- Modifiable to cover 45-60MHz

HAYDON Communications

London Branch
• 132 High St • Edgware
• Middlesex • HA8 7EL
0181 951 5781/2
West Midlands Branch
• Unit 1
• Canal View Industrial Estate
• Brettle Lane • Brierley Hill
• W Midlands • DY5 3LO
01304 481681

A.R.C. Liverpool

• 38 Bridge Street
• Earlestown
• Newton le Willows
• Merseyside
• WA12 9BA
019252 29881
Fax
019252 29882

The Shortwave Shop

• 18 Fairmile Rd
• Christchurch
• Dorset • BH123 2LJ
• Fax
01202 490099
Mobile
0836 246955

SRP RADIO Centre

• 1686 Bristol Road South
• Rednal
• Birmingham
• B45 9TZ
0121 460 1581
Fax
0121 457 9009

JAYCEE Electronics Ltd

• 20 Woodside Way
• Glenrothes
• Fife • Scotland
• KY7 5DF
01592 756962
(Day or Night)
Fax
01592 610451

NAS Nottingham

• 3 Fardon Green
• Wallaton Park
• Nottingham
• NG8 1DU
0115 9280267

SOUTH MIDLANDS Communications Ltd

• S M House • School Close
• Chandlers Ford Industrial Estate
• Eastleigh
• Hampshire • SO5 3BY
01703 251549
Fax
01703 263507

SNC (Northern)

• Nowell Lane
• Industrial Estate
• Nowell Lane
• Leeds
0113 235 0606

The dealers listed in the advert have the full support and backup of the Alinco factory for spares and after sales service.

ALINCO

AT A DEALER NEAR YOU!

DX-70T



DX-70 HF + 6 mtr Transceiver

Alinco's standard compact 100W HF plus 10W 6 metre transceiver with narrow receive filters fitted as standard. **Unbeatable value for money!**

£695.00

EDX-1 HF Antenna Tuner



The EDX-1 is a coaxial tuner with built in Power and SWR meters. The ATU is rated at 120W and covers 160-10 meters including WARC bands

£159.95

EDX-2 Automatic Random Wire Antenna Tuner

Quickly matches random wire antennas, mobile whips, verticals, inverted Ls. Wired for DX70 or Icom 706 - but can be used with any HF Transceiver.

FREQUENCY RANGE
3.5MHz - 30MHz
(with over 3m element)
1.6MHz - 30MHz
(with over 12m element)
INPUT POWER (Max)
200W P.E.P.



£289.95

NEVADA UK Distributor
01705 662145
EUROPE'S No1 Supplier

DJ-65 Dual Band Handheld

A brilliant twin band handheld that does everything including spectrum display of adjacent channels. The receiver has a superb front end that does not suffer with breakthrough like other handhelds and has CTCSS/DTMF built in as standard.

- Spectrum channel display
- Extended receive including Airband 108-173.995MHz 400-511.995MHz 800-999.995MHz
- Full VHF/UHF Duplex
- Over air cloning
- Cross band repeater function
- Up to 5W RF output
- 100 memories



£299.95

SUPPLIED WITH FREE NICADS & CHARGER

DJ-S41C UHF Handheld

A micro-sized handheld at an unbelievably low price. Ideal for the novice or for repeater operation.

- 20 memories
- 10mW inchoable to 340mW output
- CTCSS encode
- Programmable repeater shift
- Battery save function
- Scan function
- Adjustable antenna



£129.95

DJ-191 2 Meter Handheld

A new slim line 2 meter handheld thats easy to use and has an enormous clear display.

- Up to 5W output (with 9.6V NiCad pack)
- 40 memories channels
- Cloning capable
- CTCSS encoder
- DTMF fitted
- Battery save facility
- Scan functions
- Time out timer



SUPPLIED WITH FREE NICADS & CHARGER

£169.95

DJ-190E Low Cost Handheld

A powerful super slim 2mtr handheld with a huge easy to read display.

- Up to 5W RF output (with optional EBP-36N battery pack)
- 40 memory channels
- CTCSS tone encoder fitted
- Battery save function
- Scan function
- Time out timer setting



SUPPLIED WITH FREE NICADS & CHARGER

£149.95



SUPPLIED WITH FREE NICADS & CHARGER

£139.95

DJ-180 2 Meter Handheld

The controls are laid out so that you will not have to spend hours studying the manual.

The highly visible LCD display means you will not need a magnifying glass to read it!

- Up to 5W output (with 12V NiCad pack)
- 10 memories expandable
- Frequency or Channel display
- Power saver facility
- High quality audio output
- Includes NiCad pack and charger

Accessories for handhelds

EBP-36N
NiCad Battery pack
£59.95

EDH-16
Dry cell case
£12.95

FSC-29
Soft case
£14.95

EDC-61
Rapid Charger for DJ-65 and DJ-190
£79.95

EDC-37
12V cable for handhelds.
£14.95

EME-12
Headset and single headphone for all handhelds
£49.95

REG WARD & Co

• 1 Western Parade
• West Street
• Axminster • Devon
• EX13 5NY
01297 34918
Fax
01297 349499

ARE Communications

• 6 Royal Parade
• Hanger Lane
• Ealing • London
• W9A 1ET
0181 987 4476

PHOTO ACOUSTICS

• 58 High Street
• Newport Pagnell
• Buckinghamshire
• MK16 8AQ
01908 610625
Fax
01908 216373

ASK Electronics

• 248 Tottenham Court Road
• London
• W1P 9AD
0171 637 0353
Fax
0171 637 2690

FOTO VIDEO

• 15 Edgware Road
• London
• W2P 2JE
0171 724 2103
Fax
0171 706 4635

The Northern SHORTWAVE Centre Ltd

• Blackdyke Road
• Kingstown Industrial Estate • Carlisle
• CA3 0PJ
01228 598011

TYRONE Amateur Electronics

• 44 High Street
• Omagh
• Co Tyrone
• N. Ireland • BT78 1BP
01662 242043
Fax
01662 249873

NEVADA

• 189 London Road
• North End
• Portsmouth
• Hampshire
• PO2 9AE
01705 662145
Fax
01705 690626

If in doubt call NEVADA for details of your nearest ALINCO AUTHORISED DEALER



RADIO DISCOVER THE BASICS

By Rob Mannion G3XFD

In his new column aimed at the beginner, Rob Mannion G3XFD goes back to the real basics of radio. Each month he'll aim to provide simple explanations and analogies which can then be backed up with further reading.

My young friend Barry Rimmer enjoyed building the PW Cadet receiver kit in January...but the inevitable happened and he started asking me questions! Barry listened to the radio for a while and then asked 'How does it work Rob...how does electricity flow'?

So, to answer his questions I thought it would be a good idea to use a technique I've employed for many years. Simple explanations to get you going which can be backed-up by further reading. In other words I'll provide a basic foundation, which can then be built on by adding further knowledge, strengthening both your knowledge and understanding at the same time.

Basic Force

I explained to Barry that the basic force behind electricity is the Electron. The electron is negatively charged and as far as we're concerned...it doesn't like other electrons. In fact they push away from each other.

Electrons form part of everything we're made of, surrounded by and walk about in. In other words they're very much part of all the various 'building

blocks of the chemical elements of life.

I drew a diagram of the simplest 'building block' element known - that of the Hydrogen atom as shown in Fig. 1. Here a single negatively charged electron is in 'orbit' around a positively charged 'nucleus' (It really

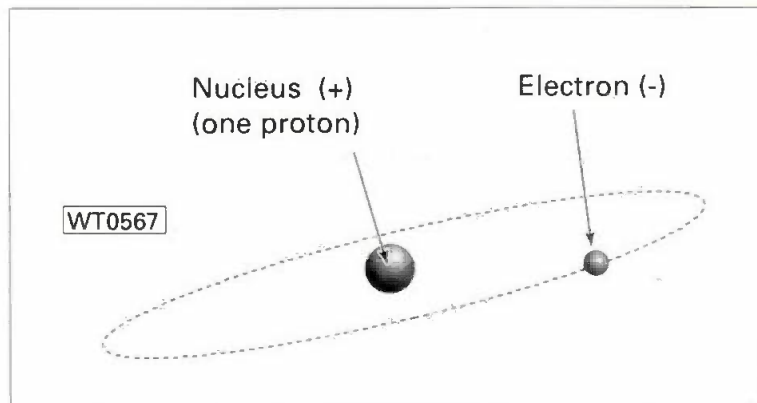


Fig. 1: The simplest 'building block' (see text).

does look like a 'planet' with a 'moon' or satellite in orbit doesn't it!).

The single electron is quite happy to 'orbit' the positively charged nucleus because it's attracted to the positive charge. But it's kept at a distance by other forces which

with a ball attached to some string. Whirl it around your head (not indoors please!) and the ball will travel as far away from you as the string allows (you'll feel the pull). This 'balanced' situation will carry on until the pull (you holding the string) is broken or the ball is removed.

To start a 'flow' of electrons you have to introduce an 'unbalanced' situation by providing other electrons. Once extra electrons are introduced, they repel each other and are forced away into other areas (where they're just as unwelcome) and a chain reaction starts.

I told Barry that in my younger days the 'chain reaction' was often explained as a shunting engine hitting the buffers of a wagon and that wagon hitting another's buffers and so on to the end of the line of wagons! But nowadays I find it easier to illustrate 'electron flow' by using the pipe and tennis ball routine.

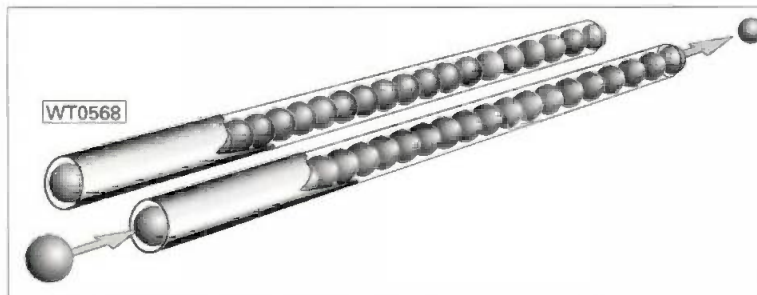


Fig. 2: Rob G3XFD uses the tennis ball analogy to illustrate electron flow

balance out the attraction.











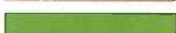




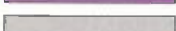

You can demonstrate the 'satellite in orbit round a planet' effect yourself

conductor in my very basic explanation.

As soon as another electron (a

Pipe Full

If you can imagine, as in Fig. 2, that there's a clear plastic pipe full of tennis balls (playing the part of the electrons) we can start the analogy. The pipe represents the simple wire

Resistor colour code					
Numbers			Tolerance	±%	
Black		0	None	20	
Brown		1	Silver		10
Red		2	Gold		5
Orange		3	Red		2
Yellow		4	Brown		1
Green		5	Green		0.5
Blue		6	Blue		0.25
Violet		7	Violet		0.1
Grey		8			
White		9			

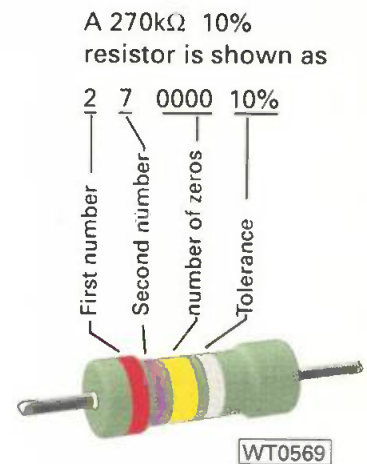


Fig. 4 & 4a: The resistor colour code with a 270kΩ 10% resistor shown as an example.

tennis ball) is added to the 'circuit' ...a displaced tennis ball pops out at the other end. The effect is almost instantaneous. Movement (albeit almost invisible except for the end result) has occurred and a 'flow' has started.

Obviously it takes some time for our original 'electron' (tennis ball) to pop out of the other end, but it does eventually. In the meantime the electron we've moved or disturbed has gone on to effect others and all we've got to do now is to provide a continual 'stream' of electrons to keep the 'chain reaction' going.

There are various ways of providing electrons to initiate a 'flow'. Next time I'll share with you how I explained to Barry how metals slowly dissolve with chemicals to provide electrons using the familiar

battery and how you can also 'generate' a flow of electrons by bullying them with magnets!

In the meantime I strongly recommend that you try some 'further reading' to back up your basic knowledge. And to help I've made a list of books...some of which will be available from your local library.

Vital Components

As Barry and I worked our way through building the Cadet kit I pointed out each vital component. So, I think it's a good idea that we take a look at each basic component as the series progresses. I'm going to start off with the resistor and provide a very short description of what the component does in circuit.

Resistors come in many shapes and sizes and as the name suggests they offer 'resistance' to electron flow. The term 'Ohm' (symbol Ω) is used to indicate the level of resistance.

Later on in the series I'm planning to devote the main part of the column to talking about resistance, Ohm's law (a really important fundamental law) and how it effects how the component is used. But for now I'll just introduce you to the resistor generally and explain how you identify the values.

The diagram, Fig. 3, shows a selection of the resistor types you'll come across - especially in the 'goody bag' bargain bins at rallies. Resistance values and the percentage of tolerance (how 'near' percentage wise you can expect it to be in the marked value) are shown by the coloured bands.

Next time I shall be sharing the experience Barry and I had with simple 'batteries' and generators and how to measure voltage, current and resistance. If you want to join in the experiments, I recommend you buy a simple analogue (one with a needle pointer) test meter. They're available from many sources, many of our advertisers, d.i.y. stores, electrical and hobby shops.

Look for a 'pocket' testmeter which should cost less than £10. But if you want any help or advice on what to get so you can join in the fun, please refer to the advice on the 'further' reading list. I've mentioned several sources of meters and guide prices there to help you.

PW

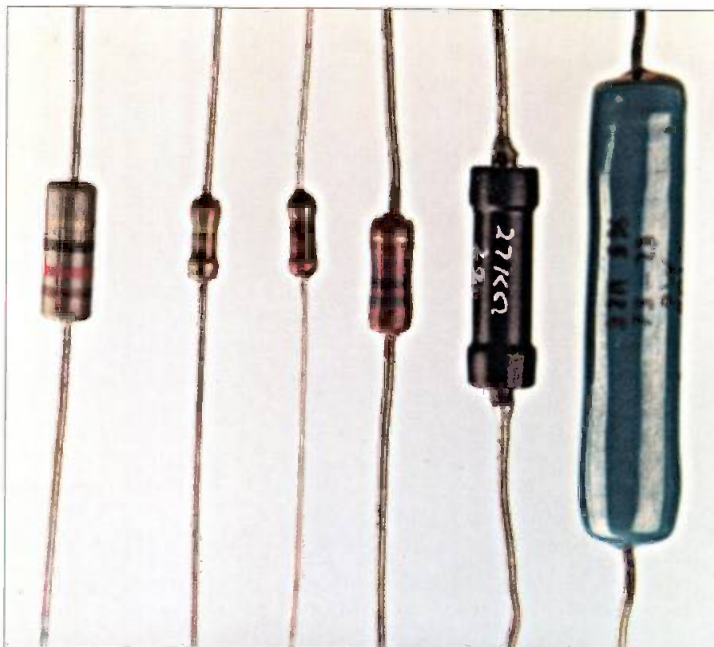


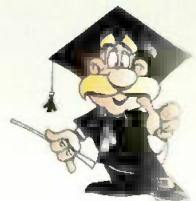
Fig. 3: A selection of resistor types.

Further Reading

Basic Electricity (In 5 Parts), Published by Common Core Press. Only available from libraries nowadays. There were and still are outstandingly successful 'first technical' books. (Your local library may well have this series bound in one volume).

Foundations Of Wireless: This famous book by Scroggie (Published by Illife originally and latterly by Newnes) is often still available in libraries. It went to 30 or more editions. Ask your library for help.

To help interested readers find the most helpful books for 'further reading' Rob has prepared a list of recommended books. To receive your list, send an s.a.e to 'Discover The Basics' Further Reading to the Editorial address in Broadstone.



Cheerio until next time!

SRP TRADING

MANUFACTURERS & DISTRIBUTORS OF COMMUNICATIONS EQUIPMENT
 SRP Radio Centre, 1686 Bristol Road South, Rednal, Birmingham B45 9TZ
 Tel: 0121-460 1581/0121-457 7788 Fax: 0121-457 9009

PRO 2042 BASE SCANNER

(1000 CHANNEL WITH HYPERSCAN) JUST £359.99 WITH ANTENNA AND GUIDE
 OR £299.99 ALONE INC P&P*



- 1000 memory channels (100 channels x 10 banks)
- 10 limit search banks ● 100 monitor channels
- 50 channels/sec & 50 steps/sec scanning speeds ● Large orange backlit LCD display ● Rotary or keypad frequency control.

Size: 232mm W x 210mm D x 90mm H.

Modes: AM, FM and WFM.

Step sizes: 5kHz, 12.5kHz and 50kHz (WFM).

COMES WITH TELESCOPIC ANTENNA AND OWNERS MANUAL.

We are offering with each purchase of the PRO 2042 at a cost of £359.99 inc P&P*, both a copy of the 5th Edition UK Scanning Directory (RRP £18.50) and a choice of either

our Skyscan DX V1300 discone antenna (RRP £49.95) or our Skyscan Desk 1300 discone antenna (RRP £49.00).

To take advantage of this special offer or for more information, call either Rod, Richard or Mary on:

0121-460 1581 or 0121-457 7788

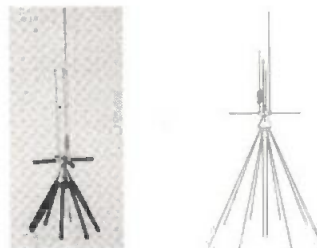
Demand is likely to be high, and orders will be fulfilled strictly on a first come first served basis (subject to stock availability). *Free P&P applies to mainland UK deliveries only.

The UK Scanning Directory
5th Edition



Frequency Coverage

Freq (MHz)	Step	Mode	137.00-224.995	5.0kHz	FM
25.000-29.995	5.0kHz	AM	225.000-400.000	12.5kHz	AM
30.000-87.495	5.0kHz	FM	400.005-520.000	12.5kHz	FM
87.500-107.995	50kHz	WFM	760.000-1300.000	12.5kHz	FM
108.00-136.995	12.5kHz	AM			



QUANTEK FC2000 FREQUENCY COUNTER

This sensitive "nearfield" counter is ideal for on-air frequency checking. Simply hold the counter near to the transmitter to get an accurate frequency reading. Comes complete with nicads, AC charger and aerial. An ideal frequency counter for service engineers or surveillance personnel who need an accurate handheld counter.

SPECIFICATIONS

Frequency range: 1MHz to 2.4GHz
 Sensitivity (Typical): 800µV @ 10MHz
 500µV @ 30MHz
 225µV @ 150MHz
 640µV @ 450MHz
 1mV @ 850MHz
 <10mV @ 1.3GHz
 <200mV @ 2.4GHz
 Maximum Input Power: +15dB (50mW), 1.26V RMS
 Input impedance: 50Ohm
 Timebase stability: +/- 1ppm 25-35°C
 Timebase ageing: 1ppm per year typical

Timebase accuracy: +/- 1 count in LSD
 Gate time: Fast 0.25 seconds for 1kHz resolution. Slow 2.5 seconds for 100Hz resolution
 Power: Internal nicad batteries 4 x AA, 700mAh or mains adaptor/charger, 240VAC input, 12VDC output, centre positive
 Size: 100 x 87 x 28mm
 Specifications subject to change without notice

RRP
£135.95



SRP PRICE
£89.95
 £5 P&P

NEWS

1997

Compiled by Donna Vincent G7TZB

New From Lake Electronics

Not on 10MHz yet? If not, you may be interested in the latest transceiver from Alan Lake G4DVM.

Fred Camm - The Practical Man

Many readers - including myself - can remember the time when F. J. Camm was the Editor of *Practical Wireless* and most of the magazine's sister titles. And it becomes patently clear when I visit clubs to provide 'PW' talks that there are very many people who thirst for knowledge on the almost anonymous man behind the famous name. It's also been patently obvious that I was lacking in knowledge about the great name - and just how little I knew was brought home to me after I read a copy of a newly-published book devoted to his life and work.

The book *F. J. Camm - The Practical Man 1895-1959* by Gordon G. Cullingham describes itself on the front cover as being "An outline of his life and works". And believe me...it does just that. It's absolutely fascinating!

Gordon Cullingham, the Honorary Archivist of the Royal Borough of Windsor has researched at length the interests, writings and skills of the remarkable Windsor man responsible for *PW* and many other magazines. Born at the end of the Victorian era, 'FJ' grew up in the early days of motoring, aviation and electronics and contributed - via his extensive writing in this and other magazines - a great deal to the public's understanding of the new technologies.

Camm was a skilled modeller, and this is clearly shown in the photographs carefully sourced by Gordon Cullingham. His research also enables us to 'peek' into the life of a man whose work - if not the man behind it all - was known to many of

Alan's new transceiver - so new that we don't have a photograph yet - is the latest addition to his long-established 'DTR family' or transceivers. It closely follows the pattern of its predecessors incorporating v.f.o. control, power output of (nominal) 5 and maximum of

us.

Fred Camm (he was married and had one son...something I didn't know until reading the book!) was born into a large family as the second of 12 children. His eldest brother Sydney - eventually Sir Sydney - was the well-known designer of the Hawker *Hurricane* of Battle of Britain fame.

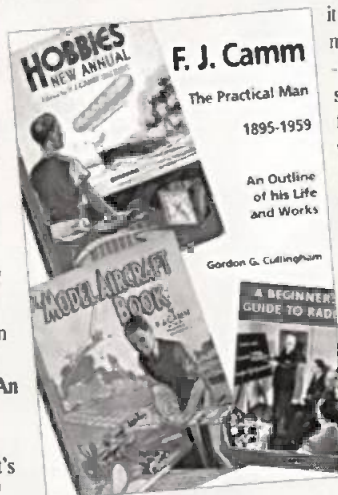
It's time that Fred Camm's life and work should be honoured and recorded by a book. In my opinion Gordon Cullingham's work does it admirably

and I intend to take it with me on all my club visits. It is - as I've already said - absolutely fascinating and will bring many memories flooding back for *PW* readers and anyone who also enjoyed *Practical Woodworker* and the host of other titles. It's a great tribute to a great man whose work we knew and

now we have the chance of learning a bit about the man himself.

Rob Mannion G3XFD

Copies of *F. J. Camm - The Practical Man 1895-1959* are available direct from Gordon Cullingham (Honorary Archivist Royal Borough of Windsor) for £7.50 plus £2 P&P (UK). Airmail postage (surface post not recommended) is available for addresses abroad for £3 (£10.50 inc. P&P). Please send your cheques (Payable to Gordon. C. Cullingham) to: 54 Alma Road, Windsor, Berkshire SL4 3HA. Tel: (01753) 863951. FAX: (01753) 861383.



7W. A 7-element filter follows the power amplifier stage, for minimal harmonic radiation.

As with other DTR transceivers, the DTR10-5 incorporates a direct conversion receiver and Alan reports that this has a sensitivity of better than 1µV minimum detectable signal (m.d.s.). The receiver also includes a passive audio filter providing selectivity of approximately 250Hz @ 6dB. The kit will be available at £97.80 plus £4 postage. It's also available "built to order" for £162.

For further details contact Alan Lake at Lake Electronics, 7 Middleton Close, Nuthall, Nottingham NG16 1BX. Tel: 0115-938 2509. E-mail: 100775.730@compuserve.com

338 candidates. The December 1997 RAE will be the final examination in its present form. It will be the last opportunity for candidates who have been previously successful in only one paper to retake the paper they need to pass. From May 1988 the RAE will comprise a single paper of 80 questions. There will be 25 questions in the first part covering licensing conditions and operating conditions and practices. Candidates will have to be successful in Part 1 of the paper to be successful in the examination as a whole. For further information on the RAE and City & Guilds in general please contact Roger Bone at C&G on 0171-294-2468, extension 2766.

To obtain copies of the full summarised reports on the December 1996 RAE papers, please send an A5 stamped and self-addressed envelope to: Lynnette Ranger at RSGB Headquarters at Lambda House, Cranborne Road, Potters Bar, Hertfordshire EN6 3JE.

RAE Results.... Could Do Better!

A summary of the December 1996 RAE results from the City & Guilds makes interesting reading and those who do so will perhaps remember comments from their school reports: "Could do better"!

However, full summarisation of results in the report on Paper 7650-001 states that despite the comments, overall performance was about average for the paper. The report was prepared and the paper moderated from the analysis of

The ISWL On Air In 1997

Chris Carrington, Publicity Officer of the International Short Wave League (ISWL) reports that the club's callsign GX4BJC will be active during 1997 by the following operators:

February	Roy Smyth G4CBG (Using GN4BJC/P)
March:	Nigel Dych G0RRW
April	Brian Smith G0IER
May	David Beale G0DBX
June	Mike Rutland G0VIX
July	Paul Westrip G0SLD
August	Fred Connor G4FMI
September	Dick Rugg G2BRR (Using G4BJC)
October	Roger Provins G0RGJ
November	Bill Griffiths GW0UHI
December	Philip Conway G4LAN

As in previous years, a special ISWL Club Callsign Card is available to anyone who either hears or works the station. A QSL will be sent on receipt of an incoming QSL or reception reports. You can QSL via the bureau or direct to: David Beale G0DBX (G-10618), ISWL Club Callsign QSL Manager, 'Kenwood', London Road, Louth, Lincolnshire LN11 8QH.

Radio Amateurs On Track



By Bruce McCartney GM4BDJ

If you are prepared to expect the unexpected and prepared to expect the expected NOT to happen to schedule, then look no further than a holiday with the BDX Group in Lithuania. Bruce McCartney GM4BDJ explains all...

The Baltic DX Group have organised a Summer Camp for radio amateurs in Lithuania for the past few summers. A special call has been allocated LY*BDX, (* depends on the year). About ten of us went from the UK in 1993.

In 1993, towards the end of our stay at BDX in Preila, I found out that a fellow BDXer, Norman GI4SZP and I had a mutual interest in railways. However, due to the rather remote location of Preila and the lateness in the holiday, we could not visit any railway locations that year. We said that we would return 'some time' to BDX.

Suitable Location

When it was announced that BDX 94 would be more or less in the middle of Lithuania, a much more suitable location for railway travel, packet messages went between me and Northern Ireland - yes, BDX 94 was a possibility. Norman and his XYL Anne would drive out to Lithuania, while I would fly, but this time we would request if it would be at all possible to visit a railway location during BDX 94.

A letter to the organiser, Willy LY2PX, produced the reply. 'Come early before BDX and stay with my family'. The three of us from the UK decided to rendezvous in Vilnius on the Wednesday before BDX, this

would give us two days of freedom to discover Lithuanian railways.

So, I arrived at Vilnius airport on Wednesday 20 July 1994, to a welcoming party of LY2PX, Tadas LY2BAW, his son, Tomas LY3NNC and Norman and Anne.

Willy introduced me to a totally new concept in driving. He couldn't put his car into gear with the engine running, every time we had to halt at traffic lights, he switched off the engine, pressed the clutch, put it into gear and, usually, but by no means always, we would lurch away!

Railway Museum

After depositing my luggage and eating my fourth meal of the day (it was just mid-day UK time) we set off in 30° of dry heat to meet with Norman and Anne to visit the Lithuanian Railways Transport Museum. In the centre of Vilnius, quite far from the railway station, we, with LY2PX, his son, Jurgis and LY3NNC, entered a grand building being renovated.

There were no signs outside of any railway nature at all! However, Willy assured us this was the place! There were fine long marble corridors, pillars, seemingly endless amounts of doors, Norman whispered that it would be rather difficult to get a locomotive in here as we went up the second flight of stairs.

Behind a curtained doorway stood the Director of the Museum. There were maps, plans, diagrams, buttons, pictures galore, but no major items. It was a slight disappointment, but the enthusiasm of the Director and the fun of our Lithuanian guides had translating, or trying to translate, railway technicalities into English made up for that!

Plans Adrift

After being introduced to the Director's wife, who had come along to meet his foreign visitors, we left after signing the visitors book. It was then decided that the next morning I would meet Norman and Anne and would then head north in Norman's car, with the teenagers, Jurgis and Tomas, as our interpreters, to visit a narrow gauge line which the Director had said was open to passengers.

We had discovered on the previous BDX that plans occasionally went adrift! So it was no surprise to Norman when we finally turned up at 1030 with Willy who had had his car 'repaired' that morning.

Thus two cars set off using 144MHz (2m) hand-helds to communicate. We stopped at a brand new motorway services, filled the cars with fuel and were about to head north again (it was now 1130 - so much for the early start!) when Willy discovered he had forgotten his medication. Never bother - the occasional stop and bite to eat would do instead!

Willy drove virtually flat out at 80km/hour, with the windows down to get rid of the engine fumes, to keep up with Norman and his three passengers. After what seemed an eternity the six of us reached our destination, Anykschciai. As we went into the cafe for lunch, Norman asked if my St Christopher was worn-out - 'nuff said!

Radio Time

After lunch, we went to the station, the timetables were translated and we had four hours to put in before the next train, the evening one from the west. Time for some radio!

Willy telephoned a local amateur. We met LY1CQ and his brother LY1CX. Both work at a local 'wine factory'. Valdas and Audrius took us on an interesting tour of the hilly and heavily wooded country-side around Anykschciai.

We were shown a giant boulder monument in honour of the two

Russian built narrow gauge locomotive running around at Anykschciai.





Inside the Vilnius Transport Museum: GI4SZP (on left), GM4BDJ (on right), curator and wife between.

Lithuanian aviators who crossed the Atlantic in 1936. Next followed a tour of the wine factory, here, basically, virtually any fruit is fermented and made into what I would describe as a sweet desert wine. There was much evidence of recent foreign investment in the machinery in the plant.

In a room in the factory was the amateur radio contest station LY5R, the six element beam and top band dipole attached to the chimney having been in evidence all through our tour. All of the gear was home constructed or of ex-Soviet origin and it was amongst this array of equipment that we sampled some of the factory's products. (Our drivers totally abstained, the Lithuania laws being particularly severe).

The sight of a Soviet equivalent of a QQV06/40 being used with the anodes strapped together in the driver stage of a 3.5MHz linear will stay with me for a while. LY1CQ reckoned that the linear could give out in excess of 1kW.

Exploring & Photographing

Next visit was the local 'horse' museum - this turned out to be a museum of farming! Finally, at 6.20pm we drove to Anyksciai station and had a few minutes exploring and photographing the buildings, sidings and abandoned section over the 'Holy Water' to Utenas.

Although narrow gauge, the carriages were 'normal size', quite unlike any UK narrow gauge line I've been on. We purchased tickets for the next station down the line for the train's return journey. (Five adult tickets for the six kilometres cost less than 40p).

The train paused for a few seconds at our destination and we had to jump off, as did the other few passengers. There was no hint of a platform. Willy gave us a lift back into town where we found somewhere to eat.

Car Trouble

The day still had surprises in store. Willy tested the oil level in his car, it didn't even reach the dip stick! The car needed five litres of oil at least.

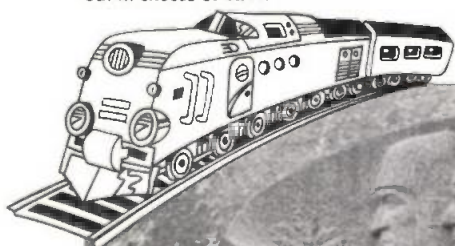
A call on 144MHz produced, after some delay, a can of used sump oil and after this was poured in, we left Anyksciai at about 10pm. Just as the cars were leaving the town, Willy was flagged down by the Police!

A local farmer had walked 15km to the Police Station to report an incident at his farm and the Police didn't have enough petrol in their car to take him home - would he mind? Again the windows were wound down, but this time it wasn't the engine fumes causing the grief!

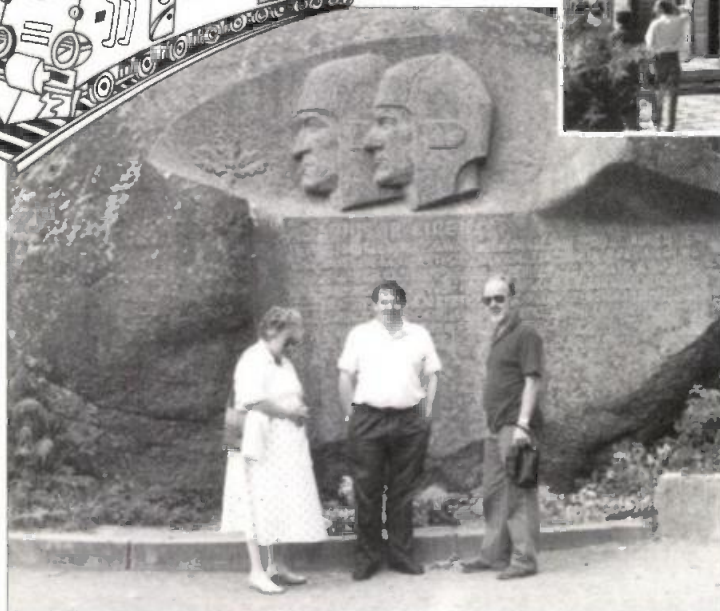
Interesting Experiences

Finally, amidst a spectacular 'shooting' display of meteorites, we arrived safely back in Vilnius. Perhaps railways had occupied about 10% of the day, but it had been a day of interesting experiences. Although we had originally planned that the Friday was to be a 'railway' day, we headed out to Birstonas and LY94BDX a day early.

The Summer Camp at Birstonas had amateurs from several countries. We experienced hot air ballooning, survived a visit to a mead factory and ate in the revolving restaurant high up Vilnius's TV tower. There was so much to do in BDX that although the



Peaceful looking Anyksciai station between (rare) trains



radios were available 24 hours a day, I only managed one contact with the UK!

If you are prepared to expect the unexpected and prepared to expect the expected not to happen to schedule, then look no further than a holiday with the BDX Group in Lithuania!

PW

Left: Monument in tribute to the two Trans-Atlantic Lithuanian aviators, near Anyksciai.

We're well into the New Year now, so we've decided to print all the Rally details that we have on file, at the time of going to press. Have a look through and see which Rallies you'll be attending this year.

RADIO Diary

Compiled by Zoë Crabb

1997

If you wish to have your Rally featured in Radio Diary, all you have to do is send in as much information about the Rally as possible, ie. date, location, time, who to contact, etc., and send it to Zoë Crabb at the PW Editorial Office.

February 16: The 16th Northern Cross Rally is to be held at Thornes Park Athletics Stadium, Wakefield - one large hall - just out of town on the Horbury road. Easy access from M1 junctions 39 & 40 - well signposted and with talk-in on 144MHz and 430MHz. Doors open at 11am (10.30am for disabled visitors and Bring & Buy). Further details from Peter G0BQB on (01924) 379680, FAX: (01924) 257445, E-mail: rally@waveg.demon.co.uk Web page: <http://www.waveg.demon.co.uk/rally/>

February 22: The Tyneside Amateur Radio Society will be holding their 11th annual rally at the Temple Park Centre, South Shields. The Temple Park Centre is located on John Reid Road, approached from A194 and with excellent access from all parts. Doors open at 11am with special entry at 10.30am for disabled persons. Admission is £1 on the door. The talk-in station will be provided on S22 from 8am. There is ample parking space for visitors and special arrangements will be made for disabled visitors. There will be a Bring & Buy and all the usual trade stands. More details from Jack G0DZG on 0191-265 1718.

February 22: The 12th Rainham Radio Rally, sponsored by the Bredhurst Receiving and Transmitting Society. This is the 4th year at the new venue, which is, The Rainham School for Girls, Derwent Way, Rainham, Kent ME8 9PP. Talk in on S22 GB4RRR. Doors open 10am, (9.30am for disabled visitors and items for Bring & Buy). Admission is £1.50, under 14s free. There will be the usual mix of trade stands, Bring & Buy, many special interest groups will also be represented, ie. RNARS, RAYNET, KRQ, KEPAC, BARTG, etc. There will be plenty of off road parking, a licensed bar, food and refreshments. More details from Martin M0AAK on (01634) 365980 at any reasonable time.

February 23: The Barry Amateur Radio & Computer Rally will be held at the Barry Leisure Centre, off Holton Road, Barry. Doors open at 10.30am, (10am for disabled badge holders). There will be trade stands, a Bring & Buy, refreshments, a swimming pool and free car parking. Brian G6PUP, Tel/FAX: (01222) 832253.

February 23: The Kidderminster Radio & Electronics Fair is to be held at the Kidderminster College, Hoo Road, Kidderminster, Worcestershire. Doors open at 10.30am to 3pm. Admission is £1. There will be traders, a Bring & Buy, Flea Market, food and drinks and talk-in on S22. John G8MGK on (01527) 545823 or mobile on (0860) 147954 or Tony G4ALT on (01562) 69652 or mobile on (0860) 902165.

March 1: The 4th West Wales Amateur Radio & Computer Rally will take place at Penparcau School, Aberystwyth. Doors open at 10.30am to 4pm (disabled visitors 10am). Admission is £1. All on one level with ample free parking. There will be trade stands, computers and radio, Bring & Buy, special interest groups, Repeater Group, West Wales Packet Group. Listen out for h.f. and v.h.f. GCOARA on the air. There's also lots more for the amateur radio and computer hobbyist, this is where the bargains are. Talk-in on S22. Further details and trade bookings from Katy on (01545) 580675.

March 2: The West Manchester Radio Club's Red Rose Rally will be held at Horwich Leisure Centre, Victoria Road, Horwich, near Bolton of J6 M61. There will be a cafe, bar, Bring & Buy, special interest groups, parking for 300 cars and children's activity room (up to 7yrs), supervised by parent. Doors open 10.30am and admission is £1, children free. Talk-in on S22. Albert on (01204) 62980.

***March 8-9:** The London Amateur Radio & Computer Show is to be held at the Lee Valley Leisure Centre, Picketts Lock Lane, Edmonton, London, N9. Doors open 10am to 5pm each day (disabled visitors from 9.30am). There will be a trade show, with over 100 exhibitors. Bring & Buy, RSGB Committee and book stands, on-demand Morse tests, talk-in on 144 and 430MHz, special interest groups, disabled facilities, priority admission

for disabled persons, bars, restaurants, ample free car parking and lectures. (01923) 893929.

March 9: The Wythall Radio Club are holding their 12th Annual Radio Club Rally on Sunday at Wythall Park, Silver Street, Wythall, near Birmingham on the A435, just two miles from junction 3 of the M42. Doors open from 10am to 4pm. Admission is just £1. The usual traders in three halls and a large marquee. Bar and refreshment facilities on site, big Bring & Buy stand and talk-in on S22. More information from Rally Organiser, Chris G0EYD on 0121-430 2767 evenings, weekends for details.

March 16: The Mid-Devon Rally, sponsored and arranged by the Tiverton South West Radio Club, is a permanent fixture set for the 3rd Sunday in March, so no need to watch the magazines for the date in future! There will be a wide selection of traders to the rally, no matter what your interest, you will be able to find something useful to take home to the shack. There will also be all the usual, excellent catering facilities. More details from Alan G0MAS on (0884) 252259.

March 23: The Bournemouth Radio Society will hold its 10th annual sale at the Kinson Community Centre, Pelhams, Kinson, Bournemouth, Dorset. Doors open from 10am until 4pm. Talk-in by RAYNET will be available on S22. As usual, there will be a mixture of radio and computer equipment on sale plus a Bring & Buy stall. More details can be obtained from John G1HOK on (01202) 535219 or mobile (0850) 24931. Those with Internet can contact jburtens@bournemouth.ac.uk or via packet as G1HOK@GB7BNM with 'BRS Sale' as the subject.

March 23: The Pontefract & District Amateur Radio Society are holding their 17th Components Fair & Spring Rally at the Carlton High School, 300 yds from Carlton Community Centre. Doors open at 11am (disabled visitors at 10.30am). There will be many traders on the ground floor and in the main building, admission by prize programme. Colin Wilkinson G0NDE on (01977) 677006.

***May 16/17/18:** The Dayton HamVention, the largest amateur radio show in the world, is taking place at the Hara Convention Centre in Ohio, USA. Doors open at 12pm on the 16th, and the event runs until early afternoon on the 18th. For the early risers, the Flea Market is open from 6am on the 16th. You will be able to visit many trade stands, attend lectures and meet amateurs from all over the world.

May 18: The Dunstable Downs Radio Club are holding their 14th Annual National Amateur Radio and Car Boot Sale at Stockwood Country Park, Luton, nr. junction 10, M1. Doors open 10am to 4pm. Talk-in on 144MHz. Free entry to Mossman collection of Horse drawn vehicles, craft museum, plus much, much more. Plot details on (01582) 613899, pre-bookings for plots until May 14th. Plots can be purchased on the day.

May 25: The Plymouth Radio Club is holding its rally at the College of Further Education, Kings Road, Devonport, Plymouth. Admission is £1. Doors open at 10am for disabled visitors and 10.30am for others. Anyone wanting further information, contact Stephen Ramsden G7UXL on (01752) 662051 during office hours or before 9pm on (01752) 777189.

***June 27-29:** Ham Radio '97 - Europe's largest Hamfest will take place in Friedrichsafen, Germany. The Barnsley & DARC in conjunction with the RSGB will again be organising a coach trip to this Hamfest. More information from Ernie G4LUE on (01226) 16339 or mobile on (0836) 748958.

***June 29:** The 40th Longleat Amateur Radio Rally. Doors open at 10am. Further details from the bookings manager Gordon Lindsay on 0117-940 2950.

July 6: The 8th York Radio Rally will be held in the new Knivesmire Building, York Racecourse, York. Doors open at 10.30am and admission is £1.50. Children accompanied with an adult go free! There will be ample free parking, amateur radio, electronics and computers, Morse tests and repeater groups, refreshments and a licensed bar. Talk-in on S22. Further details from Pat Trask G0DRF on (01904) 628036.

July 27: The Colchester Radio & Computer Rally with a hobbies and leisure fair is to be held at St Helena School at 10am. This is a family event. Further info. from Frank Howe G3FIJ on (01206) 851189.

***July 27:** The Scarborough Amateur Radio Society is holding its annual Radio, Electronics and Computer Rally in The Spa, South Foreshore. Doors open at 11am. The rally features all the usual traders, radio, electronics, components, computer hardware and software. Morse tests are available on demand, but please remember the fee and two passport type photographs. Further details from the Rally Manager/Secretary Ross Neilson on (01377) 257074 after 6pm.

***August 10:** Flight Refuelling ARS Hamfest '97 will take place at the Flight Refuelling Sports Ground, Merley, Wimborne, Dorset. The event will run from 10am to 5pm and will include the usual mix of traders, bring & Buy, craft exhibitors, car boot sale and field events. Talk-in will be on S22. Richard Hogan G4VCQ on (01202) 691021.

August 10: The Derby & District Amateur Radio Society are holding their 40th Derby Mobile Rally at the Littleover Community School, Derby. More information on (01332) 556875.

August 15: The Cockszenie & Port Seton Amateur Radio Club are holding their 4th Annual Radio Junk Night at the Cockszenie & Port Seton Community Centre, South Seton Park, Port Seton. Doors open 18.30 to 21.30. Bring along your own junk and sell it yourself. Tables will be provided on a first come first served basis (no charge for the table). Raffle at approx. 21.00. Refreshments will be available. Disabled persons access. Entrance fee is £1 for all persons. All money raised is donated to the British Heart Foundation. Further details from Bob Glasgow GM4UYZ on (01875) 811723.

August 25: The Torbay ARS are holding their rally at the Torbay Leisure Centre, Paignton. Doors open at 10am. Talk-in on S22 by G8NJA/P. Further details can be obtained from Alan G7UEK on (01803) 214445.

October 25: The G-QRP Club Mini Convention is being held at St Aidans Hall, Sudden, Rochdale. Admission is £1 and doors open at 10am. Talk-in on S22. There is a large social area, lectures on QRP subjects, Bring & Buy, surplus, junk, components, kit traders, food and drink all day including the famous pie and peas. Rev. George Dobbs G3RJV on Tel/FAX: (01706) 31812.

November 9: The Midland Amateur Radio Society Birmingham 9th Radio & Computer Rally is being held at Stockland Green Leisure Centre, Slade Road, Erdington, Birmingham. Doors open 10am to 4pm and admission is £1. There is a large free car park, free hampers draw, trade stands, local clubs, special interest exhibits. Trader details from Norman G8BHE on 0121-422 9787 or general information from Peter Haylor on 0121-443 1189.

December 14: The Verulam Amateur Radio Club will hold its annual rally at the Watford Leisure Centre, Horseshoe Lane, Garston, Watford, from 10am to 4pm. The Leisure Centre is located off the A405 near junction 6 of the M1 and junction 21A of the M25. Attractions will include trade stands, Bring & Buy, grand raffle, cafe, licensed bar and free car parking. Morse tests will be available. For further details call (01923) 262180 or for trade information call (01923) 265572.

**Practical Wireless & SWM in attendance*

If you're travelling a long distance to a rally, it could be worth 'phoning the contact number to check all is well, before setting off. The Editorial staff of PW cannot be held responsible for information on Rallies, as this is supplied by the organisers and is published in good faith as a service to readers.

If you have any queries about a particular event, please contact the organisers direct.

Editor

antennas in action

■ NEWS & PRODUCTS ■ QUESTIONS & ANSWERS ■ ANTENNA WORKSHOP ■ REVIEWS ■

There's not much room for the news in this month's AiA so, let's begin by looking at a CDROM for those of you who have an IBM (or clone) PC available. The Public Domain Shareware Library (PDSL) have a new CDROM of antenna related information.

There are over 2000 information files and programs on the disk, covering over 50 types of antenna. All the common ones are there Yagis, cubical quads, verticals and common dipoles. But

there are also some uncommon ones such as parabolas, corner reflectors and horns.

I shall have a closer look at this comprehensive CDROM in a later issue of AiA, but if you're interested in antennas it's worth a look yourself at £24. Available from PDSL, Winscombe House, Beacon Road, Crowborough, Sussex TN6 1UL. Tel: (01892) 663298, FAX: (01892) 667473

Fancy a new mast to support that new beam antenna? Tennamast (Scotland limited) would be a suitable start point for your quest. Tennamast's 'Adapt-A-Mast' series of masts can be either free-standing or supported on the side of a building.

Tune & Feed

An antenna tuner and s.w.r. meter with an unusual coil system is available from Lake Electronics. The TU4 ATU kit has a spiral etched printed circuit coil for repeatability which may be seen in the photograph, along with all the other parts for the project.

Lake Electronics claim that they "have the kits with all the bits, and that includes all the hardware" and it's easy to see why. A few hours work with some simple tools should leave you with a finished project that looks good in the shack.

Available from Lake Electronics, 7 Middleton Close, Nuthall, Nottingham NG16 1BX. Tel: 0115-938 2509 the TU4 kit costs £68 (£88 fully built)+£4 P&P.

Any antenna is, of course, only as good as the quality of the feeder used. The W. H. Westlake company of Holsworthy in Devon are well known for supplying only the best quality feeders. If you're travelling to the London Show pop along to stand P in the Red Hall and have look for yourself.

Or write to them for a catalogue of their extensive line of coaxial and feeder products. W. H. Westlake Electronics, West Park, Clawton, Holsworthy, Devon EX22 6QN. Tel: (01409) 253758 or FAX: (01409) 253458.

If you would like to put up a lightweight tower they can also supply lattice sections from three to six metres long with a variety of end fixings. Tennamast (Scotland Limited), 81 Mains Road, Beith, Ayrshire, Scotland KA15 2HT. Tel: (01505) 503824 or FAX: (01505) 503824.

There are many radio amateurs who live in flats with little outside access, or in

housing estates with outside antenna restrictions. In cases like this, operating on h.f. is never going to be easy. Hatley Antenna Technology think they have the perfect answer to these problems in their Electromagnetic Delay-line Radiator (EMDR) antenna.

Available as either an 8.5m long (EMDR-1) or the 15.5m long EMDR-2 versions they are capable of being used at power levels up to 100W within the

house or flat space. The EMDR antenna is a form of crossed-field radiating delay line. It radiates along its whole length without the high voltage points present on a resonant wire antenna.

For more information about the EMDR range of antennas contact Hatley Antenna Technology, 1 Kenfield Place, Aberdeen, Scotland AB15 7UW.

Glancing through the pocket-sized brochure from Fringe Electronics I found a solution to one of the problems facing radio listeners and TV viewers. As many smaller firms add radio to their ranges of vehicles, breakthrough can become annoying.

If you have this problem to contend with, a v.h.f. rejection filter could be the answer. Designed with a rejection bandwidth of 20MHz the filter may be tuned to give a 36dB reduction of interfering signals in the 120 - 240MHz range. For more details contact Fringe Electronics, Fringe House, 4 Highfield Road, Clipstone, Nr Mansfield, Notts NG21 9ER. Tel: (01623) 643802 or FAX: (01623) 25407.



contents

News & Intro	25
Antenna Workshop by Ray Fautley G3ASG	26
Up The Ladder by Allan Wightman	28
A Multi-Band Antenna by Glen Ross G8MWR	33
Tex Topics 'Tex' Swann G1TEX	34

8 pages of
antennas

welcome to AiA!



Welcome to the second issue of 'Antennas in Action', the new bi-monthly section of *Practical Wireless*. It's the section that features radio related items that start after the r.f. output socket of your rig: be it cable, feeder, accessory or antenna.

News, views, projects and ideas are all part of this specialised part of *Practical Wireless*. So,

this month: You can DF with 'Antenna Workshop', build the T2FD multi-band antenna and cure one form of TVI. I've also been delving into the library, on behalf of three readers, for information on BNC plugs, stacking antennas and coaxial cable balun matching.

This section is a way that we can all learn more about antennas and how to feed them. We also want your ideas. To learn we have to listen, but someone has to talk while we listen. Let's do both in A-i-A.

G1TEX

antenna workshop

This article was inspired by a reader's letter to PW. In the letter the reader said that many years before he had worked on a receiving station employing a Bellini-Tosi antenna system.

The station that the reader had worked on was for the reception of programmes from overseas broadcasting stations, which were then relayed by cable to subscribers. He wondered whether it would be possible to set-up a similar system in his attic.

Let's consider the antenna system itself. The Bellini-Tosi antenna was one of the systems intended to be used for direction finding, but as I'll show later it can also be used as a steerable receiving antenna.

To find some information about a system that has been used for some time a little research was needed. During my research, I found that between the two World Wars radio direction finding systems were being used as navigational aids, particularly by ships at sea. The method used at the receiving station (the ship) was to take bearings of two or more radio stations of known positions, using a suitable antenna system. These directional bearings were then plotted on a map of the area. The intersection of the drawn bearing lines would then give the approximate location of the receiving station.

One of the antenna systems used to take the original bearings was the Bellini-Tosi system. The system consisted of two loops, usually triangular, which were mounted at right angles to each other. On a ship, one loop would go fore and aft, and the other across the ship from port to starboard. The apex of each triangle would be mechanically fixed at the same point, although electrically insulated.

Dimensions of the receiving loops were not critical and they were untuned. But they were trimmed to be as identical, electrically, as possible. Feeders from each of the loops were also made identical in type and electrical length. A typical system is shown in Fig. 1. The loops are labelled 'North-South' and 'East-West', but this is simply to indicate that they are mounted at right angles to each other. They could be called 'Along' and 'Across' (the attic) - the actual directions aren't important as long as they are at right angles to each other.

The Question

Now we come to the question - what is used to provide the bearing readings? This function was carried out by a device called a radio goniometer. In effect, the goniometer electrically rotated the antenna, but without having to rotate it mechanically. The goniometer was made of two fixed coils also mounted at right angles to each other as the loop antennas. There is also another coil mounted inside the fixed coils which could be rotated. The skeleton idea is shown at the bottom of the system in Fig. 1.

The actual construction of the radio goniometer device is shown in Fig. 2. Although the coils are shown as rectangular in shape, this is only to show the position of the coils clearly. The goniometer could be made from a

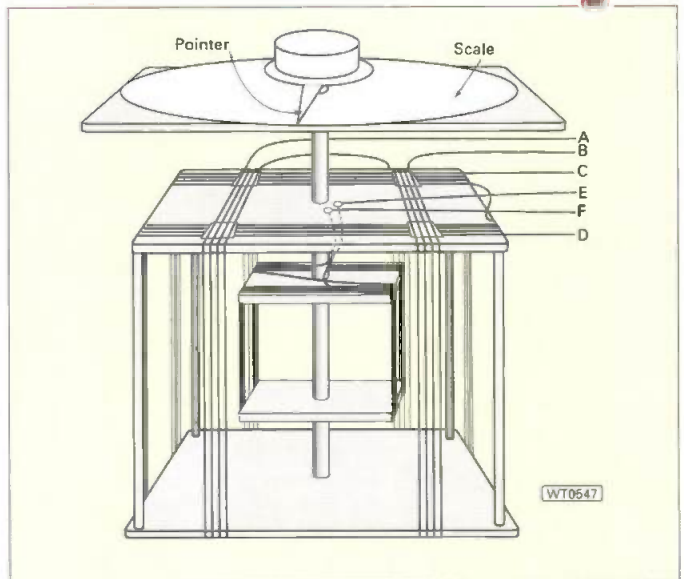


Fig. 2: This radio goniometer is drawn for clarity rather than an actual layout. (See text for details of an actual unit).

piece of plastic tubing on which one coil was wound around its circumference and the other at right angles across the ends of the tube and along its length.

Inside the tube a third coil is fitted, on a smaller diameter former, which could be rotated so as to be able to line up with one or the other fixed coils, or take up a position between the two. Rotation of the goniometer coil through its complete 360° range which would produce two nulls for each signal, one at x° and one at $(x+180)^\circ$.

Of these two possible bearings, which is the correct bearing for the received signal? To remove the ambiguity of direction, it's necessary to introduce another antenna. But in this case a simple vertical wire of some 5m in length. The ambiguity is removed by adding the signal from the simple antenna to the signal from the goniometer output. In one direction the new signal will increase the overall signal, and it will reduce the overall signal from the other bearing.

Here a problem rears its ugly head! The phase of the signal received by the fixed wire is at 90° to that provided by the goniometer search coil, so to enable the two signals to be added or subtracted it is

necessary to introduce a 90° shift to the fixed wire signal.

To add to the confusion, this addition of the two signals has the effect of shifting the original direction of the nulls by 90°! This is not too bad as it first appears, because if the fixed vertical antenna is left permanently connected, then the complete system becomes effectively a steerable beam!

When the goniometer is rotated for maximum signal in the receiver it will be indicating the approximate bearing of the transmitting station, and at the same time it will provide minimum reception from the opposite direction. This minimum will be much sharper than the maximum, so the resultant polar diagram will be a cardioid pattern similar to that of a conventional beam antenna.

The next problem is, how should the vertical antenna be connected into the system? One way is to connect it to the input (gate) of a field effect transistor (f.e.t.) and connect the goniometer search coil into its output (drain) circuit. Any signals at the amplifier input (ie. from the fixed wire) will be shifted by 90° at the drain circuit. An emitter follower is used to provide a low impedance output for connection to the input (50Ω) of the receiver. The amplifier shown in Fig. 3 shows a suitable amplifier.

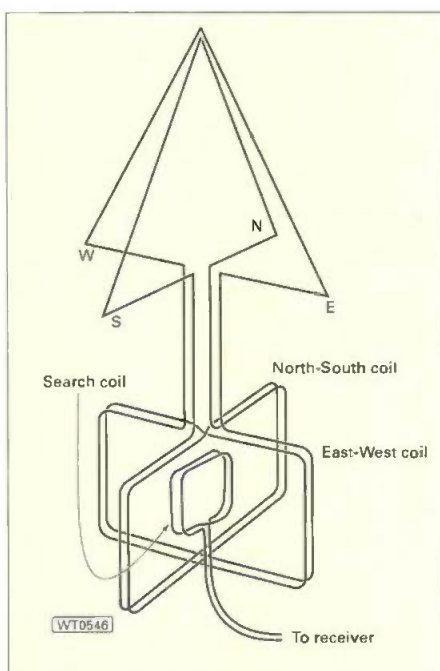


Fig. 1: The Bellini-Tosi direction finding system. See text for more information.

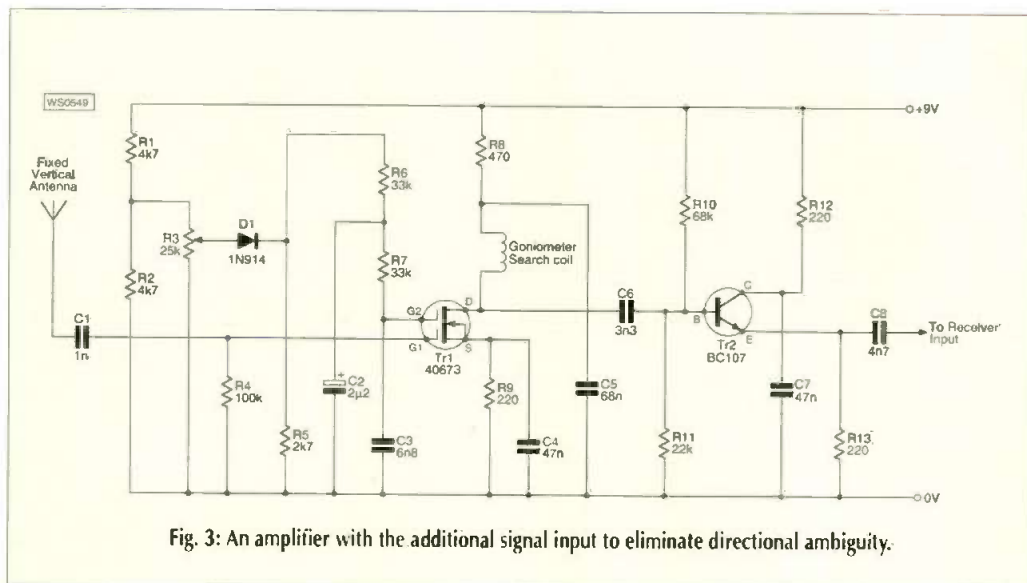


Fig. 3: An amplifier with the additional signal input to eliminate directional ambiguity.

In the past, direction finding was almost always used with medium frequencies up to about 600kHz, but of course it's useful for obtaining bearings for short wave broadcasting stations. And direction finding on amateur stations is most certainly an area for some amateur experimental work.

One of the difficulties in using this system of direction finding, is that sky wave signals contain components from different paths, which produce the well known phenomenon of fading. However, for those who like a challenge, here are a few ideas for the construction of a Bellini-Tosi d.f. system in the attic.

The timbers of the roof slope itself can be used as the support for one triangular loop with the other loop made as nearly identical as possible at right angles as in Fig. 4. The apex of each loop should be at the same point of support. I've shown the loops aligned to the compass rather

than the attic, as I consider this rather more useful. As to the dimensions? Well, the original ship's loops were only about one or two metres from base to apex, so try any size as long as both loops are the same. The feeders to the goniometer should be of identical lengths of 300Ω twin feeder, and should be connected to the centre of the base of each triangle and taken together to the shack.

Making A Goniometer

To make an effective radio goniometer. A piece of circular plastic tube about 70mm in diameter should be cut to be exactly the same length as its diameter. A hole is drilled through the tube, half-way along its length on both sides so that a rod of about 8mm can be passed straight through the tube. The size of the hole should be just sufficient to allow free rotation.

On this rod is mounted a plastic tube of about 45mm diameter and about 35mm in length. The hole drilled through this 45mm tube for the rod should be a drive fit so that sticking would be unnecessary.

The number of turns on the coils will depend on frequency in use. For up to 4MHz try about 12 turns close-wound, split into two groups of six turns on each side of the rod. The coil at right angles should also have 12 turns close-wound with a gap after six turns to make it as similar to the other coil as possible. The smaller, search coil, could have just four turns close-wound, two on each side of the rod. Its rotation should be restricted to around 370° so as not to twist the coil ends to breaking point!

As to the connections to the coils. One of the 300Ω feeders should be joined to one of large coils and the other feeder to the other coil. It doesn't matter which feeder is joined to which coil. The centre rotating coil is connected to the drain circuit of a field effect transistor amplifier, as in Fig. 3. The emitter follower has been included to provide a low impedance output to connect to the receiver 50Ω input.

The fixed vertical wire antenna is connected to the input of the amplifier, also as in Fig. 4. A pointer joined to the rotating rod can be used to indicate on a suitable scale which will have to be calibrated

from 0° to 360°. To calibrate the goniometer, tune in a station of known location, and therefore of known bearing.

For the purposes of illustration let's say the station is known to be due North. Adjust the pointer until a null or minimum signal is obtained. Now set the scale so that 180° (due South) is aligned with the pointer. And that is the calibration! As you've adjusted for the sharp minimum signal the actual bearing of that station will be in exactly the opposite direction, or 0° (ie. due North). Other stations of known bearing can then be used to confirm the calibration.

To provide the effect of a rotating beam antenna, just adjust for the broad maximum signal. A small adjustment of the goniometer setting together with amplifier gain may be used to reduce interference from unwanted signals if they are arriving from the opposite direction. This effect is similar to changing the front to back ratio.

For direction finding use, rotate the goniometer coil for a minimum indication, adjusting the gain of the amplifier until a sharp null or near zero signal is obtained. The actual bearing of the station would then be 180° from the pointer indication. This may seem to be an unnecessary complication, but is necessary because the null is so much sharper than the maximum indication.

You may ask - can this system be used as a beam antenna for transmission? The answer is that it is rather unlikely because of the low radiation resistance of the loops. However, small loops have been used successfully for transmitting although high r.f. current flow in the loop. However, where the size of each loop is comparable with the wavelength of the transmitted frequency - who knows?

Some more experimentation is needed. Is there a method of combining the Bellini-Tosi loops with the fixed vertical antenna still to be found. How about trying to find out! Let the readers and myself know if you are brave enough to have a go!

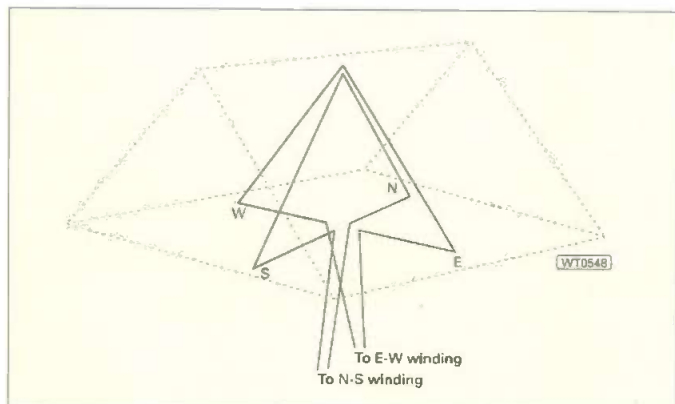


Fig. 4: A suggested layout within the attic space, as described this system is aligned to the compass rather than the attic. (See text).

■ ALLAN WIGHTMAN HAS BEEN IN THE TV AND RADIO ANTENNA-ERECTING BUSINESS FOR MANY YEARS. HERE HE RECALLS AN ANTENNA AND RECEPTION PROBLEM OF INTEREST TO RADIO AMATEURS FROM HIS NOTEBOOK.

up the ladder

Although I am not a radio 'ham' myself, over the past years some interesting problems have come my way. I've sorted them and helped both my customers and the radio 'ham' at the same time.

My work covers the 'Solent' area in and around Southampton in Hampshire, where most customers receive transmissions from the Rowridge transmitter on the Isle of Wight. From this powerful transmitter comes all four channels of BBC1, 2, ITV and Channel 4. The transmitter also provides v.h.f. Band II f.m. radio services.

Some years ago I was asked to go and see a customer who had a radio 'ham' move in next door. Their TV reception had been satisfactory until the 'ham' went on air but now they were getting interference on one channel only when the 'ham' was on the air. Fortunately, there was no bad feeling as both neighbours were trying to meet 'half-way'. I'd been called in because a neighbour of the new customer had got me to sort out a previous problem. So I got the job...and it turned out to be interesting and satisfying too.

Line Of Sight

Many parts of Southampton are 'line of sight' to the Rowridge transmitter, which operates on Band IV (4) and it

proved an excellent signal. In fact, the signal is so strong that many people make the mistake of using indoor antennas...but more of that in a later 'notebook'.

When I arrived at the house I could actually see the Isle of Wight very clearly indeed. The signal from the transmitter was so strong - well over 200mV on my field strength meter - at ground level with my test antenna, that I wondered what the trouble could be. The customer's antenna was a good quality model - an older Antiference type and the coaxial cable seemed in reasonable quality. But once in the house and with my field strength meter plugged into the feed I realised there was a problem.

Three channels were perfectly okay with terminated signal levels of 150mV. But the fourth (the one suffering from interference) had a real problem and was less half of the other channel's strength. So it was time to go 'up the ladder' to see why.

Ground Reflections

Once up my ladder I could clearly see the transmitter and guessed that ground reflections were probably the cause of the problems. Why did I think this? Because the antenna was in good condition and the cable and connections were all watertight and generally sound.

After setting-up a 'test loop' - feeding the signal back up to my field strength meter which hung from a strap around my neck while I was working on the chimney-mounted Yagi. Back up aloft, I started the essential 'height versus gain' check'. And I'd only moved the antenna up in height by about four or five inches when the signal levels changed dramatically.

By moving the antenna up I had proved that the ground reflected signals, Fig. 1, were obviously causing addition and subtraction (cancellation) of the 'direct waves' from the transmitter. And in fact I found several points where all four channels were at very low levels which would cause the TV's automatic gain control (a.g.c.) system to open right out. This dramatically increases the possibility of interference.

After about five minutes or so of slowly moving the antenna up, and down, the mast, I found a point where there were equal strength signals on all channels. At the same time I also checked the f.m. sound levels (the u.h.f. TV sound is of course transmitted as an f.m. 'intercarrier' signal) to make doubly sure everything was okay. I did this because the ground reflections can alter the sound-to-vision ratio to alter, causing its own problems.

If I'd not been able to find a point on the antenna mast's available height adjustment...I would have lowered the antenna so it was below the roof ridge.

In this way the ground reflected signals - usually much weaker than the 'direct waves' would have been less of a problem.

No Problem

I then wrapped the job up and explained to the customer that there should be no problem now. But disappointingly for me, the customer didn't notice the great improvement on the third channel. Perhaps that was not surprising because neither she or her husband had noticed the increased 'noise' ('snowy' or 'grainy') on the TV's screen when they changed channel!

Apparently in the evening my customers forgot to tell the radio 'ham' that I had been. In fact it was several weeks before they asked him if he had stopped using his radio because they had not seen any interference. "No", he said "I've been on every evening".

Oh well, it's good to sort problems out. And it was a case of three satisfied customers at one go.

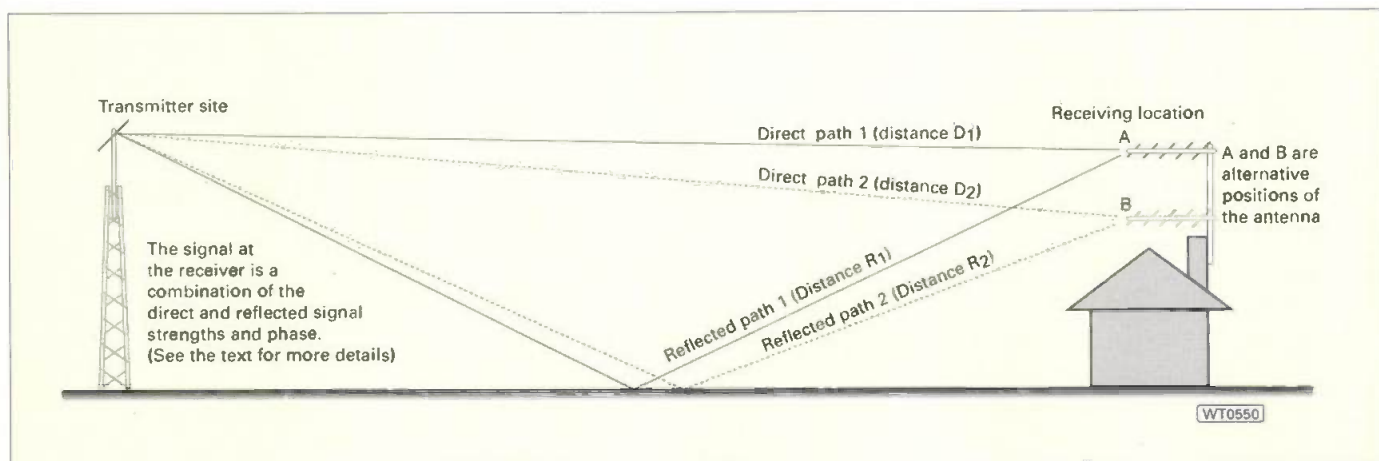


Fig. 1: Being able to see the transmitter isn't everything! Strong reflected waves can cause signal level reduction, making it more prone to TVI. This was the cause of interference on one TV channel as Allan Wightman found and cured.

NEW! ICOM IC-R10
ONLY £339
 CARRIAGE £7

EASTCOMM

LONDON SHOW
 MARCH 8th & 9th
 RED HALL, STAND J

Europe's Largest Amateur Radio Showroom

Open Monday - Friday 9.00 - 5.30, Saturday 9.00 - 4.00

MOSLEY USA BEAMS & VERTICALS

Carriage shown separately

TA32JRN	10/15/20M	2 EL	£299	£10	CL36M	10/15/20M	6 EL	£859	£15	
TA31M#	10/15/20M	1 EL	£229	£9	# TA40KR	40M UPGRADE		£189	£8	
TA32M#	10/15/20M	2 EL	£399	£11	# TA30KR	30M UPGRADE		£189	£8	
TA33M WARC#	10/12/15/17/20M	4 EL	£659	£13	TW 31	12/17/30M	1 EL	£229	£9	
TA53M WARC#	10/12/15/17/20M	4 EL	£769	£14	TW33	12/17/30M	3 EL	£729	£14	
CL33M	10/15/20M	3 EL	£619	£13	MV2W	12/17M		Vertical	£139	£8
CL33M WARC#	10/12/15/17/20M	4 EL	£729	£14	RV4C	10/15/20/40M		Vertical	£269	£9
					RV6C WARC	10/12/15/17/20/30/40M		Vertical	£359	£10

VIBROPLEX

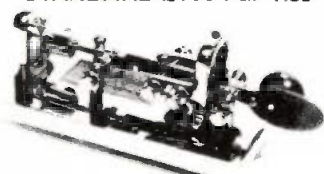


BRASS RACER IAMBIC
 £159 P&P 7.95

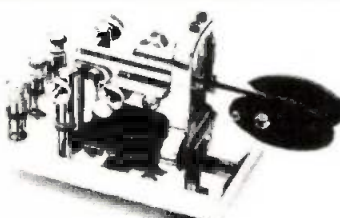


See PW Review Feb 97

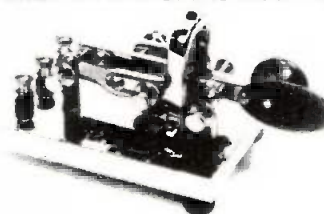
STRAIGHT KEY
 DELUXE £199 P&P 7.95
 STANDARD £169 P&P 7.95



ORIGINAL DELUXE £199 P&P 7.95
ORIGINAL STANDARD £169 P&P 7.95



IAMBIC DELUXE £199 P&P 7.95
IAMBIC STANDARD £169 P&P 7.95



SINGLE PADDLE DELUXE £199 P&P 7.95
SINGLE PADDLE STANDARD £159 P&P 7.95

We match or better our competitors advertised prices on current UK equipment

PRICE MATCH

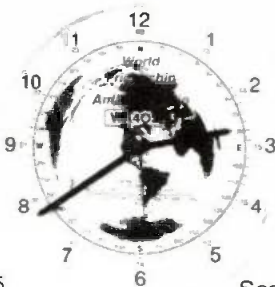
Carriage add £10

- and our customer service is always the best

Kenwood TS950SDX	HF Base	£3395	Icom IC706	HF/VHF Mobile	£969
Kenwood TS870S	HF Base	£1929	Icom IC821H	VHF/UHF Base	£1395
Kenwood TS570D	HF Base	£1275	Icom ICR8500	Receiver	£1499
Kenwood TS790E	VHF/UHF Base	£1695	Yaesu FT8000R	VHF/UHF Mobile	£465
Kenwood TM255E	2M Mobile	£799	Yaesu FT3000M	VHF Mobile	£375
Kenwood TM455E	70CM Mobile	£799	Yaesu FT736R	VHF/UHF Base	£1699
Icom IC775DSP	HF Base	£3089	Yaesu FT900C	HF Mobile	£999
Icom IC738	HF Base	£1399	Yaesu FT900ATC	HF Mobile+ATU	£1195
Icom IC756	HF Base	£1895	Yaesu FT290R2	2M Portable	£499

PERSONALISED CALLSIGN CLOCK

£39.95 FREE DELIVERY



FOR FULL CATALOGUE SEND 10 x 20p STAMPS

Please Phone for Second Hand Items

AUTEK RF ANTENNA ANALYSERS

RF5 VHF/UHF £289.95 P&P 7.95
 RF1 HF £159.95 P&P 10.00
 Protective Case £14.95 P&P 2.75

SIGMA WIRE ANTENNAS

The world's largest range of wire antennas.

See our main catalogue for over 150 different antennas

SD-32	20/15/10m	2 Trap	27' long	£83.95	5.95
SD-34	20/15/10m	4 Trap	24' long	£142.95	7.95
SD-42	40/20/15/10m	2 Trap	55' long	£89.95	5.95
SD-44	40/20/15/10m	4 Trap	47' long	£147.95	7.95
SD-52	80/40/20/15/10m	2 Trap	105' long	£103.95	7.95
SD-54	80/40/20/15/10m	4 Trap	97' long	£161.95	7.95
SD-56	80/40/20/15/10m	6 Trap	82' long	£219.95	9.00
SD-68	160/80/40/20/15/10m	8 Trap	154' long	£297.95	10.00
SD-610	160/80/40/20/15/10m	10 Trap	148' long	£367.95	10.00
SD-162	160/80m	2 Trap	208' long	£125.95	7.95

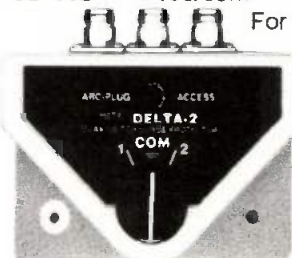
For 3kW Current Balun option add £18

DELTA 1.5kW SWITCHES

The only switches with built in Arc Protection

P&P

2 WAY SO239 to 600MHz	£69.95	5.95
2 WAY N TYPE to 1300MHz	£84.95	5.95
4 WAY SO239 to 600MHz	£94.95	5.95
4 WAY N TYPE to 1300MHz	£109.95	6.95



WE NEED YOUR QUALITY, USED AMATEUR RADIO EQUIPMENT

BUY IN, TRADE IN, OR COMMISSION SALES. BEST PRICES PAID. COLLECTION ARRANGED

Eastern Communications, Cavendish House, Happisburgh, Norfolk. NR12 0RU

VISA - ACCESS - AMEX

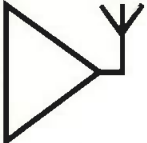
01692 - 650077

RSGB - DELTA - SWITCH

Please add 2.5% to total for credit card orders

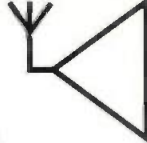
Please add 2.5% to total for credit card orders

N
A
R
S
A



Don't miss the **LARGEST** single day show in the U.K.

NORBRECK



N
A
R
S
A

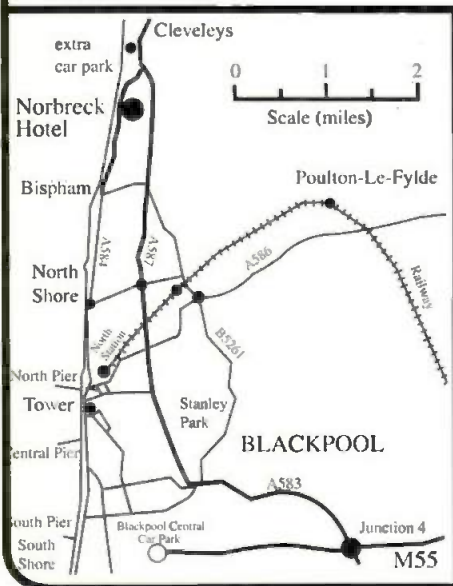
Radio, Electronics and Computing Exhibition

by the Northern Amateur Radio Societies Association at the

**NORBRECK CASTLE HOTEL EXHIBITION CENTRE
QUEENS PROMENADE, NORTH SHORE, BLACKPOOL**

on Sunday, March 16th, 1997

Doors open at 11am



- ★ Over 100 trade stands
- ★ Bring & Buy stand
- ★ RSGB stand and book stall
- ★ Organised by over 50 clubs
- ★ Facilities for the disabled (wheelchair access to all stands)
- ★ Overnight accommodation at reduced rates (contact hotel direct)
- ★ Club stands
- ★ Amateur Computer stands
- ★ Construction competition
- ★ Free car parking

RADIO TALK-IN ON S22

Admission £2 (OAP's £1, under 14's free) by exhibition plan.

EXHIBITION MANAGER: PETER DENTON, G6CGF, 0151-630 5790



Come to the Frontier of Global Communications

Subscribe to *Monitoring Times* and *Satellite Times* Magazines

Do you own a radio, a shortwave receiver, a scanning receiver, or a ham radio? Then *Monitoring Times* is your magazine! Each monthly issue of *MT* offers 20 pages of

worldwide, English language, shortwave broadcast schedules; departments on aero, military, government, public safety communications; broadcast band, satellite television, long-wave coverage; reviews of new products and radio-related software; technical articles and projects for the hobbyist; feature articles, and much, much more.

If it's on the radio, it's in Monitoring Times!

Satellite Times is the world's first and only full-spectrum satellite monitoring magazine, exploring all aspects of satellite communications, including commercial, military, broadcasting, scientific, governmental and personal communications as well as private satellite systems. The satellite industry's most respected experts contribute to every bi-monthly issue of *Satellite Times*, addressing both amateurs and experts alike.

If it's in orbit, Satellite Times covers it!



Mail this subscription form to:

PW Publishing Ltd., Freepost,
Arrowsmith Ct. Station Approach,
Broadstone, Dorset BH188 PW.

Subscription rates include speedy Air Mail Service!

- 1 year *Monitoring Times* - £85 (12 issues)
- 1 year *Satellite Times* - £55 (6 issues)

Name _____

Address _____

Postcode _____

Telephone _____

I enclose cheque/PO (Payable to PW Publishing Ltd.) £ _____

Or charge to my Access/Visa Card the amount of £ _____

Card# _____

Valid From _____ Thru _____

Signature _____

Tel _____

Credit Card Orders taken on (01202) 659930

FAX orders taken on (01202) 659950

PLEASE VISIT OUR SITE ON THE WORLD WIDE WEB:
www.grove.net

If space is tight get an Active Antenna from Datong Electronics.

If your garden is a bit like this advert, lacking in space, then you're probably not able to erect the best antennas for the H.F. bands. Or maybe you don't want to advertise the fact that you have expensive equipment in your house.

The AD270 and AD370 Active Receiving Antennas from Datong Electronics offer an ideal solution to your problems. Offering compact size they have a frequency coverage of 200kHz to well over 30MHz. Their performance is comparable to a full size dipole, without the disadvantage of being tuned to a specific frequency.

The use of dipoles in the AD270/370 design eliminates any noise that is picked up by the coaxial cable, unlike a mono-pole antenna. A switchable pre-amplifier enables an extra 12dB of gain to be added if required.

The AD270 is for indoor use while the AD370 is designed to withstand the British weather.

At a cost of £70.44 for the AD270 and £93.94 for the AD370 they offer excellent value for money. The price also includes a Power Supply, VAT and Postage.

For Converters, Filters and Active Antennas call now for a catalogue and information.



Clayton Wood Close, West Park, Leeds. LS16 6QE
Tel: 0113-274 4822 Fax: 0113-274 2872

Look no further for the widest choice!



We've got the lot! As well as the Gem Quad pictured opposite (20-15-20m for only £350 - with "WARC" band elements easily added) - we offer you Yagis from 80m to 23cms and just about everything in between. Our choice is from the best in the world. We have **HyGain, KLM, Cushcraft, M-squared, Force 12, Eagle** and lots of others. We also build the highest quality wire dipoles to your choice of frequency.

Rotators? - Naturally! We have HyGain, Orion, Yaesu and Create - to turn anything from that 80m yagi to the 23cm beam, at the best prices around. We also bring you the TIC Ring rotor. This unique rotor consists of a motor-driven ring which rotates around the tower framework, allowing ideal stacking distances to be achieved BELOW the head unit. Ideal for that big HF or 6m array. Use with our Stack-Match units - allowing up to three 50 ohm antennas to be matched and phased together.



Special Spring Offer!!! - HyGain DX77 Verticals

This antenna, (pictured left) similar to the Cushcraft R-7, is a half-wave windom, and uses short (5ft) radials. Coverage is from 40-10m (inc WARC), with matching unit to your 50 ohm feedline. Total height 29ft, which gives excellent 40 and 30m performance. 1kw power handling and stainless hardware (except mounting hardware) complete this great package. You'll see them from other retailers at £369. Our price just **£299** while stocks last.

We sneaked this one in . . .

Although this is supposed to be an antenna ad, we had to let you know about our range of high power (up to 1.5kW output) HF amplifiers from **Alpha Power**. Just reviewed by Peter Hart, G3SIX in RadCom, our budget Alpha 91b manually tuned amplifier (only £2,249) is described as "An excellent amplifier in all respects", and our top-of-the-line automatic Alpha 87A as "really the ultimate."

All this and more - from:- **Vine Antenna Products**

The Vine, Llandrinio, Powys SY22 6SH

Tel: 01691 831111. Fax: 01691 831386. E-mail ron@gw3ydx.demon.co.uk

NINE BANDS 100W HF

Smallest HF antenna ever designed

CFL2 A £280 inc

Size: 66cm x 66cm spherical loop

Suitable for car, caravan, balcony of a flat or traveller's companion.

Write, telephone or fax for full technical details and photographs.

We are antenna troubleshooters, tell us your HF needs and problems. For house roof, no mast, no hassle from planners:

EMDR1 £218 inc

HATELY ANTENNA TECHNOLOGY

1 Kenfield Place, Aberdeen AB15 7UW

+44 (01) 224 316 004

GM3HAT



Best seller...the bargain priced

Adapt-A-Mast

- Lifts to 25ft • Wall mounting
- Complete with all brackets, cable and winch
- Accepts 2in stub mast • Adaptable to tilt-over
- Available hot dip galvanised BS729
- Simple four bolt installation

MANY OTHER MASTS AVAILABLE

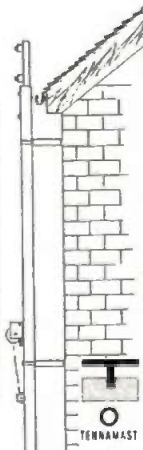
Call (01505) 503824

Mobile (0374) 951660

or write to

TENNAMAST SCOTLAND LTD

81 MAINS ROAD
BEITH, Ayrshire KA15 2HT



LOOK NO FURTHER ! VOICE* or RADIO DATA TRANSFER AT LOW COST !

UHF Transceiver for the World!

* 400 to 500MHz Versions *

* Range up to 5Km *

* Compact Size ideal for Hand Helds *

* UK, North American, Australian *

* MPT, I-ETS & FCC Approval *

* Up or 64 selectable channels *

* Starter Kit: only £299.95 per pair *



Only 55 x 73 x 15mm
433MHz 70cm Version Available !

Lowest Prices Guaranteed on FM Transmitters & Receivers !

* MPT1340 418MHz or to ETS-300-200 on 433.92MHz *

STARTER KIT :

TXM-418 or 433 -A or F of choice + SILRX-418

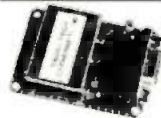
or 433 -A or F of Choice. Inc VAT only £ 29.95

1/4 Wave antenna with BNC only £ 4.90 each



TXM-418-F Transmitter

Exclusive: User Programmable PIC + Radio Data Transceiver



Featuring on board 10MHz PIC16C84 with BIM radio data Transceiver + RS232 interface + LED's & 2-wire control firmware etc. 418MHz or 433MHz (1 or 10mW).

PW Readers Save £10.00 Only £ 69.95 each.

Radio-Tech Radio Module Catalogue Available NOW !

Featuring Antenna, Holtek Encoders, VHF & UHF Modules for the UK* to Australia* and Beyond !



* Subject to Radio Regulations or Licence

Radio - Tech Limited, Overbridge House, Weald Hall Lane
Thornwood Common, Epping, Essex CM16 6NB.

Sales +44 (0) 1992 57 6107 Fax +44 (0) 1992 56 1994

Technical Support +44 (0) 1992 57 6114

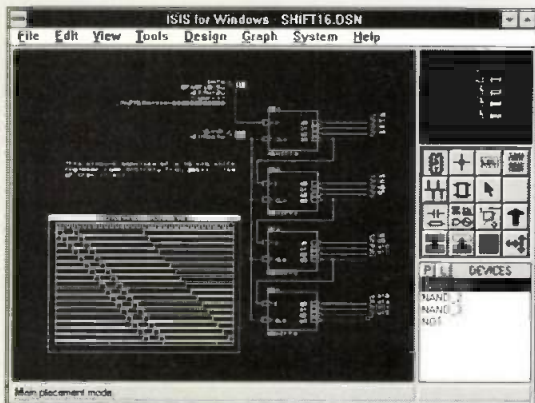
Internet: <http://www.radio-tech.co.uk>

PROTEUS

For DOS and Windows 3.1, 95 & NT

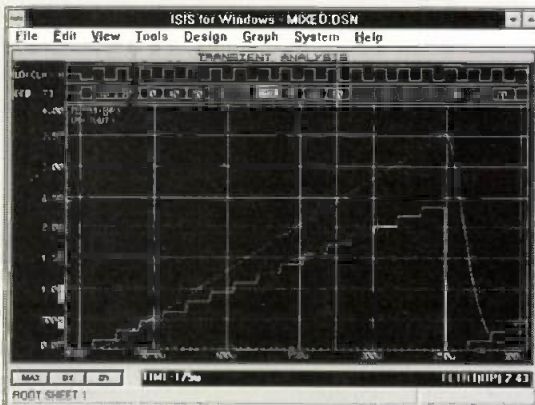
The Complete Electronics Design System - Now With RIP-UP & RETRY!

NEW LOW PRICE OPTIONS AVAILABLE
Level 1 (500 pins) from £250
Level 2 (1000 pins) from £495
Level 3 (unlimited) from £395



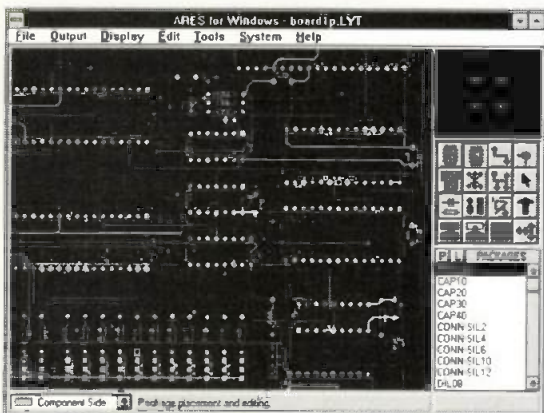
Schematic Capture

- Easy to Use Graphical Interface under both DOS and Windows.
- Netlist, Parts List & ERC reports.
- Hierarchical Design.
- Extensive component/model libraries.
- Advanced Property Management.
- Seamless integration with simulation and PCB design.



Simulation

- Non-Linear & Linear Analogue Simulation.
- Event driven Digital Simulation with modelling language.
- Partitioned simulation of large designs with multiple analogue & digital sections.
- Graphs displayed directly on the schematic.



PCB Design

- 32 bit high resolution database.
- Multi-Layer and SMT support.
- Full DRC and Connectivity Checking.
- RIP-UP & RETRY Autorouter.
- Shape based gridless power planes.
- Output to printers, plotters, Postscript, Gerber, DXF and clipboard.
- Gerber and DXF Import capability.

labcenter
Electronics

Call now for your free demo disk
or ask about the full evaluation kit.
Tel: 01756 753440. Fax: 01756 752857.
53-55 Main St, Grassington. BD23 5AA.

Fully interactive demo versions available for download from our WWW site.
Call for educational, multi-user and dealer pricing - new dealers always wanted.
Prices exclude VAT and delivery. All manufacturer's trademarks acknowledged.

EMAIL: info@labcenter.co.uk
WWW: <http://www.labcenter.co.uk>

■ GLEN ROSS G8MWR DESCRIBES AN EASY-TO-MAKE ANTENNA THAT COULD BE THE ANSWER TO YOUR SMALL GARDEN PROBLEMS.

antennas
in
action

the T2FD A Multi-Band Antenna

A problem common to many amateurs living in modern houses is simply how to get a multi-band antenna into the postage stamp size back gardens that are now so common. If, at the same time, you could also dispense with the forty foot pole at the bottom of the garden, and hence get less hostility from the neighbours, so much the better. It would also be an advantage if it can cover several bands.

The Answer

To find the answer to wide-band use, we have to look back to antennas developed in the 1950s. At this time a very popular antenna was the T2FD. The strange title stands for 'tilted terminated, folded dipole'. This is an aperiodic, or non resonant, antenna which was developed by the American Navy in the early 1940s. Tests carried out by the American Navy showed that the antenna outperformed conventional Marconi types by as much as 4dB.

Later tests by a Japanese broadcast company showed a similar improvement over the dipole to which it was compared. Another major advantage is that the antenna will operate over at least a four to one frequency range whilst showing close to 1:1 standing wave ratio (s.w.r.). Beyond this range, the performance only deteriorates very slowly.

Shown in the operating position in Fig. 1, the optimum slope for the antenna is about 30°. Although there seems to be little practical performance difference when mounted between 20° and 40°. A 7MHz band version can be accommodated in a ground length of about 15m and will operate on all WARC bands up to and including 28MHz. A 14MHz version will go into 10m or so and will work right up to 50MHz. The low end is normally supported at around two metres above ground.

The centre of the antenna is connected to a terminating resistor of 390Ω. This must be non inductive and capable of dissipating about 35% of the transmitter power on continuous carrier modes or around 25% when using s.s.b. and c.w. This resistor will probably have to be made up from

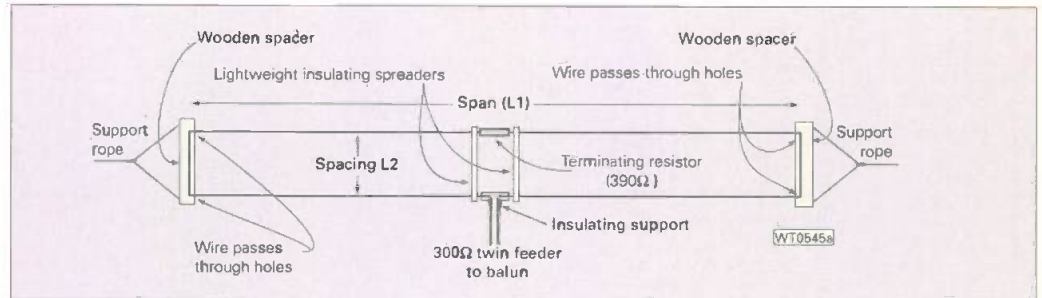


Fig. 2: How to create your own T2FD antenna. See the Tables 1 and 2 for the dimensions of L1 and L2.

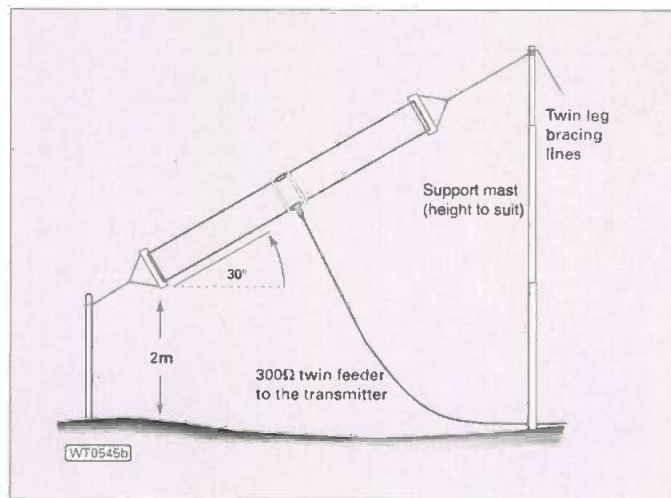


Fig. 1: The T2FD in operation. The antenna will work at other tilt angles, but 30° is optimum.

several resistors in parallel. The value of 390Ω will give a feed point impedance of about 300Ω.

The antenna should be fed with 300Ω ribbon feeder with a suitable balun or balanced a.t.u. at the transceiver end to provide accurate matching for the rig. The a.t.u. is only

used to provide an impedance match, the antenna shows an almost flat 300Ω impedance across the entire frequency span.

The dimension L1 is the total length of the antenna and L2 is the distance between the two wires. Fig. 2 will make this clear. Dimensions for various bands are shown in Table 1. The slight variation from the calculated sizes after s.w.r. adjustments. To make up the antenna for other bands, the length L1 (in metres) is calculated by dividing a figure of 100 by the lowest transmitter frequency. The spacing L2 (metres) is obtained by similarly dividing a figure

of 3 by the frequency. These dimensions are not precise but this is of little importance in such a broad band antenna.

Matching

To illustrate the broad-banded capabilities, I measured the s.w.r. of a 7MHz unit. So, using a balun but no a.t.u., I carried out s.w.r. tests across the bands from 7MHz upwards with the results as shown in Table 2. I think the results shown speak for themselves, greater than 4:1 frequency coverage and a fairly steady medium-low s.w.r. It seems we are in business! A small, low mounted, multi-band, well matched antenna that fits in a small space.

And if you don't want to use the antenna for transmitting and you simply want to use it as an s.w.l. installation, the resistor needs to be only a quarter watt rated job. And you'll have the advantage of correct matching on all the broadcast bands as well. A typical antenna for these conditions, with a span of 16.5m and a spacing of 600mm will give virtually flat response from the 6 to 25MHz broadcast bands and everything in between.

Could you want for anything more? Get folding, terminating and tilting for a good signal.

Table 1

Band (MHz)	L1 (m)	L2 (mm)
3.5	28.57	786
7.0	14.28	500
10.0	10.00	300
14.0	7.143	214

Table 2

MHz	s.w.r.	MHz	s.w.r.
7.0	1.5:1	24.9	1.5:1
7.1	1.4:1	28.0	1.5:1
10.0	1.2:1	28.5	1.6:1
14.0	1.4:1	29.0	1.5:1
14.3	1.5:1	29.5	1.4:1
21.0	1.4:1		

Table 1: Dimensions for the major h.f. bands See text for sizes for other bands.

Table 2: Test results of a 7MHz antenna on that and higher h.f. bands.

win..win..

Win yourself a copy of the new *More Out Of Thin Air*. Get writing, the next one we give away may be yours - but without an idea - it can never be.

The best idea used in every issue of *Antennas In Action* wins the author a copy of *More Out Of Thin Air*. So get thinking and writing.

Send your ideas and tips to: **Antennas In Action, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.**



tex topics

Now look at the photograph Fig. 2. As in Fig. 1 the 50Ω plug is on the right and although it isn't too obvious from the photograph, the pin on the 70Ω plug is slightly thicker. But the major difference between the plugs is that the pin of the 75Ω plug goes straight back into the insulation. However, the pin of the 50Ω plug although slimmer than its 75Ω counterpart, has in fact a small shoulder on it at the point where it enters the Teflon shroud.

With the pin size difference in mind, take another, closer look at Fig. 1. You may now be able to tell that there is a slight variation between the centre connector of the sockets. However, when you're being jostled by others at a rally, I'd defy anyone to tell them apart without a known impedance unit to compare it with. And then it would take some time.

A Test

As with all good instruction, there should be a test to see if the information has been learned so, have a look at the photographs of Figs 3 and 4. See if you can tell what the impedances are of the plug and socket shown. Both of these items were purchased at rallies in the last year, and both were labelled BNC connectors. (My answers are at the bottom of the column).

Your Letters

And now to letters from two readers. Baluns was the subject of the letter from **Richard Walker** in Essex. He says "I would like to use a balun, to match other balanced aerials of different impedance to coaxial feeders of other impedance using appropriate impedance cable in the balun". Richard was referring to David Butler

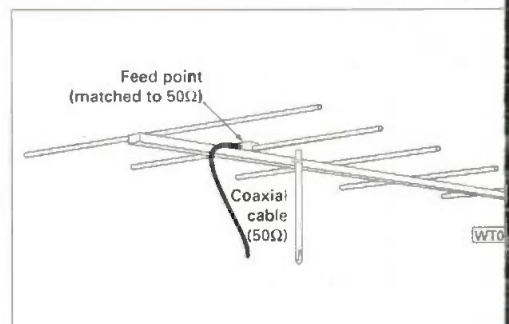
G4ASR's 'Antenna Workshop' in the January 1997 issue of *PW*.

In his 'Antenna Workshop' David used an electrical half-wave-length section of 50Ω coaxial cable to make a 4:1 impedance step-up balun to feed the 200Ω impedance of an Alford Slot antenna. Refer back to the drawing of Fig. 2 on page 26 of the January '97 issue of *PW*, where the idea is shown. The important part of this balun is that: **the length of coaxial cable used in the loop has to be an electrical wavelength at the frequency in use.**

If we take two points in a feeder system exactly half a wavelength ($\lambda/2$) apart, then the signals are of equal values **but opposite phase**. In coaxial cable the signal travels slower than in 'free space' and so, its $\lambda/2$ distance is physically shorter. The ratio of a frequency's wavelength in feeder to the same frequency's 'free space' wavelength, is known as the 'velocity factor' of the feeder. The velocity factor of most solid polythene dielectric coaxial cable is taken to be 67%.

Referring to Fig. 2 in January's 'Antenna Workshop', you will see that the length of cable in the loop is shown as 1.97m. The free space wavelength of a 50.5MHz signal is 2.97m, which agrees fairly well with the velocity factor of 67%. The important point about the balun used in the antenna that David described, is that it only worked at one frequency 50.5MHz. (It will also work at multiple of that frequency, such as 101, 151.5, 202MHz, etc. **but it is frequency dependent**).

At the design frequency of 50.5MHz at the two feed points there are two equal, but opposite signals. Let's say the transmitter can produce some 50W



of power. From $P=(V^2/R)$, where $R=50\Omega$ the voltage is 50V. So, at the left hand feed point, where the two inners join, there is 50V. But at the other end of the loop there is also 50V **but of opposite phase**.

So, the two feedpoints now have 100V of r.f. The important point is that there is still only 50W of power available so, something has to change to compensate. The thing that has to change, to keep the dissipated power constant is the load impedance and that has to increase by a factor of **four** to reflect the **doubling** of the voltage presented to the load.

There are ways of using varying lengths of coaxial cable as a way of matching impedances, (see later) but they are usually only used at 'fixed' designed frequencies. There is an excellent book about matching antennas systems, called *Antenna Impedance Matching* but, as it is very theoretical, this may not be what you want. Perhaps if you contact me again Richard with a few more details about the system you have in mind, we may be able to help further.

This brings me on to the second question this month. From **Harold Bent GOEZW** in Nottingham. Harold uses a pair of VK quad loop antennas on his 1.2GHz ATV set up, one for transmit



Fig. 1: Two BNC sockets. The 50Ω version is on the right and the other is a 75Ω socket.

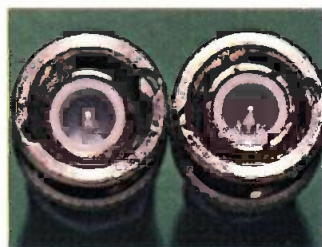


Fig. 2: Two BNC plugs. The 50Ω version is on the right and the other is a 75Ω type.



Fig. 3: Bought at a rally - is this BNC plug a 50 or a 75Ω type? (See text).



Fig. 4: Bought at a rally - is this BNC socket a 50 or a 75Ω type? (See text).

Fig. 5: a simple antenna matched to feeder - but what happens when a second antenna is added? (See text).

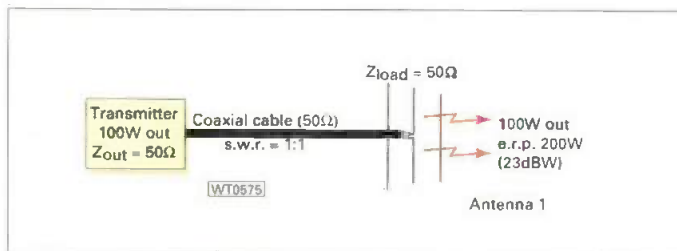


Fig. 7: The matching arrangement of the antenna shown in Fig. 5.

Fig. 6: A stacked antenna pair. What is the impedance at point X, and what does that do to the matching? (See text).

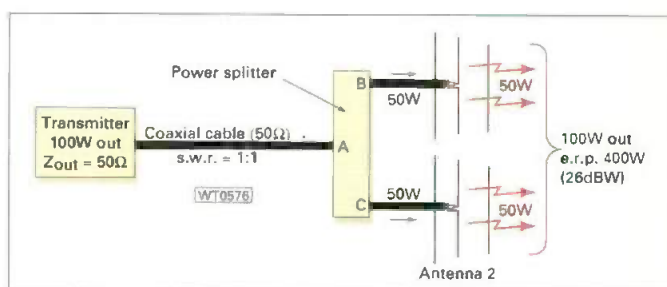
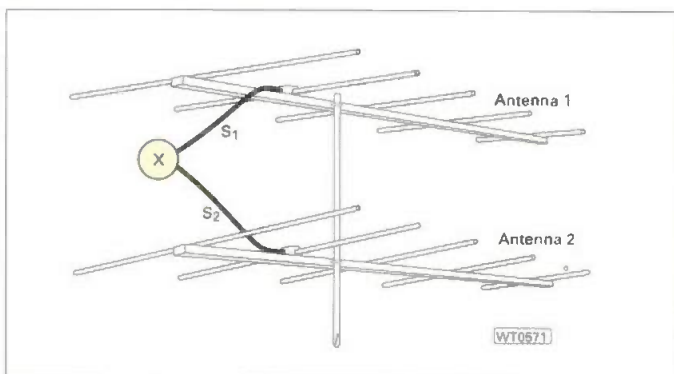


Fig. 8: Adding another antenna brings more forward gain but at the expense of other considerations. (See text).

and one for receive. He would like to improve his set-up but is unsure how to do it. Should he buy new 36-element antennas with greater gain for transmit and phase the two VKs together for receive?

Or should he use the two phased VKs on transmit and the new 36-element antenna on receive? Hmm.. not an easy one Harold, but let's look at the advantages and disadvantages of each option. When correctly phased and matched, the two VKs would have a theoretical gain of 3dBs (over one VK on its own) on both transmit or receive (more likely about 2dB in practice). Back in August 1996 David Butler in his session for 'Antenna Workshop'

dealt with stacking antennas, albeit for different bands on one pole. So that's worth reading again for some of the ideas involved.

Let's have a quick look at stacking (one above the other) and baying (side-by-side) antennas. Each approach has pros and cons, and there are common problems. Look at Fig. 5, a simple Yagi antenna. The feedpoint matches well to 50Ω cable, because that is what it was designed for! A simple installation with 50Ω coaxial cable to the shack will work as well as can be expected.

However, if we add (by stacking) another antenna onto the mast and try to use a common feedpoint, shown as X in Fig. 6, you may be able to see an

immediate problem. From maths we know that at the common feedpoint (X) there is an impedance of only 25Ω (50Ω in parallel with 50Ω), causing standing wave ratio (s.w.r.) problems. To cure this we need a coaxial feeder of 25Ω (expensive and non standard) or to get two antennas with feed impedances of 100Ω and lengths of 100Ω coaxial joining cables (same problems as above).

The drawing in Fig. 7 shows the simple case of a single antenna. 100W of power from the transmitter arrives along the 50Ω cable to the 50Ω feedpoint antenna. I've assumed the antenna has a forward gain of 3dB (doubling) so the effective radiated power (e.r.p.) is 200W in one direction. In Fig. 8 I've shown two similar antennas coupled through a loss-less power splitter so that each antennas

gets 50W of power. Because each has a gain of 3dB the e.r.p. from each individual antenna is only 100W and yet I've shown that with both antennas the e.r.p. should be now double the original antenna as 400W. How can that be?

To answer, take a look at Fig. 9 where I've shown two antennas and their power lobes overlapping. Because of this overlapping there is an increase in power in the forward direction (there are now two signals in the area of overlap). But this increase in forward gain has its drawbacks as shown in Fig. 10. In Fig. 10, the reference point is now to be the point of maximum signal, and for both the original antenna, and the new combination pair, this is the 0dB point.

Take first the wider, outside, loop of

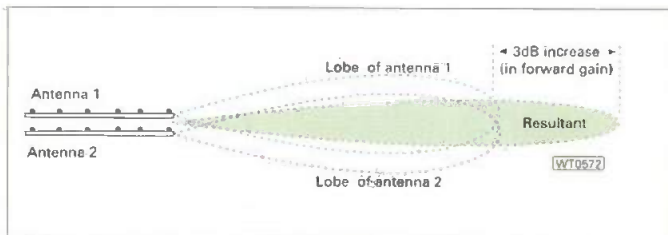


Fig. 9: Stacking antennas gives better forward gain, but reduces the beamwidth of the pair. (See text).

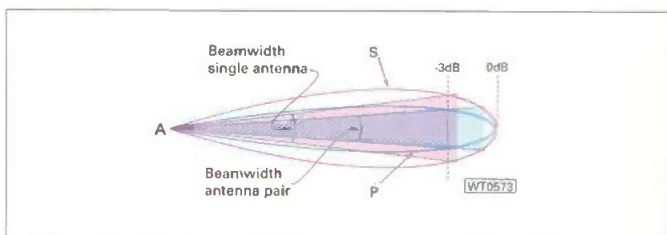


Fig. 10: How the beamwidth is reduced when using stacked antennas. (See text).

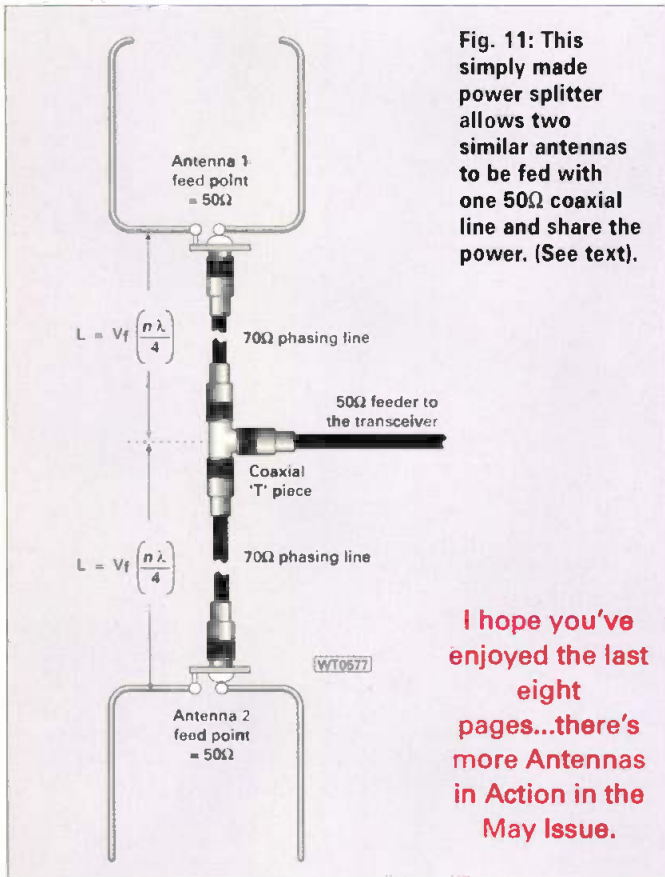


Fig. 11: This simply made power splitter allows two similar antennas to be fed with one 50Ω coaxial line and share the power. (See text).

I hope you've enjoyed the last eight pages...there's more Antennas in Action in the May Issue.

the original antenna. At the points where the power has fallen to half of the maximum, this is defined as the beamwidth. Now taking the inner beam pattern of the combined antenna, the power drops away faster when moving away from the centre line, showing that the beamwidth is now narrower. Taking car headlight as an example, 'stacking' turns the headlamps into spotlights and would allow us to see further. But at the expense of only being able to see what is directly ahead of us. As we turn the bend you see the hedge, but not the oncoming cyclist in the road.

On the plus side though, stacking (one above the other) antennas, gives a reduction of the vertical beamwidth without the same reduction of horizontal beamwidth. In DX terms, more power is pointed towards the horizon, but the horizon is still as 'wide'. Conversely when baying (side-by-side) antennas, the horizontal beamwidth is reduced without changing the vertical pattern.

Power splitter

But to stack or 'bay' two antennas together, some form of power splitter (a power combiner on receive) is needed. But first how do we define a power splitter? It's a 'device' that splits the incoming power to two (or more) output ports while keeping the required impedances correct for each port. Look back at Fig. 8, where my power splitter has three ports A, B and C. Ports B and C receive 50% in the power input into port A, but all ports still have a nominal 50Ω impedance. Clearly we have some form of impedance transformer action taking place.

If the impedance is doubled the power must be halved, but the two new impedances in parallel give the original impedance so the input part is easy. Let's take our 50Ω original cable. If instead of one 50Ω resistor we put two identical 100Ω resistors in parallel, each 100Ω resistor dissipates half the power. But we now have the problem of matching that 100Ω back down to

the 50Ω needed for the output ports. This is where the transmission line transformer comes into play.

I don't have the space to show the mathematics for the following formula, but it's simple to use. If we have two impedances Z1 and Z2 and we want to create a transmission line transformer for them, we need a section of line an exact electrical quarter-wave long with the characteristic impedance Zt. Where Zt is:

$$Z_t = \sqrt{Z_1 \times Z_2}$$

$$= \sqrt{50 \times 100} = \sqrt{5000}$$

$$= 70.71\Omega$$

And although this gives a figure of 70.71Ω for the characteristic impedance of the transformer section, if we use 70 or 75Ω impedance coaxial cable it should be good enough.

So having found the impedance of the coaxial cable, how do we use it? We'll refer to Fig. 11 where I've shown only the two driven elements and the power splitter using 70Ω coaxial cable. The phasing lines should be an odd number of quarter-wavelengths long i.e. 1, 3, 5, etc.) and are shown as having a length L.

The two lines are combined into a coaxial T-piece feeding the 50Ω line to the transceiver. The use of N-type coaxial plugs and sockets on a 1.2GHz is strongly recommended to reduce losses to the minimum. Another thought to be kept in mind is that the two phasing lines are operating under a calculated mis-match - and must be kept away from all other metallic objects otherwise they will not work as designed.

The power splitter also works in reverse on receive, so you need only build one for transmit or receive. You can also buy manufactured power splitters for the various bands which you may suit you in this instance. But build-or-buy, you can play around with the various combinations of antennas on your system to find the method that

suits you Harold. Let me know how you get on.

Tip Of The Month

This month's 'Tip-of-the-month' again concerns the MFJ Antenna Analyser. When winding your own loading coils for antennas or for filters it's often difficult to know the exact inductance after you have made the coil, usually to some odd calculation. How can you check it easily without an inductance bridge?

The answer is simply to connect the coil in series with a 1% capacitor and check the frequency at which the series combination capacitor and inductance has fallen to 0Ω. Then carry out a little calculation, based on the formula:

$$L = \frac{1}{(2 \pi F)^2 \times C}$$

$$L = \frac{1}{39.5 \times F^2 \times C}$$

What is the inductance of the coil shown in Fig. 12? Using the formula above and a resonance point of 16.1095MHz and with a series capacitance of 220pF? (Answer at the end of the column). But for those who would like to use other tables of coil values, the coil is six turns spaced over 22.5mm and with an internal diameter of 12.5mm (mean diameter 13mm).



Fig. 12.

I'm not quite sure myself about the plug - but it definitely isn't a 50Ω version. It's probably a 75Ω socket as the ordinary plastic of the insulation isn't as good as the Teflon (different dielectric constant) Did you get 0.443μH for the coil's inductance? The technique isn't scientific, but it's better than guessimation - isn't it?

Answers

TEX



Reactivating An Ancient Receiver



By Walter Farrar G3ESP

Walter Farrar G3ESP brings back to life an ancient HRO receiver that hadn't been used for some 30 years, but was in fact, still complete!

A radio amateur friend had passed away and I offered to dispose of his equipment, (the widow was going to bin it!). Nothing special about that, perhaps, but in this case, the equipment had lain untouched on garage shelving for 22 years and had not been used for at least 30!

Among the gear was an HRO receiver, of pre-war vintage, the valves having glass envelopes and UX bases, with coil units covering 0.48 to 30MHz. This HRO looked terrible!

The case had peeling paint and was rusty in parts. Lifting the hinged lid exposed the above-chassis innards, coated with dirt and spider-webbing. Bare metal (valve top caps and clips, coil cans, aluminium valve screens) all showed corrosion and oxidation.

However, the HRO appeared, to my un-tutored eye, to be complete. Turning it upside down and removing the bottom panel exposed the sub-chassis 'works' and although not factory-fresh, it was reasonably clean. Question - would it work? Answer - Not without some careful pre-testing!

Connections Cleaned

Firstly, much of the muck inside was shifted and oxidised connections cleaned up. I had no details at all of the circuitry. All I knew was that the valves (6C6, 6D6, et al.) required 6.3V for the heaters. My only available source was d.c. from my variable voltage power supply unit, so I gingerly applied this and, lo and behold, the front-panel pilot bulb and S meter glowed.

So far, so good. A closer look sub-chassis showed that there was a wire-wound resistor across the 6.3V input with a centre-tap going to chassis. This device

was known in its day as a 'humdinger', its purpose being to reduce mains hum, so obviously I needed a non-earthed 6.3V a.c. source. Not possessing an old fashioned power supply, I borrowed one.

Reading amateur radio texts had told me that old electrolytic capacitors are likely to explode if volts are applied. Also that big, old tubular waxed capacitors can fail and that insulation on the wiring can be defective. There were several of these tubulars, all rated at 600V working and two large aluminium-cased electrolytics labelled 10 μ F 50V working.

I isolated these tubulars (couldn't take them out as they were rivetted in) and applied 2V d.c. with a milliammeter in series. The needle shot upscale a little, then slowly fell back.

Encouraged by this, I increased the voltage in small steps to 20V. No violence ensued, so I put them back in circuit.

Dim Glow

The earlier test with 6.3V only had shown a dim glow on certain heaters. But to make sure, I set about removing all the valves to check heater continuity. I referred earlier to screening cans and the first one I removed brought the valve with it as it was such a close fit. The cans had three equally-spaced ridges lengthways and it was no problem at all slightly to distort the cans to make them fit less tightly.

One screening can refused to move and one valve refused to leave its socket, so these were left in situ rather than risk force and possible damage. They were subsequently freed by a squirt of WD40 on the pins and pressure from below exerted on those pins.

Anyway, the heater glow was visible on those valves and all the other heaters had continuity. So, everything was cleaned up and replaced.

With power off an ohmmeter check on the h.t. connections showed no short circuit, so I decided to apply both l.t. (low tension: 6.3V a.c.) and h.t. (high tension: 225V d.c.). I put the headphones on, applied l.t. then as I applied h.t. a click was heard, so something was happening!

Further Investigation

However, the HRO did not receive, so with further investigation I checked d.c. (bias) voltage on all the grids (top caps)

and found that one showed zero. Swapping two valves about didn't change the fact, so further investigation was needed.

The circuitry included four switches, three on-off toggle types and one push-pull type. The latter was in the S meter wiring, so not important to the actual electronics (did that word exist when the HRO was made?). The toggles all moved, but did not make contact, but a squirt of WD40 soon put that to rights.

With an antenna attached and power applied once more, signals were heard! They were greatly distorted, however, but recognisable as amateur radio c.w. (though sounding like a buzz-saw).

Having switched off I found three of the tubular waxed capacitors warm and melting. An enquiry to a *PW* advertiser resulted in an order for 20 more modern tubulars to replace all the old Sprague capacitors (better to be safe than sorry!). This done, and having also replaced the two electrolytics, as a precautionary measure, power was again applied. It worked!

I plugged in the medium wave coil unit (0.48-0.96MHz) and very many signals were received from several countries, using about 2m of wire as an antenna. Nothing melted!

However, when the b.f.o. switched in, the tone was rough, though not as rough as with amateur signals on other bands. Putting temporary extra capacitance on the smoothing of the power unit caused slight improvement, but I could not proceed further due to lack of high-capacitance high-voltage electrolytics.

Circuit Diagram

Meanwhile, I had acquired a circuit diagram of the old HRO. This helped me to identify the valves and switches and to discover an adjuster inside the case for zero-setting the S meter with no signal input. Since my only test equipment consists of one small analogue multimeter and one small digital meter, I was not in a position to check and do further adjustments.

However, I had enjoyed working once again with 'real' radio (or wireless?), the HRO having been brought back to life and now saleable to an enthusiast with test facilities. (Since these notes were written, the receiver has been sold).



Non-Linear Scales

By Andy Gayne G7KPF

Andy Gayne G7KPF gets out his computer to make power scales easy to draw.

Note this article has kept to empirical units of inches and thousandths parts of an inch, as most CAD packages deal with these units easily.

The annual construction competition at Kidderminster & District ARS usually entices me to warm up the soldering iron. One year I decided to have a go at building an r.f. dummy load and power meter from an old magazine article. The finishing touch on this project was to re-scale the analogue meter.

The article gave the appropriate power levels for a decimal division linear scale, however I decided that markings such as 0.18W or 1.62W on the linear scale were not particularly useful. The answer, of course, was to redraw scale of the meter using a non-linear approach.

But to achieve any sort of accuracy then it would be necessary to resurrect my knowledge of basic trigonometry to create the various points on the new scale. And basic trigonometry was something I had not really used since my college days some 15 years previously.

Computer Aided Design

My intention was to use a PC based computer aided design (CAD) package to draw a scale, which I could then print out using a good quality laser printer. The new paper scale could then be glued onto the existing metal scale of the meter.

Although I ended up using a CAD package to create the new scale, you could use the following technique described below to manually mark out a scale. Although if you did mark it out by hand, some loss of accuracy will be inevitable.

On examination of the meter that I'd recovered from the junk box, I found the scale was a 90° arc, which would make the maths a little easier. The first task was to decide what the graduations would be, so some experimental calculations were made to find a reasonable spread of readings.

The power meter was effectively a linear (deflection) voltmeter connected across a dummy load. And for my purposes a full scale deflection of 10V was to be equivalent to 2W. So for any other power reading the volt reading could be calculated using:

$$V = \sqrt{\text{Power} \times \text{load}}$$

From the experimental calculations, the power readings, shown in Table 1, were decided upon as being a useful spread, giving the calculated voltage readings of column two. These were then converted to degrees of arc from the zero point by multiplying the volts by 9, derived from dividing the maximum deflection divided by the full scale reading (90°/10), giving the figures in column three of the table. I'll describe columns four and five later.

The Trigonometry

Now for the trigonometry. Many CAD programs allow the user to draw lines at any angle, but some programs won't allow that angle to be specified. So I ended up having to calculate two sides of a triangle so that a line could be drawn from the origin.

Now with a defined vertical and horizontal movement, that's something that CAD programs can manage to measure quite easily. The principle of operation is shown in Fig. 1, a vertical line is drawn an arbitrary length, in this case 2in (measured in thousandths of an inch).

Across the top, at right angles to

the first line, is drawn a reference line. Measure from the origin to a point 2in (2000×thousandths of an inch) up the vertical line (the Y axis) and 2in to the left on the horizontal reference line (the X-axis), and mark a point.

If you join this point to the origin, then the angle A will be 45°. If this is then repeated to the right of the origin line, then we have the zero and full scale points on the meter arc 90° apart (scale centre+45° and scale centre-45°).

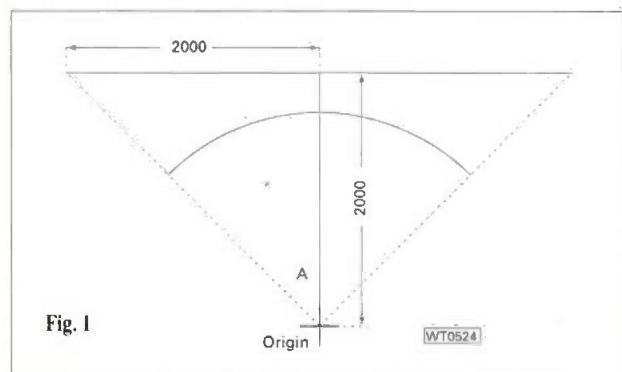
Due to the origin line being in the centre of the scale, the figures in column three of Table 1 need to be adjusted to measure from this point. This new centre reference is achieved by subtracting the figure in column three from 45° if it's less than 45, or subtracting 45° from the figure if the (column three) figure is greater than 45°.

The manipulations result in the adjusted figures, shown in column four of Table 1, which can then be converted to X-axis deviation figures using the formula: $X = \text{Tan}(A) \times 2000$. There is a Tan (Tangent) button on most basic scientific calculators. So, as an example, for the 1.5W which equates to a scale value of 8.66V. This is to be multiplied by 9 giving an angle of 77.94°. Then subtract 45° and we have new angular figure of 32.94°, which we tap in 32.94. Press the Tangent key, then multiply the result by 2000, giving a figure of 1296 thousandths of an inch.

A line can now be drawn from the origin point 2000 thousandths vertically and 1296 thousandths through to the right on the horizontal line, as shown in Fig. 2. This process is then repeated for the remaining points, giving the results shown in column five of Table 1 and the drawing shown in Fig. 3.

The radius of the arc, to represent the scale, is not important, although for best accuracy it is a good idea to make the arc the same radius as the existing meter scale, so that the new scale can be aligned over the old one.

Fig. 1: Marking out a scale is easier than you think. See text for the method.



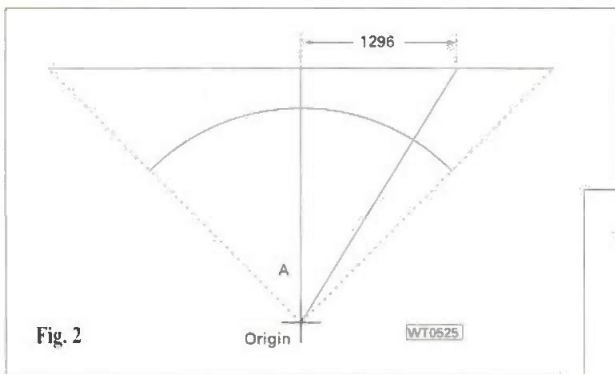


Fig. 2: Starting to mark out the 1.5W point. See the text for detail.

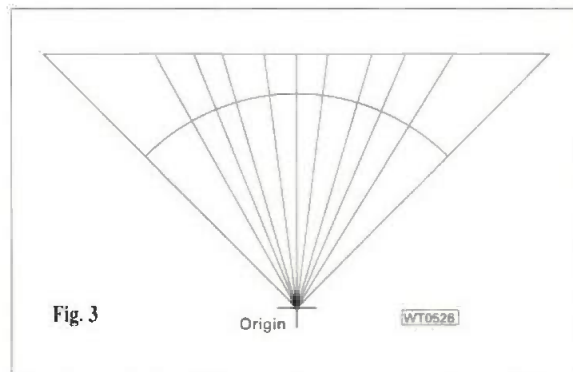


Fig. 3: After the various points are calculated and drawn.

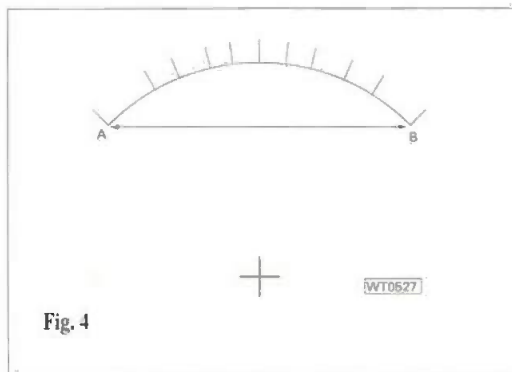


Fig. 4: Drawing the short scale markers is next. See the text for a better explanation.

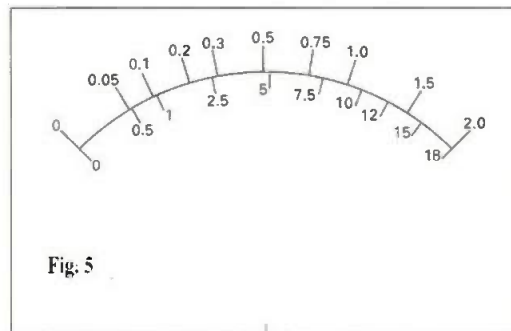


Fig. 5: After adding the figures to the scale it should look like this. My example has a second 18W scale added.

Table 1

Power (W)	Scale (V)	Arc (deg)	Adjusted (deg)	x axis (Thou)
2.00	10.00	90.00	45.00	2000
1.50	8.66	77.94	32.94	1296
1.00	7.07	63.63	18.63	674
0.75	6.12	55.08	10.08	355
0.50	5.00	45.00	0.00	0
0.30	3.87	34.86	-10.14	-358
0.20	3.16	28.44	-16.56	-594
0.10	2.23	20.07	-24.93	-930
0.05	1.58	14.22	-30.78	-1191
0.00	0.00	0.00	-45.00	-2000

The alignment can be accomplished by measuring with a ruler from the pivot point of the meter needle to the arc, but why not use trigonometry again, seeing as we are getting back into the swing of it?

Measure the distance between points A and B as shown on Fig. 4. In my case this dimension was 115/16in or 1.9375in. The radius of the arc is then given by the formula:

$$R = \frac{1.9375}{2} \times \frac{1}{\sin(45^\circ)} = 1.37\text{in}$$

The above formula for finding the radius of the arc only works for a 90° deflection meter. For any other type of meter, the 'Sin(45°)' part of the equation must be modified to be half the arc of the meter.

Defined Radius

On the CAD package I use, it's difficult to draw an arc of defined radius, but it is easy to draw a 1.37in circle, so this is drawn about the origin. A line is then added from points A to B as in Fig. 4, then this line is 'pulled' into an arc to match the radius of the circle, the circle is then deleted leaving a perfect meter arc.

Small marker points are then drawn on top of the lines generated in Fig. 3, then the original lines are deleted. Text is then added against each marker point and the scale is complete.

It's a good idea to add a vertical and horizontal line of, say, 2in length outside the scale so that when printed these can be checked for the correct dimension, and if either is wrong then appropriate adjustment can be made in the CAD program output routine, if your

program allows it, for a corrected reprint.

The project I built had a second scale for 0 to 18W, perhaps you would like to try and calculate the figures for this second scale just to see if your trigonometry is now in working order!

I've included a copy of my scale, Fig. 5, to show how smart it can look, and it didn't take that long. So a little work on the PC can give you meter scales to be proud of.

PW

Struck Off... Almost!

By Ben Nock G4BXD

Ben Nock G4BXD tells the story of how his efforts to provide vintage Amateur Radio equipment 'props' for a 'period medical drama' TV programme led to a very interesting few days and a very few seconds....!

Struck off...the radio mast that (almost) never was. The 50ft mast built by the 'prop' department complete with 'dummy' h.f. beam antenna. Ben Nock G4BXD discovers the secrets of making a TV drama.

It all began when the telephone rang one day. Upon answering it a voice asked if I had any old radio sets. "Yes" I said. "Did I want to loan them to a television company"? "Possibly" I replied.

And so that was how my Scottish adventure started...with the telephone call from someone connected with the RSGB. Apparently, the question of locating some old radio sets had been bouncing around between the television company, the RSGB and a certain magazine Editor located in Dorset!

I did indeed have old radios, as readers of PW's 'Valve & Vintage' column will already know, and would be quite happy to loan them out, assuming certain conditions could be met. After the initial telephone message I received a further call, this time from the producer of the show.

After confirming just what it was that they wanted I suggested I send some photographs of typical gear so that they could see for themselves. The requirement was for equipment of a late 1940s early 1950s nature, something that a Radio Amateur of the time would have been likely to have.

Basic Story

I was told that the basic story line was of a Radio Amateur living in an isolated location, slowly going blind. But his eyesight was to be saved by the dashing young Doctor featured in the series, who was passing by on a walking holiday.

After a week or so, the producer rang to say they would be happy to select several of the radios, along with a few tools of the period, and could I send them up.

The 'location' for the TV programme was half-way between Glasgow and Edinburgh. With self-interest and the preservation of the vintage radios in mind, I suggested that I had better accompany them and see that they were set-up correctly.

After a suitable 'fee' was decided upon I proceeded to assemble the sets and prepare for the long journey

north. Though a fair way away, the trip from the Midlands to Glasgow is not too bad at all. Once past the eternal road-works at Junction 21 on the M6 the road opens out, the traffic reduces and the trip is fine.

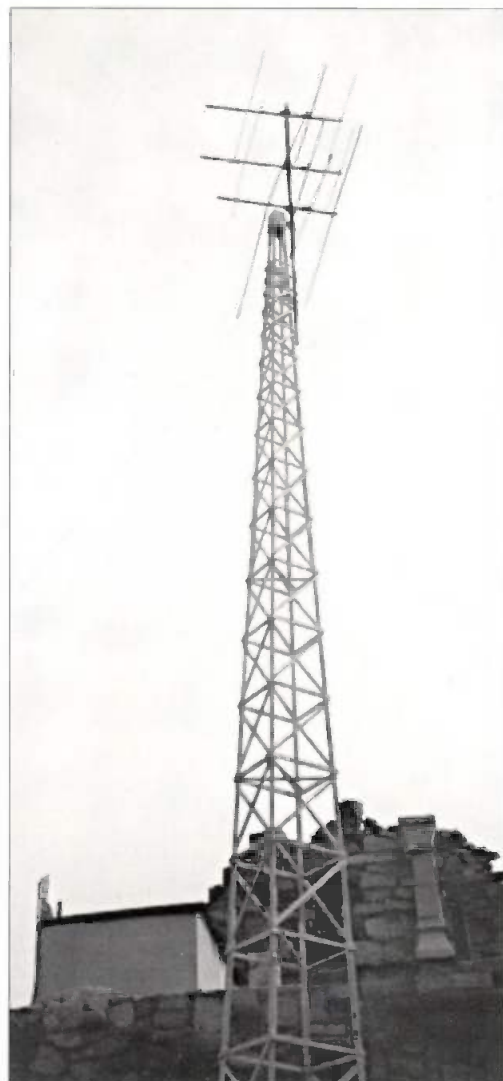
Gretna Green

Driving past Gretna Green (very fast I might add as my YL Gloria was with me!) the countryside begins to fold back. Vast expanses of open fields, rolling hills and lots of sheep. Up past Carlisle the views of the southern uplands are spectacular and blessed with superb weather, the drive was most enjoyable.

An overnight stop in Glasgow itself was surprisingly most enjoyable too. There was plenty to see and do, and the nightlife down Sauchiehall street was most interesting.

The following morning saw us in the television company's 'prop' store awaiting the producer and the scenery crew. It was interesting to see the props from earlier shows and programs. The chair that a certain famous actor had sat in, the model of an airfield, used for goodness knows what...all manner of strange but familiar things.

After the crew had loaded logs of wood (real wood!) out of the prop store into their van, we proceeded in convoy with the producer to the site of the 'shoot' (that's a bit of movie makers speak I picked up!).



Tannochbrae Country

Located in the 'Tannochbrae' country, miles from the main road, the house was approached up a long dirt track. As a corner was rounded the sight of a tall, nearly 50ft. mast, came into full view.

What a Radio Amateur's dream. Isolated country, no neighbours, a great big antenna mast with an h.f. beam on top...it seemed like heaven!

Continued on page 45

WEB SITE: <http://www.martin-lynch.co.uk>

MARTIN LYNCH

& Son

THE AMATEUR RADIO EXCHANGE CENTRE

140-142 NORTHFIELD AVENUE, EALING, LONDON W13 9SB

NEW! IC-706DX HIGH PERFORMANCE ON 2m!!

The Lynch workshop has been at it again. How do you improve an already perfect design? There is only one criticism levied at the IC-706 - its 2m receive performance.

The engineers at Martin Lynch & Son have installed a especially modified muTek low noise 2m preamp inside the IC-706. The results transform the 2m performance beyond belief.



Because of the complexity of the installation, the modification is only available as an "in house" addition and we cannot therefore offer the unit as an end user install.

Cost: £100 inclusive of all fitting charges and VAT.

Basic IC-706 £839 or New IC-706DX with high performance 2m preamp installed £939

Microphones

Yaesu MD-100	Base microphone	£110.00
Yaesu MH-1B8	Fist Microphone	£34.00
Icom IC-SM8	Base Microphone	£109.00
Icom IC-SM20	Base Microphone	£120.00
Kenwood MC-60A	Base Microphone	£117.95
Kenwood MC-85	Base Microphone	£139.95
Kenwood MC-90	Base Microphone DSP	£187.95
Kenwood MC43S	Fist Microphone	£28.95

Rotators

All available on FREE FINANCE!!

Yaesu G-250	200Kg-cm	£149
Yaesu G-450XL	500Kg-cm	£289
Yaesu G-500A	elevation	£309
Yaesu G-5400	Az/EI	£569
Yaesu G-5600	Az/EI	£669
Yaesu G-650XL	500Kg	£399
Yaesu G-800SDX	1100Kg	£459
Yaesu G-1000SDX	1100Kg	£529
Yaesu G-2800SDX	2500KG	£1229

Power Supplies

Watson W20AM	20 Amp 13.8V, Twin meters, 3 outputs	£89.95
Daiwa PS-304mk2	25 Amp 13.8V, Single meter, 4 outputs	£129.95
Daiwa PS-400X	Latest 40 Amp 13.8V, Twin meter, 4 outputs	£169.95

IC706 BEFORE & AFTER TABLE

STATUS	FM SINAD for 12dB Dev 2.4kHz @ 1kHz	AM SN for 12dB Mod 50% @ 1kHz	SSB SN for 12dB @ 1kHz	CW SN for 12dB @ 600Hz
BEFORE	0.22 µV	0.60 µV	0.20 µV	0.17 µV
AFTER	0.15 µV	0.54 µV	0.12 µV	0.11 µV

digital filters

Timewave DSP 599ZX.

Its the best DSP money can buy. Available from stock£349

Timewave DSP-9 Plus.

Economy version of the 599. Excellent value for money £189

MFJ-7848 Still one of the best selling DSP units. Looks like *** but works!..... £239

digital cameras

- Casio QV-10A Built in Colour Screen, Video/PC output.£399
- Canon PowerShot 600, Parallel port connection, Brilliant quality ...£899
- Sony DK-1 Colour Viewfinder, 12x Zoom, PCMCIA Card.....£1595
- JVC GR-DV-1 Mini DV HandiCam "Best Buy".....£1449

All available from stock and demonstrations available in showroom.



cushcraft hf antennas

R7000 NEW!	Latest 10-40m vertical (80m optional).....£369.95
R80	80m add on kit for R7000.....£149.95
R5	10/12/15/17/20 vertical.....£295.00
AV-3	14-21-28MHz vertical 4.3m long.....£94.95
AV-5	3-5-7-14-21-28MHz vertical 7.4m long.....£159.95
AP8A	8 Band Vertical.....£229.95
APR18A	Radial Kit.....£54.95
40-2CD	2-ele 40m Yagi.....£489.95
A3S	14-21-28MHz Yagi.....£389.95
A3WS	12/17m 3-ele Yagi.....£289.95
A103	30m Extension A3WS.....£119.95
204CD	4 ele 20m Yagi.....£489.95
154CD	4 ele 15m Yagi.....£239.95
D4	Dipole 10/15/20/40m.....£249.95
D3W	Dipole 12/17/30m.....£199.95
A4S	3-4 ele Yagi 10/15/20m.....£439.95

loads more antennas available...call

heil sound



"As reviewed in RadCom" August 1996

Heil Proset-5 Professional Quality Boom Headset, dual padded earphones, flexible mic boom, includes HC-5 "Full range" insert for superb speech quality. Requires AD-1 cable ADAPTOR for YAESU/KENWOOD/ICOM. £125.95 incl. VAT

Heil Proset-4 Identical to Proset-5, but includes HC-4 "DX" microphone insert. Ideal for punching through the pileups. £125.95 incl. VAT

Heil HC-4 Replacement microphone insert for existing fist or base microphones. With 10DB peak at 2KHZ and the low end rolled off sharply at 500HZ, (12DB per octave), the HC-4 is the ultimate DX mic insert. £28.95 incl. VAT

Heil HC-5 Identical to HC-4, but High Articulation, offering superb SSB quality, rolls off sharply under 350HZ and above 3100HZ, peaking at 2.4KHZ. "Hi-Fi" SSB Audio. £28.95 incl. VAT

Heil AD-1/K/Y Adapter leads to interface the proset Headset/boom microphones to 8 pin Yaesu, Icom or Kenwood transceivers. £11.95 EACH

SGC Smart Tuner

The only choice for a fast tuning ATU that you can use mobile or base station.

Only £379



MyDel antennas

MOEL MULTITRAP

Built exclusively for MARTIN LYNCH, the new wire antenna is trapped for 80 through to 10 metres, uses heavy gauge multi strand plastic-sheathed wire, heavy duty 1 kW traps and totals only 20 metres in length. It's very easy to install, takes minutes to tune, guaranteeing an SWR of less than 1.5:1 on spot frequencies throughout the entire 5 bands. A far better alternative to the old G5RV antenna.

Impedance: 52 Ohm. Overall length: 20m. Power Handling: 1kW. Max SWR: 1.5:1. Weight: 2.5Kg. Input socket: SD239.

MOEL MEGATRAP

160M - 40M.....£99.95
p&p £7.50

E - MAIL: sales@martin-lynch.co.uk

CALL TODAY FOR THE LARGEST SELECTION OF NEW & USED EQUIPMENT IN EUROPE.

TEL: 0181 - 566 1120

FAX: 0181 - 566 1207

CUSTOMER CARE: 0181 - 566 0 566



Martin Lynch is a licensed credit broker. Full written details are available on request. Finance is subject to status. E&OE. £10 p&p on all major items.

0181-566 1120

OPENING TIMES MON - SAT : 9.30 - 6.00 LATE NIGHT THURSDAY BY APPOINTMENT

Yet another year passes by...

Last month I read with amusement a piece on how a company was "proud" of the fact to have lost the distributorship of one of the largest Amateur Radio manufacturers in the world. I must admit, if I had been fortunate and honoured to be appointed such a respected mark - and lost it, I probably wouldn't shout about it, let alone be "proud". Nowt as strange as folk, as they say.....

I've been fishing around my vault (The showroom used to be an old Barclays Bank and its now the store room), and I've listed a selection of kit that you can save more than a few bob on. They are all new (or ex dem, where specified), and come with full manufacturers warranty.

For those of you that are on the "WEB", check out our site. It is updated each day and contains special offers and our famous "Used Equipment list" which is at least six weeks more up to date than any advert .

Just a small selection of high grade used stock

	was	now
Kenwood TS-50S HF Mini 100W mobile/base.....	£699	£ 549
Icom IC-751A HF base station, 100W.....	£749	£ 595
Kenwood TS-850S HF Base, 100W.....	£1295	£1100
Yaesu FT-990DC 100W HF base.....	£1395	£1050
Kenwood TS-140S 100w HF base/mobile.....	£650	£ 550
Kenwood TS-430S 100W HF base/mobile.....	£595	£450
Kenwood TS-120V 10W Ham Band transceiver.....	£325	£250
Kenwood TS-950SDX 150W HF base DSP as new.....	£2695	£2495
Yaesu FT-1000, 200W 2*RX one owner the best.....	£2295	£1950
Icom IC-901 High quality dual bander.....	£379	£299
Yaesu FT-480R 10W 2M multimode.....	£349	£275
Yaesu FT780R 10W 70cm multimode.....	£349	£275
Yaesu FT-720R 2m 10W mobile.....	£149	£89
Yaesu FT-290Rmk1 2.5W 2m multimode portable.....	£269	£199
Yaesu FT-290Rmk2 later 2.5W multimode port.....	£349	£319
Yaesu FT-790Rmk1 1W 70cm multimode portable.....	£279	£239
Icom IC-765 100W base station, large display.....	£1495	£1295
Kenwood TS-711E 25W 2m base staion, c/w PSU.....	£ 695	£595

plus 2m dual band mobiles from only £199!!
 plus 2m handies from only £89!!
 plus dual band handies from only £149!!
 plus 70cm handies from only £119!!

All used stock is fully guaranteed but is subject to availability. Please check before ordering mail order or travelling to shop.

Mobile Whips For Spring HF Operating

PRO-AM ANTENNAS

PHF-160 Enormous 160M Centre Loaded Whip.....	£54.95
PHF-80 Almost as big 80m Centre Loaded Whip.....	£24.95
PHF-40 The muts nuts on 40m, at a mere.....	£22.95
PHF-20 The way to DX, (safely) on 20m.....	£19.95
PHF-15 You guessed it, the same but on 15m.....	£19.95
PHF-10 I'll give you one guess.....	£19.95
AB-5 5 bander 10-80 in one antenna. It works!.....	£89.95
BB-2 Massive Spring mount for L.F. Whips.....	£49.95
116-NP gutter mount with 3/8 thread.....	£16.95
142-ADP Body mount with 3/8 to SO239.....	£9.95

WEB SITE: <http://www.martin-lynch.co.uk>

MARTIN LYNCH
 & Son

THE AMATEUR RADIO EXCHANGE CENTRE

140-142 NORTHFIELD AVENUE, EALING, LONDON W13 9SB

MYDEL P-133 PC

With all the talk of Internet this and WEB that, (have you noticed how often email or web addresses appear in adverts these days?), I thought it was about time Martin Lynch & Son configured a PC suited to the Radio Amateur who wants to join the ever growing popularity of "PC Communications".



AS REVIEWED
 IN RADCOM
 MARCH
 ISSUE

MyDEL P133 Specification:

- Fast Intel 133MHz Pentium Processor
- 1.2Gb IDE Hard Drive
- 16MB RAM
- 2Mb Video Card
- 16 Bit Sound Card with speakers & microphone
- 14" SVGA Colour monitor
- Internal 33600bps Fax/Modem
- 8 speed CD ROM
- Windows 95 installed
- Keyboard & Mouse
- BT Internet Software on CD including Microsoft Internet Explorer

Does the "net" machine replace Ham Radio - NO! But you will be amazed how many Radio Amateurs are using the system all day, every day. The Internet with all its features compliments our hobby - don't get caught without it!

Each machine is configured ready to go with Windows '95 allowing you to buy any '95 Windows software available. We also supply BT Internet software (on CD ROM) which gives you instant Internet access allowing you to view the "World Wide Web", an "email" address to send and receive messages from anywhere in the world, join "newsgroups" interested in Ham Radio (or practically anything you like!) plus lots more, all for the cost of a local call!

- Full access to the World Wide Web
- Email facilities with your own "email" address
- Full access to Microsoft "NetMeeting", allowing full Audio and Video (RX), (+ Video TX with additional video card and camera), anywhere in the world!
- Low cost - only £10.77 per month and calls at "Lo-Call" tariff charges
- Send and receive complete files (whether they are letters, colour pictures, even video clips!) to each other.

Complete system ready to go, only £1499.95.

Carriage £25 UK Mainland.

12 months BT Internet access extra at £129.25 (was £150).

Available on low cost finance: Deposit £299.95, 12 payments of £110.20, Cost of loan £122.49, or 24 payments of £60.12, Cost of loan £242.88.

All prices including VAT. Please allow 10 working days for configuration, test and delivery. Finance subject to status. Full written details available on request. APR: 19.9%

■ Martin Lynch can also offer finance terms upto 36 months. Deposits from a minimum of 10%. We welcome your part exchange against any new (or used!!) product, provided its clean and in good working order. Call the Sales Desk today. APR: 19.9% Payment protection is also available.

■ All units are brand new and boxed and offered with full manufacturers RTB warranty. All prices quoted for cash/cheque or Switch/Debit card.

■ Finance on all products is also available. (Subject to status).

HF Top Ten

Yaesu FT-1000 200W Flagship, twin RX.
RRP: £3999,
ML Price £2899. Deposit £899, 24 payments of £100.20, Cost of loan £404.80

Yaesu FT-1000MP/DC The worlds best selling HF DSP Transceiver.
RRP: £2599.
ML Price: £2099, Deposit £399, 12 payments of £156.12, Cost of loan £173.53 or 24 months at £85.17. Cost of loan £344.08

Yaesu FT-1000MP/AC as above but fitted AC 240V PSU.
RRP: £2899.
ML Price £2299, Deposit £449, 12 payments of £169.90, Cost of loan £188.84 or 24 months at £92.68. Cost of loan £375.44

Yaesu FT-990DC 100W Little brother to FT-1000. 100W, Digital Bandwidth. RRP: £1999.
ML Price £1399. Deposit £399, 12 payments of £91.84, Cost of loan £102.08 or 24 months at £50.10. Cost of loan £202.40

FT-900AT Base Station performance in a small package. 100W HF.
RRP £1399,
ML Price: £1049. Deposit £149, 12 payments of £82.65, Cost of loan £91.87

FT-840 100W HF with "one of the best" receivers.
RRP £959.
ML Price: £749, Deposit £99, 12 payments of £59.69, Cost of loan £66.35

Yaesu FL-7000 Solid State 500W HF Linear with PSU & ATU.
RRP: £2399.
ML Price: £1999, Deposit £399, 24 payments of £80.16. Cost of loan £323.84

Icom IC-756 NEW! Full DSP, Large screen, 100W HF+6.
RRP £2199.
ML Price: £1949, Deposit £349, 12 payments of £146.94, Cost of loan: £163.32, or 24 payments of £80.16, Cost of loan £323.84



Icom IC-706 The ultimate HF+6+2M all mode. **NEW SUPER LOW PRICE**
RRP £1199.
ML Price: £839. Deposit £139, 12 payments of £64.28, Cost of loan £71.45, or 24 payments of £35.07. Cost of loan £141.68

Kenwood TS-870S The only FULL DSP 100W HF transceiver.
RRP: £2399.
ML Price: £1949, Deposit £349, 12 payments of £146.94, Cost of loan £163.32, or 24 payments of £80.16, Cost of loan £323.84

Kenwood TS-570D NEW! A remarkable DSP HF, 100W.
RRP: £1499.
ML Price: £1299, Deposit: £199, 12 payments of £101.02, Cost of loan £112.28 or 24 payments of £55.11, Cost of loan £222.64

VHF Top Ten

Yaesu FT-736R The only Quad Band all mode Base.
RRP: £1699.
ML Price: £1399, Deposit £299, 12 payments of £101.02, Cost of loan £112.28, or 24 payments of £55.11, Cost of loan £222.64

Icom IC-821H High performance Dual band Multimode Base.
RRP: £1599.
ML Price: £1399, Deposit £299, 12 payments of £101.02, Cost of loan £112.28 or 24 payments of £55.11, Cost of loan £222.64

Yaesu FT-8500 The very best DualBand remote head.
RRP: £799.
MP Price: £499, Deposit £99, 12 payments of £36.73, Cost of loan £40.83

Kenwood TM-V7E The latest "Blue Display" DualBand mobile.
RRP: £649.
ML Price: £589, Deposit £59, 12 payments of £48.67, Cost of loan £54.10

Icom IC-2350H Best RX performance DualBand mobile.
RRP: £499.
ML Price: £439, Deposit £49, 12 payments of £36.64, Cost of loan £40.72

Yaesu FT-50R Small rugged DualBand Handie.
RRP £349.
ML Price: £279, three credit card payments of £93

Icom IC-W32E. Latest DualBand full feature Handie.
RRP £399.
ML Price: £349, Deposit £49, 12 payments of £27.55, Cost of loan £30.62

Standard C568. Triple Band 2/70/23 Handie.
RRP: £449.95, £49.95 deposit, 12 payments of £36.73, Cost of loan: £40.83

Icom IC-T7E Simple to use Twin Bander Handie.
RRP: £329,
ML Price: £299, three credit card payments of £100

Yaesu FT-3000M The only 70W 2M FM transceiver!
RRP: £479,
ML Price: £399, Deposit £49, 12 payments of £32.14, Cost of loan £36.72



5 year warranty is available ON ALL MAIN PRODUCTS LISTED

All equipment listed is brand new and boxed, offered with full manufacturers warranty. A FIVE YEAR warranty including ACCIDENTAL DAMAGE is available on any of the above products for minimal cost.

E - MAIL: sales@martin-lynch.co.uk

CALL TODAY FOR THE LARGEST SELECTION OF NEW & USED EQUIPMENT IN EUROPE.

TEL: 0181 - 566 1120

FAX: 0181 - 566 1207

CUSTOMER CARE: 0181 - 566 0 566



Martin Lynch is a licensed credit broker. Full written details are available on request. Finance is subject to status. £80E. £10 p&p on all major items.

0181-566 1120

OPENING TIMES MON - SAT : 9.30 - 6.00 LATE NIGHT THURSDAY BY APPOINTMENT

SUNRISE ELECTRONICS

CENTRAL LONDON'S ONE-STOP COMMUNICATIONS CENTRE

229 TOTTENHAM COURT ROAD, LONDON W1P 9AE



MAIL ORDER HOTLINE **0171-637 3727**

Fax: 0171 - 637 3728

For best prices on all GPS call us now!

Free case + training video



MAGELLAN GPS

GPS-2000.....	£139.00
GPS-3000.....	£194.00
GPS-4000.....	£239.00
MERIDIAN XL.....	£249.00
TRAILBLAZER.....	£279.00
NAV DLX10.....	£479.00
SKYBLAZER.....	£POA

Full range of Magellan GPS in stock (new only).

- ★ Discount for Scouts
- ★ Discount for clubs & institutes



GARMIN GPS

GPS-38.....	£159.00
GPS-40.....	£199.00
GPS-45XL.....	£229.00
GPS-II.....	£229.00
GPS-75.....	£399.00
GPS-89.....	£349.00
GPS-90.....	£469.00
GPS-120.....	£354.00
GPS-MAP 130.....	£619.00
GPS-MAP 175.....	£619.00
GPS-MAP 210.....	£884.00
GPS-MAP 220.....	£1188.00

ALL ACCESSORIES FOR MAGELLAN & GARMIN GPS IN STOCK

- Power data cable ● PC kits ● Marine antenna ● Mounting brackets ● Training video
- Car adaptor ● Extension antennas ● Car antennas ● Software for PC available

SCANNERS/TRANSCIVERS

Stockists of Kenwood, Yaesu, Alinco, Yupiteru and AOR. Call us now for further information.



AOR-8000
All mode scanner
500kHz-1900MHz.
PC compatible.

£365



ALINCO DJ-S41
UHF Transceiver.
Compact size.

£119



YUPITERU MVT-7100
0.1kHz-1650MHz.
One of the best.

£285



YAESU FT-50R
VHF/UHF dual bander.

£295



WELZ WS-1000E
Smallest scanner in stock. 500kHz-1300MHz.

£310



ICOM IC-T7E
70 memories dual bander

£295



AOR AR-1500EX
500kHz-1300MHz.
With BFO.

£189



KENWOOD TH-22E
VHF 144MHz hand held.

£230



YUPITERU VT-125
108MHz - 142MHz

£169



KENWOOD TH-28
2m hand held. Very compact trans'.

£280



YUPITERU VT-225
Air - Sea - Land.

£230



ALINCO DJ-190E
2m hand held trans' with charger.

£149

NIGHTVISION

PRICES FROM £199.00



Moonlight NV-100
with illuminator. Tremendous night vision performance at an economical price.

£319.00



Moonlight Mini
Sleek, miniaturised design - only 5.5" long.

£269.00

SECOND GENERATION

PRICES FROM £699.00



ITT QUEST 100£699.00

ITT QUEST 150£899.00

ITT QUEST 250£1699.00

NEW ITT QUEST 300£POA
(VIDEO CAMERA ADAPTABLE)



The mast, unfortunately, turned out to be another film prop! Constructed from wood with guy wires holding it up, the 'Tri band beam' type antenna on top was also a 'dummy'!

The house chosen could only be described as a part derelict castle. The owner though was restoring it to its former glory bit-by-bit. We could see the new bits of wall added in recent years, showing white against the weathered grey of the old stone.

Painted Stone?

We could also see the hardboard wall going up, being painted to look like stone. Another TV trick of the trade.

Once the location housing the radios was pointed out, the crew helped to lift the sets in. An AR88, a CR100, a home-brew transmitter of the period, a 1930s wooden wireless, bits of test gear, headphones, a Morse key and some tools completed the list.

The YL and I then proceeded to 'dress the set' (that's another film and TV phrase that all suppliers use!). The setting of the radios was again a dream shack.

There were great big thick walls, no problem with noise coming in or going out. (Nothing to disturb the YL while she watched such riveting, mind expanding programs like 'Coronation Street').

No Electricity

The only problem encountered was with the lighting, there was none and

in fact there was no electricity up to the house! The TV crew were going to have to rely upon generators for all their power.

A small portable generator was already in operation for the temporary lighting and power tools needed by the set designers. A quick request to the boss and a light on a long lead was soon installed in the 'shack'.

As can be seen from the photo, I took great care in setting the station up as I think it would have looked. I also have to acknowledge here the valuable assistance of my lovely YL, Gloria.

I repeatedly stepped back and took the view the camera would see, just to arrange things correctly. The only problem I had was in forming that little square box with the hands, the one you see all directors doing when trying to frame a shot!

Whilst I positioned and re-positioned the radios the other set designers were busy making walls where there were none. They were even painting fake bricks onto hardboard, building an entire stable in the courtyard, even hiding a load of building sand under a tarpaulin, with a bit of straw around the base to make it look like a pile of hay.

Eventually, the set designer and I were happy with the arrangement. Then we all retired to the courtyard for a well earned 'cuppa' and a chat about other great programs the designer had worked on.

The sun shone, the open aspect all around gave spectacular views of the

country side but not of the lake that was going to be in shot next to the castle. It transpired that the lake to be used was miles away and, in good TV and film tradition, it would either be 'pasted in' later, or joined with expert cuts in camera angle.

Day Of Airing

And so it came to pass, that eventually (after much waiting) the day of 'airing' came. Great excitement filled the Nock household, videos rolled and friends 'phoned.

I had been warned that it was only going to be a 10 second shot of the sets (if that long!). As it was, I think it was more like a five second shot, from about 30ft away, through the woollen jumper of the main character!

I waited to hear the made-up technical terms and jargon spouted by the supposed Radio Amateur, as in good TV tradition they are usually all wrong as we all know. But as it transpired there was no mention of 'ham', not even bacon. A passing remark about listening to the Voice of Russia and that was it, gone, over, and no more radios anywhere!

Even the 50ft mast, so lovingly created by the 'props' department made only the briefest of long shot appearances. But at least no one could question the accuracy of the beam antenna!

All that huffing and puffing, the petrol expended, the dents suffered to the equipment when they were shipped back, all for the merest glimpse. The whole event, as nice as it was at the time, really opened my eyes as to how TV programmes are made.

It was a great shame that more was not made of the Amateur Radio connection. An opportunity for some good Public Relations was wasted. But, in good old 'show biz' parlance, the show must go on, and it did.....without us. Oh well, here's to the next time. I really enjoyed the experience and I'm open to offers at any time!

PW



Ben G4BXD even risked a short visit to Gretna Green's famous 'Marriage Room' but he's nowhere in sight!

What it was all about. Gloria sits in the 'period' shack in front of 'The radio that (almost) never was', set-up and ready for the eventual five second appearance in the programme.

Carrying On - The Practical Way

By Rev. George Dobbs G3RJV

This month the Rev. George Dobbs G3RJV says he's providing "A Short Guide to Harmonic Filters for Transmitter Output" and a..... "Complete d.i.y. Kit with just a couple of 'simple sums' to do so you can 'roll your own' filters"32.

In a recent column, I added another little circuit, the FF-7, to the range of QRP, easy to build, transmitters. And as a result I had a comment from a reader.

The reader suggested that I had indulged in 'over-kill' with the low pass filter, which was almost the same physical size as the transmitter. Although I agree the low-pass filter could have been squeezed into less space, I would have still stuck to the seven-element design.

By their very nature, QRP transmitters radiate less power, but the output from such a transmitter does require adequate filtering. Usually to keep the circuit compact, these transmitters have a final stage run in Class C and being driven hard with r.f. power.

The 'driven hard' approach is a recipe for high harmonic output and a well

designed low pass filter is essential. And for many years I have used low-pass filters calculated from a series of figures produced by Ed Wetherhold W3NQJ, and published in two articles in *PW*'s sister publication *Short Wave Magazine* in December 1983 and January 1984.

Adviser To ARRL

Ed Wetherhold has been the American Amateur Radio Relay

League (ARRL) Adviser on passive filters for several years. He's published many fine articles on audio and radio frequency passive filtering.

I believe that the two articles in *Short Wave Magazine* still represent the best source of information for the design of good low-pass filters for r.f. amplifiers.

The *SWM* articles are comprehensive. But here I just want to share enough of the information to enable readers to build useful filters to add to their home-made transmitters.

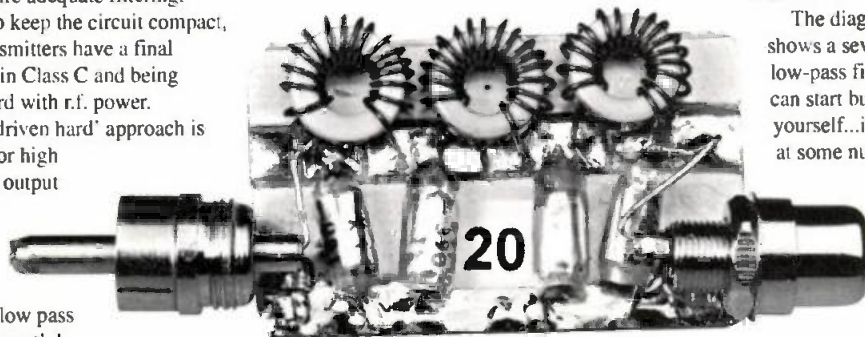
There's very little

special offer of a specialised 'worked examples' book and calculator very helpful. See page 20 January 1997 *PW*, Editor.

The W3NQJ designs are based upon a seven elements: four capacitors and three inductors. They are designed for 50Ω input and output impedance and use standard capacitor values.

I think the W3NQJ approach is very useful because many calculations and computer programs for filter design give very odd values of capacitance. These then have to be made up from series and parallel values.

The diagram, Fig. 1, shows a seven-element low-pass filter. And so you can start building one for yourself...it's time to look at some numbers!



A G3RJV 'Roll Your Own' filter.

mathematics involved - about four 'pokes' of a calculator is the most required to produce information for a buildable filter*! I will also give a chart for 'off the shelf' low-pass filters, which can handle up to 10W or r.f. power, suitable for every h.f. amateur band.

* Readers who are intimidated by radio mathematics will find our

Practical Values

To start with some practical values, I've provided Table

1, which is a very short extract from a large list of filter parameters in the original W3NQJ articles. I have taken the practical values for the nine h.f. amateur bands which have given me the best results over the years.

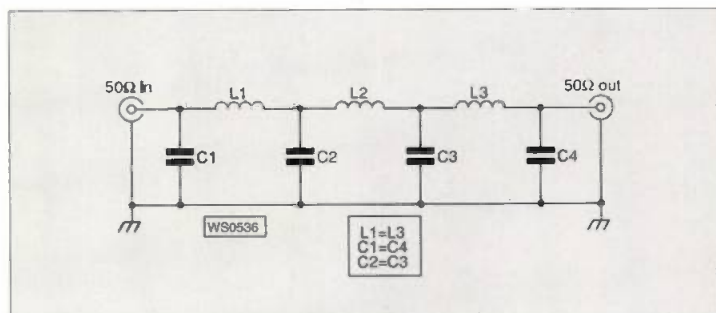
Alongside each band are values for the seven elements in the filters with values on pF for capacitors and μH for inductors. The characteristics of each filter are described in terms of the ripple cut-off frequency (F-co) and the frequencies of the 3dB (F - 3dB) and 30dB (F - 30dB) attenuation levels.

The capacitors are all 'easy' values. I generally use polystyrene capacitors for my filter building.

The Inductors

The inductors are all wound on toroidal cores in the popular Micrometals range. These are available from CirKit, Bonex and Maplin.

Fig. 1: A seven element low-pass filter design (see text).





Translating the inductance value to practical inductors is very simple. The formula, in Fig. 2, is given to calculate the number of turns. It does require knowledge of the inductance at 10 turns for the required core. (These values are given in Table 2).

Again I have reduced the W3NQN information to the 2 mix and 6 mix toroids, the ones that are of most use for this application. The formula is easily executed with a pocket calculator and the resultant figure is rounded to the nearest complete number of turns.

The wire gauge is not critical. Simply use the gauge that will fit well on the core. The target is to wind an even coil on the core to occupy about three-quarters of the available space. If the opposite ends of the winding are too close this will introduce extra capacitance.

Power Levels

The information, in Table 3, shows the smallest core that may be used for particular r.f. power levels. It's interesting because for transmitters of 10W or less, T37 cores are suitable, making the filters very compact.

Also, please notice that larger cores are required for the lower frequency bands. This again is an extract from the W3NQN data which used a very conservative maximum a.c. flux density to determine the minimum core size. (So use this table to choose a core suitable for the required power handling of the filter).

Practical Designs

The information I've provided in Table 4 gives practical designs for a series of low pass filters over the nine Amateur bands for transmitters of 10W or less power output. The constructor simply has to read off the values and make up the filters.

All of the designs mentioned have provided filters that I have used to good effect in the past. Should you require filters for use with higher powers, take the information from the tables to choose a suitable core and work out the appropriate number of turns for that core. In effect it's a 'complete d.i.y. filter design kit'!

I keep a range of low pass filters in the shack, each one mounted in a small tin, for testing purposes. So when I'm playing with transmitter circuits, I have a low pass filter I can put into use for testing the output.

The more frugal constructor could use such a set of filters for several transmitters and not build filters into each of them. You couldn't really be more economical than that could you?

PW

$$N = L_{10} \sqrt{\frac{L}{L_{10}}}$$

Fig. 2: Formula used to calculate number of turns provided (see text).

Table 1

Band (MHz)	F-co (MHz)	F-3dB (MHz)	F-30dB (MHz)	C1, 7 (pF)	C3, 5 (pF)	L2, 6 (μH)	L4 (μH)
1.8	2.16	2.76	4.0	820	2200	4.442	5.608
3.5	4.125	5.11	7.3	470	1200	2.434	3.012
7.0	7.36	9.04	12.9	270	680	1.380	1.698
10.1	10.37	11.62	15.8	270	560	1.090	1.257
14.0	14.40	16.41	22.5	180	390	0.773	0.904
18.068	18.93	22.89	32.3	110	270	0.548	0.668
21.0	21.55	27.62	39.9	82	220	0.444	0.561
24.98	25.24	28.94	39.8	100	220	0.438	0.515
28.0	31.66	40.52	58.5	56	150	0.303	0.382

Table 1: Short extract of filter parameters taken from W3NQN's original articles (see text).

Table 2

Core		Size					Range
Mix	colour	T37	T44	T50	T68	T80	MHz
-2	Red	0.40	0.52	0.49	0.57	0.55	1-7
-6	Yellow	0.30	0.42	0.40	0.47	0.45	7+

Table 2: Table indicating the inductance at 10 turns (rounded to the nearest complete turn) for the required core (see text).

Table 3

Core		Power level (Watts)				
Mix	Colour	0 - 10	10 - 25	25 - 50	50 - 100	100 - 200
-2	Red	T37	T44	T68	T68	T80
-6	Yellow	T37	T37	T37	T44	T50

Table 3: Core requirements for various power levels (see text).

Table 4

Band MHz	C1, 7 pF	C3, 5 pF	L2, 6 turns	L4 turns	Core type	Wire size	
						mm	s.w.g.
1.8	820	2200	30	34	T50-2	0.315	30
3.5	470	1200	25	27	T37-2	0.4	28
7.0	270	680	19	21	T37-6	0.5	26
10.1	270	560	19	20	T37-6	0.5	26
14.0	180	390	16	17	T37-6	0.56	24
18.068	110	270	13	15	T37-6	0.56	24
21.0	82	220	12	14	T37-6	0.56	24
24.98	100	220	12	13	T37-6	0.71	22
28.0	56	150	10	11	T37-6	0.71	22

Table 4: Detailed information for the construction of practical low pass filters (for power levels of no more than 10W) for the nine h.f. Amateur Radio bands (see text).

C.M.HOWES COMMUNICATIONS

Mail Order to: **Eydon, Daventry, Northants. NN11 3PT**
 ☎ **01327 260178**



NEW Transmitter Kit!

Up to 5W CW output (adjustable) on 160 to 20M bands (reduced output up to 30MHz). The **HOWES TX2000** operates on a single band at a time with plug-in band filters in a similar concept to its companion **DC2000** receiver. It requires a separate VFO input or links to the receiver with the **LM2000** linking module kit for transceive operation. Runs on 13.8V DC. Very clean, harmonics typically -50dBc or better. **TX2000 Kit: £24.90** (includes one band filter kit). Additional band filter kits: £6.90 each. **HA23R hardware pack** (pictured top): £16.90.

Matching Receiver - Great for beginners!

DC2000 Receiver Kit: £22.90 (including one band module kit). Additional band module kits: £7.90. **HA22R hardware** (pictured left): £18.90.



Multiband-SSB Receiver

DXR20. Covers SSB and CW on 20, 40 & 80M bands as standard. You can add any other SW band with optional plug-in band modules (same type as DC2000). Versatile and popular with great performance!

DXR20 Kit: £39.90. **DCS2 "S meter" Kit: £10.90**. **HA20R hardware pack: £28.90**

Enjoy your radio more with great projects from HOWES!

ACCESSORY KITS

AP3 Automatic Speech Processor	£16.80	DFD4 Add-on Digital Readout for Superhets	£49.90
MA4 Mic Amp with active filtering	£6.20	DFD5 Digital Frequency Counter/Readout	£54.90
CM2 Quality Electret Mic with VOGAD	£13.50	SPA4 Scanner Preamp. 4 to 1300MHz	£15.90
CSL4 Internal SSB & CW Filter for our RXs	£10.50	ST2 Morse Side-tone/Practice Oscillator	£9.80
DCS2 "S Meter" for direct conversion RXs	£10.90	SWB30 SWR/Power Indicator. 30W 1-200MHz	£13.90
CBA2 Counter Buffer (fit to Rx to feed DFD5)	£5.90	XM1 Crystal Calibrator, 8 intervals + ident	£16.90

(Please enquire about hardware packs to suit the above kits - there is not enough space to list it all here)

The famous HOWES Active Antenna Kits

AA2 . Covers 150kHz to 30MHz. The neat compact answer for those with limited space. Kit: £8.90	Assembled PCB module: £14.90
AA4 . Covers 25 to 1300MHz. Broad-band performance in a neat, compact package. Kit: £19.90	Assembled PCB modules: £28.90
AB118 . Optimised for long distance reception on 118 to 137MHz air-band. Kit: £18.80	Assembled PCB modules: £27.90
MB156 . 156 to 162MHz marine band active antenna system (the brother of AB118!) Kit: £18.50	Assembled PCB modules: £27.60



Top Value Receiving ATUs (30 & 150W TX models also available)

CTU8. Covers 500kHz to 30MHz. Matches antenna impedance and helps reduce spurious signals and interference with extra front-end filtering for the receiver. SO239 sockets. **Factory Built: £49.90**. **Kit (including case and all hardware): £29.90**.

CTU9. As CTU8 plus balun, bypass switch and terminal posts. The fully featured Rx ATU! **Factory Built: £69.90**. **CTU9 Kit (including case and all hardware): £39.90**.

Please add **£4.00 P&P**, or **£1.50 P&P** for electronics kits without hardware.

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

73 from Dave G4KQH, Technical Manager.

ESSEX AMATEUR RADIO SERVICES

"The smallest" and the largest stock of secondhand checked equipment in the UK. 3 months warranty. Plus 101 bargains that "knocks spots" off our competitors. Handhelds, dualbanders etc.

4 NORTHERN AVENUE
BENFLEET, ESSEX SS7 5SN

Call Alan on

01268 752522

9am - 9pm 7 days a week

IC-781.....	£2500	IC-275H.....	£595	IC-31E.....	£300	NRD CFL-243W new.....	£295
IC-775DSP.....	£2100	TM-255E.....	£500	DJ-580E.....	£245	Microset RV-45.....	£50
IC-735.....	£499	TM-455E new.....	£695	DJ-190E.....	£120	Microset RU-45.....	£85
IC-707 New.....	£650	TM-733E new.....	£495	DJ-191E.....	£165	Microwave mods.....	£185
IC-706.....	£750	FT-8500.....	£395	DJ-G5E.....	£200	10-100 2M new.....	
IC-71E.....	£500	TM-451E.....	£265	DJ-180E.....	£120	3-50 6M.....	£75
IC-575H.....	£600	DJ-130.....	£185	IC-2SRE/scan.....	£200	FL-2025.....	£75
FT-1000.....	£1895 SOR	DJ-430.....	£195	DJ-460.....	£95	FL-6020.....	£75
FT-980.....	£499	DR-599.....	£325	AOR 8000.....	£265	FL-1020.....	£50
FT-890SAT.....	£750	DR-605.....	£350	MVT-7200.....	£265	FGX-736 6B mod new.....	£250
FT-840.....	£600	FT-2700RH.....	£265	MVT-7100.....	£200	MC-60A.....	£60
TS-950S.....	£1850	TM-701E.....	£365 SOR	MVT-7000.....	£160	MC-90 new.....	£125
TS-850SAT new.....	£1450	TH-79E.....	£299	AT-50 ATU.....	£195	SP-950.....	£75
TS-940S.....	£1100 SOR	TH-78E.....	£275	IC-180 ATU.....	£300	SP-102.....	£60
TS-930SAT.....	£800 SOR	TH-77E.....	£200	MFJ-949E new.....	£125	SP-8 new.....	£100
TS-50.....	£625	TH-42E.....	£160	MFJ-989C new.....	£295		
TS-140 + PSU.....	£499	FT-530.....	£275	MFJ-259 new.....	£185		
Dx-70.....	£495	FT-23.....	£125	FC-707 ATU.....	£80		
Index new.....	£550	FT-10R new.....	£195	Ammertown AL-80 New.....	£995		
TenTec Scout.....	£395	FT-290i.....	£180	FP-800 PSU.....	£225		
IC-970H+.....	£1295	FT-290II.....	£349	Microset PSU 40.....	£125		
IC-820H new.....	£995	FT-690II.....	£350	KAM + new.....	£300		

**DON'T PART EXCHANGE
YOUR GOOD USED EQUIP-
MENT, SELL IT FOR CASH.**

TOP PRICES PAID

WANTED SECONDHAND OR NEARLY NEW EQUIPMENT. PHONE TODAY FOR BEST PRICES.
 Cash or cheque. Same day. **01268 752522**. We have people waiting

Picketts Lock '97

London's leading amateur radio
and computer event



LONDON
AMATEUR RADIO &
COMPUTER SHOW

Since its introduction in 1990, the LONDON AMATEUR RADIO & COMPUTER SHOW has rapidly grown into one of the biggest events of its kind.

With well over 100 exhibitors, all the major importers, special interest groups, a huge Bring & Buy stand, morse tests on demand, disabled facilities, bars, restaurants and even a lecture programme, it's the event with something of interest to every radio and computing enthusiast.

However, there's more to it than that, and the extra ingredient is something which many other events lack: atmosphere.

Those of you who have seen The Show before will already know what we mean, because from the moment you walk in the door there's something about Picketts Lock that just feels good.

If you're only going to visit one event this year, make sure it's this one.

Saturday
March 8th
& Sunday
March 9th
10am - 5pm
each day

Venue:
Lee Valley
Leisure Centre,
Picketts Lock Lane
Edmonton
London N9

Admission:
Adults
£3.00
Pensioners
£2.00
Under 14's
£2.00

By car on the A1055.
Follow the signs from
junction 25 of the M25.
Free parking for all
By public transport:
bus W8 from
Edmonton Green
B. R. station

New this year
come and try
the Internet
for yourself
at the
NETCOM
Cyber Cafe

For the latest list of exhibitors,
directions on how to get there,
lecture information, etc., visit our
website www.radiosport.co.uk



AKD

Unit 5, Parsons Green Estate, Boulton Road,
Stevenage, Herts SG1 4QG.
Tel: (01438) 351710, FAX: (01438) 357591.

SEE US ON STAND K IN THE BLUE HALL

YAESU UK LTD

Unit 2, Maple Grove Business Centre, Lawrence Road, Hounslow,
Middlesex TW4 6DR.
Tel: 0181-814 2001, FAX: 0181-814 2002.

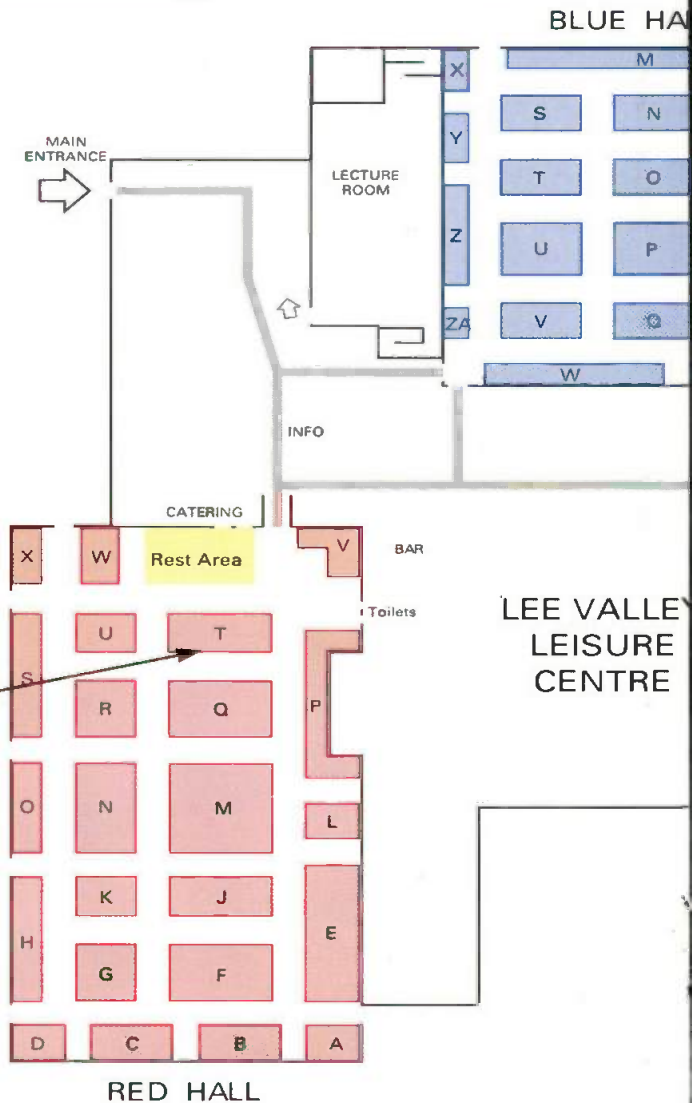
SEE US ON STAND Q IN THE RED HALL

Your Guide to the London Amateur Radio

Saturday March 8 & Sunday March 9

Red Hall Exhibitors

Exhibitor	Block
Agile Tools	P
AOR (UK) Ltd	X
ARE Communications	G
Association For International Broadcasting	G
BEC	C
Bill Macdonald Ltd	P
Capital Products	F
Cheshunt & District ARC	W
Coltec Electronics	E
Compelec	W
Display Electronics	L
Dosher J	P
Eastern Communications	J
Garex Electronics	D
Gemini Electronics	L
Harp Shareware	W
Holderness R J	J
Icom UK Ltd	S
Kenwood Electronics UK	N
Linear Amp UK	G
Low Electronics Ltd	F
Multicom 2000	R
Nevada	H
Practical Wireless & Short Wave Magazine	T
Rich Electronics	K
RSGB	V
Sandpiper	M
SGS	O
SMC	M
Sweet Box	Lobby
Syon Trading	B
Timestep Electronics	K
UBM	A
Venus Electronics	K
Westlake W H Ltd	P
Yaesu UK Ltd	Q



W&S

Radio Communication Specialists

Waters & Stanton Electronics
Spa House, 22 Main Road
Hockley, Essex SS5 4QS
TEL: 01702 206835 / 204965
FAX: 01702 205843

FREephone your requirements on 0500 73 73 88 and pay on collection at the show. Stand W: Blue (Main) Hall

W. H. WESTLAKE ELECTRONICS

West Park, Clawton, Holsworthy, Devon EX22 6QN.
Tel: (01409) 253758, FAX: (01409) 253458.

SEE US ON STAND P IN THE RED HALL

MARTIN LYNCH
& Son
THE AMATEUR RADIO EXCHANGE CENTRE

140-142 Northfield Avenue, Ealing,
London W13 9SB.
Tel: 0181-566 1120, FAX: 0181-566 1207.
SEE US ON STAND S IN THE BLUE HALL

**PRACTICAL WIRELESS &
SHORT WAVE MAGAZINE**

Arrowsmith Court, Station Approach,
Broadstone, Dorset BH18 8 PW.
Tel: (01202) 659910, FAX: (01202) 659950.

SEE US ON STAND T IN THE RED HALL

Radio & Computer Show

Blue Hall Exhibitors

Exhibitor

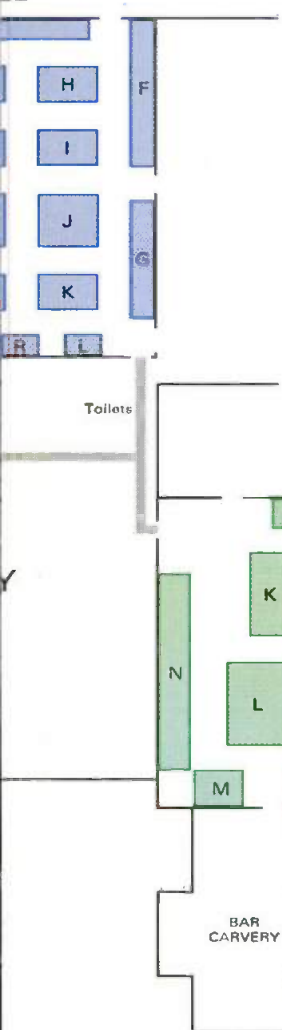
AA Computers
AJP Computers
AKD
Butt
Computer Junk Shop
Deecomm
Eurocom
Field Electrics
Gadget Satellite
Gigabytes Software
Ham Radio Magazine
Haydon Communications
Howes Communications
Kent R A Ltd
Loutronics
Mailtech

Block

M
X
K
ZA
Y
F
N
P
M
V
N
Z
L
V
J
I

Martin Lynch & Son
Micro Direct
Microwear
Mirage Designs
Moonraker UK Ltd
No Nuts
Oasis Computer Systems
Optical Illusions
QRP Component Company
Radio Communications
REC Electronics
Roy Barrett
Southern Aerial Services
Squire V Ltd
Strikalite
Sudbury Electronics
SW Shareware
Taurus
TLX Electrical Ltd
Waters & Stanton

S
O
V
P
Q
N
Q
U
R
T
O
G
U
G
M
O
M
H
H
W



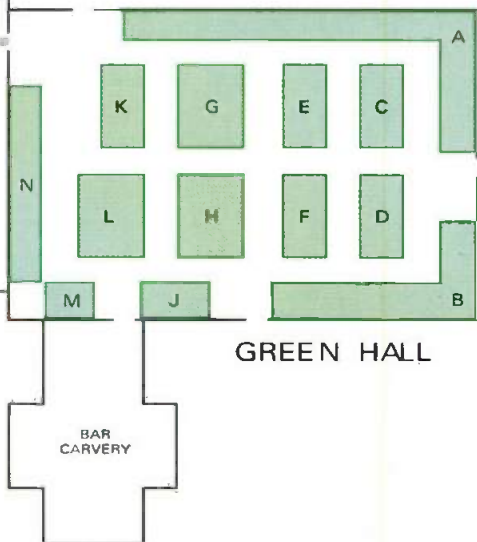
Green Hall Exhibitors/Specialist Interest Groups

Exhibitor

AMSAT UK
Bring & Buy
Grafton A R Society
Guide Dogs For The Blind
Hoddesdon Radio Club
J & B Satellite Supplies
Radio Bygones
RAIBC
RNARS
Silverthorn Radio Club
Worked All Britain

Block

*
*
A
B
A
K
*
A
*
A



* Stand number unconfirmed at time of going to press.

Details correct at time of going to press.

EASTERN COMMUNICATIONS

SEE US ON STAND J IN THE RED HALL

Cavendish House, Happisburgh, Norfolk NR12 0RU.
Tel: (01692) 650077, FAX: (01692) 650925.

MOONRAKER UK LTD

SEE US ON STAND Q IN THE BLUE HALL

Unit 14, Cranfield Road Units, Cranfield Road, Woburn Sands, Bedfordshire MK17 8QR.
Tel: (01908) 281705, FAX: (01908) 281706.

Finding Your Way To Picketts Lock

It's that time of year again and many of us will be heading for Picketts Lock for the annual show. But if you've not been there before, just how do you find your way? Rob Mannion G3XFD describes how you can get there, suggests places to stay and some ideas of where to eat.

The annual show at Picketts Lock not far off the M25 in north-east London has become a very popular event. Depending on your luck with the variable traffic conditions on the M25, driving there is very straightforward. Access to the Picketts Lock centre is then very easy from Junction 25 on the M25.

Leaving the M25 you join the A10 road heading into London. However, you only have to travel a very short distance before taking a turning off to the left towards Ponders End and you'll end up on the A1055. With the main line railway on the right you'll eventually pass Ponders End station (on the right as you head towards Picketts Lock) before you approach the Lee Valley Leisure Centre (Picketts Lock) complex itself.

Going into the complex itself, the multi screen cinema is the first thing you'll see from the road, as you approach the car park entrance. To the right on the far side of the railway there's high density housing (high-rise flats and a considerably built-up area, whereas to the left, the surrounding golf course, camping site (large and remarkably peaceful and ideal for overnight use) and the country park provided a surprising semi-rural atmosphere.

The route I've suggested avoids driving through Enfield. But if you're coming by public transport you'll have to pass through the town itself.

Anyone travelling by train to the show will have to start the London end of their journey from Liverpool Street and get off at Edmonton Green station and transfer to the W8 bus service. This runs on a very regular schedule and terminates literally at the show's front door.

For anyone coming from abroad, via the Channel Tunnel rail service or Heathrow, the journey is quite straightforward. From Heathrow the 'Underground' train service runs to the centre of London and the journey to Liverpool Street is simple. The same applies for passengers arriving at Waterloo International via the Eurostar service.

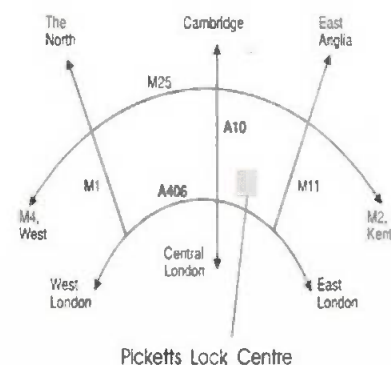
Facilities & Access

Facilities in the Picketts Lock centre include various food outlets and a bar. Wheelchair access is also good, as is general access for the disabled.

For anyone wanting to 'eat out' I've done some research and several nearby restaurants have been recommended. These include the 'Bella Pasta' at 2 The Town, Enfield. For reservations contact Joy Fairbrother on Tel: 0181-367 7514. And another restaurant that's been recommended to me is the 'Italian Touch' at 21-22 Station Parade, Cockfosters, Hertfordshire. For reservations here please call Franco on Tel: 0181- 447 0947.

Staying Overnight

Many people travelling to weekend Amateur Radio shows stay overnight to make the most of the event. And for those planning to do this during the



Lee Valley Leisure Centre

Picketts Lock show are fortunate because there are several alternatives for accommodation and one is definitely in the 'budget' price range.

If you've got a caravan, motor caravan or tent...the campsite immediately behind the Leisure Centre could not be more convenient. Complete with an on-site shop the camp site extends to many acres and (quite honestly because I've walked my dog through to the Lee Navigation on many occasions) you'd think it was deep in the countryside.

To book a pitch for your tent, caravan or motor-caravan (note: commercial vehicles are not permitted, and the site management only accept motor-caravans fully fitted with windows) you should telephone the Site Manager Mr Cartlidge on 0181-803 6900. Charges are £5 per adult per night, children (five to 16 years old) are charged at £2.10 per night. Electricity is available at £2.20 per night. (For other enquiries the main telephone number for the Leisure Centre itself is 0181-345 6666).

If your budget extends to a Hotel stay you could take advantage of a special offer that's being made by the Cheshunt Marriot Hotel at Broxbourne. This Hotel is eight miles or so northwards up the A10 from the show and it's where the PW & SWM team stay...as do many other people connected with the show. It's very comfortable, has a good swimming pool and has the benefit of a large shopping centre nearby complete with Marks & Spencer, Tescos, etc.

Prices per night for the Hotel are as follows: Special rate for a single room is at £49 including full English breakfast and VAT (Normal price £68). A double room costs £54 including full English breakfasts and VAT. The Hotel has also recently been awarded a 'Category 1' within the National Accessibility Scheme for the high standard of facilities provided for the disabled.

For further details on the Hotel, booking and enquiries contact: The Marketing Manager Joanne Leyton on (01992) 451245. Alternatively you can write to: The Cheshunt Marriot Hotel, Half Hide Lane, Broxbourne, Hertfordshire BN10 6NG or FAX: (01992) 440120.

Finally, if you do stay at the Cheshunt Marriot Hotel I've got a bit of advice: You can save yourself time by leaving the A10 at the (very well signposted and very obvious) exit to the shopping centre I've already mentioned. Then (unless you need the shopping centre facilities) you can use the link road which passes under the A10 and provides easy access to the Hotel. This route saves a mile or so and several complicated road junctions.

So, I hope the information I've provided will help you...especially if you've not been to Picketts Lock before. And as usual I'm looking forward to seeing readers there!

PW

CESHUNT Marriott HOTEL

Halfhide Lane, Turnford, Broxbourne
Herts EN10 6NG

Tel: 01992 451245 Fax: 01992 440120

The Cheshunt Marriott Hotel is very pleased to offer preferred hotel rates for all exhibitors and visitors to the London Amateur Radio Show, Picketts Lock, Lee Valley Leisure Centre

**Friday 7th & Saturday 8th
March 1997**

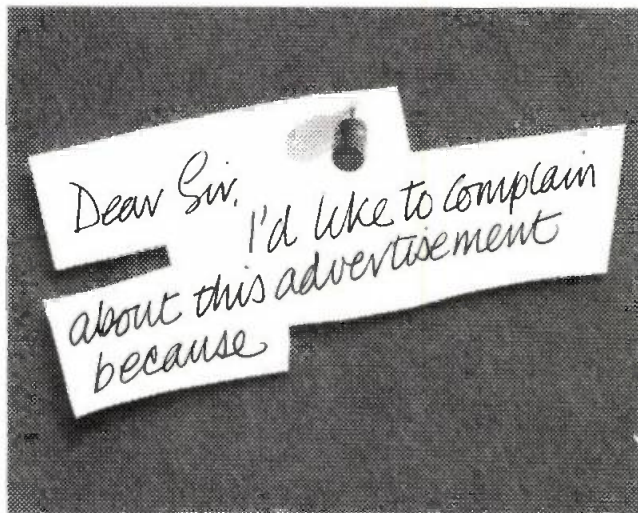
**£54.00 per twin/double
£49.00 per single**

Inclusive of full English Buffet Breakfast and VAT, and complimentary use of our swimming pool, gym and jacuzzi.

practical Wireless

**SEE US AT
PICKETTS LOCK
8th & 9th MARCH**

**STAND T
IN THE
RED HALL**



Most advertisements are legal, decent, honest and truthful. A few are not, and, like you, we want them stopped.

If you would like to know more about how to make complaints, please send for our booklet: 'The Do's and Don'ts of Complaining'. It's free.

The Advertising Standards Authority.

We're here to put it right. ✓

ASA Ltd., Dept. Z, Brook House, Torrington Place, London WC1E 7HN.

This space is donated in the interests of high standards of advertising

PW PCB SERVICE

PRACTICAL WIRELESS PCB SERVICE

Printed Circuit Boards for *Practical Wireless* constructional projects are available from the Practical Wireless PCB Service.

The boards are made in 1.5mm glass-fibre and are fully tinned and drilled.

When ordering PCB's please state the article title, magazine cover date and the board number.

Mark your envelope **Practical Wireless PCB Service.**

Cheques to be crossed and made payable to: **Badger Boards.**

Please print your full name and address in block capitals and do not enclose any other *Practical Wireless* correspondence with your order.

Please allow 28 days for delivery.

Send orders and remittances to:
**Badger Boards, 87 Blackberry Lane,
Four Oaks, Sutton Coldfield B74 4JF.
Tel: 0956 374918**

Due to the fast turn around of popular secondhand items, readers should check on availability of advertised stock. In other words...if you spot something you fancy...don't delay or you could miss it!

Traders

YOUR GUIDE TO SECOND-HAND EQUIPMENT

WATERS & STANTON 01702 206835

PLEASE NOTE SECONDHAND ITEMS COME WITH FULL 3 MONTH PARTS & LABOUR GUARANTEE. FOR MORE INFORMATION PHONE ANDY TIETJEN 01702-206835 OR FAX 01702-205843.
HF TRANSCEIVERS
KENWOOD TS-450S AT HF base station £949
MFJ 9040 40M CW 5w portable transceiver £139
MFJ 9420 20m SSB QRP (10w rig (CW optional)) £179
TEN-TEC SCOUT HF transceiver 5-50w 80,40,15m £449

VHF/UHF TRANSCEIVERS MOBILE / BASE STATION
ADI AR-146 2m 50w FM mobile £199
ICOM IC-2900 2m 25w multimode inc desk mic £249
KENWOOD TR-751E 2m 25w multimode transceiver £499
YAESU FT2500M 2m 50w mobile transceiver £299
YAESU FT-690R II 2m multimode portable transceiver £369

VHF/UHF TRANSCEIVERS HANDHELD/PORTABLE
ALINCO DJ-580 x4 2m/70cms handheld £249
ALINCO DJ-560 2m/70cms handheld £199
ALINCO DJ-S1E 2m handheld £129
CTE 1600 2m handheld (Same as IC-2E) £79
ICOM IC-24ET 70cms handheld £179
ICOM IC-W21E 2m/70cms handheld £299
ICOM IC-W21E 2m/70cms handheld Private Sale £249
ICOM IC-W31E 2m/70cms handheld £299
KENWOOD TH-22E 70cms handheld £179
STANDARD CS28 2m/70cms handheld £199
TRIO TR2500 2m handheld £75
TRIO FT-415 2m handheld £179
YAESU FT-530 2m/70cms handheld £269
YAESU FT-23R 2m handheld £99
YAESU FT-40R 70cms handheld £229

STATION ACCESSORIES
DAIWA LA3080 2m 80 handheld amplifier £99
DATONG D70 Morse tutor £59
DEWSBURY Morse tutor £69
ERA Microreader (CW/RTTY) decoder with built in Morse tutor (w/4) £119
ICOM IC-PS20 20Amp power supply unit £79
JPS NTR-1 Add on noise reduction unit £109
KANTRONICS KAM Multimode data controller £199
MAGELLAN GPS3000 Handheld GPS system (see demonstration, 25 new) £199
MFJ 264 1kV dry dummy load £40
MFJ 752C Tunable audio filter £59
MFJ 722 SSB & CW filter unit £139
MFJ 903 6m antenna tuning unit £35
MICROSET 432-90 70cms 90w linear amplifier £449
MICROSET FT-120 20Amp power supply unit £129
MEZUHO KX-3 SWL antenna tuning unit £59
OPTO R10 Auto locking FM receiver 30-2000MHz £199
OPTO XPLORER Handheld frequency finder/DTMP/CTCSS/FM RX £729
STARMASTER CW keyer £40
VECTRONICS AT100 Indoor active antenna £59
W9GR DSP-III Add on simple DSP unit £129
YAESU NC-42 Rapid charger for FT-530 £45
YAESU FRV-7700 VHF add on for FRG-7700 (118-150MHz) £59

SHORTWAVE RECEIVERS
KENWOOD R5000 Base station receiver with optional VHF board £799
LOWE HF-225 Base station HF receiver inc FM/AMS £399
LOWE HF-250 High specification HF receiver £599
SONY ICF-7600 Portable shortwave receiver with SSB £109
SONY ICF-SW1 Micro shortwave receiver on own £79
YAESU FRG-7700 Base station HF receiver £299
YAESU FRG-100 x2 Base station HF receiver £399

SCANNERS MOBILE / BASE
YAESU FRG-9600 60-950MHz all mode base receiver £299
REALISTIC PRO-2005 25-520MHz, 760-1300MHz £159
YUPITERU MYT9000 0.5MHz-1300MHz AM/FM/WFM mobile/base £279

HANDHELD SCANNERS
AOR AR-1500 0.5-1300MHz All mode scanner £139
ALINCO DX-K1 0.5-1300MHz AM/FM/WFM £199
ICOM IC-R1 0.5-1300MHz AM/FM/WFM £189
REALISTIC PRO-43 25-1300MHz with gaps £149
YUPITERU VT-225 VHF & UHF air band receiver £179
WIN 108 VHF air band receiver £119
SONY AIR-7 Air band receiver £149

LOWE ELECTRONICS 0117-931 5263

HF TRANSCEIVERS
Icom IC 726 HF transceiver with 6m£625
Icom IC 728 HF transceiver£550
JST135 HF Transceiver£975
Kenwood TS830S HF Transceiver£595
Kenwood TS940S HF Transceiver£1099
Yaesu FT990 HF Transceiver£1050

DATACOMMS
Kantronics KAM Multimode TNC£185
Kantronics KAM PLUS Multimode TNC£299

VHF/UHF TRANSCEIVERS
Alinco DJ500E Dual Band Handheld£249
Alinco DJ560 Dual Band Handheld£199
Alinco DR599 Dual Band Mobile £425
Icom IC 24ET Dual Band Handheld£269
Icom IC505 6m Portable SSB Only£250
Icom ICW2E Dual Band Handheld£249
Kenwood TH205E 2m Handheld£159
Kenwood TH78E Dual Band Handheld£290
Kenwood TH79E Dual Band Handheld£295
Kenwood TM732E Dual Band Mobile / detachable front panel£380
Kenwood TR2500 2m Handheld£140
Yaesu FT470R Dual Band Handheld£259
Yaesu FT2200 2m FM Mobile£289
Yaesu FT4700RH Dual Band Mobile with detachable front£375
Yaesu FT690R2 6m Multimode Portable£399

HF RECEIVERS
Icom ICR71E HF Receiver£550
Kenwood R1000 HF Receiver£250
Kenwood R2000 HF Receiver with VHF conv.£495
Kenwood R5000 HF Receiver with VHF conv.£750
Lowe HF225 HF Receiver with all accessories£345
Lowe HF225 Europa HF Receiver£450
Sony ICF5W55 World band Portable£229
Yaesu FRG7 HF Receiver£125

SCANNERS
AOR AR1000 Handheld£169
AOR AR2001 Base Scanner without PSU£159
AOR AR2700 Handheld Scanner£160
AOR AR2800 Base Scanner with SSB£195
Icom ICR7000 Base Scanner£650
Icom ICR1 Handheld Scanner£199
Yupiteru MYT5000 Handheld Scanner£169
Yupiteru VT225 Airband Scanner£195

Items are held at various branches, please contact our Cambridge branch for further details on 01223 311 230

MARTIN LYNCH 0181-566 1120

ICOM IC290E 2M MULTIMODE TRANSCEIVER £329.00
ICOM IC2SE 2M FM HANDHELD TRANSCEIVER £125.00
ICOM IC730 HF 100W MOBILE TRANSCEIVER £295.00
ICOM IC735 HF TRANSCEIVER GENERAL COVERAGE RX £695.00
ICOM IC735 HF TRANSCEIVER GENERAL COVERAGE RX £695.00
ICOM IC737 HF TRANSCEIVER WITH AUTO A.T.U. £995.00
ICOM IC737 HF TRANSCEIVER WITH AUTO A.T.U. £995.00
ICOM IC740 HF TRANSCEIVER £475.00

ICOM IC751 GENERAL COVERAGE HF TRANSCEIVER £695.00
ICOM IC751A GENERAL COVERAGE HF TRANSCEIVER £595.00
ICOM IC751A GENERAL COVERAGE HF TRANSCEIVER £749.00
ICOM IC765 GENERAL COVERAGE HF TRANSCEIVER + AUTO ATU £1295.00
ICOM IC765 GENERAL COVERAGE HF TRANSCEIVER + AUTO ATU £1495.00
ICOM IC775DSP HF 200W DSP TRANSCEIVER WITH ATU AND PSU. £2495.00

KENWOOD TH26E RUGGED 2M HANHELD TRANSCEIVER £149.00
KENWOOD TM702E DUAL BAND MOBILE TRANSCEIVER £395.00
KENWOOD TS50S 100W HF "MOBILE" ALL MODE TRANSCEIVER £699.00
KENWOOD TS50S 100W HF "MOBILE" ALL MODE TRANSCEIVER £649.00
KENWOOD TS50S 00W HF "MOBILE" ALL MODE TRANSCEIVER £725.00
KENWOOD TS830S AMATEUR BAND COVERAGE TRANSCEIVER £450.00
YAESU FT227R 2M 10W FM SYNTHESIZED TRANSCEIVER £125.00

YAESU FT290R 2M MULTIMODE TRANSCEIVER £250.00
YAESU FT290R2 2M MULTIMODE TRANSCEIVER £349.00
YAESU FT290RMK1 2M 2.5W MULTIMODE TRANSCEIVER £269.00
YAESU FT290RMK1 2M 2.5W MULTIMODE TRANSCEIVER £269.00
YAESU FT290RMK2 2M MULTIMODE, 2.5 WATT TRANSCEIVER £349.00
YAESU FT411 2M HANDHELD TRANSCEIVER £159.00
YAESU FT470R 2M/70CM HANDIE TRANSCEIVER WITH NICADS £229.00
YAESU FT736M VHF/UHF ALL MODE TRANSCEIVER 2/70 £150.00

NEVADA 01705 662145

ALINCO DJ-100 99.00
ALINCO DJ-180 150.00
ALINCO DJ-F1 185.00
ALINCO DJX-1 225.00
AOR AR-800E 125.00
AOR AR900 140.00
BEARCAT 350A 99.00
BLK JAG 200 MKIII 125.00
DRAKE TR4/AC4 345.00
ICOM IC-725 595.00
ICOM IC-W2E 250.00
ICOM R-72 675.00
ICOM IC-728 795.00
ICOM IC-240 99.00
ICOM PS-15 149.00
JRC-525 RX 699.00
JST 100 COMPLETE 525.00
KENWOOD TH-28E 199.00
KENWOOD TH-41E 159.00
KENWOOD TH-45E 145.00
KENWOOD TH-215E 145.00
KENWOOD TH-79E+SM33 375.00
KENWOOD TM-221 199.00
KENWOOD R-2000 395.00
KENWOOD R-5000 699.00
KENWOOD AT-50 225.00
KENWOOD TR-751E 425.00
KENWOOD TM-251 235.00
KENWOOD TM-451 245.00
KENWOOD TS-120V 279.00
KENWOOD TS-440S 745.00
KENWOOD TS-50 675.00
N.A.G. 144 XL 345.00
NEC SPEAKER/CLOCK 69.00
RADIO SHACK DX-394 199.00
REALISTIC 2036 179.00
REALISTIC PRO-50 69.00
SATCOM SCAN 40 75.00
SATCOM P40 (PAIR) 149.00
SONY AIR 7 145.00
SONY PRO-80 199.00
TEAM 3004UK 125.00
TEAM 3100 UK 95.00
TRIO TR-2200 99.00
TRIO TR-2300 99.00
YAESU FRG-8800 499.00
YAESU FRG-7 185.00
YAESU FL-2500 79.00
YAESU 101 ZD 345.00
YAESU FT-107 499.00
YAESU FT-790R1 325.00
YAESU FT-207R 110.00
YAESU FT-21 IRH 199.00
YAESU FT-221R 299.00
YAESU FT-290 II 375.00
YAESU FT-290 MK 1 250.00
YAESU FT-101 225.00
YAESU FT-2500 229.00
YAESU FT-757 GX 550.00
YAESU FT-980 HF 699.00
YAESU FT-ONE 699.00

PLEASE MENTION TRADERS' TABLE WHEN ENQUIRING ABOUT ANY ITEMS ON THESE PAGES!

Traders' Table

YOUR GUIDE TO SECOND-HAND EQUIPMENT

ARC EARLESTOWN 01925 229881

HF TRANSCEIVERS
Yaesu FT-900AT - boxed£950
2 x Yaesu FT-840 boxed from£525
2 x Icom IC-765 plus speaker from£1500
JRC JST-135HP deluxe + PSU
(opt. units incl.)£TEL
Kenwood TS-140S c/w AT-230£650
Kenwood TS-140S + PS-50£630
Yaesu FT-102£475
Yaesu FT-102 + FV-102DM & FC-102£799
Yaesu FT-757 + FC757/AM-303
Desk Mic£699
Yaesu FT-747GX + FM/CW filters/
FP-757GX£TEL

MOBILE/BASE VHF/UHF TRANSCEIVERS
Yaesu FT-726R + 2/6/70/SAT£TEL
Kenwood TS-811E + mic£575
Kenwood TS-711E + mic£575
Kenwood TS-700 boxed£TEL
Kenwood TS-700S£450
2 x Yaesu FT-290R Mk I plus accessories
from£225
2 x Navico AMR-1000S from£140
Kenwood TM-742 + 10m module
as new£625
Icom IC-229 - boxed£225
Icom IC-290D£300
Yaesu FT-290R Mark II£TEL
Yaesu FT-790R Mark I£250

RECEIVERS
Icom IC-R7100 + HF Module£999
Icom IC-R7000 + HF Module£750
Kenwood R-5000 boxed£699
Yaesu FRG-100 VGC£375
2 x ICOM IC-R71E boxed from£599
Kenwood R-2000 + VHF Converter£425
Kenwood R-1000 boxed£TEL
Regency MX-7000£TEL
1/Yaesu FRG-9600£350
AR-2500£275
Drake R-8E£699
Lowe HF-225£375
Icom IC-R100£TEL
Trio R-600£250
Realistic DX-160£60

HANDHELDS
Yaesu FT-470R£199
Alinco DJ-580£199
Icom IC-M5£150
Kenpro KT-22£80
Alinco DJ-160£150
Kenwood TH-21£99

MISC.
FC-902£TEL
KPC-3£TEL
KPC-4£150
2 x BP84 filters£30 each

PHOTO ACOUSTICS 01908 610625

Icom IC-730 100W 80 - 10M Amateur
Band Transceiver £349.00
Yaesu FT-707 100W 80 - 10M Amateur
Band Transceiver £329.00
Kenwood TM-701E 2M/70cms Mobile
Transceiver (VGC) £329.00
Yaesu FT-470 2M/70cms Dual Band
Handheld £249.00
Icom IC-735 100W HF General
Coverage Transceiver c/w AT100 Auto
ATU and Shure Desk mic. £699.00
Kenwood TS-50S 100W HF Mobile
General Coverage Transceiver £599.00
Kenwood TH-75E 2M/70cms
Handheld c/w speaker mic. £229.00
Tokyo HX-240 2M to HF Transverter,
covers 80 - 10M Amateur Bands.
£189.00

Kenwood TH-22E 2M Handheld,
battery box, no charger. £139.00
Yaesu FT-76R 70cms Handheld
£159.00
Alinco DJ-F1E 2M handheld £159.00
Yaesu FT-2500M 50W 2M FM mobile
(As New) £249.00
Kenwood TM-455E 35W 70cms
Multimode transceiver, remote
mountable. (This unit is only 4 months
old and sells at over £1000) Our price:
£599.00

Icom IC-706 100W HF, 100W 6M and
10W 2M all in one unit. (This radio is
only two weeks old) £840.00
Icom IC-2AT 2M handheld £75.00
Icom IC-271E 2M 25W multimode
base station, c/w internal PSU and
Mutek front-end. £599.00
Kenwood TS-450SAT 100W HF
general coverage transceiver fitted
with internal auto ATU. (This unit is in
mint condition). £799.00
Icom IC-R71E HF receiver. £599.00
Alinco ALM-203E 2M handheld c/w
car charger. £75.00
Kenwood TH-79E £299.00
Lowe HF-225 HF receiver £329.00

SHORTWAVE SHOP 01202 490099

HF EQUIPMENT
YAESU FT902DM c/w FTV902R
Tvtv.(2Mtr) and SP902 Spkr. £495
YAESU FT707 c/w H/B PSU. £350
YAESU FT102. VGC. Fm.Fitted £395
YAESU FT101EE. VGC. £250
YAESU FT101Z. as new. £275
YAESU FT101ZD. VGC. £395.
Tokyo HX240. 2Mtr to HF Transverter
3.5/7/14/21/28.Mhs. £145
TEN TEC ARGOSY 515. ATU and
PSU. £285
KENWOOD TS120S HF Tcvr. £325

VHF/UHF
ICOM IC281H.2Mtr. Mobile Tcvr. £345
TRIO TM211ES 2Mtr CTCSS Tcvr.
£155
AZDEN PCS6000 2Mtr Tcvr c/w
Airband £175
ICOM IC228H1. VHF Mobile Tcvr. £265
YAESU FT290R Mk1. c/w MMD11
Mobile Mount. VGC. £225
YAESU FT290 Mk2 c/w FL2050. £395
TRIO 2300 2Mtr Portable £85
ICOM 202S. VHF SSB/CW Tcvr.
£185.00
YAESU FT208R c/w NC7 Base Charger
£120
ICOM IC28E 2Mtr H/H c/w 1300Mh
Scan £245
ICOM 251E 2Mtr Base Multimode.
Mint. £395
ICOM 551D 50Mhz.100W. Base
M/Mode £525
ICOM 215. VHF FM Portable Tcvr
£85.00
ICOM IC2E. VHF Handheld. £95.00
AOR 2001 Base Scanner 25-550Mhz
£135

MISCELLANEOUS
MFJ 294. Antenna Analyser. £179.00
MFJ 901B. ATU. £55.00
YAESU FC301. ATU. £135.00
YAESU FC107. ATU. £155.00
YAESU YO100 Station Monitor £90
ERA MICROREADER as new £120
AEA PACKRATT PK232MBX Data
Terminal As New. £200.00
KENPRO KR500 Elevation Unit.
£165.00

CALL FOR LATEST UPDATE ON
USED EQUIPMENT AVAILABLE.

SMC GROUP 01703 251549

HF TRANSCEIVERS
PX TS450S Kenwood HF 100W£1099
PX HL7000B Tokyo HF L/amp£899
PX FT747GX Yaesu HF 100W£449
PX FC700 Yaesu Man ATU£169
PX DX-70 Alinco HF + 6mtr£579
PX TS-50 Kenwood HF mobile£699
PX IC737 Icom HF 100W£1060
LX FTONE Yaesu HF 100W£675
LX FT890AT Yaesu HF 100W£1250
LX IC-706 Icom HF + 2/6m£779
AX FT767GX Yaesu HF 100W£1450
AX FT990 Yaesu HF 100W£1650
AX IC765 Icom HF 100W£1699
RX FT980 Yaesu HF 100W£625
RX FT101 Yaesu HF Valve£260
RX FT102 Yaesu HF Valve£325
RX FT747 Yaesu HF Mobile£450
RX FT107M Yaesu HF 100W£275
RX TS690 Kenwood HF/6m£1175
RX TS440 Kenwood HF 100W£750
RX IC726 Icom HF 100W£850
RX IC761 Icom HF 100W£995

VHF/UHF TRANSCEIVERS
PX FT4700 Yaesu 2mtr/70cm£329
PX FT2700 Yaesu 2mtr/70cm£279
PX FT290R11 Yaesu 2mtr port.£375
PX FT221R Yaesu 2mtr m/mode. £295
PX FT2500M Yaesu 2mtr mobile£279
PX TS711E Kenwood 2mtr m/mode. £459
LX DJ580E Alinco 2mtr/70cm£245
LX TH21E Kenwood 2mtr port.£100
AX FT790R Yaesu UHF port.£310
AX TM-732E Kenwood 2mtr/70cm£525
RX DJ160 Alinco 2mtr/70cm£155
RX DJ560 Alinco 2mtr/70cm£335
RX FT76 Yaesu 70cm port.£155
RX FT212RH Yaesu 2mtr FM£175

RECEIVERS
PX SW8 Drake HF Gen. RX£445
PX R2000 Kenwood HF Gen RX£375
PX FRG7700 Yaesu HF Gen RX£295
PX AR8000 AOR Scanner£299
PX AR2800 AOR RX M/base£359
PX AR1500ex AOR Scanner£225
PX AR3030 AOR HF RX£475
PX HF150 Lowe HF Gen RX£375
PX FRG100 Yaesu HF Gen RX£449
PX MVT8000 Yupiteru Scanner£269
PX SW-7600 Sony Portable RX£139
PX PRO2006 Realistic B/Scanner£239
LX ICR-72 Icom HF RX£675
LX FRG7700 Yaesu RX + item£299
AX PRO-80 Sony S/wave RX£120
AX 2001D Sony S/wave RX£169
RX HF225 Lowe HF Gen RX£385
RX AR1500 AOR H/H Scanner£165
RX ICF-7600 Sony Port RX£120
RX NRD535 JRC HF Gen. RX£850
RX FRG8800 Yaesu HF Gen. RX£395

PX = Chandlers Ford HQ 01703 - 251549
RX = Reg Wards 01297 - 34918
LX = SMC Leeds 01132 - 350606
AX = ARE London 0181 - 9974476

Disclaimer

Advertisements from traders for equipment that is illegal to possess, use or which cannot be licensed in the U.K. will not be accepted. While the publishers will give whatever assistance they can to readers or buyers having complaints, under no circumstance will the magazine accept liability for non-receipt of goods ordered, late delivery or faults in manufacture.

PLEASE MENTION TRADERS' TABLE WHEN ENQUIRING ABOUT ANY ITEMS ON THESE PAGES!

AKD

UNIT 5
PARSONS GREEN ESTATE
BOULTON ROAD
STEVENAGE, HERTS SG1 4QG

★ THE START OF A WHOLE NEW RANGE ★

Target HF receiver for the shortwave listener

Made in England by AKD

A communications receiver at an affordable price

The receiver is fully synthesised employing a phase lock loop VCO to ensure stable and accurate signal reception

- ★ Frequency range 30kHz-30MHz
- ★ CE approved
- ★ 1kHz steps with clarifier
- ★ Audio output 2 watts
- ★ Headphone socket



£159.95 incl VAT
Add £6 P&P
includes 12V power supply
and aerial

- ★ Band width SSB = 4.0kHz
AM = 6kHz
- ★ Modes USB/AM/LSB

AKD HF Converter

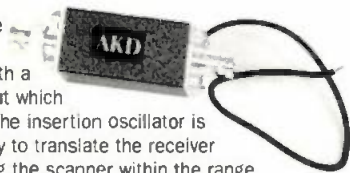
Model HFC1/BNC

The HFC1/BNC Converter is designed for use with various scanners and is supplied with BNC termination (12V DC). The converter uses a SBL1 (double balance mixer) with a low pass filter on the input which cuts off around 65MHz. The insertion oscillator is at 100MHz making it easy to translate the receiver frequency by simply tuning the scanner within the range 100MHz to 160MHz. This will enable reception between 100kHz to 60MHz. No RF pre-amp has been employed to ensure good "large signal handling capacity" is achieved.

Model HFC1/FRG

This Converter supplied as HFC1/BNC but with adaptor to allow Converter to be connected to the FRG9800/965 (8 - 9.6V).

Price **£52.40** inc. VAT + £1 P&P.



TVI PROBLEMS?

Are you having trouble receiving a watchable picture on your TV? If so, the cause may be aerial-borne interference. For many years AKD has manufactured a low cost range of in-line interference suppression filters that are easily inserted into the aerial system to help reduce the effects of interference from local taxi radio, CB, amateur radio, airport radar, etc. Each filter is terminated in standard aerial co-ax plug and socket and requires no external power. Fitting could not be more simple. No technical knowledge is needed. There are 13 standard stocked filters in our range, but individual filters can be tuned to reject interference at specific frequencies if required. If you are not sure which filter type to order or have any questions regarding interference phone our helpline on 01438 351710 and ask for John who will be pleased to assist you in making the best choice of filter.



BRITISH MADE TRANSCEIVERS

CE approved
£193.74 incl VAT (Add £6 P&P)



2 MTR MODEL 2001
144.500-145.975

PTT tone burst. Listen on Input. Facility 25kHz. Spacing 25/5 watts.

4 MTR MODEL 4001
70.250-70.4875
12½kHz Spacing.
Power. 25/5 watts.



6 MTR MODEL 6001
50.010-51.990
20kHz Spacing
25/5 watts.

70 CMS MODEL 7003
432.500 to 434.975MHz
25kHz Steps. Power 3
watts. PTT tone burst.
Listen on input.



WAVEMETERS

KEEP YOUR STATION CLEAN



WA1

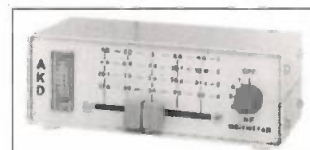
The VHF Absorption Wavemaster for the 2 metre band. Range 120MHz to 450MHz. Meets licensing requirements. Can also be used as a field strength meter within its range. Requires PP3 battery (not supplied).

£34 incl VAT. Add £1.50 P&P

WA2

The VHF Absorption Wavemaster for the 4 & 6 metre bands. Range 50MHz to 70MHz. Meets licensing requirements. Can also be used as a field strength meter within its range. Requires PP3 battery (not supplied).

£34 incl VAT. Add £1.50 P&P



WA3

The HF Absorption Wavemaster covers the range 1.8MHz to 92MHz. Ideal for the law abiding operator. Requires PP3 battery (not supplied).

£58.45 incl VAT. Add £2 P&P

FREE
COLOUR
CATALOGUE
ON REQUEST



WEBSITE: <http://www.kbnet.co.uk/akd>

E-MAIL: akd@kbnet.co.uk

Tel no: 01438 351710

Fax no: 01438 357591

WIN!



**A YAESU
FT-8000R
DUAL-BAND
FM MOBILE
TRANSCEIVER**

**WORTH OVER
£500!
DONATED BY
BARRY COOPER
G4RKO OF YAESU
UK LTD**

1 PRIZE: FT-8000R & a three year subscription to Practical Wireless.

2 & 3 PRIZES: A one year subscription to Practical Wireless.

Questions

- Q1:** How many memories does the FT-8000R have?
a: 100 b: 80 c: 108
- Q2:** What happens if a speaker is plugged into the VHF jack?
a: Nothing b: Internal speaker cuts off
c: Internal speaker continues to operate
- Q3:** Where on the FT-8000R is the cooling fan situated?
a: The back b: The side c: The front

FT-8000R Entry Form

Answers

Q1: A B C

Q2: A B C

Q3: A B C

Editor's decision on the winner is final and no correspondence will be entered into. Please do not include other correspondence in with your entry. Closing date for entries is Friday 2 May 1997.

Name

Callsign

Address

.....

Postcode

If you do not wish to receive future mailings as a result of entering this competition please indicate.

How To Enter
All you have to do is answer the three multiple choice questions above and then tick the appropriate answer boxes on the form left.
Then send your entry to: **FT-8000R Competition, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.**
Alternatively you can drop your entry into the Yaesu Competition 'bin' on the PW Stand T in the Red Hall at the London Amateur Radio Show.
Then sit back and wait to see if you're the lucky winner! Good luck and who knows it may be you we present the FT-8000R to later on in the year at the Longleat Amateur Radio Rally.

CHECK OUT OUR IN DEPTH REVIEW ON PAGE 73

Show News

The London Amateur Radio & Computer Show takes place over the weekend of March 8 & 9th at Picketts Lock, London. Here is a 'taster' of who and what you can expect to find at the show read on to discover the radio delights that will be on offer.

Martin Lynch & Son - Block S



Martin, his wife Jennifer and the rest of the 'Lynch Mob', have moved this year from their normal pitch to a new

position in the **Blue Hall**. "The original spot was too small to accommodate the enormous new range of new and new products, so we had to move", said Martin.

The entire Standard range of v.h.f. products will be on show, including the new C-5908D, triple band (2/6/70) remote head mobile. In addition, the micro miniature handies, including the C508 dual-bander will also be available.

Also on display will be the company's latest MyDEL P-133 Computer, which has been especially configured for use by radio amateurs and listening enthusiasts. The new PC is based on a Pentium 133MHz processor and comes already configured with Windows '95, 8 speed CD ROM, Sound Card and lots more.

An interesting feature of the P-133 is that Martin has pre-installed BT Internet software which allows full Internet access including World Wide Web facilities, E-mail services, the new 'NetMeeting' facility allowing you to talk (and even send and receive video!) all over the Net. The MyDEL costs £1499.95, with an additional £150 per annum payable to BT.

In addition to all this Martin will have all the new products from Yaesu, Icom and Kenwood as well as a wealth of fully checked used equipment, which together with all his new and existing products, should ensure that his stand is well worth a visit!



wave radio, and there will be other gifts ranging from T-shirts to high-quality pen sets from radio stations world-wide.

Icom (UK) Ltd - Block S Red Hall



Dennis Goodwin G4SOT and the 'team' will be exhibiting the full range of Icom equipment including the IC-756 h.f. transceiver, the IC-R8500 wide-band receiver and the IC-R10

scanner. They will also be launching the IC-207H dual-band f.m. mobile.

The IC-207H features a detachable front panel, CTCSS as standard and 9600bps packet operation. Maximum power output on the IC-207H is 50W (v.h.f.) and 35W (u.h.f.) with 108 memory channels and computer clone compatibility with optional software. The price of the IC-207H is expected to be in the region of £450.

Why not pop along to the Icom stand for a full demonstration of the new IC-207H, together with the chance to see the rest of the Icom range and meet the team?

Haydon Communications - Block Z Blue Hall

If you stop off at the Haydon Communications stand you'll find plenty of interest including a new range of heavy duty G5RV antennas and a selection of telescopic masts. In addition to this, Mike will have all the leading manufacturers' products on offer, many at bargain prices.

For the listening enthusiast there will be a selection of Q-Tek antennas available, as well as scanners from the Icom and Yupiteru stables at discounted prices. Mike will also be exhibiting the full range of Optoelectronics products. Finally, if you like 'natty' inventions check out the newest addition to the Haydon range in the form of a waterproof hand-held case from Serene.

Association For International Broadcasting - Block G Red Hall

The Association for International Broadcasting (AIB) will be making their second appearance at the London show and will be promoting international radio and television. The AIB will offer visitors the chance to hear some of the rich-mix of programmes available via short wave and will be representing international radio stations including BBC World Service, YLE Radio Finland and Radio Canada International.

The latest programme schedules from a wide range of global radio stations will be available free-of-charge, together with other promotional material from stations world-wide. The complete range of Roberts Radios will be on show, from simple analogue (or dial-and-pointer) sets to state-of-the-art digital receivers.

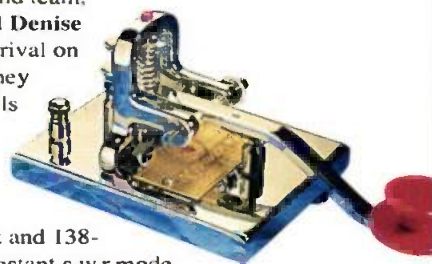
To help visitors discover the range of stations and programmes, AIB will be supplementing the extensive range of free programme schedules with specialist publications about world radio. They will also be running two Prize Draws on each day of the show. The top prize in each draw is a brand new short

Eastern Communications

The Eastern Communications stand team, Tim G4CTT, Trica G1ANZ and Denise G8GGZ will be awaiting your arrival on Stand J in the Red Hall where they will be exhibiting the latest models from their exclusive product ranges.

Among the items on display will be the Autek RF5 antenna analyser, covering the 35-75MHz and 138-500MHz bands. It also features Instant s.w.r. mode that allows the RF5 to automatically find the frequency of the minimum s.w.r.

Other products on show will include the Vibroplex range of Morse keys such as the new Straight Morse Key, a range of Sigma wire antennas, Delta switches and filters, Mosley USA beam antennas and much more. There will also be some 'special



show offers' on selected products, so make sure you pay Tim and his team a visit.



Waters & Stanton Electronics

As usual, Waters & Stanton Electronics will be situated in the **Blue Hall** on **Stand W** where they will be exhibiting a variety of products from several manufacturers. Things to look out for include the new ADI AT 600 dual-band hand-held transceiver, the Cushcraft R7000 multi-band vertical antenna and the MFJ-418 miniature Morse tutor.

There will also be bargain buys from the Alinco product range, in addition to a selection of products on display from the Optoelectronics, Watson and Yupiteru stables. Make sure you stop by and see for yourself.

Low Electronics Ltd - Block F Red Hall

Low Electronics will be offering a wide variety of products for the amateur radio enthusiast on their Stand. For example, the new Low Electronics professional series of earphones and microphones will be on display, as will their night vision scopes, which were previously only available to commercial customers.



The night vision 'scopes are particularly useful for outdoor pursuits such as sporting activities, camping and perhaps even RAYNET groups. The NV100 compact with Illuminator is just one of the products in this range and features clear optics with wide field of view, optimum blend of light amplification and includes a slide-on infrared illuminator for bright viewing in complete darkness.

Other products will include a GPS active antenna, designed for use with the GPS45. This compact antenna comes complete with a magnetic base, 5m of cable and a BNC plug and costs just £39.95.

And that's not all! The HF250 Europa receiver and MIC 10C28 frequency counter will also be on show along with many other lines from the Low range.

C.M. Howes Communications

The new Howes TX2000 will be making its first public appearance on **Stand L** in the **Blue Hall** and is described as a 'new generation' low power (QRP) c.w. transmitter. It gives up to 5W output (adjustable) on the 1.8 to 14MHz bands with reduced power on the higher frequencies (about 2W on 21MHz and 1W on 28MHz).

Band changing is by means of plug-in output filter modules (one band filter supplied with TX2000). This is a similar 'plug-in bands' concept to the transmitter's companion DC2000 receiver.

The transmitter requires an external v.f.o. input, or it can be linked to the receiver for transceiver operation by the LM2000 linking module. The TX2000 features



include key shaping, antenna relay, voltage and gain stabilisation, mis-match tolerance, and a meter drive output for power monitoring.

The TX2000 electronics kit costs £24.90 (including one band filter kit) and the HA23R hardware pack is £16.90. Additional band filter kits cost £6.90 each.

South Midlands Communications

Graham Taylor and the SMC crew will have many products of interest on their stand in the **Red Hall**. These will include the Daiwa range of mobile antennas ranging in price from £28 to £33, magnetic antenna mounts and a selection of new u.h.f transceivers suitable for conversion for Packet radio use. Also on show will be an l.c.d. electronic barometer, world clocks and several items at special prices.

Kenwood Electronics

The Kenwood Electronics stand will be 'manned' by David Wilkins G5HY in the **Red Hall, Block N**. The latest offering from Kenwood, the TM-V7 will be on display as will the full Kenwood range of hand-helds through to h.f. transceivers.



Kenwood have recently announced the availability of free computer control software for their TS-570D h.f. transceiver. The radio control program has been uploaded to the Kenwood Internet Home page and users are invited to point their browser at <http://www.kenwoodcorp.com/software/ts570.html> to download it.

Why not make the Kenwood stands one of your stop off points - you never know there maybe some news of new radios on the horizon!

Nevada Communications - Block H Red Hall

Mike Devereux G3SED and his team will be pleased to welcome you to their stand where they will be displaying many products from their ever increasing range. In particular, you'd be advised to look out for the latest SGC products from America, as well as the full range of Alinco products for which Nevada are now the Sole UK distributor.

Other items will include the Raxon transceiver range, selections from Timewave and Drae in addition to products from all the leading manufacturers. So there will be plenty to feast your eyes upon and plenty of bargains to be 'snapped-up'.

Yaesu UK Ltd

Why not go along to **Stand Q** in the **Red Hall** where you will be able to sample the latest delights from the Yaesu range? You will of course be able to see the FT-8000R mobile transceiver (as reviewed in this issue) along with the full Yaesu range.

Barry Cooper G4RKO and his colleagues will be on hand to demonstrate the radios to you and answer your questions. They may even have news of new models due for release this year.

So, why not take a look and see for yourself, perhaps you'll find what's been missing from your shack.

NEW FROM PW PUBLISHING!

FERRELL'S CONFIDENTIAL FREQUENCY LIST - 10TH EDITION

This popular, well read, frequency list compiled by Geoff Halligey continues to go from strength to strength and is now in its 10th Edition. This 'Top Secret' confidential listing covers 1.6 - 30MHz and it's spirally bound A5 format makes for easy reading and reference.

Included within its 350plus pages are frequencies covering all modes, utility services and for the first time NAVTEX. Also featured is the reverse frequency list showing every known frequency against each callsign, who's using what frequency and mode.

Ferrell's Confidential Frequency List is one book that every listening enthusiast should own and at £19.95 it's well worth every penny.

**BUY YOUR COPY OF
FERRELL'S
CONFIDENTIAL
FREQUENCY LIST AT
THE LONDON SHOW!**

PW & SWM SUBSCRIPTIONS!

BOOK BARGAINS!

DISCOUNTS & SPECIAL OFFERS!

DON'T MISS US - REMEMBER TO STOP BY STAND T IN RED HALL

FERRELL'S CONFIDENTIAL FREQUENCY LIST

10th Edition

COMPILED BY GEOFF HALLIGEY

Including Full Reverse Callsign List

AERO
CW
COAST
FAX
FIXED
EMBASSY
MILITARY
NAVTEX
TIME
VOLMET

TOP SECRET



London Amateur Radio & Computer Show

Of Special Interest

Large Amateur Radio events such as the popular show at Picketts Lock provide an ideal opportunity for the 'Special Interest' groups to promote their activities, recruit new members and share their particular speciality. We've listed some of the regular exhibitors and whatever their interest, they'll make you welcome...so make sure you look them out this year!

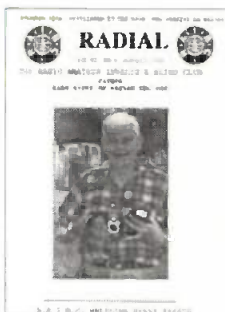
The Radio Amateur Invalid & Blind Club

The RAIBC is a very long and well established group specifically aiming at encouraging and assisting disabled radio enthusiasts. Founded in 1954 the RAIBC helps members in many ways: from providing a 'Help Line' telephone service right round to basic engineering assistance and much needed 'muscle power' (in the shape of dedicated volunteers) to erect antennas and maintain equipment.

Many amateurs who regularly attend rallies take advantage of the RAIBC's fascinating 'Junk Sales'. One of the best known being at the Longleat Rally and it's where you can find some fascinating radio 'bits & pieces' and support a good cause at the same time.

The RAIBC's magazine *Radial* keeps members in contact, informed of activities and interest and for blind members (approximately half the club's members are blind) it's available on tape. They were recently awarded a grant of more than £6000, from the National Lottery, which is to be used to purchase new recording equipment for this important service.

For further details you can contact **Margery Hey** on the RAIBC 'Helpline' (01953) 454920 (Telephone & FAX service). **Nick Chambers G0IRM** (a 'White Stick' operator himself) is the Blind/Int. Liaison Tapes Manager and is available on 0181-428-3344.



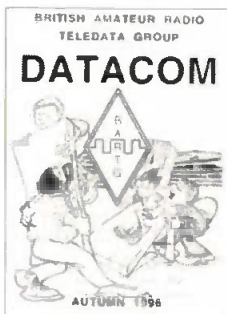
British Amateur Radio Teledata Group

This group BARTG - more familiarly known simply as 'BARTaG' is yet another of the long established 'special interest groups' that's attracted a firm and faithful following. Members are kept in touch by their well-known 'friendly approach' club magazine *Datacom* which, like other specialist group magazines, is very well produced.

Tracing their origins back to the days of mechanical teleprinters, 'BARTG' has exhibited at Picketts Lock for a number of years. Current and prospective members are very welcome at the stand and - speaking on behalf of the group - **Ken Godwin G0PCA** told *PW* that they'll have a range of books, other publications, constructional projects and plenty of advice on hand during the show.

Ken also tells us that another service (vital with all the different aspects of data communication) will be available in the form of advice from other enthusiasts. It's very helpful when you're able to talk your problems through with like-minded enthusiasts!

For further information on BARTG you can either meet them on their stand on telephone on (01634) 271548 or FAX on (01634) 271448.



AMSAT-UK

This group aim high - high enough in fact for them to operate as The Radio Amateur Satellite Organisation for the UK. The AMSAT-UK's high profile activities (sorry AMSAT-UK we couldn't resist the pun!) are in the technical forefront of Amateur Radio activity, and the dedicated enthusiasts - apart from

their own stations - are involved in designing and working with equipment operating in the harshest conditions imaginable (space of course!). The group is traditionally well represented at the London Show and there's always a welcome for anyone interested in this very specialised aspect of the Amateur Radio hobby.

Oscar News - the official journal of AMSAT-UK is designed (and exceptionally well produced) to keep members in touch. Much more than a specialised 'club magazine' the journal is in effect a regularly produced high quality booklet which is read and respected throughout the world.

So, if you're keen to 'get going on satellites' and to join in with the complex background organisational efforts involved in 'Amateur Radio In Orbit', you can visit the stand at the show or contact: **The Hon. Secretary Ron Broadbent MBE G3AAJ** at AMSAT-UK, 94 Herongate Road, Wanstead Park, London E12 5EQ. Telephone (Office hours) 0181-989-6741 or FAX (24 hours) on 0181-989-3430.



Royal Naval Amateur Radio Society (RNARS)

You don't have to be 'afloat' to be a members of the RNARS! Membership is open world-wide to those who have, or have had, connection with the Royal Navy, Commonwealth Navies, Naval Reserves, the Merchant Navy or foreign Navies. This group attracts a fascinating cross-section of 'mariners' and their stands at shows often look as if they're about to put to sea as there are so many 'Navy Types' around.

As you would expect, the *RNARS Newsletter* is a good read - packed with old timer's stories and sea-going exploits from around the world. If you've got any connections with the sea or the Navy...it's worth joining just to read the newsletter! There's a welcome waiting on RNARS stand at the London show and for further information on the Society you can 'pipe' **A. G. 'Wally' Walker G4DIU** on (01705) 361276 (a Portsmouth number of course!). Alternatively you can write to him at 103 Torrington Road, North End, Portsmouth, Hampshire PO2 0TN.



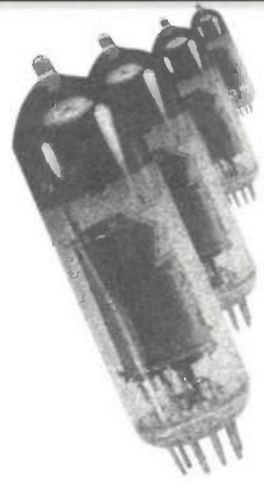
Worked All Britain Wards (WAB) Group

The WAB group doesn't really need an introduction to readers because it's activities and awards schemes (based on the geographical and administrative divisions of the UK) open to s.w.l.s and transmitting Amateurs is very popular world-wide. But on the other hand - did you know that the WAB Group are very busy fundraisers? Amongst the good causes the group raise money for are other groups including the RAIBC. Money raised has gone to assist less fortunate Radio Amateurs and the WAB continue fundraising efforts.

For further information on the WAB Group you're welcome to visit their regular stand at the London Show. Alternatively you can write for details on their 'Book', awards and the newsletter to the **WAB Membership Secretary Brian Morris G4KSQ**, 22 Burdell Avenue, Sandhills Estate, Headington, Oxfordshire OX3 8ED.

PW

W valve & vintage



By Phil Cadman G4JCP

It's Phil Cadman G4JCP's turn to 'look after' PW's vintage wireless shop this month...and this time he's commenting on a recent and rather controversial TV programme commemorating Marconi's work and looking at power supplies

Welcome to 'V&V'! Someone once said "I like the past, I always know what's going to happen there". But sometimes it's possible to know what's going to happen in the future too. The TV programme *Making Waves*, shown on BBC2 on 14 December last, was a perfect example!

The programme featured **Rob Furness**, a modern telecommunications expert working for the 'Orange' (Hutchinson Telecom) cellular telephone service, making a pilgrimage to Newfoundland in the hope of recreating Marconi's first attempt at transatlantic radio communication.

Help was at hand from several Newfoundland amateurs and from our own **Douglas Byrne G3KPO**. Douglas was to provide the transmitted signal from his QTH on the Isle of Wight.

On the summit of Signal Hill, the site used by Marconi, a replica of Marconi's original detector, was connected to a wire suspended from a modern kite. A replica kite had been tried but it seemed to prefer the ground rather than aerial flight (pun intended).

Now, it doesn't take a genius to realise that Rob's simple detector would be incapable of separating Douglas's signal from the plethora of high-powered transmissions found in the short-wave bands. Not to mention the fact that such a detector could not make a c.w. (Marconi used spark, of course) transmission audible.

But it seemed no-one had told Rob or the BBC. Disappointment all round was, I'm afraid, inevitable.

Power Supplies

With this month's delve into the past I'll continue my look at h.t. power supplies. Last time I described the half-wave circuit. This time it's the turn of the full-wave rectifier circuit.

The diagram, **Fig. 1**, shows the kind of full-wave rectifier circuit found in practically all quality valve equipment of moderate current requirements. If the h.t. demand is particularly low then you'll probably find a resistor in place of the h.t. smoothing choke, L1.

Most valve mains transformers have tapped primaries and it's most important to select the correct tap. If you're in any doubt always select the highest voltage tap.

'Under-running' valve equipment isn't harmful if done for short periods whereas selecting a voltage tap lower than the incoming mains voltage could result in overheating and a risk of fire.

If you use silicon diodes rather than a valve rectifier then my warnings from last time about peak inverse volts still apply. My rule-of-thumb in this case would be to choose a diode with a peak inverse voltage (p.i.v.) rating at least four times the r.m.s. voltage of half the secondary. For example, with a 300V-0-300V secondary, use 300V x

4 = 1200V p.i.v. diodes.

It is **not a good idea** to replace a faulty valve rectifier with silicon diodes. **It can be done** but without appropriate modifications to the power supply the equipment may well suffer significant damage.

In **Fig. 1**, the rectifier valve is shown as an indirectly heated type with an external wire joining its cathode to the heater. Most indirectly heated rectifier valves have this connection made internally. Unfortunately, this puts the rectifier heater winding at full h.t. potential. So please bear this in mind when working on live equipment because, as a rule, heater windings are at or near earth potential.

The use of a dedicated heater winding is driven by the need to minimise the heater-cathode voltage within the rectifier valve. It's quite difficult to manufacture heater/cathode assemblies which can withstand high heater-cathode voltages and maintain good heater efficiencies.

Despite the difficulties, some low-power indirectly heated rectifier valves do have sufficient heater-cathode insulation to enable them to use an earthed heater supply. The EZ80 and EZ81, the 6X4 and the octal 6X5, are examples. Half-wave rectifier valves for use in a.c./d.c. sets also fall into this category.

Smoothing Filter

The circuit comprising C9, L1 and C10 is known as the 'smoothing filter'. Directly connected to the rectifier output (the rectifier valve cathode) is the reservoir capacitor, C9.

Next comes the smoothing choke, L1, and finally the smoothing capacitor, C10. Because it's the input (reservoir) capacitor which the rectifier 'sees' first this arrangement is referred to as a capacitor-input filter.

Capacitors C9 and C10 will often be housed in the same aluminium can in what's known as a multi-section capacitor. Multi-section capacitors utilise a common negative foil and electrically separate positive foils to achieve two or more capacitors in a common can. This saves both cost and space.

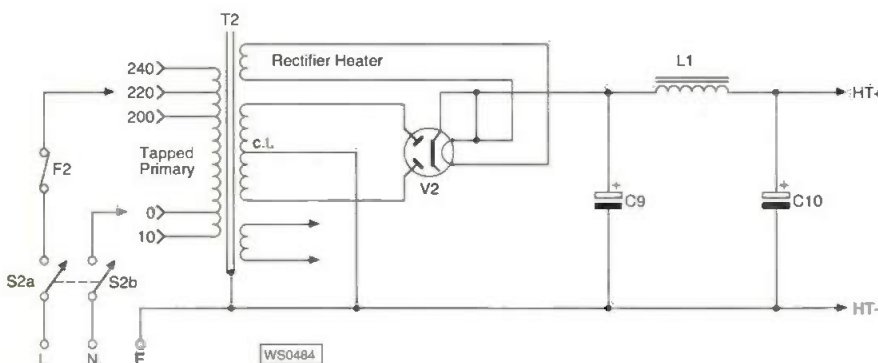


Fig. 1: Full-wave rectifier circuit with a capacitor-input filter (see text).

You'll always find curious bits of text lithographed onto the casings of multi-section electrolytic capacitors. For example: '350V Working 425V Surge, Red outer 100µF, Yellow 100µF, Green 200µF, Blue 50µF 25V, Black common, Can not isolated'.

The 'Can not isolated' means that the aluminium can that surrounds the foils is electrically connected to the common negative terminal (the 'Black' terminal) actually within the capacitor. Actually, this is true of almost all aluminium electrolytic capacitors and not just multi-section types.

The colours relate to the capacitor's solder tags which are often colour-coded for identification. The 'Outer' label associated with the 'Red' section indicates that this section's positive foil is closest to the can wall.

Consequently the 'Red' section can dissipate more heat than the other sections and so sustain a higher ripple current. Given the choice you should always use this section as the reservoir capacitor and use the 'Yellow' and 'Green' sections for smoothing and/or decoupling.

All the sections have the same voltage rating except for the 'Blue' section which is labelled 25V. But why only 25V?

Well in answering the 25V question it's because equipment with an audio output stage usually requires a bypass capacitor for the stage's cathode bias resistor. A 50µF, 25V component is ideal.

In the valve era, even low voltage electrolytic capacitors used to be relatively large and not always easy to mount. The obvious solution was to put the bypass capacitor in the same can as the other electrolytic capacitors.

Choke Input Filter

Capacitor-input filters are appropriate whenever the h.t. current drawn by the load is relatively constant. This is because their regulation (that's the change in output voltage with change in load current) is poor.

Fortunately, most low-power valve

equipment operates in class A (constant current). So in this case capacitor-input filter supplies are quite adequate.

High-power audio amplifiers and s.s.b. transmitters, which tend toward class B operation, are another matter. In class B (and to a lesser extent, class AB) the h.t. current drawn is very much dependant on drive level. So much so that the h.t. current at full output can be many times its quiescent value.

The diagram, Fig. 2, shows another full-wave rectifier circuit but this time with a choke-input filter. It's called 'choke-input' because as there's no reservoir capacitor the first component in the filter the rectifier 'sees' is the smoothing choke. And this time I've shown a directly-heated rectifier valve.

Once above a certain output current, all rectifier valves become either directly heated or have internal heater-cathode connections. This means you don't have a choice about having a separate heater winding.

The choke-input filter's most useful characteristic is its good regulation, ideally suited to equipment that has a varying h.t. demand. But they have another advantage: choke-input filters do not place the same peak current demands on the transformer and rectifier as do capacitor-input filters.

Somewhat surprisingly, the d.c. output from a choke-input filter is only 0.9 times the r.m.s. voltage present at the input to the filter (when used within its working range). However, under no-load conditions the d.c. output will rise to 1.4 times the r.m.s. voltage just as it does with the capacitor-input filter. You'll often find a bleed resistor across the output of a choke-input filter to stop this happening.

To find out where the '0.9' comes from you have to do a Fourier analysis of a full-wave rectified sine-wave. Then you see that it's made up from a d.c. level equal to 0.9 times the input r.m.s. voltage plus a succession of even harmonics of decreasing amplitude. The choke simply filters out all the harmonics leaving just the average d.c. level.

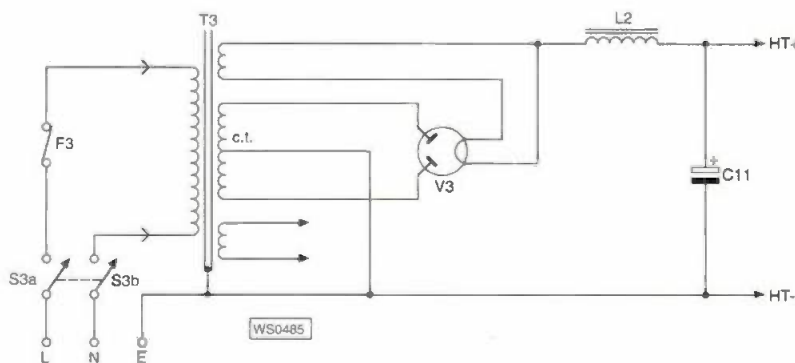


Fig. 2: Full-wave rectifier circuit with a choke-input filter (see text).

Economical Sources

The most economical sources of h.t. transformers and chokes are rallies, junk sales and surplus equipment dealers. Scrap chassis can be particularly lucrative sources of power supply components with the exception of electrolytic and paper capacitors. They deteriorate with age so I advise you to avoid them and buy new capacitors!

New transformers are available from: **RS Components, via their retail outlet Electromail, PO Box 33, Corby, Northamptonshire NN17 9EL. Tel: (01536) 204555, FAX: (01536) 405555** can supply a h.t. transformer, 250V-0-250V at 75mA plus heaters, stock code 196-072. RS also have a single-ended valve audio output transformer, stock code 217-567. But beware, they are expensive!

Maplin (now Maplin MPS), PO Box 777, Rayleigh, Essex SS6 8LU. Tel: (01702) 554000 can supply an h.t. choke, two h.t. transformers and a 20W push-pull output transformer. See their latest catalogue for details. Maplin can also supply transformer kits for those who want to 'roll their own'.

Electromail and Maplin also have a wide range of capacitors and hardware suitable for use in h.t. power supplies.

Dealing exclusively in wound components, **A.E. Sowter Ltd., PO Box 36, Ipswich, Suffolk IP1 2EL. Tel: (01473) 252794** have a large selection of 'off-the-shelf' h.t. transformers, output transformers and chokes. They will also wind custom designs. They're good, with a wide range but are expensive.

If anyone knows of any other source of new transformers then please let me know.

Regenerative Receivers

For those of you who can't get enough of regenerative receivers, the *PW* Book Store has two new titles on the very subject. The first is *Secrets of Home-built Regenerative Receivers* by C. F. 'Rock' Rockey W9SCH. Published just last year it covers regenerative receiver design, ostensibly for those unfamiliar with t.r.f. receivers.

The book begins by describing the earliest methods of detecting radio waves then moves on to regenerative detectors and the challenges of regenerative detector design. Practical aspects of regenerative receiver construction follow, including

hints on how to use modern j.f.e.t.s in place of valves.

The undoubted usefulness of Rock's book as a practical guide is tempered by its American origin. The circuit diagrams are typically American in style and so are the component symbols. This may confuse beginners used to European styles. There is one good point (at least I think so!) as all the measurements are in feet and inches!

Old hands will probably find the book too light, covering much of what they already know. However, I'd recommend it, with the reservations I've stated about 'Americanisms', to beginners who want to know more about regenerative receivers. It may also be useful to novice instructors as a source of material for practical projects.

The second book *Those Great Old Handbook Receivers* will appeal to all nostalgia buffs interested in old receivers. Within its covers selected sections from the 1929 and the 1934 *ARRL Handbooks* are reprinted verbatim. Kicking off 1929 is a tube chart (and even I don't recognise most of the type numbers) followed a section covering how radio signals are sent and received.

The final section from 1929 covers receiver design. And there's not a superhet in sight!

On to 1935 and here sections cover high-frequency receivers, ultra-high frequency (what we now call v.h.f.) receivers and power supplies.

The publishers make the point that *ARRL Handbooks* from the era covered are extremely rare. These reprints allow anyone with an interest in the design and construction of early amateur receivers access to information normally available to only the lucky few who have copies of the original Handbooks.

I have to admit, this is the book I prefer. I particularly applaud the publisher's choice of years. Domestic receiver design changed markedly between the end of the 1920s and the mid-1930s and it's fascinating to see how the rapid change in receiver technology was reflected in amateur radio designs.

Closing Time

Ah! it must be closing time as I can hear the rumble of the shutters coming down. So, until it's my turn 'in the shop' again, I'll say cheerio and best wishes.

In the meantime, let me know what you're getting up to in 1997. Remember to send your letters and E-mails to me either via the *PW* offices, via E-mail to phil@oldpark.demon.co.uk or direct to: 21 Scotts Green Close, Scotts Green, Dudley, West Midlands DY1 2DX.



Practical Wireless has teamed up with the nationwide communication specialists Odyssey Corporation PLC to give away a free Ericsson mobile phone, with free connection to readers of the magazine. The Ericsson GA 318 is one of the smallest and most reliable digital mobile phones on the market. Just 130 x 49 x 32.5 millimetres in size and a lightweight 248 grams, the GA 318 fits snugly into your pocket or in the palm of your hand. Calling line identification, phone book and call waiting are just some of the many features of the GA 318 in conjunction with computer and fax lines, the phone can be used to send and receive data.

The GA 318 is a digital phone, so you can take it abroad and use it on your travels. Digital technology also makes it impossible to tap into your conversations.

Each phone has a retail value of approximately £300, and comes with a 14 day trial period during which you can judge it for yourself. If you do not want to keep it, simply return the phone in perfect condition and its original packaging to Odyssey.

Monthly line rental is as little as £15 per month, plus VAT. Peak calls are 30 pence per minute and off peak calls are 10 pence per minute plus VAT. Calls are charged by the second, and not by the minute.

How to get your free mobile phone

Simply fill in the cellular agreement form and send your details to us before 28 February 1997.

Phones are offered subject to status, new connection, direct debit, itemised billing and a 12 month airtime agreement. Offer applies to UK only. Phones are normally delivered within 48 hours after the necessary status checks have been completed.

All sections of the contract must be completed including the telephone number.

YOU MUST ENCLOSE WITH YOUR APPLICATION

one proof of address and one proof of signature. Address - driving licence or bank statement, utility bill, i.e. gas, electricity, telephone or a credit card statement, addressed to the applicant only, at the current address and dated within the last three months. Signature - copy of credit card or cheque guarantee card, UK passport or driving licence.

Photocopies are fine, any original copies sent will be returned.

Please post your completed application to: PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

If you have any enquiries regarding the mobile phone, ring the Odyssey Help Desk on 0181-740 0040.



SPECIAL READER OFFER FROM PRACTICAL WIRELESS

Be practically wireless with this FREE mobile phone offer - worth over £300!!

cellular agreement
subscriber details (BLOCK CAPITALS)

securicorcellular services

Name: _____ If less than 3 years previous address _____
 Address: _____
 Town: _____
 County: _____ Postcode: _____
 How long at this address? Years: _____ Months: _____
 Home telephone no: _____
 charges (excluding call charges).
 Monthly subscriptions £ _____
 Standard subscription: 15.00
 Itemised billing: 2.95

an agreement between

Securicor Cellular Services Limited of Aquila House, London Road, Redhill Surrey RH1 1NR (the Company) and the party described above (the Subscriber), whereby it is mutually agreed as follows: 1. The Company shall provide cellular telephone services subject to the terms and conditions overleaf. 2. This agreement shall come into effect upon connection of the Subscriber's equipment to the system. 3. Securicor Cellular Services may carry out a credit check with credit reference agencies which will retain a record of that search. If you default on your account. We will record this fact with an agency. This information may be used by lenders in assessing applications for credit by you and members of your household, and for debt tracing and fraud prevention

I understand that this agreement is for a minimum of 12 months service. Subscriber's signature: _____

Full name: _____ Position: _____ Date: _____
 Securicor Cellular Services Limited. Registered no. 569829. Registered office: Sutton Park House, 15 Carshalton Road, Sutton, Surrey SM1 4LD

for office use only (This section does not form part of the agreement) Administrative office (tick one) Redhill Leeds

Mobile no: _____
 Credit approval no: _____ Dealer Code 80DI:
 New account no: _____ SIM Card:
 IMEI no. _____

instructions to your bank or building society to pay direct debits

Please fill in the whole form and send it to Securicor Cellular Services Limited, Aquila House, London Road, Redhill, Surrey RH1 1NR



1. Name and full postal address of your Bank or Building Society branch:
 To the Manager, _____ Bank/Building Society.
 Address: _____
 Postcode: _____
 2. Name(s) of account holder(s) _____
 3. Branch sort code: _____
 (From the top right hand corner of your cheque.)
 Bank and Building Societies may not accept Direct Debit Instructions for some types of account.

Originator's identification number: 9 9 3 4 3 7
 4. Bank or Building Society account number: _____
 5. Securicor ref. number: _____
 6. Instructions to your Bank or Building Society:
 Please pay Securicor Cellular Services Direct Debits from the account detailed on this instruction subject to the safeguards assured by The Direct Debit Guarantee.
 Signature(s): _____
 Date: _____

TERMS AND CONDITIONS FOR PROVISION OF CELLULAR SERVICES

- Definitions
 - "Cellphone" - the mobile telephone(s) used by you for provision of the Service
 - "Charges" - the charges payable by you to us for provision of the Service
 - "Network" - the cellular telephone system operated by Telecom Securicor Cellular Radio Ltd ("Cellnet")
 - "Service" - the cellular air time service enabling you to use your cellphone and additional services
 - "SIM Card" - your identity module card with a unique telephone number for use with a GSM cellphone to gain access to the Service
 - "We"/"Us" - Securicor Cellular Services Limited with its registered office at Sutton Park House, 15 Carshalton Road, Sutton, Surrey, SM1 4LD (registered number 569829)
 - "You" - the customer named overleaf responsible for payment of the Charges
- Provision of Service
 - 2.1 We will endeavour to make the Service available to you provided that you observe your obligations under this contract
 - 2.2 You will be entitled to the quality of service generally available to our cellular customers. It is not always technically possible to provide a service free of faults as quality of service may be affected by matters beyond our control including the specification of your cellphone, the performance of the Network and atmospheric and topographical conditions
 - 2.3 Any time quoted for provision of Service is to be treated as an estimate. We will endeavour to meet estimated times but will not be liable for any failure to do so
- Variation of Charges and Service
 - 3.1 We may vary charges payable by you from time to time by giving prior written notice to you
 - 3.2 Suspend the Service in an emergency or for repairs or maintenance of the Network and equipment used in provision of the Service
 - 3.3 Alter any code or notification issued to you in connection with the Service
 - 3.4 Vary the maximum amount of Charges which may be incurred by you and which may remain unpaid at any one time
 - 3.5 Make charges for some administrative actions brought about by you not complying with your obligations under this agreement
 - 3.6 Make an additional monthly charge if you cancel your direct debit payment instruction and pay in a different way
 - 3.7 Request that you make an interim payment to us when in our reasonable opinion your current call usage or account history give us justification
- Cellnet Equipment
 - 4.1 You are responsible for obtaining a cellphone and any other necessary equipment to enable us to provide the Service to you. You will ensure that such equipment is of a type approved by the relevant regulatory authority
- Mis-use of Service
 - 5.1 You will not use the Service in breach of any instructions issued by us or otherwise fail to comply with any legal or similar requirement relating to the Service
- SIM Card
 - 6.1 SIM cards issued by us will remain the property of Cellnet
 - 6.2 You must inform us immediately if your SIM card is lost, stolen or damaged. We will issue a replacement card as soon as possible but we reserve the right to charge for doing so. You will be liable for all Charges incurred until we receive notice of the loss, theft or damage
- Payment of Charges
 - 7.1 You must pay for all charges invoiced to you within 15 days of the date of our invoice
 - 7.2 VAT at the applicable rate will be payable on all Charges
 - 7.3 We may charge interest at 4% per annum above the base rate for the time being of National Westminster Bank plc from the due date of payment until the date of actual payment
- Limit of Liability
 - 8.1 We do not exclude or limit our liability for death or personal injury arising from our negligence
 - 8.2 Subject to 8.1 above, our liability will not exceed £500 in respect of all claims arising in any one calendar year
 - 8.3 We will not be liable (whether in contract, tort or otherwise) for any loss of profit or for any indirect or consequential loss
- Term
 - 9.1 The initial period of this contract will be 12 months or such other period as may be agreed in writing. After expiry of the initial period, the contract will (subject to 10 and 11 below) continue until terminated by either of us giving not less than 90 days written notice
- Disconnection
 - 10.1 On termination of this contract under 11 below
 - 10.2 If your telecommunication licence is revoked or terminated for any reason
 - 10.3 If you are in breach of any of the terms of this contract which are capable of remedy within 14 days. If you remedy the breach within 14 days, we will reconnect you to the Network as soon as practicable and after you have paid the applicable reconnection fee
 - 10.4 If we have reasonable grounds to suspect that fraud or mis-use has occurred
 - 10.5 If we have reasonable grounds to suspect that you will not be able to pay your bill
- Termination
 - 11.1 This contract may be terminated by us with immediate effect if you commit any breach of your obligations under this agreement which cannot be remedied within 14 days or (in the case of a breach which is capable of remedy within 14 days) which is not so remedied, or (being an individual) you commit an act of bankruptcy or (being a corporation) a receiver or administrator is appointed over your assets or if you make any deed or arrangement with a composition with any of your creditors
 - 11.2 We reserve the right not to release for re-use the electronics serial number of your Cellphone until you have paid to us all outstanding Charges under this contract
 - 11.3 We will, if requested by you and upon payment of our applicable charge release your mobile number(s) for re-use where the mobile number has not been re-allocated
- Emergency & Reverse Charge Calls
 - 12.1 No charge will be made to you in respect of calls for emergency services made available through the public telephone network
 - 12.2 We may temporarily suspend the Service during such period as we consider necessary to give priority on the Network to those dealing with an emergency
 - 12.3 You must not initiate reverse charge calls on the Network
- Restriction on Transfer
 - 13.1 This contract is personal to you and you must not assign it to any third party. We reserve the right to assign our rights and obligations under this contract to a third party on giving written notice to you
- Entire Agreement
 - 14.1 This document constitutes the entire agreement between you and us. It replaces the provisions of any previous agreement, warranty or representation made or given relating to the service
- Modifications
 - 15.1 No modification to this contract will be valid unless confirmed in writing by one of our directors or our contract manager on our behalf
- Legal Construction
 - 16.1 This contract will be construed in accordance with the laws of England and the courts of England will have exclusive jurisdiction in relation to any matter arising out of it
- Force Majeure
 - 17.1 We will not be liable for any breach of this contract if caused by act of God, war, emergency, compliance with any statutory obligation, industrial disputes, fire, lightning, flood, exceptionally severe weather, acts or omissions of persons for whom we are not responsible or any other cause beyond our reasonable control
- Notices
 - 18.1 Any notice under this contract must be given in writing and delivered by hand or sent by prepaid post to the following address (or such other address as may be notified from time to time) to us, Customer Service Department, Securicor Cellular Services Limited at the address shown on your invoice to you, the address specified overleaf. You must tell us if you change your address

BACK ISSUES SALE

There are **limited numbers** of back issues available. This could be your **LAST CHANCE TO ENSURE** your collection is complete.

£1 EACH inc P&P!

ORDER NOW!

January	1992
February	1992
March	1992
April	SOLD OUT
May	1992
June	1992
July	1992
August	1992
September	1992
October	1992
November	1992
December	1992

January	1993
February	1993
March	1993
April	1993
May	1993
June	1993
July	1993
August	1993
September	1993
October	1993
November	1993
December	1993

January	1994
February	1994
March	1994
April	1994
May	1994
June	1994
July	1994
August	1994
September	1994
October	1994
November	1994
December	1994



Please use the order form in this issue

The KENWOOD

TM-V7E Dual Band VHF & UHF FM Transceiver

By Leighton Smart GW0LBI

*Regular author
Leighton Smart
GW0LBI takes a break
from his other duties
on PW to take a look
at a new mobile rig.*

I've reviewed and operated a small number of v.h.f./u.h.f. dual-band rigs over the last couple of years. So, I thought I'd seen the best of what is available, what with computer control, built-in spectrum analysers, etc.

But it seems that every time a technological step forward is taken, there's another prepared to overtake it! Kenwood have yet again come up with another 'gem' in the shape of the TM-V7E 144/430MHz f.m. mobile transceiver.

Remarkably Compact

On opening the box when the rig arrived from the PW offices, I saw that the TM-V7E is a remarkably compact unit. It's also somewhat pleasing to the eye with its large blue (very different and clear) l.c.d. readout, and is manufactured to a high quality.

The TM-V7E measures 140mm (wide) x 54.5 (height) x 205.5mm (deep), making it small enough to fit in most cars, and not to be too obtrusive. The heatsink is also quite small, especially when you consider that the maximum power output is a big and mean 50W!

The rig comes supplied with all the mobile user needs to get on the air (apart, that is, from an antenna). This

includes mounting bracket and screws, d.c. power lead, microphone, and even a spare fuse.

Looking at the front panel of the rig itself, I immediately took a liking to it. This is probably due to the large (and unusual) blue display, which makes it easier to 'see where you are' while on the move.

The display is completely detachable, and can be mounted separately from the rig when used in conjunction with a 'detachable front panel kit'. Otherwise the display can be detached for security purposes.

There are no less than two connection facilities on the front of the radio, one for the microphone, and another for data connection, each of these being on either side of the display.

The case is finished in a pleasant black sheen and is a soft grey around the display. An internal speaker mounted under the top casing of the radio.

The front panel of the rig to the left of the display has controls for Call, VFO mode, and Memory Recall mode.

Below the display can be found the concentric tuning control which is combined with a MHz button, a row of four multi-

function buttons, a very small CONT SEL button and concentric volume and squelch buttons for both 144 and 430MHz.

Finally, to the right of the display are found the PWR, MENU, and Programmable Memory mode buttons. Incidentally, the 'built-in' Menu enables the rig to be 'personalised' to the operator's preferences.

Kenwood have also included a 'Band Scope' spectrum activity display. This is the first time Kenwood have included it on any transceiver and it will prove useful for checking what's happening on the bands.

The MC-45 microphone supplied with the TM-V7E is a sleek little unit, with UP/DOWN buttons, and four buttons marked 1750, VFO, MR, and PF, which can be used for various functions. The rear of the microphone contains a Lock button.

The rear panel of the TM-V7E contains the antenna connector of the 'N' type. It also carries connections for the 13.8V d.c. power lead and dual 8Ω jack plug sockets for the speaker leads.

Detailed & Comprehensive

The instruction manual supplied with the TM-V7E is one of the most



detailed and comprehensive I've ever seen. Personally, I'd rather read through a manual a few times before even connecting a transceiver up to give me some idea of what I'm dealing with, then going step-by-step through setting-up and operating with the manual to hand.

Having read through the manual a few times, I was quite impressed with the features included in the rig. It takes the reader through all stages of operation of the TM-V7E, from 'getting acquainted', basic operation, through to use of memory channels, dual and multi function controls, DTSS, Paging operation, Scanning, and more.

In fact, after studying the manual, I found it astonishing that so many different features could be included in such a small piece of equipment! Just goes to show how technology marches on, I guess!

However, if you're one of the many people who don't like reading manuals (naughty, you should because it's a good one!) Kenwood have provided a 'built-in guide'. This offers several pages with basic instructions on how to activate many of the features. What more could you ask...a rig that tells you (almost!) what to do!

Basic Operation

As the rig has so few controls with so many functions, I took some time to familiarise myself with them. Lest I become confused!

The most basic steps such as switching on, adjusting squelch, etc. are purely straightforward. After pressing BAND SEL 'PTT' appears above the v.h.f. or u.h.f. frequency to indicate which band you have selected.

To select a frequency within the chosen band you use the Tuning control or the microphone UP/DOWN buttons.

To select required output power you press the LOW button, (one of the four multi-function buttons). Each time this is depressed the power level changes.

Setting-up for repeater operation is pretty straightforward, but I must admit that I had to refer again and again to the instruction manual! Of course, this is only necessary whilst getting used to the radio. Once the operator is familiarised with the set, it will be a matter of course. This also applies to the many other functions on the TM-V7E.

On The Air

After connecting up the TM-V7E, operating it on the air and getting to know the controls was no great difficulty. Although as I was

unfamiliar with the radio I found I had to refer to the manual a few times!

As the design of the TM-V7E, and its 'compactness' makes it an ideal mobile transceiver I decided to give the rig an 'airing' on one of the many hills in the south Wales valleys. I chose Mynydd Gelligaer, only a few kilometres from my QTH. I reviewed the rig during the New Year period, and although much of north Wales, England and Scotland were buried in deep snow, south Wales had escaped it.

We did however suffer from extreme daytime temperatures, down as far as -3°C, but with the wind-chill it dropped to around -12°C! What the temperature was on the hills though is anyone's guess - suffice to say I felt a little 'chilly' up there and really did consider signing /FM (Frozen Mobile)!

Switching on the rig in the car, the large blue display (Kenwood claim this is a first) is easy to read. Even in the very bright daylight associated with cold clear days on Welsh mountainsides!

The TM-V7E has no shortage of power. The three power ranges available are Low (5) Mid (10) and High (50W) on 144MHz and 35W on 430MHz).

Listening around the 144MHz band, I was disappointed to find very little activity. However, I did hook up with Steve GW0SGL/M on a simplex channel whilst he was travelling near Cardiff, a distance of approximately 30km or so, separated by some reasonably large hills.

Steve reported that the audio was crisp and of good quality despite the mobile flutter and the fact that I was using the low power (5W)

level. An increase to 10W brought a slightly better report, but the high (50W) level left me 'fully quietening' with Steve.

The received audio was very good, even as Steve's signal dropped to around S2 - 3 the audio was loud enough from the TM-V7E speaker to be heard with my

engine running. (I had to do this - it was absolutely freezing up there!).

Later, I made a pre-arranged contact with Dave GW0JUI in Pontypridd on the 144MHz band. To give the rig a more realistic test, I drove from the hilltop down into the Rhymney Valley, thereby putting significant obstacles in between us, in the form of three valleys and mountains!

Once down on the valley floor I found that I had to use the 10W power level on this band to be heard by Dave. At this level, my signal was around S5, but I received a good audio report, although with some background hiss. After I increased to full power, (50W), he reported a steady S6 signal, with loud and clear audio.

The 430MHz Band

I then decided to try the TM-V7E on the 430MHz band. After driving back to my original location on Mynydd Gelligaer, I had a long listen around the 430MHz band. But despite several calls on the band I couldn't raise anyone!

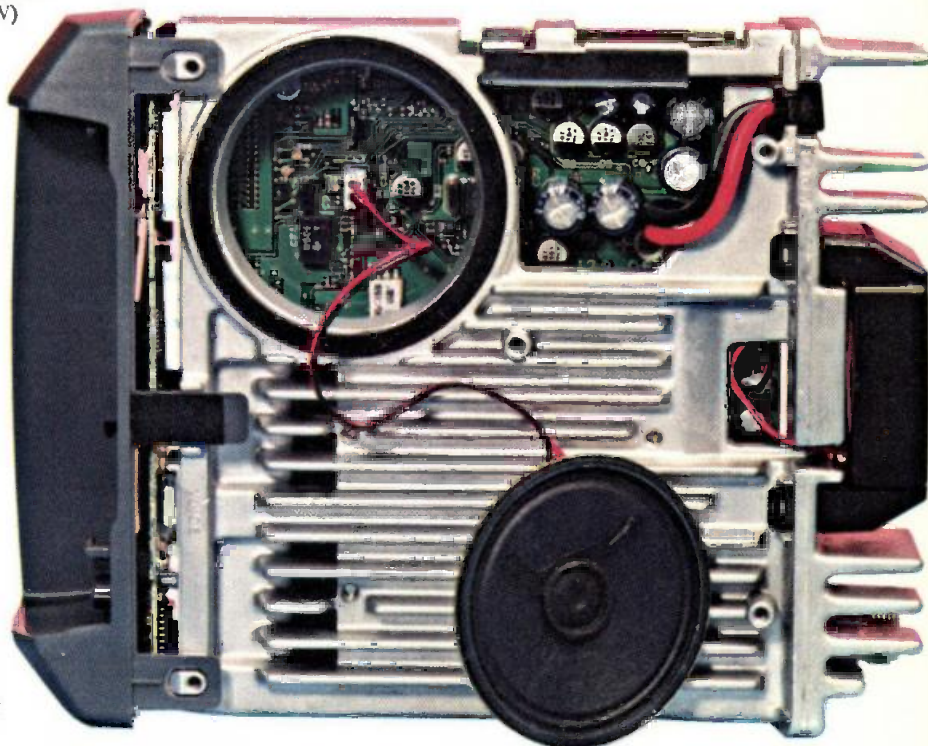
I also put a number of calls through the 'MG' repeater, all to no avail. I then decided to make my way home as the temperature at the time was still way below zero, and even with the engine and heaters running, my fingers were still numb!

However, I was disappointed with not being able to have at least one QSO on 430MHz. So a 'phone call was made to Steve GW0SGL, and a 'sked' was made.

Steve borrowed a 430MHz 'handie', while I set-up the rig at



Top view of the transceiver with casing removed. The remarkable and finely engineered aluminium one piece casting (note integral housing for the speaker) provides extensive and effective heat-sinking



KENWOOD

Below: Underside view of the TM-V7E. The dimensions of the transceiver can be gauged by the comparative size of the of the standard antenna socket.

Manufacturer's Specifications

GENERAL

Frequency range:	144-146MHz v.h.f., 430-440MHz u.h.f.
Mode:	F3E (f.m.)
Antenna impedance:	50Ω
Temperature range:	- 20 to +60°C
Power supply:	13.8V d.c. (negative ground)
Current consumption	
Transmit:	11A or less (v.h.f.) 10A or less (u.h.f.)
Receive:	1A or less
Frequency stability:	Within ±3ppm
Size:	140 x 54.5 x 205.5mm ³
Weight:	1.2 kg

RECEIVER

Circuitry:	Double conversion superhet
Intermediate freqs. (1st/2nd)	(v.h.f.) 38.85MHz/450kHz (u.h.f.) 45.05MHz/455kHz
Sensitivity	(for 12db SINAD) v.h.f. or u.h.f. 0.16µV or less
Selectivity	(at - 6db) 12kHz or more
Selectivity	(at -60db) 28kHz or less
Squelch sensitivity:	0.1µV or less
Audio output:	2W or higher
Audio output impedance:	8Ω

TRANSMITTER

Power output:	(v.h.f.) 50, 10, 5W (u.h.f.) 35, 10, 5W.
Modulation type :	Reactance
Spurious emissions:	- 60db or less.
Max. freq. deviation:	±5kHz
Audio distortion:	3% or less
Microphone impedance:	600Ω

Many Functions

There are very many more functions on this rig than I have space here to describe, even in the broadest sense. It really is a beautiful little set, and I only wish that I'd had more time (Christmas and the New Year tend to get in the way of radio) to play with it a little longer, and to put it through its paces a little.

Its design makes TM-V7E a valuable addition to any amateur's shack or car, and I can see this little rig being one of the leaders in v.h.f./u.h.f. mobile operation. The only slight complaint I have is that some of the buttons on the front of the rig are smaller than I'd like. But then again, they're okay to use as long as your fingers are warm! (Mine certainly weren't on the my mountain expedition).

The TM-V7E really is a beautiful little set. But as I've said I only wish that I'd had more time to play with it a little more, and to put it through its paces a little more thoroughly. But what I did manage to do was to enjoy myself very much!

My thanks go to Kenwood Electronics (UK) Ltd., of Kenwood House, Dwight Road, Watford, Hertfordshire WD1 8EB. Tel: (01923) 816444, FAX: (01923) 212477 for the loan of the review transceiver. The TM-V7E is available from Kenwood appointed dealers for around £649.95.

PW

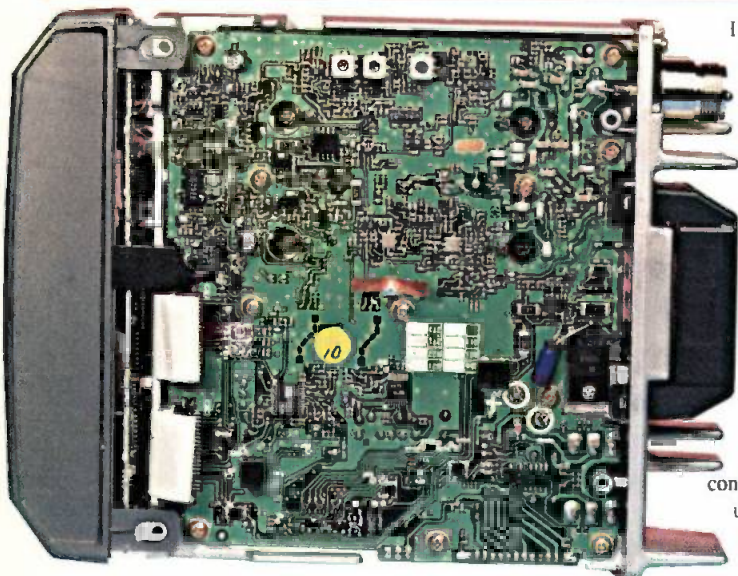
Kenwood TM-V7E Accessories

ACCESSORY	ORDER CODE	PRICE £
Voice Synthesiser Unit	VS-3	45.95
Remote Front Panel Kit (3 metres)	DFK-3C	34.95
Remote Front Panel Kit (4 metres)	DFK-4C	59.95
Remote Front Panel Kit (7 metres)	DFK-7C	89.95
Deluxe Mobile Speaker	SP-50B	27.95
Compact Mobile Speaker	SP-41	24.95
Mobile Mount	MB-201	14.95

home, and used my mobile dual-band magnetic mount antenna in the shack, firmly attached to my filing cabinet! Not in the least ideal I must admit, but at least it was nice and warm there!

I soon 'hooked up' with Steve, and although his signal strength was very weak (he was using a 'handie', about 8km and two valleys away, after all) I was given a good report from him on the audio level of the TM-V7E.

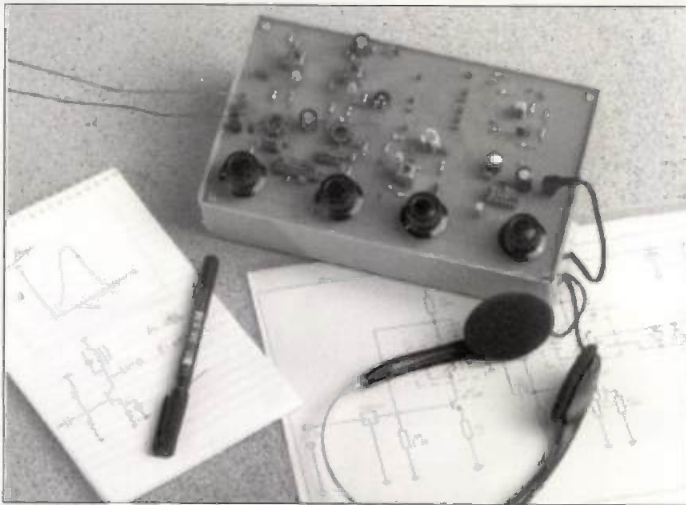
My signal report at full power (35W) was not very good either (which isn't surprising in the circumstances) but nevertheless, a contact was made which served its purpose. At the very least, it showed that the TM-V7E can handle itself under very low signal conditions, although I would advise users to use a slightly better set-up than I used on 430MHz!



KENWOOD

Radio Receiver Trainer

An Invaluable Learning and Design Tool for all Experimenters



The Radio Receiver Trainer contains eight receiver building blocks and a comprehensive training manual.

Simply connect the building blocks to build AM, SW, Superhet and Direct Conversion receivers. Decode SSB and CW. Use proven building blocks to develop and test your own designs.

Pricing: Complete £129.00

Kit £89.00
(Excludes case & headphones)



P&P is £5 (UK), £8 (EC), £12 (World)
Add Vat to Total Price

Building Blocks: Bandspread Tuner
RF Oscillator
Mixer
IF Amplifier
AM Detector
Beat Frequency Oscillator
Audio Filter
Audio Amplifier

Mail Order To: **Pyramid Electronics LTD.**
204 Ferndale Road,
Brixton,
London SW9 8AG
Phone (0171) 738 4044 Fax (0171) 274 7997
(Out of office hours ordering by answering machine)

REGISTER NOW

After you've tried the shareware version of HamComm DL4SAW SSTV and PD2.03 you can now buy the **FULL VERSION** from your newly authorised UK outlet.
HamComm 3.1 with Pactor Rx at £19.99
DL4SAW (GSHPC) SSTV at £34.99
PD2.03 (Pager Monitoring) at £19.99

JVFAX HAMCOMM PKTMON12 DL4SAW SSTV & POCSAG (PD2.03)

Use our receive only Demodulator for these popular programs – connect it to your audio output, plug the 25 way connector into your PC and then monitor **Fax RTTY Morse Packet and SSTV** for just £16.99
Transmit version below. 25 way to 9 way Adaptor £3.00
SHAREWARE disks available on 3.5" HD
JVFA7 + HamComm 3.1 + PKTMON12 + POCSAG (PD2.03) £2.50
DL4SAW (GSHPC) SSTV SHAREWARE (V1.2) £2.50

NEW DEMODULATORS

We now make a **POCSAG** receive version (as above but with variable hysteresis) at £19.99 and the **TRANSMIT** version with all of the above facilities and the added ability to transmit **FAX SSTV and HamComm** at £24.99

*ALL PRICES for UK/EIRE INCLUDE VAT and POST & PACKING
For non-EU deduct 17.5% VAT from above prices.
All products (NOT Software) carry a full money back guarantee.
Minimum Credit Card order £15.00. Outside British Isles add £2.00*

Pervisell Ltd, 8 Temple End, High Wycombe, Bucks HP13 5DR
Tel: (01494) 443033 Fax: (01494) 448236
<http://www.pervisell.com> e-mail ham@pervisell.com



SPECTRUM COMMUNICATIONS

Unit 6b Poundbury West Estate, Dorchester, Dorset DT1 2PG.
Phone and Fax 01305 262250 Opening times: 9-1 2-5 Tue-Fri, 9-1 Sat. Closed Sun & Mon.

AMATEUR PRODUCTS

AUTO-TONEBURST 1750Hz repeater toneburst, high stability, 7-18V supply, 28mm square, 12mm high. Type AT1750. PCB Kit £5.00. PCB Built £7.50.

RECEIVE PREAMPS for 2m or 4m or 6m or 10m, 0-26dB gain panel adjustable, 1dB NF 100W handling power, r.f. switched. Types RP2S, RP4S, RP6S, RP10S. Boxed kit. £28.50. Boxed built £39.00.

TRANSVERTER 2m 3W drive, low noise, 15dB RX gain, 25W out. Types (TRC4-2iL built only), TRC6-2iL. Boxed kit £145.75. Boxed built £203.50.

TRANSVERTER 10m 5W drive, low noise, 15dB RX gain, 25W out. Types TRC2-10iL, TRC4-10iL, TRC6-10iL. Boxed kit £145.75. Boxed built £203.50.

TRANSVERTER 10m 25mW drive, low noise, 15dB RX gain, 25W out. Types TRC2-10L, TRC4-10L, TRC6-10L. Boxed kit, £138.00. Boxed built £187.00

TRANSVERTER 10m, 0.5mW drive, low noise, 15dB RX gain, 25W out. Types TRC2-10bL, TRC4-10bL, TRC6-10bL. Boxed kit £147.75. Boxed built £203.50.

TRANSMIT AMPLIFIER

Single stage linears for 2m or 4m or 6m

1W in 10W out. Types TA2SA, TA4SA, TA6SA. 3W in 24W out. Types TA2SB, TA4SB, TA6SB. 5W in 30W out. Types TA2SC, TA4SC, TA6SC. 10W in 35W out. Types TA2SD, TA4SD, TA6SD. Boxed kit £56.50. Boxed built £73.25.

TRANSMIT AMPLIFIER WITH RECEIVE PRE-AMP

Single stage linears with pre-amps for 2m or 4m or 6m

1W in 10W out. Types TARP2Sa, TARP4SA, TARP6SA. 3W in 24W out. Types TARP2SB, TARP4SB, TARP6SB. 5W in 30W out. Types TARP2SC, TARP4SC, TARP6SC. 10W in 35W out. Types TARP2SD, TARP4SD, TARP6SD. Boxed kit £76.00. Boxed built £101.00.



SEND SAE FOR CATALOGUE OF AMATEUR KITS AND BUILT UNITS



VHF REPORT

This month David Butler G4ASR has details of recent v.h.f. openings, contacts with the Mir Space Station and DXpedition news.

Very little in the way of enhanced propagation occurred on the v.h.f. bands during December. There was however, a flurry of activity when the earth passed through the orbit of the Geminids meteor shower between December 11-14.

On the 50MHz band meteor scatter (m.s.) contacts were easily made with stations situated around 1000-1500km from the UK. Many m.s. enthusiasts were also making contacts on the 144MHz band.

Among the DX being worked from the UK were the stations of EA3DXU, EA3TI, HB9FAP, LY2BIL/P, SP2QFW and SP8AOV. There was a brief tropo opening between southern England and the north coast of Spain on December 5 when the station of G4FUF (JO01) heard the EA1VHF beacon (144.868MHz) peaking 539 at 1200UTC. As is often the case though no other activity was heard at this time.

A longer period of enhanced tropo propagation occurred between December 8-11. Contacts were made on the 144, 430 and 1296MHz bands mainly, with stations located in DL and HB9 but at times propagation extended to OZ and SM.

On December 8 at 1600UTC the station of GD4GNH (IO74) heard HB9RDE (JN37) on s.s.b. peaking 51 on the 144MHz band. Most activity on this band was with stations located in central and eastern Germany.

However, Dave Edwards G7RAU (IO90) on the Isle of Wight was fortunate to contact SP1E01 (JO73) on s.s.b. signals peaking 53. He also worked DL8CMM (JO52) in the east of Germany.

At the QTH of GW7SMV (IO81) contacts were reported with DL stations located in JO30, 31, 41 and 51. Further north on the border of Wales, the station of John Nelson GW4FRX (IO82) heard the HB9HB beacon coming through at good strength during the morning of December 9. Another beacon spotter was Andy Cook G4PIQ (JO01) who noted OZ7IGY (JO55) peaking 529 at 2300UTC on December 10.

As is normally the case when the 144MHz band is open, the higher frequencies are as good if not better.

At the station of G0FIG (IO90) a number of excellent s.s.b. contacts were made on the 430MHz band during the evening of December 9. His contacts included OE5VRL/5 (JN78) and a string of DL stations situated in locator squares JO30 and JO31.

Tropo conditions on the 430MHz band were also good on the following day, December 10. Eric Gedvilas G8XVJ (IO83) reported activity from DG3LAV and DH2UD (both in JO44), DJ9BV (JO43), DL3EAG (JO31), OZ2LD (JO54), OZ5W (JO55) and SM7DEZ (JO65).

Over on the Isle of Man GD4GNH contacted DK5WO (JO30) and Dave Storrs G8GXP (IO93) found DC8AG (JO31), OF8IK (JO30) and PE1NHS (JO22). Dave is also active on the 1296MHz band and was pleased to make s.s.b. QSOs with PE1NHS (following a QSY from the 430MHz band) and DK5WO.

Propagation was also very good throughout the evening of December 11 with stations in south-east England hearing the SK4UHF beacon (JO79) on the 430MHz band and some were even receiving Swedish u.h.f. television in full colour. However, it appears that no 'real' two-way activity was to be found at this time.

Manned Space Station

A number of stations including G0JUL, G3BGM, G6HMS, G70JU, G7VLS and GM6MEN have all made contact with operators on the Russian manned Space Station Mir. Over the Christmas period, telephony contacts with ROMIR could easily be made on f.m. using the split-frequency pair 145.200MHz (down-link) and 145.800MHz (up-link).

However, it was announced from Mir that as of January 1 the f.m. voice up-link will be on 145.200MHz and the down-link will be 145.800MHz. This will make life easier for those of you without a reverse shift facility on your transceiver. When operating simplex (single channel working) the frequency 145.200MHz will be used.

Incidentally, at the recent International Amateur Radio Union (IARU) Region 1 Conference the

frequency 144.490MHz was allocated as an f.m. up-link frequency for the Shuttle Amateur Radio Experiment (SAREX) project. It's allocation at the top-end of the new beacon band was a compromise as this was the only common frequency available in all three world-wide IARU Regions. An exception was made for SAREX because it was seen as a high profile operation generating good public relations for Amateur Radio.

Channel Designation

Last time I mentioned recommendations made at the IARU Region I conference regarding a new channel designation system for use on the v.h.f. bands. For each band there will be a designator letter, F for 51MHz, V for 145MHz and U for 430MHz.

Each designator letter will be followed by two (for 51 and 145MHz) or three (for 430MHz) digits which will indicate the channel. If the channel is used as a repeater output it's designator will be preceded by the letter R.

In the 51MHz sub-band the channel numbers start at '00' for 51.000MHz and increment by one for each 10kHz channel. In the 145 and 430MHz sub-bands the channel numbers start at '00' for 145.000MHz and '000' for 430.000MHz and increment by one for each 12.5kHz channel.

For example, F51 is the simplex channel on 51.510MHz and RF79 is a repeater output on 51.790MHz. The old S20 becomes V40, the simplex channel on 145.500MHz and the old R0 is now RV48 the repeater output frequency on 145.600MHz. And if you think that's confusing wait till you operate on the 430MHz band!

For example the old u.h.f. RB1 becomes RU242, the repeater output on 433.025MHz. And the simplex channel SU20 is now U280 on 433.500MHz.

Maritime Mobile

Andy Adams GW0KZG reports that he will be active again maritime mobile (JMM) on board the *R.R.S. Charles Darwin*. In January he set

sail from Tyneside, via Southampton, to Cartagena (IM97) in Spain.

On January 10 he was spotted by the station of G4RGK (JO01) operating on s.s.b. on 144.240MHz. On the following day at 1755UTC GW0KZG/MM was heard by the station of G3NVO (IO91) operating on the same frequency, but this time on c.w.

Andy was by this time located in the rare 'wet' square IN68, south of the Isles of Scilly. From reports received, his permitted free-time for amateur radio will be 0500-0700, 1200-1300 and after 1700, all these being local time depending on which time zone he is in.

Andy then plans to cruise through the Mediterranean area to the Arabian Gulf with the tour ending on April 20. He will be operating almost exclusively on the 144MHz band with equipment that has been considerably upgraded since his last /MM operation.

His system now consists of a Trio TR-9130 transceiver driving a Henry 2002 amplifier (3CX800A7) producing 400W output. The antenna system consists of two separately mounted beams, a 9-element and an 11-element Yagi. A Landwehr GaAs f.e.t. low noise amplifier completes the line-up.

As usual GW0KZG/MM will be fully equipped for meteor scatter operation using various keyers and p.c. based programs for transmitting high speed morse. On receive he will use the DF7KF DTR Digital Tape Recorder (an amazing accessory which I will describe in full detail in the May issue). With this set-up he hopes to improve on his total of 50 successful m.s. contacts so far.

Andy is also hoping to try some e.m.e. tests whilst in the Indian Ocean/Arabian Gulf area, subject of course to obtaining a high power permit. It also depends on whether the sky/moon conditions are favourable and to a great extent on whether the sea is calm enough to provide a stable platform!

The photograph, Fig. 1, shows Andy GW0KZG at the controls of his old maritime mobile station on-board *R.R.S. Challenger* before it was decommissioned. His new station now requires the space of two desks



Fig. 1: Andy Adams GW0KZG at the controls of his maritime mobile station.

and the top of a cupboard on which to place the equipment.

Don't worry if you don't work GW0KZG/MM on his first tour as Andy will be assisting with two cruises later in the year between July and September. The first will be to the west of the Shetlands oil fields (IP70, IP80) and the second between the UK and the Azores (IN and HN fields). His final cruise of 1997 will be in December in the north-east Atlantic, possibly another trip between the UK and the Azores.

Islands On The Air

Dennis PE1PZS passes on the news that he will be active from the Isles of Scilly (IN69) between July 5-19. He will be active on the 50MHz band with a Trio TS-60 transceiver, running 100W to either a 2-element or 5-element Yagi.

Dennis says his preferred operating frequency on the band will be 50.150MHz. He will also be operating on the 144MHz band with a Trio TR-9000 transceiver driving an amplifier to 400W output.

The antenna will be a 13-element Yagi. Look out for G/PE1PZS on 144.315MHz. He will be very active on tropo and hopefully via Sp-E if conditions allow.

Keep a look out for LA7DFA operating from Jan Mayen Island as JX7DFA. He will be active on the 50 and 144MHz bands (and h.f.) until the end of April 1997.

He can frequently be heard on meteor scatter around 144.160MHz. Another island in the Arctic Circle is Svalbard.

The station of JW7GW is now operational from Svalbard, a rare spot on the 50MHz band. He should be easy to work during the summer Sp-E season.

Operators of the 50MHz band should look west (290°!) for an expedition to St. Paul Island, Canada. The group headed by Mike VE9AA (of CY0AA fame) will be operating sometime during June with the callsign CY9AA. Further details can be obtained on E-mail via vc9aa@brunnet.nb.ca

Finally, I've received news from Olli OH8BQA of a summer expedition to Usedom Island (J074). The team

will consist of Andrew DJ1SHF, Tom DK8EL, DH8BQA and possibly DL6NVC.

They will be operational from J074 for about five days around the weekend of July 12-13. There is a possibility that the group will also be active from locator squares J063 and JD73 in the period commencing July 1.

On the 144MHz they expect to run 400W into two 10-element Yagis and will be active in tropo and meteor scatter. If DL6NVC joins in the expedition, then they will also be operational on all bands from 430MHz through to 2.3GHz.

Schedules for m.s. contacts can be made on E-mail via dh8bqa@amsat.org

Contests

Now I'll turn to news of some RSGB v.h.f. contests coming up soon. Two legs of the 70MHz cumulative contest will be held on **23 February** and **9 March**. Both dates are on a Sunday and each session runs between 1000-1200UTC.

By the way, a cumulative contest is a series of short events, consisting typically of something like five sessions each around two hours duration spread over a period of two months. Normally an entry consists of your three highest scoring sessions added together. So, if you miss a couple of events or if conditions are not so good then it doesn't really matter.

The first weekend contest of the year is the two-band **144/432MHz** event being held between 1400-1400UTC on **1-2 March**. There is usually good support for this contest and you'll find a number of high power (and low power) portable and fixed stations participating.

Put Sunday **23 March** in your diary if you're interested in the 70MHz band. The fixed station contest is being held that day between 0900-1300UTC. Note that this event coincides with one of the 70MHz cumulative sessions.

You may be interested to know that a Nordic (LA, OZ, SM) activity contest on the 144MHz band is held every first Tuesday of the month between 1800-2200UTC.

There is a fair amount of activity, certainly from OZ, and for stations located on the eastern side of England and Scotland a number of good DX contacts can be made. Exchange locator squares and reports.

The points are equal to the distance in km and each square gives a bonus of 500 points. Send your monthly log entries to **Ben Poulsen OZ1EYN, Lupinvej 15, DK-3650 Oelstykke, Denmark**.

If conditions are really good you could listen out for the Czech activity contest which is held every third Sunday of the month between 0800-1200UTC. Send your logs to **Jan Zika OK1MAC, Snet 9, 257 68 Doln, Kralovice, Czech Republic**.

Beacon News

Chris Tran GM3WOJ reports that the GB3RMK beacon on 50.060MHz was made operational again on December 22 after a lengthy overhaul by John Wilson G3UUT the IARU Region 1 v.h.f. beacon coordinator.

The beacon is running 40W into a folded dipole orientated east-west at a height of 270M a.s.l. It is on the Mounteagle television mast (NTL & BBC), 10km north of Inverness in locator IO77.

The GB3RMK beacon is an excellent indicator of auroral propagation. Reception reports would be welcome either by Packet Radio to **GM3WOJ @GB7INV** or to **Chris Tran, Achnacaille, Lamington, Invergordon, UK**.

The untimely death of Tiago Frederico CT1WWV in October 1996 saddened many of his friends around the world. Tiago was a very well known v.h.f. DXer who gave many operators their first contact with Portugal on both the 50 and 144MHz bands.

Tiago was also the owner of CT0WWW, the 50MHz beacon that could always be heard booming into the UK during the Sp-E season. As a mark of respect, the society **Associação de Radioamadores da Costa de Prata** have commissioned a new beacon CS1ACP in order to follow the tradition of CT0WWW. It is currently running 10W output into a dipole from locator square IM59.

During a Sp-E opening in January, CT0WWW and CS1ACP (both operating on 50.030MHz) were heard in the UK. Reception reports of CS1ACP are very much appreciated and can be sent to **Associação de Radioamadores da Costa de Prata, PO Box 2250, 3080 Figueira Da Foz, Portugal** or via packet radio to **CT10Q @ CS1CRE.CTSR.PRT.EU**

Specialist Magazine

Readers of this column who are interested in all aspects of DXing on the v.h.f., u.h.f. and microwave bands may be interested in the *DUBUS* magazine. It is devoted entirely to v.h.f. and above and contains a mix of state-of-the-art technical articles,

specialist columns and operating news.

A recent edition of *DUBUS* contained technical articles on 432MHz earth-moon-earth (e.m.e.) polarisation rotation, a double-conversion no-tune transverter for 10GHz, a microprocessor antenna controller to track the moon and other galactic sources, a 24GHz super low-noise amplifier and a fail-safe attenuator for use when driving transverters. There are also specialist columns for tropo, Sp-E, field aligned irregularities (f.a.i.), m.s., moon-bounce (e.m.e.), 50MHz and microwave operators.

DUBUS is published four times a year in A5 format, each issue consisting of about 100 pages. Anyone who wishes to receive *DUBUS* should subscribe by sending their name, address and call sign, together with a cheque for £15 made payable to *DUBUS UK* to the UK representative **Roger Blackwell G4PMK, 5 Tollgate Road, Culham, Abingdon, Oxfordshire OX14 4NL**.

Past technical articles featured in *DUBUS* between 1992-1994 and some previously unpublished material are now available in a handbook called *Technik IV*. Consisting of 400 pages the contents cover antennas, measuring equipment, power amplifiers, preamplifiers, receivers, transmitters and transverters.

To whet your appetite, the preamplifier chapter has designs for very low noise amplifiers (l.n.a.) for every band from 144MHz through to 24GHz. The power amplifier (p.a.) section has designs for all bands from 430MHz up to 24GHz including a 2kW amplifier for the 430MHz band and a 1.2kW amplifier for the 1.3GHz band, each using a single surplus tetrode valve.

There's even a description of how to combine two travelling wave tube (t.w.t.) amplifiers together to generate enough power for 10GHz e.m.e. operation. *Technik IV* costs £15 and is also available from Roger Blackwell G4PMK.

Deadlines

That's it again for another month. Don't forget to send me your list of locator squares, counties and countries worked for the 1997 table. Forward any news, views, comments or photographs to reach me no later than **Saturday March 1**.

Send them to me at **Yew Tree Cottage, Lower Maescoed, Herefordshire HR2 0HP**. You can also contact me via packet radio @ **GB7MAD**, the UK DX Cluster @ **GB7DXC** or E-mail via davebu@mdlhr1.agw.bt.co.uk. Alternatively you can telephone me on (01873) 860679.

END

New special offers

Regulated bench power supplies

13.8V fixed 3 amp £17.95, 5 amp £24.95, 15 amp £74.95, DF1737 0-30V 20 amp variable with analogue meters 20kg £159.99 EP613 0-30V 0-2.5A + 5V & 12V 500ma digital meters £99.95 EP907 0-15V 6 amps analogue meters £70.50

Learn all about electronics software. "Docelo" contains a data base of parts including 5300 of the most popular ICs and transistors (CMOS & TTL pinouts). Computer interface data loads of circuits and explanations. Minimum hardware is 386 2mb ram 14mb hard disk space left & windows (supplied on 3.5 disks) £17.97.

New mini waterproof TV camera 40x40x15mm requires 10 to 20 volts at 120mA with composite video output (to feed into a video or a TV with a SCART plug). It has a high resolution of 450 TV lines vertical and 380 TV lines horizontal, electronic auto iris for nearly dark (1 LUX) to bright sunlight operation and a pinhole lens with a 92 degree field of view. It focuses down to a few CM, it is fitted with a 3 wire lead (12V in gnd and video out) £93.75 + VAT = £109.95 or 10 + £89.32 + VAT = £104.95. High quality stepping motor kits (all including stepping motors) 'Comstep' independent control of 2 stepping motors by PC (via the parallel port) with 2 motors and software. Kit £67.00, ready built £99.00, software support and 4 digital inputs kit £27.00, power interface 4A kit £36.00, power interface 8A kit £46.00. Hand held transistor analyser it tells you which lead is the base, the collector and emitter and if it is NPN or PNP or faulty £35.45. Spare 6V battery £1.20. LEDs 3mm or 5mm red or green 7p each, yellow 11p each, cable ties 1p each, £5.95 per 1000. £49.50 per 10,000.

Rechargeable batteries

AA (HP7) 500MAH £0.99, AA 500MAH with solder tags £1.55, AA 700MAH £1.75, C (HP11) 1.2AH £2.20, C2 AH with solder tags £3.60, D (HP2) 1.2AH £2.60, D 4AH with solder tags £4.95, PP3 8.4V 110MAH £4.95, 1/2AA with solder tags £1.55. Sub C with solder tags £2.50, AAA (HP16) 180MAH £1.75, 1/3 AA with tags (philips CTV) £1.95. Nickel metal hydride AA cells high capacity with no memory. If charged at 100ma and discharged at 250ma or less 1100MAH capacity (lower capacity for high discharge rates self discharge time 1 month) £3.75. Special offers please check for availability. Battery pack containing 10 tagged sub C cells (23 dia x 42mm tall) which is glued together (but can easily be opened) £8.77.

LM337k to 3 case variable regulator £1.95, £1.44 100 + GaAs FET low leakage current S8873 £12.95 each £9.95 + 10 £7.95 100 + BS250 P channel mosfet £0.45, BC559 transistor £3.95 per 100 BC547A transistor 20 for £1.00, 74LS05 hex inverter £10.00 per 100, used 8748 microcontroller £3.50, SI952 UHF limiting amplifier LC 16 surface mounting package with data sheet. Airpax A82903-C large stepping motor 14V 7.5' step 27 ohm 68mm dia body 6.3mm shaft £8.95 or £200 for a box of 30. Polypropylene luf 400vdc (wima MKP10) 27.5mm pitch 32x29x17mm case 75p each, £60p 100+. 500pF compression trimmer 60p, 40uf 370vac motor start capacitor (dielectric type containing no pcb) £5.95 or £49.50 for 10. Solid carbon resistors vary low inductance ideal for RF circuits 27 ohm 2W, 68 ohm 2W 25p each 15p each 100+. We have a range of 0.25W, 0.5W, 1W and 2W solid carbon resistors. Please send SAE for list. MX180 digital multimeter 17 ranges 1000vdc, 750vac, 2Mohm 200mA transistor Hfe 9V and 1.5V battery test £9.95, AMD 27256-3 Eproms £2.00 each, 1.25 100+. DIP switch 3PCO 12 pin (ERG SDC-3-023) 60p each, 40p 100+. Disk drive boxes for 5.25 disk drive with room for a power supply. Light grey plastic 67x268x247mm £7.95 or £49.50 for 10. Hand held ultrasonic remote control £3.95. CV2486 gas relay 30x10mm dia with 3 wire terminals will also work as a neon light 20p each or £7.50 per 100.

All products advertised are new and unused unless otherwise stated. Wide range of CMOS TTL 74HC 74F, Linear transistors kits, rechargeable batteries, capacitors, 100s etc always in stock. Please add £1.95 towards P&P.

JPG Electronics 276-278 Chatsworth Road, Chesterfield S40 2BH

Access/Visa order (01246) 211202. Fax (01246) 550959

Callers welcome 9-30am to 5.30pm Monday to Saturday

BTEC approved
TUTOR supported



DISTANCE LEARNING COURSES in:

Analogue and Digital Electronic
Circuits, Fibres & Opto-Electronics
Programmable Logic Controllers
Mechanics and Mechanisms

- Courses to suit **beginners** and those wishing to **update** their knowledge and practical skills
- Courses are delivered to the student as self-contained kits
- No travelling or college attendance is required
- Learning is at your own pace

For information contact:

NCT Enterprises
Barnfield Technology Centre
Enterprise Way, Luton LU3 4BU
Telephone 01582 569757 • Fax 01582 492928

AERIAL ROTOR FOR ONLY £49.95!



AR300XL Aerial Rotor, Control Unit and Optional Alignment Bearing

Rotor unit type AR300XL and control console. Continuous indication of beam heading. Clamps to 2in (52mm) max. mast and takes 1/2in (38mm) max. stub mast. 'Offset' type mounting. Vertical load carrying 45kg. Special offer £49.95 plus £4.95 p&p.
AR1201 Alignment (support) bearing. Allows greater/higher head loads. Fitted above rotor. £18.95.

RR-50 Manually tuned satellite receiver, ideal ATV 1.3GHz use and DXing. I.F. coverage 950-1750MHz, video bandwidth 12-26MHz adjustable £199.00. Deluxe model with Threshold Assistance board fitted (threshold 3.5dB) £329.00

11 Kent Road, Parkstone,
Poole, Dorset BH12 2EH
Tel: 01202 738232
Fax: 01202 716951

AERIAL TECHNIQUES

CURRENT CATALOGUE

Send £1 for our latest glossy 34 page catalogue which you will receive back by return of post.



Attention Radio Dealers!

Would you like to stock our best selling titles like the *World Radio TV Handbook & Passport to World Band Radio*? If the answer's yes then telephone **Michael Hurst** in the PW Book Store on **(01202) 659930** for the best quantity discounts.



PW SERVICES

Queries:

Practical Wireless,
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW.

We will always try to help readers having difficulties with *Practical Wireless* projects, but please note the following simple rules:

1: We cannot deal with technical queries over the telephone.

- 2: We cannot give advice on modifications either to our designs, to commercial radio, TV or electronic equipment.
- 3: All letters asking for advice must be accompanied by a stamped self-addressed envelope (or envelope plus IRCs for overseas readers).
- 4: Make sure you describe the problem adequately, with as much detail as you can possibly supply.
- 5: Only one problem per letter please.

Back Numbers

Limited stocks of many issues of *PW* for past years are available at £2.90 each including post and packing. If the issue you want is not available, we can photocopy a specific article at a cost of £1.50 per article or part of article. Over the years, *PW* has reviewed many items of radio related equipment. A list of all the available reviews and their cost can be obtained from the Editorial Offices at Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW for a large stamped self-addressed envelope.

Binders

PW can provide a choice of binders for readers' use. Plain blue binders are available, each holding 12 issues of any similar A4 format magazine. Alternatively, blue binders embossed with the *PW* logo in silver can be supplied. The price for either type of binder is £5.50 each (£1 P&P for one, £2 for two or more). Send all orders to: PW Publishing Ltd., FREEPOST, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

Constructional Projects

Components for *PW* projects are usually readily available from component suppliers. For unusual or specialised components, a source or sources will be quoted.

Mail Order

All items from *PW* are available Mail Order, either by post or using the 24hr Mail Order Hotline (01202) 659930. Payment should be by cheque, postal order, money order or credit card (Mastercard and Visa only). All payments must be in sterling and overseas orders must be drawn on a London Clearing Bank.

The **YAESU** **FT-8000R** Dual-Band FM Transceiver



By Richard Newton G0RSN

Christmas came early for Richard Newton G0RSN when he was given the chance to try out the FT-8000R over the festive season. Read on to find out how he got on.

The Yaesu FT-8000R is a dual-band f.m. Amateur transceiver covering the 144 and 430MHz bands, the handbook also claims that it will receive out of band. I did not test this or include it in the review.

The radio is of a compact design measuring only 140x40x152mm without knobs and weighing a meagre 1.0kg (approximately). The first impression of this radio is one of a rugged, smart and professional unit. Yaesu supply the FT-8000R with a fist microphone, a mounting bracket, d.c. power cable and a spare 15A fuse.

The rear connections on the FT-8000R are similar to most modern sets in that the coaxial antenna connection is a fly lead, this is terminated in an 'N' type socket. The power lead again is a fly lead terminating in the now standard clip-in type lead.

The rear panel also has a dedicated Data plug for packet operation. The radio supports both 1200 and 9600bps.

There are two speaker outputs, if a

speaker is plugged into the output labelled **UHF** then the internal speaker continues to operate. If a speaker is plugged into the jack labelled **VHF** this cuts off the internal speaker completely.

The cooling fan is also on the back of the radio. The fan is very important, as the radio puts out 50W on the 144MHz band and 35W on the 433MHz band when on high power.

There are mid and low power settings as well. These are 10 and 5W

Some of the panel's control buttons are only labelled when the l.c.d. display is on. This means the labels are very visible indeed at all times, unless of course the radio is off!

The l.c.d. display is excellent, its brightness can be controlled. The black writing on what Yaesu call their Omni-Glow orange background display really does work very well indeed.

The frequency readouts are very clear. A highly visible marker shows you which band is selected at any one time.

The Yaesu FT-8000R has 108 memories, 54 for each band. These memories store the usual information such as any repeater off-sets and CTCSS tones.

The memories also store the power level setting.

The FT-8000R has many advanced features. It's also supplied with CTCSS encode, however the CTCSS decode board is an optional extra.

The radio has versatile scanning facilities for scanning memories, v.f.o. or user programmed memories or portions of the bands. The scan can be set to either stop on a busy frequency or to pause for 5 seconds and then commence its search.

The emergency radio users such as RAYNET operators and controllers will no doubt find the easy to use One-way and Two-way cross band repeat function extremely useful.

Before I tell you how this radio actually fared 'on air' I would like to enthuse about the new innovation I found to be extremely useful. Yaesu call it 'Smart Search Operation'.

Smart Sweep

Smart Search Operation automatically 'sweeps' a band, or an operator programmed portion of the band, and

**"...Smart & Well
Balanced..."**

for both bands.

The FT-8000R's rear panel is uncluttered and well set out. It's clearly labelled and well designed. The sockets are well spaced for ease of access for those with even the 'chunkiest' fingers!

The handbook is well written and well set out. It uses easy-to-understand examples and takes the beginner through the basic set-up of the radio. Having been disappointed with Yaesu's handbooks in the past I must say that this one impressed me!

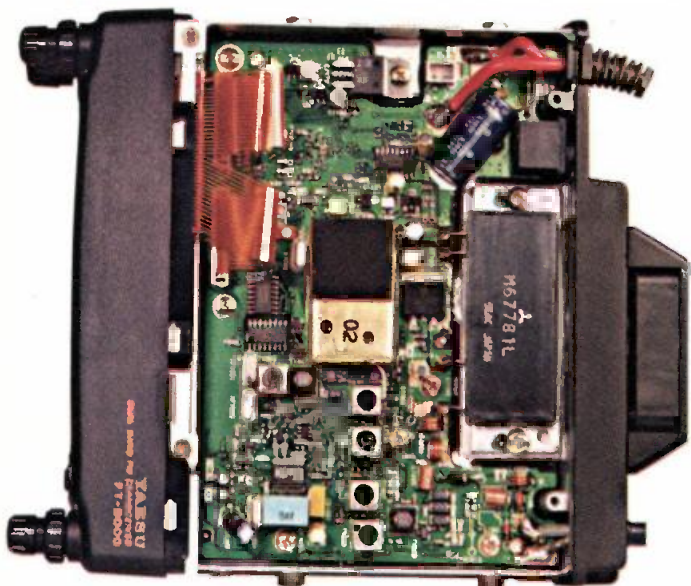
All Singing All Dancing

As you would expect the Yaesu FT-8000R has all the features that you would normally find on a modern 'all singing all dancing' mobile radio.

But it also has a few surprises. More about those later.

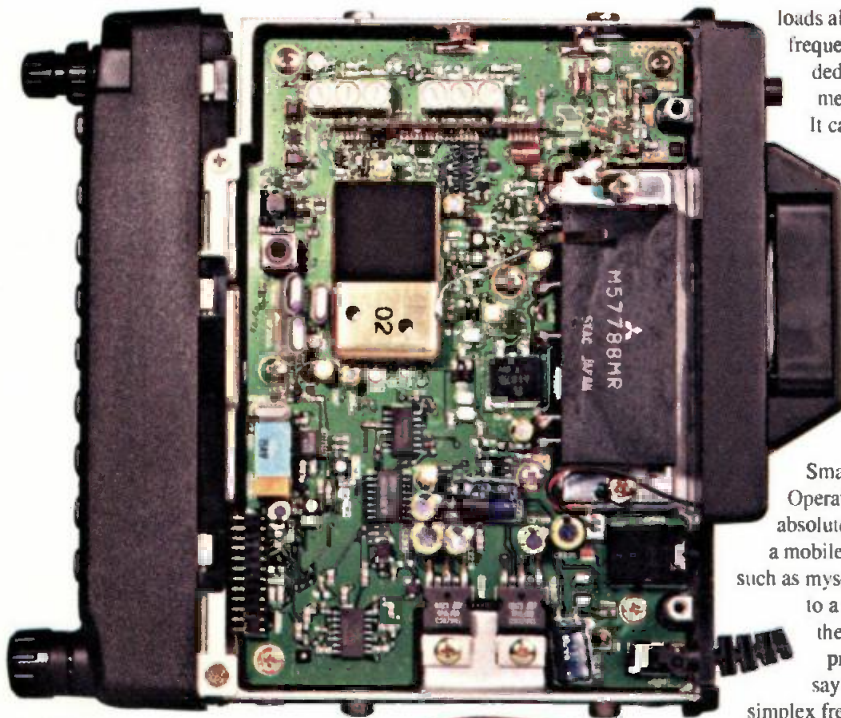
The front panel and controls on the FT-8000R are on the whole well positioned and very well labelled. Each band has its own volume and squelch control.

View from above showing the cooling fan and p.a. block in the top centre. The small size of the transceiver can be judged by the relative size of the power supply leads.

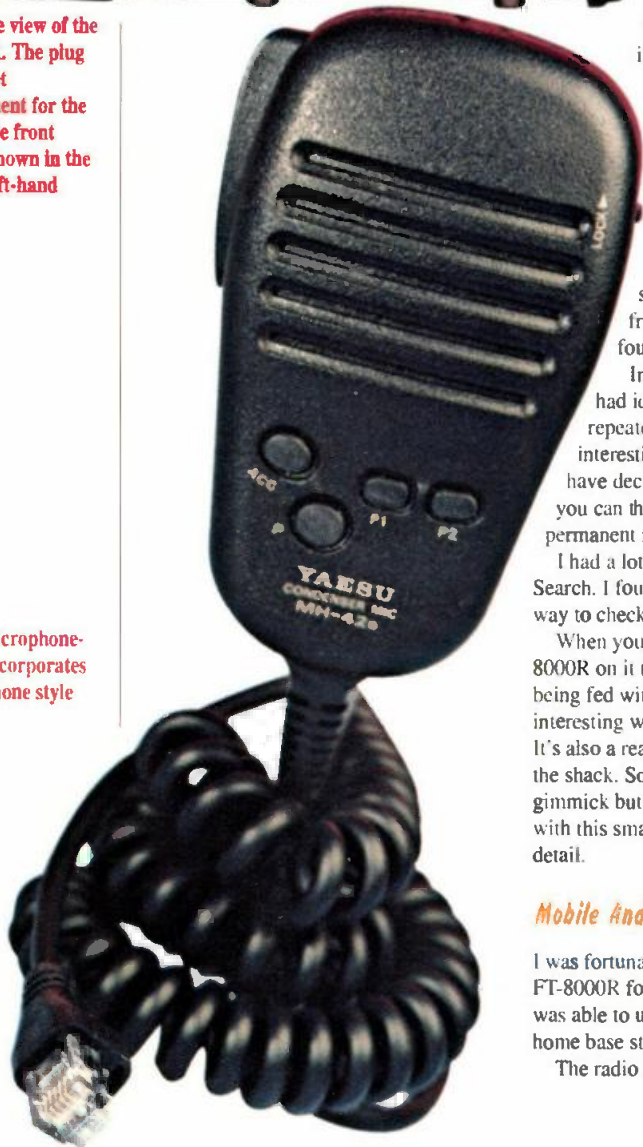


The Yaesu FT-8000R Dual Band FM Transceiver

Continued from page 73



Underside view of the FT-8000R. The plug and socket arrangement for the detachable front panel is shown in the bottom left-hand corner.



The supplied microphone—the MH-42A—incorporates the RJ-11 telephone style plug.

loads all the active frequencies into a dedicated memory bank. It can be set by the operator to do this sweep once or to continue the sweep until all 50 dedicated memories are full.

I think the Smart Search Operation is an absolute godsend for a mobile operator such as myself. If you go to a new part of the country just programme in say the 144MHz simplex frequencies and the repeater frequencies into the programmable search limits.

At the touch of one button Smart Search leaps into action. You can see the hits being chalked up, then when you are ready you just use the tuning control to step through the active frequencies the radio has found.

In a matter of minutes I had identified the local repeaters and some very interesting local Nets. When you have decided to keep a frequency you can then transfer it to a permanent memory location.

I had a lot of fun using Smart Search. I found it to be a wonderful way to check the bands for activity.

When you turn the Yaesu FT-8000R on it tells you what voltage it's being fed with. This is most interesting when using it in the car. It's also a reassuring check when in the shack. Some may call this a gimmick but I was quite impressed with this small, but useful attention to detail.

Mobile And Base

I was fortunate enough to have the FT-8000R for quite a few weeks. So I was able to use it mobile and as a home base station.

The radio has been designed for

ease of use, especially when mobile. The transmit power level can be toggled with only one button press. The reverse frequency on repeater use can also be checked with one press of a button.

It's difficult to get reports on a radio when mobile, because invariably you're usually talking via a repeater. Simplex contacts are often difficult or at least subject to things such as mobile flutter. So, all the reports I obtained were by use of the FT-8000R as a base set.

At home I put the FT-8000R on my W-2000 vertical antenna for 50, 144 and 433MHz. This antenna is about 8m above ground level. My home is on the outskirts of Bournemouth at about 30m above sea level.

Boxing Day Net

I used the FT-8000R from home to run a club 'Boxing Day' v.h.f. Net. The members who came up on the Net were Steve G1YNY, Clive G4SLU, Terry G7VJJ, Bob G6DZM and Colin G3XAS all gave the radio good reports on the transmitted audio.

We were joined by Alan G4RUC on the Isle of Wight who again gave the FT-8000R a favourable report. Just the 10W setting was enough to control the Net with all stations hearing me.

The stations were as far south as The Isle of Wight, as far west as Dorchester and as far east as Mudeford. A radius of some 42km.

Next I spoke to several stations on u.h.f., Terry 2E1EJC in Blandford reported the transmitted audio to be "very acceptable". Barrie 2E1EXE also gave me a good report, he was operating using a hand-held in Bournemouth.

I also had a contact with Ian G0GRI near Bradford-upon-Avon, Wiltshire. We first spoke on the 145MHz and exchanged favourable reports.

We then went to the u.h.f. bands. I called Ian using the 35W available to me on high power. I did not hear Ian's reply but when back on 145MHz Ian told me that he had heard me calling him. I believe that as the crow flies (apparently crows fly in a similar way to radio waves!) the distance between my location and Ian's is a trip of about 75 - 80km.

Well Balanced

In the past I have experienced radios

YAESU



Manufacturer's Specifications

GENERAL

Frequency range:	RX - 110-550MHz, 750-1300MHz (cell phone blocked) TX - 144-148MHz, 430-450MHz
Channel steps:	5/10/12.5/20/25/50kHz (v.h.f.) 5/10/12.5/20/25/50kHz (u.h.f.)
Frequency stability:	± 5ppm (-5°C to +50°C)
Repeater shift:	± 600kHz (v.h.f.) ± 1.6/5.0/7.6MHz (u.h.f.)
Emission types:	F3 (G3E), F2 (1200bps packet), F1 (9600bps packet)
Antenna impedance:	50W, unbalanced
Supply voltage:	DC 13.8 V ± 15%, negative ground
Current consumption:	Receive - Less than 1A Transmit - 11.5A (v.h.f.), 10A (u.h.f.)
Operating temperature:	-20°C to +60°C

TRANSMITTER

RF power output:	50/10/5W (v.h.f.) 35/10/5W (u.h.f.)
Modulation type:	Variable reactance
Maximum deviation:	± 5kHz
Spurious emissions:	> 60dB below carrier
Microphone impedance:	600-10kΩ

RECEIVER

Circuit type:	Double-conversion superheterodyne
Intermediate frequencies:	45.05MHz and 455kHz (v.h.f.) 58.525MHz and 455kHz (u.h.f.)
Sensitivity (12dB SINAD)	<0.18µV (Main receiver) <0.25µV (Sub receiver)
Selectivity:	12kHz (-6dB)/24kHz (-60dB)
Image rejection:	Better than 70dB
Squelch sensitivity:	Better than 0.13µV
AF output:	2W @ 8W for 5% Total Harmonic Distortion
Audio output impedance:	4-16W (Internal Speaker: 8W)

WIN!

Turn to page 57 of this issue to find out how you can win the FT-8000R as reviewed by G0RSN. Barry Cooper G4RKO and the team at Yaesu have very kindly donated the review model as a competition prize, so what are you waiting for? - Get your entry in today!



that are very sensitive as mobiles but are swamped in the shack on a high gain antenna. I have to say that I found the FT-8000R was extremely well balanced.

I live very close to a 'nest' of paging systems. I did not experience breakthrough once on either 144 or 433MHz. I also found the receive sensitivity very good both in the car and in the shack.

Performs Beautifully

All in all the FT-8000R is a well

thought out, well made, solid unit. It performs beautifully as a base station and lends itself to mobile operation with consummate ease.

The radio was a pleasure to operate and when put side-by-side with my own mobile transceiver, the TM-732, I found that both radios compared most favourably both on transmit and receive.

My thanks go to Barry Cooper G4RKO of Yaesu UK Ltd. for the loan of the FT-8000R which is available from all Yaesu approved dealers for around £549.

PW

DSP-NIR "DSP" Low Frequency Processing

DANMIKE

- ★ Digital Signal Processing Noise and Interference Reduction Unit (NIR).
- ★ Microprocessor-controlled (Digital Signal Processor).
- ★ Improves shortwave reception considerably and removes noise.
- ★ SSB, CW, PBT, Packet, SSTV, RTTY, NOTCH and PEAK filters.
- ★ Developed and optimized for professional shortwave reception and amateur radio.
- ★ Extends your active working time – you don't tire as early because unwanted noise is removed.
- ★ 14 different filter functions.
- ★ Automatic multi-tone notch.
- ★ Digital linear phase filters with up to 60 dB attenuation.



- ★ AGC function (Automatic Gain Control).
- ★ Passband Tuning (PBT) with 300 Hz or 2100 Hz bandwidth.
- ★ Variable setting of peak filter level.
- ★ Integrated LF amplifier with 3.2 Watts @ 4Ω.
- ★ Latest 16 bit DSP technology.
- ★ Bypass function.
- ★ Easy connection, simply fitted on speaker cable.
- ★ 12 V DC power supply.

CTS COMMUNICATIONS SERVICES LIMITED
 100 WINDMILL CENTRE
 100 WINDMILL CENTRE
 100 WINDMILL CENTRE
 100 WINDMILL CENTRE

Special offer for readers of Practical Wireless



MOBILE PHONE IN-CAR KITS

from Specialist Media & Marketing

Why risk an accident or prosecution while using your mobile phone in the car? Get a TADCOM in-car kit and leave your hands free to get on with driving.

Choose from a professional installation at your home or place of work, or self-installable kits, with a choice of glass, body or magnetic mount aerials, available for leading phone makes.

NOKIA MOTOROLA ERICSSON

DIY Kits
£99+VAT

- Easy to install and use
- Superb hands-free audio
- Intelligent battery charging
- Unique mounting bracket
- Uses external aerial

Fitted kits
£169+VAT

Call
01202 659920

Specialist Media & Marketing, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW

HF FAR & WIDE

Leighton Smart GWOLBI is back on air again after suffering antenna damage and is joining in the fun whilst compiling your reports

I'll start this month by saying how good it is to be back on the air. I lost my antenna a while ago during a rather nasty storm, and only recently was able to put up another 'half - decent' long wire.

Luckily, my neighbour, Bernard, is a decent sort, and he along with Dave GW0JUU assisted me in getting a line up over a 20m high Oak tree at the bottom of my neighbours' garden. This we did by using a 'Beachcaster' fishing rod and a 142 gram (approx 5 ounce) weight.

The antenna is about 70m in total length. But I've added a 20m coil to the far end of the wire to try to get the high current (maximum radiation) point at the highest part of the wire. It's not a great antenna by any means, but gets my r.f. out around the British Isles and Europe reasonably well on the three I.f. bands.

I mainly use the antenna on the 1.8MHz band which is my favourite band (you've no doubt guessed I'm more of a 'ragchewer' than anything else). And at this point I must say how pleasurable I find it during the cold winter evenings to get 'on the wireless' and have a natter whenever possible. So maybe I'll be able to get back to the *PW* Listening and Operating Watch again. And about time too eh?

Favourite Band?

Talking of favourite bands, I was talking to local DXer Steve Lockie GW0SGL recently, who told me that even though he operated mostly on the 144MHz band and above, (DX being his passion) his favourite band was 3.5MHz no less!

Steve has been featured in the pages of *HF Far & Wide* on many occasions in the past, with logs showing his consistent DX contacts over most of the globe on the higher bands. So I asked how does it work out that if 3.5MHz is his favourite band, when he doesn't use it as often? I asked

Well, it seems that although Steve came into the amateur radio hobby specifically interested in working DX, he says that he found that working on 3.5MHz was 'less demanding' than DXing on the higher bands. "I felt sometimes that it was getting a little tiresome for me, after hours of 'you're 5/9, QSL via buro', it

gets a little monotonous, so I go down to 3.5MHz and have a more normal sort of contact!" says Steve.

"After a few evenings on '80', I found that it was such a refreshing change that I began looking forward to meeting up with the same stations now and then and carrying on the conversation where we'd left off a few days earlier".

"These days, I get onto 3.5MHz every week or so, so I don't get on every evening because if I did, that would become tiresome too, and I need that refreshing change to keep my interest alive!"

"Mind you," says Steve "the DX is rather good down there too, at the right time of day!"

So it seems that a change is as good as the rest (even in a hobby so diverse as ours) to quote an old saying.

On the other side of the coin, it's surprising how many 'A' licensees, although equipped with h.f. gear, rarely surface on anything other

than spotting or stamp-collecting!

So, what's YOUR favourite band? It may be interesting to other readers of *HF Far & Wide* (particularly new licensees) to learn what your favourite band is - and more importantly - why? Are you like myself, more of a I.f. band 'ragchewer' than a DXer? Or are you primarily interested in DX on the higher bands? Do you prefer the QRM of 14MHz to the relative calm DX of 18 or 21MHz? Are you interested in the propagation characteristics of 28MHz and carried out losts on the band?

Why not put pen to paper, and share your experience with other *HF Far & Wide* readers, you don't have to write a book, a few paragraphs will do, just enough to give others, especially those new licensees, your 'operators viewpoint' regarding the various h.f. bands we are allocated.

If there is a response from you, I'll feature one every month or two. Apart from that, I'm interested in

who is now the proud owner of new callsign **MM0AOF**, and sends in his first h.f. transmitting reports.

David says his operation has been all c.w. and 'fairly QRP' as he lives on the third floor of a tenement block with no r.f. earth. Well done David! And we look forward to more DX reports from you, I bet you're having a whale of a time. Keep up the good work!

Interesting Intruder

I've had some interesting feed-back following the query from **Walter Farrar G3ESP** in the January issue regarding two unusual stations he heard on the 3.5MHz band using the call signs CP1MS and L9CC. Since then I've received a 'phone call from **Ray Wilkins G0UKX** who assists with the 'Intruder Watch' team.

Ray says he has heard 'CP1MS' on a number of occasions on 3.5MHz, and also on the 7MHz band, but the call sign is not CP1MS, but

CP17! It appears

that this station has been cropping up from time-to-time on both 3.5 and 7MHz bands, and appears to emanate from South America, as witnessed by the Intruder Watch members.

You have been warned!

DX News

Some DX news now and I've read in *The RSGB DX Newsheet* that **Mark 9X4WW** in Rwanda is often active on 1827.5kHz c.w.

(listening up) around 2100UTC. So let's hope that the situation in that country continues to improve.

On Kerguelen Island the **VK0IR** group will be operating as **TW0K** in February. Meanwhile in Cambodia **Mike XU6WV** is planning some 'serious' low band work during the winter, possibly from a waterside location in the south of the country.

In Africa, **Charlie KY0A** says he

than 144MHz f.m.! I certainly know of quite a few radio amateurs who fall into this category, and often wonder why this is. After all, what can be worked locally on 144MHz f.m. is a snitch on 3.5MHz, if perhaps not so 'private'!

I guess that TVI may account for some of them, but surely not all? Still, I guess that's the one endearing thing about our hobby - there's so many aspects to choose from, that it's nigh impossible to get so bored that you give it up in favour of

hearing what you have to say about anything relating to the h.f. bands - what you think is good about them as well as what you think is bad!

I look forward to hearing from you.

New Callsign

News now from long - time s.w.l. reporter **David Henry** of Aberdeen,



The Ten-Tec 'Scout' transceiver as used by Terry G0VTI.

will mount a 'big' effort from Namibia. It will take place in February on 1.8 and 3.5MHz.

The Oceania Amateur Radio DX Group (ODXG) are planning a major DXpedition in September 1997 and are inviting operators to join them. They're looking for 10 operators, including two YL operators. If you're interested...contact Bill VK4FW (QTHR).

(Please note that the DX Newsheet is issued weekly and details can be obtained from the RSGB, Lambda House, Cranborne Road, Potters Bar, Hertfordshire, England EN6 3JE).

Your Reports

I'm starting your reports off with 3.5MHz this time. And I must admit to liking a good late afternoon or early evening natter on this band.

My particular preference is for the 'key' on 3.5MHz, and have found that many of the contacts I've had here are not just the tiresome 'rubber stamp' variety either! There are times when GW0LBI has been on for (literally) hours in the past with perhaps one or two individual stations, very often on v-e-r-y slow-speed c.w., (nice and relaxing I reckon!) and actually learned something about the other operator, apart from just his/her name, QTH and rig!

Apart from that, I've also enjoyed 'earwiggling' on some very interesting contacts, both on c.w. and s.s.b. particularly between 'old timers'.

So starting off 3.5MHz this time is just a single report for this band from QRPer Eric Masters G0KRT in Worcester Park, Surrey, who has been extremely busy with his college work. His 5W of c.w. hooked up with DK8TU (Germany) in the CQ Worldwide contest at 2112UTC. Good luck with your studies Eric!

Meanwhile, new licensee David Henry MM0AOF in Aberdeen has been having his first 3.5MHz contacts, all on c.w. with Manu ON4CCE in Belgium at 2145, and Graham 2E0AOI in Nottingham at 2105UTC. May this be the first of many contacts, David, and I look forward to working you soon.

The 7MHz Band

It's up to '40' now, and a long report from Sean Gilbert G4UCJ of Milton Keynes, who says that the 7MHz band has been open to the USA as early as 1800.

"Australia has also been audible early evening along with Japan" says Sean, "but the broadcast intruders are back so it's back to using the anti-heterodyne filters and reducing the audio bandwidth at my end to reduce the 'ringing' problems"!

Sean's log includes all - c.w. contacts using between 50 and 70W, with J6/KD6WW (St. Lucia Island) at 0241, VK2BEX/CY0 (Sable Island) at 0125, EM1KA (Antarctica) at 2318, C08EI (Cuba) at 0153, ZS6QU (South

Africa) at 0154, HH2B (Haiti) at 0021, EX9A (Kirgizstan) at 2359, P40V (Aruba Island, Netherland Antilles) at 0058, KC1XX (USA) at 0044, YW1A (Venezuela) at 0101, and HS0AC (Thailand) at 1904UTC.

Also from Milton Keynes comes Charlie Blake M0AIJ, who says that it hasn't been a very good month for him in the early mornings on 7MHz, due to some pretty heavy QRM on the band between 7.064 and 7.076MHz. "It's not consistent" says Charlie, "it tends to come and go, but I've also noticed it when operating the GB2BP station in Blechley Park four miles south." "Well maybe you and your 'neighbour' Sean G4UCJ can get together to compare notes, Charlie?"

Charlie has been negotiating with the local authority regarding permission for antennas, and has meanwhile been using a DRAE 40-10 Magnetic Loop on the 7MHz band. His transmitting report this month shows s.s.b. contacts with HB9ARC (Switzerland) at 0712, EA6/G4XDO (Majorca, Balearic Islands) at 1029, ZL4DJ (New Zealand) at 1023, and ZB2AZ (Gibraltar) at 0744UTC.

On the other hand, Charlie's s.w.l. log includes s.s.b. reception of 8R1Z (Guyana) working IV3FPS in Italy at 0614, CX3AL (Uruguay) in contact with CT1AR in Portugal at 0716. He also heard XE1NVX (Mexico) working DF7IB in Germany at 0744, and JA8VKE (Japan) in contact with UA9XMH in Russia at 0731UTC.

Down to Skewen in West Glamorgan now, and Carl Mason GW0VSW, who has, like myself, suffered antenna damage. However, Carl is back 'with a vengeance' but says he found conditions 'poor' during his operating periods. Included in his report are all c.w. contacts with 5B4/G0E0M in Limassol, Cyprus at 1915, UA6AGK (Russia) at 1838, and HB9ATE (Switzerland) whose signals were 59+ 30db at 1558UTC.

The 10MHz Band

I've noticed a few French stations using s.s.b. on the 10MHz band, which causes a few problems as it's just 50kHz wide! I've also heard some amateurs saying that UK operators are allowed to use 'phone here, but as it's such an extremely narrow band, what's the point?"

A welcome back to Terry Ibbitson G0VTI of Wakefield who reports c.w. contacts on 10MHz with EA1AY (Spain) at 1756, and LA3HE (Norway) at 1745UTC.

And Carl GW0VSW lists SV9/DJ4TR (Crete) at 1135, and J68IO (St. Lucia Island) at 1937UTC (QSL to W8QID).

The 14MHz Band

Now for the 14MHz band report I'm starting with Terry G0VTI who uses a Ten-Tec Scout transceiver with 50W output and a G5RV/2 dipole antenna. He says that the antenna is "very close" to his house and is in an inverted 'V' configuration.

On 14MHz c.w. Terry hooked up with VE2DBK (Canada) at 1302, KA1ZEQ (USA) at 1324, as well as W8TE (Michigan, USA) at 1610 and WB1AGP (Maine) at 1608UTC.

Carl GW0VSW also worked a string of US stations on 14MHz, but also used c.w. to hook up with EA8/DJ00J/P (Canary Islands) at 1801, HAM4XR (Hungary) at 0931, and SP5BXY (Warsaw, Poland) at 0858UTC.

While back in Surrey, Eric G0KRT, using 5W of c.w. in the CQ WW Contest, hooked up with KB1SJ and K4VX (both USA) at around 1700UTC.

Wielding his shiny new callsign David MM0AOF had his first transatlantic contact with his first CQ call using 10W c.w. with WB2FXK in New York State, at 1550, along with a 20W c.w. contact with DL1FAG (Germany) at 1100UTC, amongst others.

Sean G4UCJ lists his c.w. contacts with 3V8BB (Tunisia) at 1427, 9Y4VU (Trinidad) at 1500, 8P9Z (Barbados) at 1717, VP2EEB (Anguilla Island) at 1602. He also listed 4V2A (Haiti) at 1142, and VE7VB (British Columbia, Canada) at 1652UTC.

The 18 & 21MHz Bands

The higher bands have seen an improvement of late with some openings to North and South America, although whether this is going to be a continuous trend is anybody's guess!

The 18MHz band seems to be offering some degree of reliable DX communication. I've noticed this just using my none - too - professional receiver and a piece of wire hanging out of the window - hardly a DX receiving station by any stretch of the imagination!

Starting with 18MHz, Carl GW0VSW reports working C56JJ (Gambia) at 0933 QSL to G0UCT, SP8CSL (Poland) at 1043, and N03N (USA) at 1538UTC, all on c.w.

While on 21MHz, Eric G0KRT mentions his first QRP contact with the USA on this band in the shape of K4VX, at 1612UTC.

Finally, Terry Ibbotson mentions working PZ1AP (Suriname, South America) at 1611, again 'on the key'.

So there are some signs of life on the 21MHz band of late, as our reporters show! Let's hope it's a sign of things to come over the next 12 months or so, eh?

Signing-Off

Well that's it for this month folks...it's signing-off time! Thanks for all your support and information, which makes the column what it is.

I would appreciate some photographs of you and your stations, as my 'photo library' is now running extremely low! So get out your cameras and start snapping! As usual, reports and information (and photos!) by the 15th of each month to: Leighton Smart GW0LBI, 33 Nant Gwyn, Trelewis, Mid-Glamorgan CF46 6DB, Wales. Tel: (01443) 411459 / (01443) 710749 (9am - 6pm).

PW Listening & Operating Watch List

All times in UTC

Charlie Blake RS-96034 listens: 0500-0700 on 7.061MHz s.s.b. with an NRD 525 receiver & Sloping wire antenna.

Steve Locke GW0SGL operates: 1100-1500 most days around 14.180MHz s.s.b. using a Kenwood TS-940 & TH7 beam antenna, normally beaming to other countries.

Don Mclean G3NOF operates: 1030 Saturdays on 3.685MHz on the ISWL Net or 1030 Sundays on the Yeovil ARC Net 3.665MHz s.s.b. using a Kenwood TS-950 & trapped dipole antenna.

Leighton Smart GW0LBI operates: Most Sundays (and some weekday evenings) at around 1000-1300 on 1.933 or 1.949MHz s.s.b. using a KW 2000B transceiver and a long wire Marconi antenna.

Rob Mannion G3XFD listens and operates: (weekdays & weekends) 1800-1830 3.7MHz 100W s.s.b., & 3.530MHz QRP c.w. using an Alinco DX-70 transceiver and trapped dipole/Long wire antennas. Also at 2300 on either 3.530, 7.025MHz (c.w.) or 3.7MHz s.s.b. (Restricted operation on h.f. bands at moment at moment on 'jury rigged' long wire antenna draped over house roof. Waiting for better weather to erect new mast to replace the original trees (damaged in the autumn storms) used as supports for antennas.

Sean Gilbert G4UCJ operates: around 1030 to 0200 (on and off) most weekdays and weekends on 7 and 14MHz, using a FT-307 transceiver at 70W maximum and a G5RV dipole antenna.

Terry Ibbitson G0VTI operates: each evening between 1900-2000 on or around 7.020MHz c.w., or 14.035MHz c.w. using a Ten-Tec Scout at 50W.

David Kennedy G7GWF listens: on 7MHz using a Howes Communications receiver and a Lake DTR-7 Transceiver. No time or frequency is specified.

END

COLOMOR (ELECTRONICS) LIMITED

170 Goldhawk Road, London W12 8HJ Day Tel: 0181-743 0899 Fax: 0181-749 3934

★ Celebrating 30 years 1967-1997 ★

OVER A MILLION VALVES IN STOCK. PLEASE ASK FOR A QUOTE

£ p									
DG732	9.40	EL84	2.50	UBC41	3.80	6BR7	4.90		
E180F	3.80	EL84 MUL	10.60	UBF89	1.55	6BS7	5.60		
EAF42	1.50	EL84W	6.00	UBL1	4.80	6BW6	6.25		
EBL1	5.80	EL86	3.80	UCH21	2.60	6BW7	1.55		
EBL21	4.80	EL95	1.85	UCH81	1.20	6BZ6	3.60		
ECC81	2.50	EL360	7.60	UCL82	1.65	6C4	4.80		
ECC82	2.90	EL503	38.50	UF41	3.25	6CD6GA	4.80		
ECC83	3.90	EL821	7.65	UF42	1.50	6CH6	3.50		
ECC83 MUL	9.90	EM34	12.50	UF89	1.90	6CX8	4.70		
ECC91	2.25	EM81	2.60	UL41	14.10	6F6	4.95		
ECC80	1.00	EM91	3.60	UL84	1.55	6GF7A	4.10		
ECH35	2.60	EZ80	2.20	UM84	1.35	6K7	2.25		
ECH42	1.20	EZ81	2.85	UY41	3.60	6LG6T/C	2.95		
ECH81	1.90	GZ33	7.00	UY85	1.55	6L6	7.50		
ECL80	1.00	GZ34S	6.00	VU39	4.50	6V6GT	5.10		
EF37	3.45	GZ34 MUL	17.65	Z759	11.00	6X4	3.55		
EF37A MUL	5.60	GZ37	4.70	2C51	4.50	6X5GT	2.50		
EF41	3.30	GZ37 MUL	8.25	2K25	29.35	7Z4	3.80		
EF50	1.90	KT66 RUS	9.00	5R4GY	6.80	12AT7	2.50		
EF80	2.35	KT88	20.95	5U4G	5.80	12AU7	2.90		
EF86	5.10	MU14	3.50	5Y3	3.55	12AX7	7.05		
EF86 MUL	12.95	N78	10.10	6AH6	1.95	12E1	18.00		
EF89	1.60	QQV03-6	12.00	6AK5	1.45	12H6	4.70		
EF91	1.55	QQV03-10	7.65	6AL5	1.00	12HG7	7.70		
EF95	1.45	QQV03-20A	14.00	6AM6	1.65	13CW4	32.90		
EL32	1.45	QQV06-40A	22.00	6AM8A	4.10	813	29.15		
EL34S	7.10	QY4-250	103.85	6AT6	1.95	5744WB	8.70		
EL34B	7.20	SP61	3.25	6AU5GT	5.20	5763	8.85		
EL36	3.50	TD03-10	33.50	6AU6	1.80	5963/ECC82	4.00		
EL41	4.75	U19	12.20	6BJ8	4.10	6115A	299.95		

VALVES WANTED - NEW & BOXED

KT66 - GEC	£40 each	DA100 - GEC	£100 each
KT88 - GEC	£60 each	4212E - STC. UK	£150 each
EL34 - Mullard	£15 each	PK25 - Globe shaped	£100 each
EL37 - Mullard	£12 each	PK4 - Globe shaped	£60 each
DA30 - GEC	£80 each	ECC83/EF86	£3.50 each
PT15	£10 each	V503	£100 each

Also available
 19 set leads
 12 way £17.65 ea.
 6 way £17.65 ea.
 - 6 way free socket £5.90 ea.
 6 way two core power ZA22009 £11.75 ea.
 PSU leads 2 pin, bakelite plug £5.90 ea.
 Aerial lds £5.90 ea.
 250V motor generator £17.65 ea.
 No 16 Junction Boxes £17.65 ea.
 No 17 Junction Boxes £17.65 ea.
 No 11 Mk 2 Junction Boxes £17.95 ea.
 Control box type H £41.50 ea.
 Meter 19 set £29.50 ea.
 RCA4336 transmitter £588.00 ea (spares available for 4336).
 PCR PSU £29.50 ea new.
 C45 PSU £65 ea new or £53.00 ea used.

Type Scam 40 - Pump up alloy, extended height of mast 40ft, retracted 7ft 9", max recommended head load 32Kg £352.50 ea.
 Rascal Mast - 28ft alloy, 4ft 9" retracted, 2.3mm top fixing, snap lock erection £211.50 ea.
 Antenna Loading Coil - a unit of model TCS12 radio, Type CML 47205, in metal box, 8" x 6 x 5" including high power ceramic 6 way switch 2 1/2" dia x 6" coil £21.00 ea.
 Aerial cards - vertical antenna lead, pvc covered ex MOD5820 99 117 7440. 150ft £7.00 ea.
 Clansman - hand sets, new £17.60 ea.
 Redifon synthesizer unit - ARU11 £52.99 ea.
 Redifon ATU adaptor common antenna ARU18 £41.50 ea.

4 x 1/4" x 7/8" spacing £14.20 ea.
 Silver plated (a) twin VC 100pF ball bearing £5.30 ea.
 (b) single gang 100pF ball bearing £3.55 ea.
Morse Keys
 Army bakelite - 8 amps. No.2 MkIII £9.40 ea.
 Army brass £14.10 ea.
 SMA ACO Teledyne Microwave, 24 to 30V DC, DC to 18GHz £35.50 ea.
 New 24V, 50 ohm London AC0 with Burnmide connectors £11.75.
 New Belling & Lee 50 ohm BNC free plug, silver plated, 5m (L1637/FP) £0.85 ea.
 Large heat sink - L230mm, W120mm, H120mm with 7 power transistors No 2N5884 £11.75 ea.
 E F Johnson Roller Coaster 37 turns 2" dia, 1/2" shaft £25.85 ea.
 Turns counter for Roller Coaster. Decast 36 turns, 1/2" shaft £17.65 ea.
 Ceramic Roller Coaster, 30 turns, 3" turns, 3" dia, 6" long, 1/2" shaft £35.50 ea.
 Flexible coupling.

ceramic insulated, 1/2" shaft £2.80 ea.
New mains isolation transformer
 250V, 50Hz, 1 to 13kVA, 13A fused class F, 13A Slt & plug £112.00 ea.
 240V transformer, output 18.5V, 26V, 29V, 35A and 26V, 5A £35.25 ea.
RS transformers - new
 196 303 - 12V, 0.25A, 12V, 0.25A £2.95 ea.
 196 319 - 20V, 0.15A, 20V, 0.15A £2.95 ea.
 207 150 - 15V, 0.6A, 15V, 0.6A £4.95 ea.
 207 172 - 17V, 0.5A, 17V, 0.5A £4.95 ea.
 207 251 - 12V, 2A, 12V, 2A £4.95 ea.
 207 239 - 4.5V, 5.5A, 4.5V, 5.5A £13.99 ea.
 207 576 - 9V, 5.5A, 9V, 5.5A £13.99 ea.
 207 964 - 25VA, 9V, 2.7A £16.95 ea.
 208 153 - 30V, 2.0A, 30V, 2.0A £19.50 ea.
 208 579 - 200VA £14.50 ea.

ARR8 Spares available - please send sac for list
Masts: Clarks - alloy PU12, 37ft, pin fixing for sectional erection, 1" dia fixing at top, 73" (retracted) collapsed height £99.90 ea.

Variable Capacitors
 500pF twin - 1 1/2" x 1 1/2" x 2 1/2" £9.40 ea.
 500pF twin - 1/2" x 2 1/2" x 2 1/2" £5.90 ea.
 210pF twin £4.70 ea.
 270pF wide spaced 3K"

P&P - Orders up to £3 @ £1.95, £5 @ £2.25, £15 @ £2.50, £20 @ £3.35. Over £20 @ £4.55 Telephone of Fax list for offers. Please quote ref PW

TRANSFORMERS FOR BALANCED LINES IN HIGH PERFORMANCE AUDIO SYSTEMS

FREE CATALOGUE
FREE TECHNICAL SUPPORT SERVICE



E A Sowter Ltd

PO Box 36, Ipswich IP1 2EL England
 Tel: +44(1) 1473 252794
 Fax: +44(1) 1473 236188
 E-mail: sowter@tcp.co.uk

Design and manufacture of all types of audio transformer using nickel and grain oriented cores

High quality push-pull or single ended output, mains, chokes, interstage, input and cartridge transformers.

RST LANGREX SUPPLIES LTD RST

PHONE 0181 684 1166 FAX 0181 684 3056
 DISTRIBUTORS OF ELECTRONIC VALVES
 TUBES AND SEMICONDUCTORS AND I.C.S.
 1 MAYO ROAD • CROYDON • SURREY CR0 2QP
 24 HOUR EXPRESS MAIL ORDER SERVICE ON STOCK ITEMS

£ p					
AZ31	6.00	KT66 China	10.00	524GT	3.00
CL33	10.00	KT88 China	12.00	6AQ5	2.00
E88CC	8.50	N78	8.00	6AR5	20.00
E180F	3.50	OA2	3.00	6AS7G	7.50
EB10F	20.00	OB2	3.00	6AU5GT	4.00
EABC80	2.00	OC3	3.00	6AU6	2.00
EB91	1.50	OD3	3.00	6AW8A	4.00
EBF80	1.50	PCF80	2.00	6B4G	£22.00
EBF89	1.50	PCL82	2.00	6BA6	1.50
EBL21	15.00	PCL85/805	2.50	6BE6	1.50
ECC33	8.50	PCL86	2.50	6B86	2.00
ECC35	8.50	PD500	6.00	6BQ7A	2.00
ECC81	3.00	PL36	3.00	6BR7	4.00
ECC82	3.50	PL81	2.00	6BR8	4.00
ECC83	3.50	PLS04	3.00	6BW6	4.00
ECC85	3.50	PLS08	3.00	6BW7	3.00
ECC88	6.00	PL509/519	7.50	6BZ6	3.00
ECC808	15.00	PL802	4.00	6C4	2.00
EFC80	1.50	PY500A	3.00	6CB6A	3.00
ECH35	3.50	PY800/801	1.50	6CD6G	5.00
ECH42	3.50	QV02-6	12.00	6CL6	3.00
ECH81	3.00	QV03-10	5.00	6CG7	7.50
ECL82	3.50	QV03-20A	10.00	6CH6	3.00
ECL86	3.50	QV06-40A	12.00	6CW4	6.00
ECL1800	25.00	U19	8.00	6DD5	17.50
EF37A	3.50	UABCB0	1.50	6DD6B	10.00
EF39	2.75	UCH42	5.50	6FGC	6.00
EF40	4.00	UCL82	2.00	6FQ7	7.50
EF86	10.00	UCL83	2.00	6GK6	4.00
EF91	2.00	UFB9	4.00	6J5G	6.00
EF183/4	2.00	UL41	12.00	6J5M	4.00
EL33	12.00	UL84	3.00	6J7	3.00
EL34	8.00	UY41	4.00	6JB6A	22.00
EL36	5.00	UY85	2.00	6JE6C	22.00
EL41	£3.50	VR105/30	3.00	6JS6C	22.00
EL84	£2.25	VR150/30	3.00	6K6GT	4.00
EL95	2.90	Z759	10.00	6L6G	15.00
EL360	15.00	Z803U	15.00	6L6GC	15.00
EL509/519	12.00	ZD21	3.50	6L6W6B	£10.00
EM34	15.00	3B28	12.00	6Q7	3.00
EM81/4/7	4.00	4CX250B	45.00	6SA7	3.00
EN91	7.50	5R4GY	7.50	6SC7	7.50
EZ80/81	3.50	5U4G	6.00	6SG7	3.00
G232	8.50	5U4GB	7.00	6SJ7	3.00
G233/37	6.00	5V4G	4.00	6SK7	3.00
KT61	15.00	5Y3GT	2.50	6SL7GT	5.00
		5Z3	5.00	6SN7GT	5.00

Prices correct when going to press.

OPEN TO CALLERS MON - FRI 9AM - 4PM. CLOSED SATURDAY.
 This is a selection from our stock of over 6000 types. Please enquire for types not listed. Obsolete items are our speciality. Valves are new mainly original British or American brands. Terms CWO/ min order £10 for credit cards.

P&P 1-3 valves £2.00, 4 - 6 valves £3.00.
 Add 17.5% VAT to total including P&P.

BITS & BYTES

This month Mike Richards G4WNC helps to solve a problem with one reader's SSTV package as well as passing on news of an interesting logging program he's discovered.

Stan Ames of Harpenden has written asking for help getting his DL4SAW SSTV package going. Stan uses a PC with a Tseng Labs 3000 video card and just doesn't seem to be able to get going with the program.

This is the first time I've heard of any difficulty with the excellent DL4SAW program. So, I suspect the problem is tied-up with Stan's PC configuration.

One of the first things to try in such cases is to re-boot the PC with a very basic 'boot disk'. If you don't have a 'boot disk' you can create one by putting a blank disk in drive A and then typing the following command from the DOS prompt. 'format A: /S' This formats the disk and copies the basic system files, i.e. IO.SYS, MSDOS.SYS and COMMAND.COM.

To re-boot your system you simply press the reset button or press **ctrl + alt + del** with the boot disk in drive A:. The PC will then go through its start-up routine but use drive A: to load MSDOS rather than the normal drive C:.

Once the boot-up is complete you can change to the appropriate directory for the SSTV program and try it out. One of the problems with this very simple start-up is that it completely ignores any of the drivers, and may leave you with the mouse not enabled.

If the problem applies to you then copy AUTOEXEC.BAT and CONFIG.SYS files from drive C: to the new 'boot disk': These files are used to customise the PC for all the software you normally run and can get quite complicated. Once you've copied over these files you need to edit each one using a simple text editor.

The first thing to do is add "REM" to the beginning of each line of both files. This effectively disables all the commands on that line.

If you now want to re-instate the mouse driver, read through each of the files (a print-out is extremely useful at this point) looking-out for anything that looks as though it could relate to the mouse. When you find it, remove the REM from that line. You'll probably have to do this in



Fig. 1: Useful UK Ham Radio Internet Site (see text).

both the AUTOEXEC and CONFIG files.

Once you've made the changes, you will need to reboot the PC for the changes to be effective. When you've managed to create a minimum set-up that supports your program, you can tidy-up the AUTOEXEC and CONFIG files by removing all the lines that still have a REM at the beginning.

You can also add a few additional lines the autoexec.bat file to automatically start your program as well. First you need to change to the directory where the program resides using the change directory command, **cd** and then start your program.

To start the DL4SAW SSTV program on my system the following two lines would be required:

```
CD\SAWSSTV
GSHPC
```

A word of warning before you dig too far into AUTOEXEC and CONFIG files - never, never amend these files on your hard disk without making a back-up copy. You can get into a real mess if you're not really sure what you're doing.

Getting back to Stan's problem, if you have a Tseng Labs 3000 card with DL4SAW running satisfactorily, you might like to let Stan know. He can be contacted either via me, packet radio: **G4OAV@GB7MSW** or E-mail at **StanAmes@aol.com**

Internet News

Andy Gayne has contacted me with details of what looks like a very

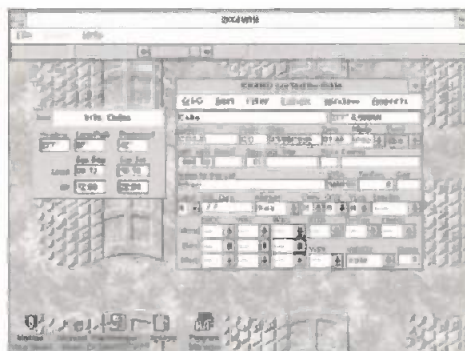


Fig. 2: Screen shot from the DX4Windows radio logging program.

interesting site for UK based amateurs. The site at <http://www.users.zetnet.co.uk/kama/hamlinks.html> provides a range of up-to-date links specifically designed with the UK amateur in mind - it's well worth a look.

If you're looking for the latest in Internet software, one of the very best places to look is the **Stroud Consummate Winsock List** located at <http://www.stroud.com> This site is updated several times a week and always has the very latest releases. A visit here will get you bang up-to-date effortlessly.

New And Interesting

Whilst scouring around recently I came across a new and very interesting logging program called DX4Windows that's currently being distributed in demo mode. This is a very comprehensive package that supports all aspects of amateur logging from contesting through to rag chewing!

I've not got space to look at DX4Windows and do it justice this month, but I've included a screen shot here for you to see. Those of you with Internet access can download a copy from: <ftp.funet.fi/pub/ham/hf-log/dx4win108d.exe>.

Special Offers

By the time you get to read this I should be fully up-to-date with the back-log of orders that occurred earlier in the year. On the bright side, I've

received encouraging reports from a number of readers on the very good service being provided by the **Public Domain and Shareware Library (PDSL)**.

The PDSL have put together a very special offer to enable readers of this column to obtain a full set of disks at a very competitive price. The special library set of all five 'Bits & Bytes' disks is now available for just £12 inclusive of P&P.

Using PDSL has many advantages, including ease of ordering as they accept all the major credit cards. This means you can order by 'phone for greater convenience and speed of delivery. So, in future, please direct all requests for the disk set to **PDSL, Winscombe House, Beacon Road, Crowborough, Sussex TN6 1UL. Tel. (01892) 663298** and request library volume: **H008739abcde**.

Please note the software is only available as a full set of five disks as follows: **IBM PC Software (1.44Mb disks): Disk A - JVFAX 7.0, HAMCOMM 3.1 and WXFAX 3.2; Disk B - DSP Starter plus Texas device selection software; Disk C - NuMorse 1.3; Disk D - UltraPak 4.0 and Disk E - Mscan 1.3 and 2.0.**

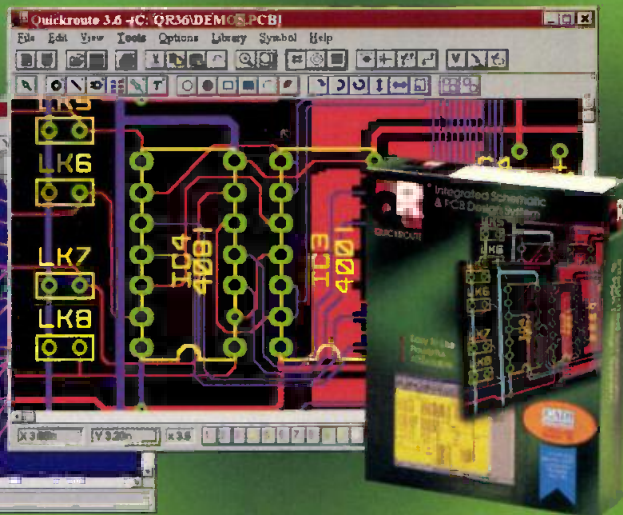
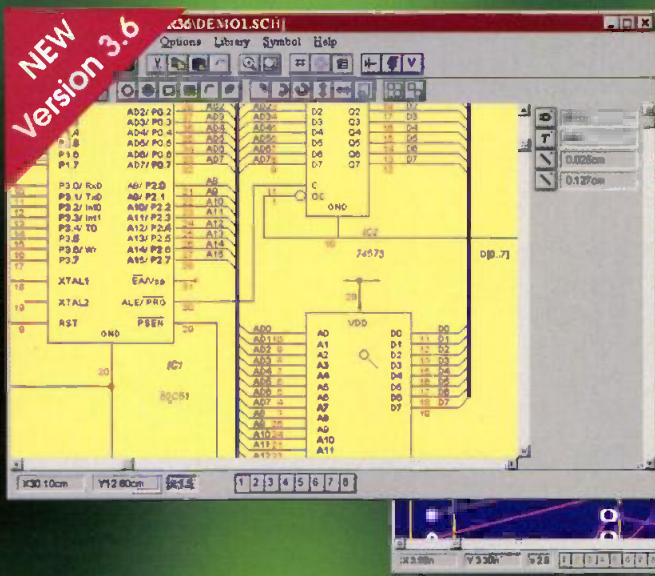
A lack of time means that my FactPacks are still temporarily suspended. But I hope to be able to offer a revised service in the near future!

That's all the computing news I have for you this time. So, until next month 'happy computing' and keep your letters coming to me, Mike Richards G4WNC, at PO Box 1863, Ringwood, Hants BH243ZD or you can E-mail me at mike.richards@dial.pipex.com Don't forget you can also visit my Web site at: <http://dialspace.dial.pipex.com/mike.richards/>



"extremely
good value
 for money for such a
**comprehensive
 package"**

Practical Wireless July 96



Schematic capture, Autorouting & Design Checking for just £149*

NEW
Quickroute 3.6 Designer £149*

Take a look at Quickroute 3.6 Designer and you might be surprised! For just £149* you get easy to use schematic design (automatic junction placement, parts-bin, etc), "one click" schematic capture, autorouting on 1 or 2 layers, design rule & connectivity checking and a starter pack of over 260 symbols.

NEW
Quickroute 3.6 PRO+ £399*

For those needing more power & more features there is Quickroute 3.6 PRO+. For just £399 you get multi-sheet schematic capture, 1 to 8 layer autorouting, net-list import/export, links to simulators, CAD/CAM file export, Gerber import/viewing, DXF WMF & SPICE file export, copper fill, advanced connectivity checking with automatic updating of a PCB from a schematic, the basic set of over 260 symbols and library pack 1 which includes a further 184 symbols. More symbols are available in additional library packs available separately.

Prices are Quickroute 3.6 Designer £149, Quickroute 3.6 PRO+ £399, SMARTRoute 1.0 £149.00, Library Packs £39 each. *Post & Packing per item is £6 (UK), £8 (Europe) and £12 (World). V.A.T must be added to the total.

NEW PLUG IN AUTOROUTER



SMARTRoute is a new 32-bit autorouter from Quickroute Systems rated in 'category A' by Electronics World (Nov 96). SMARTRoute plugs straight into Quickroute 3.6, automatically updating Quickroute's menus with new features and tools.

SMARTRoute 1.0 uses an iterative goal seeking algorithm which works hard to find the best route even on single sided PCB's. SMARTRoute allows you to assign different algorithms, design rules, track & via sizes, layers used, etc to groups of nets for total flexibility. SMARTRoute 1.0 costs just £149*.



Tel 0161 476 0202 Fax 0161 476 0505
 Quickroute Systems Ltd. Regent House Heaton Lane Stockport SK4 1BS U.K.
 WWW: www.quickroute.co.uk EMail: info@quicksys.demon.co.uk

Prices and specifications subject to change without notice. All trade marks are acknowledged & respected. All products sold subject to our standard terms & conditions (available on request).

PACKET PANORAMA

Roger Cooke G3LDI rounds up the latest news from the Packet radio scene.

Some of you may have seen the bulletins and mail for **BOFARS** on the Packet BBS network. This is an acronym for **Boring Old Fellas Amateur Radio Society**, only I think I probably got one of the words wrong in there somewhere!

The name is simply a tongue in cheek means of having a bit of fun and is really quite harmless. I don't think **BOFARS** poses a threat to our more constitutional radio societies! It was formed by a group of three, I suppose they could be called a 'trio', 'triad' or even triplet!

Featured in Fig. 1 is the founding 'group of three' packeteers. Left to right is **Geoff G7SRI**, **Mike G0TCZ** and **Dennis G7WBG**.

The humorous contribution by **BOFARS** to Packet radio has really caught on. At the last count, there were contributors from 23 different countries with 292 members. Some sysops seem to object to this sort of thing, but personally I cannot see any harm being done. I am sure that if any section, or individual amateur, started sending questionable material, then the filter would soon find it!

Proposed Bandplan

Packet and Internet users will have seen the new proposed bandplan for the 144MHz band. This information stems from the recent IARU meeting and will take effect some time in the second quarter of 1997. The changes are as follows:

144.000 - 144.035	EME exclusive
144.035 - 144.150	CW
144.150 - 144.40	CW and SSB
144.400 - 144.500	Beacons
144.500 - 144.800	All modes
144.800 - 144.990	Digital Communications

The proposals will obviously mean a lot of changes, with **BBS** and **Nodes** changing channels, sorting out 1200baud channels in 12.5kHz channel spacing and also some 25kHz channels suitable for 9k6baud operation. Hopefully, it will encourage users to change to 9k6baud instead of 1200baud. More detailed information will hopefully be available in the near future.

Repeater Groups

I still receive a few Repeater Group Newsletters. The most regular is from the Gloucester Group. This group seem to have amalgamated all repeaters, voice and digital, into one group, with a membership fee of £7.50 per annum.



Fig. 1: Founder members of **BOFARS**, from l-r, **Geoff G7SRI**, **Mike G0TCZ** and **Dennis G7WBG**.

I wonder how other groups manage their repeaters. It would be interesting to know and to compare notes. In Norfolk, the voice repeaters are quite a separate entity to the Norfolk AX25 Group, which looks after the local packet repeater.

Internet Link

Some news now from **Mike VK2MJ**. This is a little old now, as I have had it on the stocks for several months but this is the first opportunity I have had to use it! Mike says:

"I have started an h.f./v.h.f. link to my local internet gateway. This is as far as I know the first of its kind in Australia.

"The idea of the link is to give amateurs who live outside of the major cities the same facilities as we have. So far it has been a success and have amateurs connecting from Brocken hill Victoria Queensland and South Australia.

"I have heard stations from New Zealand and Spain, so UK stations could try to connect. Any UK stations could come through the internet gateways to **MACUNI VK2GMU** and then connect to me on the v.h.f. port. If any amateur wishes to connect to an Australian station they can read an Mheard list on my pms **VK2MJ-2** or leave a message for any Mheard station. 3rd party messages are allowed in Australia.

Mike continues "As far as I know you only have two internet gateways in the UK. In Australia we have 10 or 12; in Sydney we have three, two of which are accessible direct on 144MHz. If you would like more information please let me know.

"The gateway, **MJGATE:VK2MJ-1**, is

now fully operational 24 hours a day on 7.035 cross linked to 145.050MHz. Users of h.f. can now access **VK2GMU** the Macquarie university internet gateway either by connecting to **VK2MJ-1** and then use (x **VK2GMU**) to connect to the v.h.f. port on 145.050MHz or use (c **VK2GMU** via **VK2MJ-3**). **VK2MJ-3** is a cross port digi and is used like any other digi.

"The gateway can be used by v.h.f. users in the same manner as on h.f. but at this time only those with a full callsign can use the gateway. On v.h.f. **VK2MJ-1** will still operate as a node or digi on 145.050MHz as a direct link to **VK2GMU**.

"For information on the use of the internet gateway use the ? command or leave a note for the sysop. (SYSOPS please note, do not forward during peak hours).

Mike concludes: "The gateway is located in Hornsby 24km north of Sydney Australia. Any problems or suggestion's please leave a message on **VK2GMU** or **VK2MJ @ VK2AAB**

News For G3LDI

Although news for this column can be sent 'snail-mail', or telephoned to me on (01603) 570278, or via packet at **G3LDI @ GB7LDI**, it can now be sent via Internet at the following address: **mtaylor@uk.mdiss.com**

I also intend to have FAX capabilities in a month or so. A peaceful 1997 and 'happy packeting'. 73 de Roger G3LDI.

Digital Journal Closing!

The following announcement will appear in the January issue of the *Digital Journal* (published by IDRA).

"This issue (Volume Number 45, Number 1) will soon be a collector's item. It's the first issue in the 45th year of Journal history and it is, from all indications, the last issue ever.

Those of us involved in the production of the *Digital Journal* magazine see no alternative but to shut down now. The publication of this issue was possible only because of a major gift.

There are simply no funds for future issues. Those few of you who recently renewed your subscription in response to our appeal will be entitled to a refund. It may or may not be a full refund for it can only be paid after all other IDRA obligations are settled.

You do not need to apply, but please do not expect a cheque before the end of February. No other refunds are anticipated at this time.

The 'phone and FAX numbers at IDRA headquarters will no longer be in service. Please address all correspondence to the IDRA at PO Box 2550, Goldenrod, FL 32733. We will try to respond in a reasonable time, but please be patient."

This surprising development came only weeks after the Journal announced a new bi-monthly schedule, a step mandated by the disappearance of many primary advertisers who had supported the magazine over many years. The lack of advertising revenue was matched, unfortunately, by a decline in the number of members willing to pay for hard copy of what they felt was available for no cost on the Internet. Sign of the times?

3 MONTHS FREE!

**Join the Radio Society of Great Britain
NOW and get three months'
Membership completely FREE . . .**

What's the Catch?

None - just complete the form below or, if you don't want to tear out the form just give Marcia or Sylvia a ring on 01707 659015 and we will do the rest for you.

Why should I join?

Because as an RSGB member you will enjoy -

- ◆ RadCom (100-page colour magazine) delivered free to your door every month
- ◆ 15% discount on publications/products sold by the RSGB
- ◆ Free QSL Bureau, both outgoing and incoming cards
- ◆ Expert help on planning matters
- ◆ Expert help on EMC problems
- ◆ Specialists to help you with any technical problems
- ◆ Discounted equipment insurance
- ◆ Discounted medical and personal insurance

AND, by joining the RSGB you will strengthen our voice when it comes to liaising with the Government on licensing matters. The Society spares no effort in the defence of amateur radio's most precious asset - the amateur radio bands.

**JOIN NOW and get Fifteen Months Membership
for your First Annual Subscription - It works
out at JUST 8p per day!**

*I would like to take advantage of your 3 months free membership offer and I enclose cheque/credit card details.
Corporate membership costs just £36 (concessions: OAP £27; Students: £22 - documentary proof required).*

Name Callsign

Address Post Code

..... Date of Birth

Credit Card No Expiry Date

Switch Start Date

Issue No

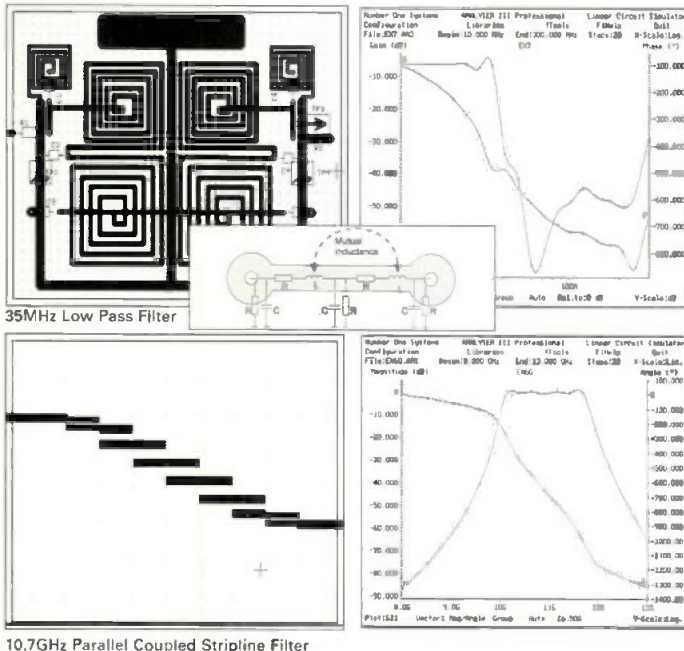
Signature

OFFER CLOSING DATE: 30 MAY 1997



Analogue Design? Simulate the effect of the Layout!

LAYAN - Affordable Electromagnetic Simulation



For less than £1000!



Affordable Electronics CAD

EASY-PC Professional XM: Schematic Capture and PCB CAD. Links directly to ANALYSER III, LAYAN and PULSAR	\$475.00	£245.00
MultiRouter: Multi-pass, Shape Based, 32 bit, shove aside, and rip up and re-try Autorouter for EASY-PC Professional XM	\$575.00	£295.00
PULSAR: Digital Circuit Simulator	\$195.00	£98.00
ANALYSER III: Linear Analogue Circuit Simulator	\$195.00	£98.00
LAYAN: Electro-Magnetic PCB Layout Simulator. Includes Board Parasitics in your Analogue Simulations	\$950.00	£495.00
FILTECH: Active and Passive Filter Design	\$275.00	£145.00
We operate a no penalty upgrade policy. Technical support is FREE FOR LIFE. Special prices for Education	US\$ prices include Post and Packing	Sterling Prices exclude P&P and VAT

Number One Systems

Ref: PW, Harding Way, St. Ives, Cambridgeshire PE17 4WR, UK

For Demo Disk Please Write, Phone or Fax

Tel: +44 (0) 1480 461778

Fax: +44 (0) 1480 494042

<http://www.numberone.com>



SM&M has been specially created to help you take your business into the next millennium.

Our service includes:-

- ★ Advertisement design
- ★ Specialist marketing and advertising
- ★ Corporate Hospitality
- ★ Exhibitions and Conferences
- ★ Professional CV service
- ★ Letterheads and business cards

We allow you to concentrate on your business whilst we help you increase your share of the market!

Arrowsmith Court
Station Approach
Broadstone
Dorset BH18 8PW
Tel: (01202) 659920
Fax: (01202) 659950

Advertising and
Marketing Specialists

CALL NOW WITHOUT
OBLIGATION

BROADCAST ROUND-UP

A new director appointed to VoA, lots of station news and much more from the world of broadcasting this month. Peter Shore tells all.

Cuts, cuts and more cuts. Just before Christmas 1996, **Radio Canada International** (RCI) launched its annual pantomime of "We have no funding beyond 31 March, so we'll close down."

But after a range of protests from around the world, the Canadian Department of Foreign Affairs has agreed to fund the station with Can\$6 million and other government departments contributing smaller sums to maintain Canada's international radio voice. Sheila Copps, Canada's deputy Prime Minister, announced that RCI now has a long-term future as part of government strategy of providing information about Canada to the world.

Australia's international radio service still waits for news of its fate. A board meeting of the Australian Broadcasting Corporation was due to discuss **Radio Australia's** future on 9th December.

But while it announced a package of cuts which will save Aus\$27 million from ABC's budget - plus cuts of 560 staff and 60 senior management positions - the ABC board has postponed a decision on Radio Australia's future budget until the end of February 1997.

Voice of America (VoA) announced that its satellite music and news service, VoA Europe, would close at midnight UTC on New Year's Eve. Special short wave relays of the station were arranged to mark the final hours' transmission of the station - which is carried on 1197kHz medium wave for much of the day in Europe - and everyone was convinced that the closure would happen.

At the very last minute, VoA Europe was granted a reprieve. VoA is trying to sell the station to a private company, and the bidders asked that the station remain on-the-air to maintain continuity.

An announcement from VoA said it would keep broadcasting until mid to late January by which time a sale agreement will be in

place. It's likely that the station which succeeds VoA Europe will be called VoA Express, drawing on Voice of America programme resources but run and financed by a commercial company.

Europe is not insulated from the cuts. **Radio Vlaanderen International**, the Brussels-based international broadcaster from Belgium, has announced that it will close its Arabic, German and Spanish services at the end of October, and there will be a review of programmes in Dutch, English and French. More news on this story later in the year here in 'Broadcast Round-up'.

Available For Hire

Are you in the market for a short wave transmitter with good antenna arrays and just one careful owner? If so, **NRK** in Norway would like to hear from you.

The transmitting station at Fredrikstad, which is equipped with a 350kW sender, is available for hire. Moth-balled for the last few years since all NRK's short wave operations were consolidated at Kviteseid, the Fredrikstad site may be dismantled later this year unless someone hires a significant number of hours a day for broadcasting to the world from northern Europe.

New Director

President Clinton has appointed a new director of the Voice of America. **Evelyn Lieberman**, a deputy chief of staff to the President, took over from **Geoff Cowan** on 10 December. Lieberman described VoA as "the voice of democracy".

For background information and frequency news from around

the world, and a summary of some English-language programmes you can tune to: From Argentina, Radiodiffusion Argentina al Exterior (or RAE) has English to Europe at 1900 for an hour on weekdays. Tune to 15.345MHz. There is also a transmission for the Americas at 0200 Tuesday to Saturday on 11.71MHz.

Station News

The Voice of Armenia is on the air with English, weekdays at 1845 on 7.48, 4.99 and 4.81MHz, and then at 2130 until 2200 on 9.965 and 7.48MHz daily. On Sunday morning, there is a transmission at 0930 on 15.27MHz.

Your opportunities to listen to Ireland on short wave are now doubled. In addition to the broadcasts from West Coast Radio every Thursday that I reported in January's *PW*, you can now hear state broadcaster **RTE** on the h.f. bands.

From the transmitters of **WWCR** in Nashville, USA, RTE is broadcast on weekdays at 1000 for half-an-hour on 5.07MHz, and at 1100 on Sundays on the same channel.

There is a weekdays evening broadcast at 1930 on 12.16MHz. Contact RTE at Dublin 4, Eire, and **WWCR** at 130 WWCR Avenue, Nashville, TN 37218, USA.

Radio Albania in Tirana has English for Europe at 1715 for 15 minutes on 7.155 and 6.185MHz, and again for half-an-hour at 1930 on 7.27 and 6.27MHz, plus the medium wave channel of 1458kHz. Listeners in North America should try at 0145 for the quarter-hour transmission on 7.16 and 6.115MHz, and at 0230 for the 30-minute programme on 7.16 and 6.14MHz.

Radio Pakistan broadcasts to Europe in English at 0800 until 1120UTC on 15.47 and the variable channel of 17.54MHz including dictation-speed news for the last quarter hour of the transmission. Then there is an evening transmission at 1600 to 1630 on 9.515, 11.57 and 15.555MHz. Radio Pakistan also broadcasts in Urdu for Europe from 1700 to 1900 on 5.825 and 11.57MHz.

China Radio International has English at 2000 for two hours every day on 6.95 and 9.92MHz, and there are two separate programmes aired from 2200. The first, a half-hour broadcast, is transmitted from Switzerland on 3.985MHz. The other, which lasts 60 minutes, can be heard on 7.17MHz.

Listening Easy

Radio Netherlands makes listening easy for people in the UK. It's carried by the high-powered medium wave transmitter on 1440kHz from 2130 to 2325, and it's also on the Astra satellite via World Radio Network. Some programmes during March that might tempt you to tune in include the second part of the special 'From the Wireless to the World Wide Web' on Wednesday 5th at 2152, repeated Friday 7th at 2252.

As Radio Netherlands celebrates its 50th anniversary in 1997, Pete Myers and Luc Lucas delve into the archives to tell the stations fascinating story. On Wednesday 26th at 2152 and Friday 28th March at 2252 you can hear 'The Marshall Plan' in which Marijke van der Meer looks at the achievements and the legacies of the European Recovery Programme that was started half-a-century ago.

That's all for this month, please let me know of interesting finds around the bands. Until next month, good listening.

END

MULTICOMM 2000

ANTENNAS, POWER SUPPLIES, ACCESSORIES



Icom IC-756 £1895



Icom IC-706 £949



Kenwood TS-570 £1269



Yaesu FT-1000MP £2195



Alinco DX-70 £639



Icom IC-2350 £415



Yaesu FT-8000 £465



Yaesu FT-3000 £375



Icom
ICT-7E
£279



Yaesu
FR-50R
£285



Kenwood
TH-79E
£399



Alinco
DIG-5
£225

**TIMEWAVE
DSP-9+V3**

£189

**TIMEWAVE
DSP-599ZX**

£325

SAMLEX PSU's

20/25A.....£75.00
12/15A.....£59.00
8/10A.....£39.00
WATSON 30A£110

MFJ-784B DSP

£235

WATSON SWR

W-220
1.8-200MHz £66
W-420 118-530MHz £66
W-620 1.8-530MHz £135

AOR

★★★★★★★★
AOR AR8000
£299.00
★★★★★★★★

AOR AR7030
£712.00

AOR AR5000
£1495.00

AOR AR3000+
£875.00

AOR AR3000A
£815.00

AKD HF-3

£155.00

**BEARCAT
9000XLT**

★ ★ ★ ★ ★ ★ ★ ★

£259.00

ICOM IC-R8500

£1445.00

JRC NRD-535

£1525.00

RECEIVERS

YAESU

FRG-100
£459.00

ICOM

ICR-10
£375.00

YUPITERU

MVT-9000
£425

AOR

1500EX
£185.00

YUPITERU

★★★★★★★★

MVT-7100EX
£259.00
★★★★★★★★

MVT-7200EX
£345.00

MVT-8000EX
£325.00

MVT-7000EX
£245.00

MVT-225EX
£225.00

KENWOOD

R-5000
£879.00

SONY

SW-77
£359.00
SW-55
£269.00
SW-100
£199.00
SW-7600
£169.00

WELZ

WS-1000
Smallest hand
held scanner
available. £299.00

SALES HOTLINE: 01480 406770

HOKA CODE3 GOLD

THE ULTIMATE MONITORING TOOL USED BY PROFESSIONALS

Anyone used to using our professional package, Code30, will be amazed at how we managed to achieve such high performance from so little hardware. Over a year of hard development work at our Netherlands HQ has resulted in this latest decoder product. Code3 Gold uses the very best of software DSP filtering and detection technology (borrowed from our professional Code30) and the very latest surface mount miniaturised electronics for the hardware interface.

"The performance is stunning, the compactness remarkable and the price is simply unbelievable!"

We are unique in the decoder market because we put all the DSP software onto the PC. This makes it much easier to fully combine the DSP filters with the software signal detectors and the system decoders. This makes on-the-fly adjustments to the shift or baudspeed completely seamless to the decoding process. All decoding is optimised for every possible combination of keying speed and bandwidth. All of this DSP filtering means your receiver does not need to have expensive narrow filters for RTTY. Simply use your wideband SSB setting for SW monitoring and AM or FM for VHF.

Short Wave and VHF

Systems supplied as standard: ACARS, POCSAG, DTMF, PACKET, BAUDOT, ASCII, SITOR, NAVTEX, PACTOR, FAX, SSTV

This allows you to receive nearly every decodable system there is on shortwave and VHF. Diplomatic stations, Customs, Police, Military & Weather Stations sending 5 figure groups, Decode "Annex 10" Aircraft selcalls, Morse, Hellsreiber, ARQ-S, ARQ-E, ARQ-N, ARQ6-90/98, ARQ-E3, ARQ-SWE, ARTRAC, POL-ARQ, F7BBN Baudot, Twinplex, CCIR242 TDM, CCIR342-2 TDM, FEC-A, FEC-S, Autospec, Spread, HC-ARQ, TORGI0/1, ROU-FEC, HNG-FEC, COQ8, COQ13, Piccolo Mk6, SYNOP (AAXX, BBXX with 10,000 stations) and GMDSS-DSC.

Upgrading from a previous version of Code3?

We have all the latest upgrades for Code3, or why not upgrade your old decoder for a competitive upgrade to the new Code3 Gold.

THE PRICE FOR THIS REMARKABLE FULL DECODER PACKAGE £399 inclusive.

SEND A LARGE SAE FOR FULL DETAILS. CODE3 AND CODE30 ALSO IN STOCK.

★ ★ WE NEED YOUR USED EQUIPMENT ★ ★
TOP PRICES PAID . . . Guaranteed!!!

Let us sell your equipment for you. 0% commission.

Bargain clearance of used equipment + ex-demo

12 months guarantee on most of our used equipment

ADR 3000A.....	£599	ICOM ICW-21E.....	£195	LAR OMNI MATCH.....	£15	YAESU FRG-7700.....	£225
ADR 3000A.....	£629	ICOM ICR-72E.....	£499	LOWE GDO.....	£65	YAESU FRT-7700.....	£50
ADR 3030.....	£495	ICOM IC-740E.....	£400	LOWE HF-225 RECEIVER.....	£279	YAESU FRC-7700.....	£50
AEA AT300 ATU.....	£195	ICOM IC-741E.....	£499	MFJ PACKET CTRL.....	£159	YAESU FRA-7700.....	£50
AEA PK232.....	£149	ICOM IC2PET.....	£159	MIZUHO MX2F 2MTR SSB.....	£75	YAESU FRG-8800.....	£375
ALINCO DJ-160.....	£139	JRC NRD-525.....	£450	NEVADA MS-1000.....	£199	YAESU FRV-8800.....	£89
ALINCO DJ-580 As new.....	£199	JRN NRD-525.....	£650	PACKER UHF WAVEMETER.....	£20	YAESU FT-10 (EX-DEMO).....	£150
AMCOMM ATU.....	£55	JRC NRD-535.....	£995	PM-2001 RF METER.....	£40	YAESU FT-101 ZD.....	£315
DATONG FL2 FILTER.....	£69	KATSUMI ELEC/KEYER.....	£69	RACAL RA-1772 +.....	£995	YAESU FT-290.....	£199
DATONG RF Speech processor.....	£40	KENWOOD TH-28E.....	£149	REALISTIC PRO-2036.....	£179	YAESU FT-290.....	£225
DATONG RF CLIPPER.....	£25	KENWOOD TH-215E.....	£139	ROBERTS R-827.....	£149	YAESU FT-690.....	£249
DRAE WAVEMETER.....	£15	KENWOOD TS-940S.....	£875	SIGNAL R-532.....	£139	YAESU FT-726 2/70.....	£645
ERA MICROREADER.....	£69	KENWOOD TS-930SAT.....	£639	SIGNAL R-535.....	£299	YAESU FT-790.....	£245
ERA MICROREADER.....	£89	KENWOOD TS-820S.....	£299	SIGNAL R-537.....	£89	YAESU FT-1075.....	£255
ERA RS-232 DISP.....	£110	KENWOOD TR-820S.....	£199	SOLATRON CX-1400/1/3 SCOPE.....	£90	YAESU FT-5100.....	£325
GLDBAL AT-1000.....	£50	KENWOOD TR-2300 + AMP.....	£69	TOYO SWR/PWR.....	£15	YAESU FT-747GX.....	£399
GRUNDIG YB-400.....	£90	KENWOOD TS-120V.....	£289	YAESU FC-757AT.....	£125	YAESU FT-757GX.....	£499
GRUNDIG YB-500.....	£99	KENWOOD TS-430 + PSU.....	£499	YAESU FC-901 ATU.....	£110	YAESU FT-757GX.....	£525
HEATHKIT SCOPE.....	£55	KENWOOD TS-680.....	£575	YAESU FP-747HD.....	£95	YAESU FT-767GX 2/70/6 FITTED.....	£995
HEATHKIT HW 100+SB600.....	£159	KENWOOD SP-230.....	£79	YAESU FRG-100.....	£375	YAESU FT-890.....	£749
ICOM ICR-100.....	£299	KENWOOD SP-120.....	£59	YAESU FRG-100.....	£349	YAESU FT-101 ZD.....	£315
ICOM ICR-100.....	£365	KENWOOD MC-60.....	£59	YAESU FRG-9600 + SW.....	£265	YAESU FT-77 + FP11.....	£299
ICOM ICR-100.....	£399	KENWOOD LP-30.....	£15	YAESU FRG-9600 + SW.....	£285	YAESU FV-102Z.....	£69
ICOM ICR-71E.....	£459	KENWOOD R-1000.....	£265	YAESU FRG-9600SW.....	£299	YUPITERU MVT-8000.....	£249
ICOM ICR-7100E.....	£899	KW EZITUNE.....	£39	YAESU FRG-7 DIGI.....	£199	WELZ ATU.....	£50

Unit 3, 86 Cambridge St, St. Neots, Cambs PE19 1PJ

Fax: 01480 406770 E-Mail: multicom@intecc.co.uk





Communications Centre (Photo Acoustics Ltd.)

TWO-WAY RADIO ● AMATEUR RADIO ● AUDIO VISUAL ● SALES & SERVICE

58 High Street, Newport Pagnell, Bucks MK16 8AQ.

Tel: (01908) 610625 FAX: (01908) 216373

(E-Mail: 100304.71@compuserve.com)

Alinco (New low prices)

From 1.8-50MHz



DX-70 mobile or base 1.8MHz SSB, CW, FM, AM 100W of engineering brilliance.

£695 carr FREE

PACKAGE 1. Price for DX-70 complete with SG-230 Smarttuner.

£989.00 carr FREE

PACKAGE 2. Price for DX-70 complete with SG-230 Smarttuner and 20 amp power supply.

£1069.00 carr FREE

Also available the DX-70TH. High power version, 100W on 6m.

£775.00 carr FREE



DJ-G5 Dual Band Handheld

A brilliant twin handheld that does everything including spectrum display of adjacent channels. The receiver has a superb front end that does not suffer with breakthrough like other handhelds and has CTCSS/DTMF built in as standard.

- Spectrum channel display
- Extended receive including Airband 103-173.995MHz, 400-511.995MHz, 800-999.990MHz
- Full VHF/UHF Duplex
- Over air cloning
- Cross hand repeater function
- Up to 5W output
- 100 memories

£299.95



P-2512

25-30 amp power supply with variable volts (3-15). Dual meters (VS + amps) and over voltage protected.

£89.95

SAVE £10

5 YEAR WARRANTY AVAILABLE

EXAMPLE

YAESU FT-1000 with 1 year manufacturers warranty:-
4 years extra warranty =

£169.80

IC-706 PACKAGE DEALS

PACKAGE 1. IC-706 c/w SG-230 Smarttuner auto ATU.

£1295.00 carr FREE

PACKAGE 2. IC-706 c/w Comet CAHV HF, 6m and 2m mobile antenna.

£1089.00 carr FREE

PACKAGE 3. IC-706 c/w SG-230 Smarttuner and 25 amp PSU.

£1379.00 carr FREE



5 YEAR WARRANTY IS AVAILABLE ON ALL LISTED PRODUCTS

SG-230 Smarttuner®

Antenna Coupler SSB, AM, CW & DATA

£329.00

SAVE £70

You can't buy a smarter tuner than this. An automatic antenna coupler so intelligent it precisely tunes any length antenna - 8 to 80ft - in the HF band.

The Smarttuner® automatically evaluates and switches 64 input and 32 output capacitance combinations, plus 256 inductance combinations in a "pl" network. The amazing result is over a half-million different ways to ensure a perfect match for your transceiver. And the most intelligent feature of all is that the Smarttuner® remembers the chosen frequency and tuning values, and will automatically reselect those values - in less than 10ms, each time you transmit on that frequency.

The SG-230 Smarttuner®.

Buy Smart.



POWERCLEAR™

Add on DSP

- Built in audio amp.
- Speaker mounting bracket.
- Use with ANY Radio, Transceiver, voice or Data Link, even noisy telephone lines.
- Ideal for vehicle mounting
- Noise reduction
- Notch filter
- Variable band pass filter



£329.00
SAVE £70

NEW FROM SGC ...

SG-231 100W, 1.8-50MHz Smarttuner. We are still awaiting final information on this unit at the time of going to press, however the SG-231 is smaller than the SG-230 but will be capable of tuning any long wire or whip antenna from 1.8-50MHz. Ideal for the IC-706 and the Alinco DX-70.

Projected price is **£499.00**

KENWOOD TS-570D Setting the standard in performance

KENWOOD



- ★ 16 bit DSP AF signal processing
- ★ CW auto tune
- ★ 5W QRP setting
- ★ Built-in auto ATU
- ★ Electronic keyer

£1495.00

Our price £1270.00

AUTHORISED AGENTS FOR KENWOOD, ICOM, YAESU & ALINCO. FULL SERVICE FACILITIES AVAILABLE

SPEND UP TO £1,200 INSTANTLY WITH A PHOTO ACOUSTICS LTD. CREDIT CHARGE CARD

PART EXCHANGE WELCOME, ASK FOR KERRY G6IZF, Jon or JANE.

RETAIL SHOWROOM OPEN MON - FRI 9.30 - 5.30, (Thursday 9.30 - 12.30) Saturday 9.30 - 4.30

Goods normally despatched within 24 hours. Please allow 7 banking days for cheque clearance. Prices correct at time of going to press - E&OE



Advertisements from traders or for equipment that is illegal to possess, use or which cannot be licensed in the UK, will not be accepted. No responsibility will be taken for errors.

You should state clearly in your advert whether the equipment is professionally built, home-brewed or modified.

The Publishers of *Practical Wireless* also wish to point out that it is the responsibility of the buyer to ascertain the suitability of goods offered for purchase.

BARGAIN

b a s e m e n t

Compiled by Zoë Crabb

FREE ADVERTS

Now's your chance to send in a photograph of your equipment (a good idea if it's really unusual) to accompany your advert. Please note that all photos will only be published at our discretion and are non-returnable.

When sending in your advert, please write clearly in **BLOCK CAPITALS** up to a maximum of 30 words, plus state your contact details. Please use the order form opposite.

For Sale

3 BSR 78r.p.m. sound on disc recorders, each with amplifier, no mics, untested, buyer collects, offers. G3OEP, Norfolk. Tel: (01493) 662323.

24V to 12V Dropper for sale, 18A, fully protected, made by Zetagi. £40. Tel: (01244) 821693 after 7pm and ask for Martin GW00JC or call GB3MN on (0900) 1700 Monday to Friday.

AKD 2m (144MHz) rig, model 2001, boxed with mic. and manuals, as new, except for scratch on lid. £65. Mike G0IMG, QTHR. Tel: (01799) 527155.

AKD wave meter. £15. Altai multi tester. £15. Heathkit HW7 c.w. transceiver, £30. Grid dip oscillator. £20. Low pass filter. £15. Eddystone 'hug' key, offers. Codar RX. £10. Mr Gilbert, Swansea. Tel: (01792) 794423.

Alinco DR430 70cm (430MHz) mobile transceiver, new condition, boxed, etc.. 35W high power, 3W low, ideal Novice radio. £210. 'Phone for full details. Bob G1WEX, West Midlands. Tel: (01384) 896879 daytime or 0121-602 0663 evenings (answer machine).

AOR AR800E 75MHz to 1GHz. a.m./f.m. selectable scanner with gaps, v.g.c. with NiCads, charger and two antennas. £125 boxed o.n.o. Sinclair Spectrum 128k + 2 with radio software and interfaces, £28 o.n.o. Andy, Gwent. Tel: (01633) 420805 between 6-7pm.

AOR AR800E scanner. 75-1000MHz with gaps, a.m./f.m. selectable, including antennas, charger, beltclip, soft case and NiCads, boxed, v.g.c.. £125 o.n.o. Matsui 4099 150kHz to 30MHz. a.m./s.b., 76-108MHz, f.m. stereo. £75 o.n.o. Boxed, v.g.c.. Spectrum +2, £15. Andy, Gwent. Tel: (01633) 420805 6-7pm.

AR88D, AR88L, £80 each. R109, £50. HF-225, all extras plus leather case, £350. Trio 9R59D. £50. Philips DC777 s.w. car radio, as new, £130. CR100, £45. Tel: Southend-on-Sea (01702) 522929.

Army Larkspur A41 manpack, complete in frame, etc., best offer or w.h.y.? Also Grundig Satellit 2000, £95. Wanted BC611 or SCR536. John G8BXO, 3 Westpark, South Molton, Devon EX36 4HU. Tel: (01769) 573382.

AVCOM portable spectrum analyser (PSA65A). 2-1000MHz coverage, l.c.d. readout of centre frequency, battery or mains, little used, carry case, manual f.m. demodulator and speaker, v.g.c., £1000 o.v.n.o. Tel: Cheshire (01457) 762839.

Azden PCS-6000 2m (144MHz) 25W transceiver with wideband receive, plus airband, £175. Yaesu FRG-9600 v.h.f./u.h.f. scanning receiver with Raycom h.f. converter, £275. Yaesu FT-23R, no charger, £120. Capco 20m-10m loop, collect!, £120. Prefer write: 10 Basil Street, Stockport SK4 1QL. Messages (with great luck) on 0161-477 5303.

BC221AK, £35. B40/41 base tray, £10. Marconi RX AD118, manual, £10. Audio wattmeter, £10. Advance voltmeter, £10. RAF box kite, £35. No. 10 crystal calibrator, £15. 19 Set bits, Pye international RX, £15. Peter, Essex. Tel: (01255) 502195.

Capco magnetic loop antenna. 80m (3.5MHz), less control box, g.w.o., £49.99. 2m (144MHz) 7-element XYZL special antenna, boxed, £28.50. g.w.o. Calibration receiver, type 35A2, complete with five tuners, v.g.c., £94.99. Tel: Oxon (01869) 244166.

Citizen 120D+ dot matrix printer, boxed, condition as new, practically unused, 2000 sheets quality continuous paper, 11/240mm. £65. Balanced a.t.u., new verniers/roller coaster, approx 300W, cased, 10/160m. £75. Home-brew. G2FZU, Notts. Tel: (01636) 813847. No offers please, carriage extra.

Clearstone FM331A 3-ch ex-p.m.r. 114MHz RX. 85MHz TX, £12. Microphone (FT-290Mk1), £10. Pye PFZUB 3-ch u.h.f. h/h, £10. Amstrad LQ350001 printer, p.s.u. faulty, £5. Pye P5000 spkr/mic., £10. Stephen G7EXZ, Wiltshire. Tel: (01722) 500995.

Complete 2m (144MHz) multi-mode station. Yaesu FT-290R with MuTek front-end, NiCads, charger, case. BNOS. 50W linear with receive pre-amp, Howes speech processor, desk mic. HB9CV. no split, buyer collects, £350. Rob, Mansfield. Tel: (01623) 459435 after 4pm.

Drake twins TX4C, R4C, perfect, boxed, manuals, MS4 sp/p.s.u., £525 o.v.n.o. R4C v/good. n/b, £250. MN2000 a.t.u., Denton 1.2K

linear. £350 pair. Offers for the lot. Tel: Beds (01255) 371152.

Eddystone 680X, 0.5-30MHz. £120. KW2000B with p.s.u., manual. £175. Murphy 62B, 0.15-30.5MHz. £60. R1155, £85. R210, 0.2-16MHz. £75. AR88 in cabinet, £120. Trio TS-120S transceiver, operating and service manuals, £260. Tel: Yorks (01482) 869682.

Eddystone 1650/9 ant. receiver, as new, offers. JRC NRD-525. £450. Tel: Edinburgh 0131-668 3578 9.30am to 4.30pm.

Eddystone, thinning out some doubles in my collection, several available, all in nice order and condition, s.a.e. for list, collection of larger items advised! Tel: Surrey (01372) 454832 or (0374) 128170 anytime.

Ferroglyph model 2A/N half track tape recorder with manual, circa 1956. Very good working order. £20. Tel: Middlesex 0181-863 5150.

FL2000B amp, £250. Alinco DR2112 2m (144MHz) with quarter-wave whip + stainless steel coilinear, £225. 100W 6m (50MHz) amp. £50. Realistic DX400 RCR, £50. Low pass filter LF30A, new, £25. Tel: Swansea (01792) 843166.

FRG-100 h.f. RX immaculate c/w manuals, boxed a.t.u., £375. R7000 RX immaculate c/w boxed remote control, £450. Alinco DR150E c/w boxed manuals, £250. FP-757HD p.s.u., boxed, good condition, £125. G0LDM, Gosport. Tel: (01705) 601174 evenings and weekends.

FT-101ZD MkIII, WARC, f.m., 500Hz c.w. filter, complete with operating and workshop manual, new p.a. valves plus spare set, g.w.o., £360. Tim Hague M0AFJ. Tel: (01908) 563600.

FT-707 + filters. FP-700 p.s.u., FC-700 a.t.u., £475. FT-757 MkII, £550. FC-757 auto a.t.u., £195. 1296/144 23cm transverter, £130. 486DX notebook computer, £450. D70 Morse tutor, £40. Wanted TS-940S or TS-950SDX. Tel: Watton (01953) 884305.

Gecophone crystal set No. 1, in wooden box, stamped BBC, circa 1924 with two crystals, £100. Pye battery portable radio, circa 1927 with leatherette carrying case, wooden sunrise frct. £195. Tel: Surrey (01276) 471097.

GRC-9 h.f. TX/RX with p.s.u., etc., £180. BE-201 with p.s.u., £80. TCS RX. £30. TCS a.t.u. box's, £25. Miniature Morse keys, 25 x 55mm, £20. Wanted military sets RXs, TXs, whatever. Ben. Worcs. Tel: (01562) 743253.

Hallicrafters S120, v.g.c., buyer collects, £60. Eddystone 940, clean working condition, £90. Eddystone 770 v.h.f. receiver, clean, good condition, £170. J. A. Bird, 27 Manor Road, Bolehall, Tamworth, Staffs B77 3PF. Tel: (01827) 65641.

HMV radiograms: Model 521 (1931), £140. Model 570 (1935), £140. Model 581 (1936), £200. All in good condition and working. Tel: Derby (01332) 700658.

HW-8 QRP TX/RX with matching power supply, manual and *Hot Water Handbook* and original box, no modifications and in v.g.c., £120. Marconi marine Morse key, type 250 - 1195-01, £45. Pete, Bristol. Tel: (01454) 887461.

Icom IC-781 with matching speaker, Versa tuner, 5 3kW roller coaster tuner, ERA Microreader and leads, Shure 444D microphone, Vibroplex 'Brass Racer' bug key, all immaculate and boxed. £1750. G4FAV, West Midlands. Tel: (01384) 423571.

Icom IC-R70 receiver with c.w.-w, RTTY, s.s.b.-N, a.m., fitted f.m. notch filter, RIT, PBT, 1kHz, 100Hz, 10Hz, steps, a.g.c., narrow wide, a.f.t.f. gain, monitor on/off, etc., boxed, like new, £240. Tel: Warwick (01295) 670749.

Icom ICR-7000 v.h.f., 25MHz-2GHz, manual, boxed, like new, £550. Kenwood R-5000 + v.h.f., £600. Icom ICR-71E, g.w.o., manual, £400. NRD-525, boxed, mint condition, £550. Sony CRF-320 32 band digital world zone, £350. Sony 2001D with airband, £180. swap or sale above. Tel: London 0181-813 9193.

Jim QRP transceiver MX14S, 20m (14MHz) 2W s.s.b./c.w. with NiCad batteries and charger, £95. Derek, Caernarfon. Tel: (01286) 674455 evenings or weekends.

Kenwood AT250 automatic antenna tuning unit, as new, in original box with manual, £190 or will part exchange for a Yaesu wide-band transceiver. v.h.f. or v.h.f./u.h.f. FT-3000M considered. Derek, Caernarfon. Tel: (01286) 674455 evenings or weekends.

Kenwood R1000 receiver, 0-30MHz with separate a.t.u., £200 plus carriage, not boxed or instructions s/k sale. Wanted Kenwood a.t.u. AT230, preferably boxed and instructions. GW4XKE, QTHR. Tel: (01222) 512959.

Kenwood R1000 receiver, immaculate, as new, boxed with manual and all accessories, £250. Sorry, no offers. Tel: London 0181-785 9325.

Kenwood TH-79 dual-band 2m/70cm (144/430MHz) hand-held, plus power supply and other extras, all boxed in mint condition. £350. Tel: Yorkshire area (01302) 350873.

Kenwood TM-733E dual-band transceiver, boxed with MC55 mobile microphone and DFK3B detachable front end panel kit, £475 o.n.o. Kenwood TH-28E hand-held transceiver, boxed, £165 o.n.o. Graham G7MLW, Glos. Tel: (01453) 828474.

Kenwood TS-450S h.f. transceiver, fitted auto a.t.u. and general coverage, like new and boxed, £750 o.n.o. £800 with Manson 25A power supply. Tel: Mid-Glamorgan (01443) 772387 or (0973) 950385 anytime.

Kenwood TS-780 dual-band all-mode for sale with Diamond triplexer MX2000 mic., manual, boxed, mint, two owners from new, non smokers, sell for £600 o.n.o. Swap for Kenwood TS-680S h.f. 6m (50MHz). Icom IC-729. Also for sale SP767, £50 o.n.o. Mike 2E1FCG, S. Yorkshire. Tel: (01226) 742971 after 1600UTC or weekend after 1900UTC.

Kenwood TS-850AT with DSP-100 additional s.s.b. and c.w. filters, as new condition, boxed with manuals, moving house forces sale, £950 o.v.n.o. Chris G0DQW. Tel: (01772) 685919.

Kenwood TS-850S, boxed, manual, £950. SP430 boxed, £25. MC85 boxed, £70 or ex TS-850S for FT-101ZD, MkIII with cash adj. GOONH, QTHR. Tel: W. Midlands (01384) 565614.

Kenwood TS-850SAT, 1.8kHz s.s.b. filter, SP31 matching speaker, £1050. Daiwa PS304 30A supply, £75. Daiwa CN101 s.w.r./p.w.r. meter, £35. Yaesu G1000SDX rotator with control, £300. Datong Morse tutor, £35. GOULL, QTHR. Tel: (01924) 210117.

KW Decca a.t.u. super match KW107 built-in dummy load, 1kW, £200 o.n.o. Rascal Synical 30 TX/RX, u.s.b., l.s.b., a.m., c.w., p.s.u., 12 or 24V, £350. Eddystone TX/RX s.s.b., 150W, £130. Phill, Leamington. Tel: (01568) 720378.

Low HF-225, v.g.c., fitted f.m., a.m., a.m.s., keypad, battery pack, whip ant., and pre-amp, £275 o.n.o. including p.s.u. Tel: North Lincolnshire. Tel: (01469) 540508.

Many new and second hand parts for Rascal RA17 general coverage receiver parts, includes front panels, new, and many other parts. Tel: Berkshire (01276) 35410.

Many radio books and valves. 1960 down. Many valves, some boxed, all tested on Mullard tester, many components, resistors, condensers, transformers, meters, volume controls, etc., mostly new, all good, view, collect. William Burns, 15 Woodlands Avenue, Kirkcudbright, Scotland DG6 4BP. Tel: (01557) 330271.

Marconi marine RXS. CR300/1, good condition, working, £60. B29 I.f. RX, £30. Electra, no p.s.u., £15. Mercury, complete, working, £40. Elettra cabin set (Eddystone), £30. Peter, Wokingham. Tel: 0118-973 3633.

Oscilloscope, tiny size, 1.5in screen, 2MHz bandwidth, needs attention as display too bright, causing blurred trace, could work portable if duff NiCad replaced. Collect free or pay postage only. Tel: Berks 0118-961 9162.

Practical Wireless, 105 copies, 1975-1984 inc., some complete years. *Short Wave Magazine*, complete, Vol 21 March 1963 to Vol 40 February 1983. RSGB Bulletins, hardback, complete, Vols 1950-51-52-53. Alan G6NUZ, Boston. Tel: (01205) 365209.

PRC316 transceiver, complete, £100. Realistic DX302 receiver, £60. Atari 1040STE 4Mb RAM,

40Mb h/drive with huge amount of games/software. £200 o.v.n.o. Rohde Schwarz Polyscope with manual and cables, offers. Tel: Middlesex 0181-384 9199.

PRC316, £100 complete. DX440, £65, boxed, new. DX302, £60. Atari 1040STE, £150. Many extras or exchange for No. 52 RX/TX, must be complete and in good working order. Tel: Middlesex 0181-384 9199.

R1000 cum RX with PR150 pre-selector, mint condition, £270. Jesan 88.900 top of the range, 40 scanning channels, CB base station, as new, cost, £179, sell for, £100. Vinc, Huntingdon. Tel: (01487) 823879.

Rascal RA117E receiver, 5-30MHz, cabinet, manual, £225. Collectors vintage sets - Bendix RA-1B WWII aircraft receiver, 15-15MHz, £120. HRO - MX receiver, coils, p.s.u., manual, £135. Rascal s.s.b. adapter, £60. Heathkit HW30 2m (144MHz) TX/RX, £50. Tel: Yorks (01482) 869682.

Realistic 400ch scanner, boxed as new, less than two years old, all the usual features, cost, £249, will accept, £100 with manual and Tandy scanner book, cost, £12. Joe, Middlesex. Tel: 0181-864 0982.

Robot SSTV TX/RX unit 450C colour, mic., camera inputs, etc., TV or monitor outputs, mains powered with leads, comprehensive manual, £100 or exchange 2m (144MHz) rig, carriage extra. Jim GM4WKO, QTHR. Tel: Elgin (01343) 547299.

Sailor receiver, ex yacht, 1.6-4MHz, l.w., m.w. and n.w. covers beacons, shipping and aircraft, 270kHz-430kHz. Internal batteries and provision for external batteries, £50. Perce Robins G8BSK, 290 Priory Road, Southampton SO17 2LS. Tel: (01703) 552247.

Selling up station, have gear for h.f. 6m (50MHz), 2m (144MHz), 70cm (430MHz), books, odd bits,

etc. Phone for more info and/or lists. Pete G1SFS, Bristol. Tel: 0117-963 3306.

Shack sale: FT-101ZD, £375. FT-27720 + 2m (144MHz), FT-901R, £475. Codar AT5 T28, £60 + p.s.u., FTV-107R + 2m (144MHz), £100 for 101, etc. Navico 1000S 2m (144MHz) f.m., £140. AT50 T550 BNOS 20A p.s.u., £850. First 5 o.n.o. Alan G4OJN, QTHR. Tel: (01277) 624386.

Silent key (G2FLT): FT-102 150W r/f narrow c.w. filter and f.m. fitted, £385 o.n.o. Buyer pays carriage or collects. G4HL, QTHR. Tel: Dover (01304) 824180.

Simpson frequency counter, 10Hz to 60MHz, £50. SWR/power meter 10W/100W, £12. Seasure audio generator 15Hz/200kHz (Maplins £54.99), £35. Transistor tester, £20. Ferguson hand-held cassette tape recorder, £10. All items plus postage. Tel: NW London 0181-455 8831 anytime.

Tektronix type 502, d/beam oscilloscope, £40 o.n.o. Amstrad 2086s, twin 3.5in drives, no h/d, colour monitor, £50. Tannberg series 2000 stereo R to R recorder, £40. Two large 500mA FSD circular 6.5in dial, 250° scale, offers, buyer collects. Peter G3UXH, Kent. Tel: (01634) 250562.

Ten Tec Titan 3kW linear amplifier for sale, used once, then stored in attic, in original packaging, brand new condition, cost £3300, looking for £1950 o.n.o. Romano Eisen, Dublin. Tel: 8726868.

TNC Tiny 2 MkII, boxed with software and manuals, £70. MFJ-931 artificial r.f. ground, brand new, unused, boxed with data, £65. Tom, Derby. Tel: (01332) 767960.

Trio 2m (144MHz) all-mode transceiver TR9000, £250. Tel: Dublin 00 353 87507198.

Trio T9130 2m (144MHz) v.h.f.

transceiver, p.w.o. plus p.s.u., also rotator and two aerials, £300 the lot or may split. Tel: Herts (01992) 442500.

Trio TS-520S h.f. transceiver, good condition, includes c.w. filter and mic., plus manual, offers invited. Kevin, North Wales. Tel: (01745) 591942.

Two transformers, 250V primary secs., 50V 10A mounted on base, heavy, 25 kilograms, 110V, various with meter, auto transformer, 250V-110V, 500W, brand new, £100 the lot, buyer collects. W. Burns, 15 Woodlands Avenue, Kirkcudbright, Scotland DG6 4BP. Tel: (01557) 330271.

Wharfedale 12in speaker unit model (no cabinet), unused, £14. Buyer collects. Tel: Leeds (01977) 672321 anytime.

World band portable radio Realistic DX-390, f.m. stereo/a.m./s.w., 150kHz-30MHz, 45 memories, key/rotary tuning, battery/car/a.c. adapter, cost £159, virtually unused, original packing, handbook, £80 o.n.o. Tel: Sheffield 0114-236 8193.

Yaesu FRG-7, very good condition, £165. Rascal counter timer, 0-65MHz, model 9904M, £95. Hand-held Jesan 40 channel 4W CB set, NiCads, charger, £50. Bearcat BC950XLT scanner, 12V or mains, £95. Tel: Cornwall (01872) 862291.

Yaesu FRG-7700 communications receiver complete with manual and circuit diagrams, etc., very sensitive, £250. YM48 Yaesu d.t.m.f. mic., 8-pin, £12.50. BT FAX copier, unused, £175. Carriage at cost, no offers. Tel: Northants (01536) 522007.

Yaesu FRG-7700 communications receiver, also FRT-7700 a.t.u., both as new condition, £275. W9GRD SPII audio filter for s.s.b., PKT, RTTY, SSTV, c.w., £160. Brand new FAX DF50, £175. Carriage extra, no offers. Tel: Northants

(01536) 522007.

Yaesu FRG-9600 all-mode receiver, £195. Yaesu FT-707 mobile h.f. radio, mic. and power lead, £195. Tel: Staffordshire (01283) 716634.

Yaesu FRG-9600, very little use, unmarked, boxed, 60-905MHz, £340. Tel: Shropshire (01691) 623751 after 6pm.

Yaesu FT-101ZD in g.w.o. with 250Hz filter, mic., manual, spare set of valves and FV-101Z external v.f.o., £300. G3YPN, QTHR. Tel: Essex (01268) 733852.

Yaesu FT-209 2m (144MHz) f.m. hand-held, good condition with 1hr charger/p.s.u. and two NiCad packs, 5W o/p, £80 o.n.o. Tel: Berks 0118-961 9162.

Yaesu FT-227R, your starter for 2. your bonus - it's in brilliant nick and has a manual and mobile mount, free to a good home, £80 for delivery. Bob Ralph, Solihull. Tel: 0121-356 6001.

Yaesu FT-23R handy, mint condition, boxed with extra NiCad pack and dry cell case, plus charger, £150. Greg G7CUF, London. Tel: 0171-336 0622.

Yaesu FT-480R v.h.f. multi-mode, boxed with manual, light use only, £275. Carriage included. John, Ashington. Tel: (01670) 814811.

Yaesu FT-707 h.f. 100W base mobile mount, FP-7071HD p.s.u. and speaker to match, £400. Also KW Ezee match a.t.u. Garry G0FOY, Cheshire. Tel: (01625) 530200.

Yaesu FT-727 dual-band hand-held FNB3 2 x FNB4, batteries, new cells, s/p mic., head set, VOX, NC15 desk p.s.u. charger, mobile mount, car adapter, charger, soft case, manual, will split, £260. Garry G0FOY, Cheshire. Tel: (01625) 530200.

BARGAIN BASEMENT ORDER FORM

Please insert this advertisement in the next available issue of *Practical Wireless*.

FOR SALE WANTED EXCHANGE

Name

Address

Telephone Number

please

write

in

block

capitals

(30)

CONTACT DETAILS FOR ADVERT.

Please only write in the contact details you wish to be published with your advert.

ie. do you want your name & address, or just your telephone number?

Your advert, you decide!

(12)

Yaesu FT-73 70cm (430MHz) hand-held NC29 rapid desk charger, 2 x FNB10, new cells. FNB-11 12V pack cell case, speaker mic., soft case, manual, boxed. £180. Garry GOFY. Cheshire. Tel: (01625) 530200.

Yaesu FT-757GX, boxed. £550. Yaesu FC-700 a.t.u., £120. Yaesu FT-221R 2m (144MHz) multi-mode, £255. Miller compact h.f. receive antenna, £40. Maspro 5-element 2m (144MHz) beam, £25. All mint condition. Gary G7VAU, Cheshire. Tel: (01928) 567707 (eve) or (0468) 616768 (mobile).

Yaesu FT-757GXII with Yaesu FP-700 p.s.u., £525. Yaesu FC-102, 1.2kW a.t.u., £180. Cushcraft R7 multi band vertical antenna, £175. Altron AQ6-20 multiband beam, £60. Kenwood MC-80 desk mic., £50. Gary, Coventry. Tel: (01203) 559702.

Yaesu FT-76 70cm (430MHz) hand-held, two NiCads, charger, soft case, boxed as new, £170. Netset PRO44 v.h.f./u.h.f. scanner, NiCads charger/p.s.u., boxed, as new, £80 plus free magmount aerial. Tel: Tamworth (01827) 58004.

Yaesu FT-767GX h.f./v.h.f. transceiver, has built-in 2m (144MHz) module, auto a.t.u. and power supply, comes with all manuals and is in excellent condition, can be seen working. £850. Brian GW0GW, Mid-Glamorgan. Tel: (01443) 836622 or mobile on (0976) 836999.

Yaesu FT-767GX with 50/144 432MHz modules, £1100. FT-726R with 50/144 432SAT modules, £725. Dual-band 144/432 hand-helds FT-470 d.c. adapter, battery cases, soft case, £200. FT-530 NiCad, charger, battery cases, soft case, £250. Mick G4ITF, Portsmouth. Tel: (01705) 386184.

Yaesu FT-980, 0-30MHz transceiver with FC-757 a.t.u., boxed with instructions, v.g.c., £700. Kenwood TM2550A 144MHz with Watson 10A p.s.u., never used. £180. Timewave DSP9+, £110. Dewsbury Morse tutor + keyer, £35. Darren, Hull. Tel: (01482) 446592.

Yupiteru 7100EX 100kHz, 1695MHz, u.s.b., l.s.b., a.m., f.m., w.f.m., boxed, manual, soft case, c/w 3 antennas, unwanted Xmas present, charger, Ni-Cads, used for short time, £225. Brian, Nottingham. Tel: 0115-975 3658.

Exchange

Amstrad PCW8512 computer with printer - Centronics RS232C software - discs, Tasword Fleetstreet editor, g.w.o., exchange for g.w.o. r.f. signal generator h.f. or v.h.f. Marconi or Pye manufacture. Tel: Essex (01255) 820116.

Canon EOS650 telephoto lens + wide angle, flash, etc., fitted metal case, £350 or exchange for WS No.

52 RX/TX, must be complete and in good working order. Tel: Middlesex 0181-384 9199.

Commodore MPS 801 printer, Commodore disk drive 1541 with leads, exchange Morse RTTY reader, Eddystone 750 communications receiver, good condition, exchange for older type transceiver or separates. Tel: (01254) 832350.

Durst Complete b/w colour dark room, transformer 2.8 Lens C/100 TPA T/100 focus finder dish warmer, colour safe light chemical paper, exchange for R71E or NRD-525. Vince, Huntingdon. Tel: (01487) 823879.

Icom IC-R71E comms. receiver, v.g.c., swap for JRC NRD-535. Can deliver and collect. Tel: Reading area (01734) 812476.

Please have a look in your cupboards and drawers, has anyone out there got a BCC computer based weather satellite receiving station in exchange for 12 assorted p.m.r. hand-helds? Clive, Birmingham. Tel: 0121-788 8447.

RSGB Antenna Experimenters Guide for any volume of ARRL Antenna Compendium G3JMO, QTHR. Tel: Redcar (01642) 486155.

Short Wave Magazines, 180 in total, some older and rarer editions, exchange for decent h.f. general coverage receiver DX-302 or similar. Disabled, hence no transport, any offers? Tel: Chester (01244) 310271 evenings please.

Tokyo HY power antenna coupler HC200 a.t.u., 80m to 10m (3.5 to 28MHz), built-in s.w.r. power meter, exchange for PRO2006 scanner or PRO2006 equivalent. Must be 25 to 1300MHz. John MIAUN, Staffs. Tel: (01902) 897839.

Wanted

1920s-1930s valves, radios, crystal sets, speakers, wanted urgently. Tel: (01642) 490269/(0410) 408475.

Any info. 504-A set tester by Supreme Instruments Corp., Mississippi/America and circuit capacitor analyser by A. H. Hunt. also wanted 455kHz c.w. filter, Collins or similar, 250Hz or 500Hz type. GW3PDW. QTHR. Tel: (01437) 891017.

ATU for Icom 706, urgent. For sale Icom 740 with f.m., £550. Tel: Derbyshire (01283) 221870.

Bearcat UBC-760XLT mobile/base scanner, early model, must be in excellent condition, will pay, £110. Francis, Leicester. Tel: 0116-223 9498 after 6pm.

Cabinet/enclosure for an Eddystone EC958 receiver, ie. 7in high front panel (4U). David. Nr. Rugby. Tel: (01788) 574099.

CFL-260 600Hz and CFL-230 300Hz filters, plus mounting PCB and NVA-515 speaker for JRC NRD-515 receiver. GOPHT, Loughborough (01509) 231289.

Cheap reliable 70cm hand-held, FT-43R preferred. FT-23R to sell/swap. Also want 2m/70cm 144/430MHz transverter, 5/10W in, 25/30W out. Small 70cm (430MHz) antenna appreciated too, such as lightweight 6-ele quad. Prefer write: 10 Basil Street, Stockport SK4 1QL. Messages (with great luck) on 0161-477 5303.

Copy of UHF Manual and schematic for Heathkit DX-YOU, will pay reasonable copying cost. James Berry, USA. Tel: 330 922 0158.

Digital read-out mod. unit for FRG-7 and fitting instructions if possible. Alex, Kent. Tel: (01732) 864920.

Eddystone 770S, 770U MkII. 770R MkII in very good condition, your price, will collect. Mike, E. Sussex. Tel: (01892) 852817.

Eddystone EB35, EB36, EC10 MkII receivers, must be in good condition and working order, urgently required. Jim McGowan, 20 Keats Avenue, Romford, Essex RM3 7AR. Tel: (01708) 340304.

Eddystone receivers, please look in your loft and make my day! Still seeking 960, 820, 358, 358X, diecast speakers, etc., will pay fair price, plus collection is possible, thank you. Peter Lepino, Surrey. Tel: (01372) 454381 or (0374) 128170 anytime.

For reception set R216, its front panel metal cover contains two elevating screws, also metal panel cover for supply unit containing a spares case and festoon lamps, any help please. Andrew Humphris, Warwick. Tel: (01926) 400876.

Handle and photocopy of owners' manual for Sangean ATS803A. Tel: Liverpool 0151-486 2606.

Heathkit GR78 and Eddystone 940 RXs wanted, good mechanical condition, prefer working order but faulty okay if price reasonable. could inspect/collect within 100 miles of Hull. Cash paid. David G4EBT, QTHR. Tel: (01482) 876702 anytime.

Icom IC-27E manual or operating instructions. Tony GOCPA, Swindon. Tel: (01793) 520734.

Icom IC-M12 marine hand-held. John G4BYV, Norfolk. Tel: (01362) 638142.

Information and circuit diagram of Realistic scanner 300ch PRO2004, suspect common fault, need to chat about it, also manual on Marconi VHF/UHF Mobile Test Set, type TF2950/5. Roger GW3JXC, Mid Glamorgan. Tel: (01656) 733729.

Instruction books for NEC TV FS-5906PIX and VCR N9033K, buy or borrow. All expenses refunded. Ron G4MNB, QTHR. Tel: (01793) 826325.

Kenwood loudspeaker, type SP430 (or SP23), early 'Radiospares' miniature plugs. chassis mounting laminated sockets, non-reversible. 9mm C to C, used on f.m. aerials. 100ft or so of 75Ω twin feeder. Alan G3MBL, Bury St Edmunds. Tel: (01284) 827379.

Kenwood TS-950S or equivalent, will purchase or part exchange with TS-440S with auto antenna tuner and voice synthesiser unit. GOVZZ, Canterbury. Tel: (01227) 464157.

Leak Point One control pre-amplifier, gold and black, has input bass, treble and volume twin sockets fixing holes at corners. Write with price required. J. Connor, 34c Cintra Park, Norwood SE19 2LQ.

Manual for CD711.2 O'Scope, buy, borrow. Viney, 7 Pentre Bach, Barmouth, Gwynedd LL42 1HT.

Mk123 set RX unit still wanted. Details of dial drive gearing would help as I now have suitable cap. G3JQL, 22 Anwick Road, Newton Hall, Durham DH1 5NL. Tel: 0191-386 1116.

Motorola GP300 walkie-talkie and accessories, working or not. John Logie Baird letters or television disc. Tel: London 0181-747 0069.

Picture frame cabinet for Racal 1772. Sell Collins 7553BC, v.g.c., except fault on pre-selector, all parts available, £250. Bill, Glasgow. Tel: 0141-562 4571.

Racal units wanted for my collection. RA88 panoramic display, RA218 i.s.b. adapter, MA144 a.t.u., MA174 aerial multicoupler, MA197 pre-selector, MA282 coupler for RA66. TA83 and TA99 linear amps. Tel: Yorks (01482) 869682.

Receivers: G2DAF MkII. G3PDM and G4DTC 'ultimate' complete, incomplete or parts, also 1st v.f.o. for Racal RA17 MkIII, e.g. L(7) or RA117. Tony, Worcester. Tel: (01905) 641759.

Sangean ATS-803A battery cover wanted or may buy scrap radio or swap green screen monitor for PC in exchange for battery cover. Dave, Glasgow. Tel: 0141-632 5408.

Sangean ATS-803A battery cover wanted or might buy complete scrap set, Matsui MR4099, Saisho S5000 or Tatung TMR7602 battery cover would also be suitable. Tel: Glasgow 0141-632 5408.

Schaub Lorenz short wave radio, eight bands. Grundig model 1000. Grundig professional model 2400. Philips seven band portable, model deluxe 638 or Pye Piccadilly model

6000. Grundig model 1400. Hugh McCallion, No. 8 Stralhard Close, Coleraine, Co. Londonderry, N. Ireland BT51 3ES. Tel: (01265) 43793.

Service manual/circuit diagram for pictured receiver, identity unknown. Mark Higgins, 52 Gilby Road, East Court, 3310, South Africa. Tel: 27 363 24394.



Service manuals for Tektronix scope 535A and/or plug-in 1A1 dual trace vertical amp. Tel: Cumbria (01229) 836769.

Spy/Clandestine radio sets: A MkIII B2, BP3, AP4, AP3, S-phone, SSSTR-1, SSR-5, AN/PRC-1, AN/PRC-5, AN/PRC-47, RS6, SE90/40, SE108/10, MK121, MK122, MK123, MK124, MK119, MK128, boxed version or w.h.y.? Details and price wanted to: Bill MacDonald, 40 Latchett Road, London E18 1DJ. Tel: 0181-505 0838 evenings.

Top hand 1.8MHz handspring coil for HRO, good price paid, plus P&P. Peter, Ripon. Tel: (01287) 634397 9-5pm.

Transverter for 4m (70MHz), must be g.w.o. and cased to operate from 10m rig and 12V power supply, at least 5W output, f.m. and s.s.b. Brian GW0GHE, QTHR. Tel: (01222) 703429.

Trio (Kenwood) AT230 a.t.u., SP230 speakers, SM220 scope, KBI deluxe knob, must be fair price, I will pay carriage. W McCauley E14EK, Manorcunningham, Letterkenny, Co Donegal, Eire.

Yaesu FRG-7 comms receiver, must be in good working order, for cash or possibly to exchange for mint Zenith Royale 7000 Trans-Oceanic receiver. Tel: Barnet 0181-449 3921.

Yaesu FT-757 in good condition. For sale TS-520 100W h.f. £175. Also wanted Butternut 'Butterfly' h.f. beam. Andy GOFV1, Nottingham. Tel: 0115-940 4535.

Yaesu FT-76R 70cm (430MHz) hand-held. Greg G7CUF, London. Tel: 0171-336 0622.

Yaesu slide mount for FT-290 MkI, must be in good condition, 70cm linear, anything considered. Also any info. on modding Pye L300 series to 23cm. all expenses refunded. Neil G7VQA, QTHR. Tel: 0161-427 2486.

All adverts should be sent to:-
Zoë Crahb,
PW, Bargain Basement Free Ads,
Arrowsmith Court,
Station Approach, Broadstone,
Dorset BH18 8PW.

Classified Ads

To advertise on this page see booking form below.

Whilst prices of goods shown in advertisements are correct at the time of going to press, readers are advised to check both prices and availability of goods with the advertiser before ordering from non-current issues of the magazine.

For Sale

TECHNICAL MANUALS, AR88, CR100, R210, HR0. £5 each. Circuits £1.50. Hundreds available. SAE list. Bentley, 27 De Vere Gardens, Ilford, Essex IG1 3EB. Tel: 0181-554 6631.

RF-8000 24 BAND RECEIVER - reasonable offer accepted. Quartz crystals large range £1.00 each. Collection quartz Y-bars. Also Valves. Lists available. Electronic Design Associates 0181-391 0545 Fax 0181-391 5258.

THE UK'S LARGEST SOURCE for Vintage Service data, circuits and manuals from 1900 to the 1970s. Free brochure from Tudor & Margaret Gwilliam-Rees, Savoy Hill Publications, 50 Meddon St, Bideford, The Little White Town, North Devon, EX39 2EQ. Tel: 01237 424280.

INTERESTED in Vintage Radio? Send SAE for latest list of books and components. Old Time Supplies, PO Box 209, Banbury, Oxon OX16 7GR.

NOTEBOOK COMPUTER latest Mitac 4023. TFT screen Window 95 586 8mb with software. Lowe Airmaster ACARS. Decoder AEA FaxIII for Fax Navtex RTTY complete package is as new. £700. Tel: 01865 749374.

HITACHI OSCILLOSCOPE model V212 dual beam rarely used. Mint condition. £200. Tel: 01268 456790.

FT-757GX2, FC-757AT automatic FP-757HO (PSU) with boxes and manuals. Excellent condition. £800 ovno. Tel: 01705 264587.

Receivers

B.F.O. KITS Resolves single side-band on almost any radio, £16.49. H. CORRIGAN, 7 York Street, Ayr KA8 8AR.

Holidays

NORTH WALES HOLIDAYS - Caravan - bunkhouse - camping. Elevated rural site, two miles from beach, use of shack and antennas, open all year. Tynrhos, Mynytho, Pwllheli. Tel: 01758 740712.

CRETE HOLIDAYS 7 studios 20m from beach. Use of shack and antennas. Open from 14/4/97 to 31/10/97. Please contact: SV9 ANJ (ORA Manos), PO Box 1272, 71110 Iraklion, Crete, Greece. Tel: 0030 81 761288/762000 Fax: 0030 81 761382. E-mail: pelamare@her.forthnet.gr.

Miscellaneous

VALVE ENTHUSIASTS: Capacitors and other parts at attractive prices! Ring for free list. Geoff Davies (Radio), Tel: (01788) 574774.

Valves

VALVES GALORE Most valves available from stock. Otherwise obtained quickly. Please send SAE stating requirements or telephone. **VALVE & ELECTRONIC SUPPLIES** Chevret Books, 157 Dickson Road, Blackpool FY1 2EU. Tel: (01253) 751858 or Fax: (01253) 302979.

VALVES WANTED for cash: KT88, £48; PX4, PX25 £50; DA100 £90; EL34, £10; EL37, £9; CV4004, £5; ECC83 £3. Valves must be Mullard/GEC, West European to achieve the price. Ask for our free wanted list. Prompt and courteous service. Visitors by appointment only (we are a very busy Export Warehouse). Billington Export Ltd. Billingshurst, West Sussex RH14 9EZ. Tel: (01403) 784961. Fax: (01403) 783519.

VALVES:- OVER 50000 STOCKED Ham, Vintage, Military, Audio. SAE for FREE list to: Wilson Valves, (Jim Fish G4MH), 28 Banks Ave., Golcar, Huddersfield, West Yorks HD7 4LZ. Tel: 01484 654650. Fax: 01484 655699. Visa etc. Fast & personal service.

TOP PRICES PAID

for all your valves, tubes, semi-conductors and ICs.

Langrex Supplies Ltd.
1 Mayo Road, Croydon
Surrey CR0 2QP.

TEL: 0181-684 1166. FAX: 0181-684 3056.

Educational

CITY & GUILDS RADIO AMATEURS EXAM. Pass your exam the easy way with an RRC home study course. For details write or phone THE RAPID RESULTS COLLEGE, Dept. JX400, Tuition House, London SW19 4DS. Tel: 0181-947 2211.

RAE "THE VIDEO" The definitive learning aid for the exam! A full three hour VHS video based on the highly successful training course developed by Chris Budd G0LOJ. This unbeatable package comes packed with key learning points, facts and diagrams for instant reference and easy revision. Only £24.50 plus £2 post and packing. Send cheque or postal order to: Charterhouse Marketing, Mount Pleasant, New Mills, Whitebrook, Monmouth, Wales NP5 4TY. Tel: (01600) 860879.

MAY RAE! Our questions and answers program for the PC may help you with your revision. Only £9.95 (inc P&P). For further details send SAE to Jeff Harris G3LWM, 44 Fourth Avenue, Frinton on Sea, Essex CO13 9DX or e-mail jeff@frinton.keme.co.uk.

Wanted

WANTED FOR CASH Valve or solid state communication receivers Pre-1980. Preferably working and in good condition. Non working sets considered also domestic valve radios. Items of Government surplus wireless equipment and obsolete test equipment. Pre-1965 wireless and audio components and accessories. Pre-1975 wireless and TV books and magazines. Also, most valves wanted for cash. Must be unused and boxed. CBS, 157 Dickson Road, Blackpool, FY1 2EU. Tel: (01253) 751858 or Fax: (01253) 302979.

PRE-WAR RADIOS and any Heathkit and Hacker products wanted. Phone: 0181-693 3555.

Computer Software & Hardware

HARD TO FIND SPECIALISED AND UNUSUAL PC SOFTWARE

We have the largest range of specialised technical, scientific and rare programs for DOS and Windows in Europe, on CD ROM or Floppy disk. 1000s of programs in 250+ categories including Electronics, Radio, Audio, Maths, Chemistry, Music, Education, Engineering etc.

SEND STAMPED SAE FOR FREE PRINTED CATALOGUE OF 4000+ ITEMS.

PDSL Dept PW, Winscombe House, Beacon Rd. Crowborough, Sussex TN6 1UL
Tel: 01892 663298 Fax: 01892 667473

JVFAX/SSTV, HAMCOMM, PKTMON 9FD/25FD Tx/Rx interface, programs, manuals, pictures, £29.95. Other SSTV/packet services. SASE leaflets. 1.44 disk for demo. Peter Lockwood G8SLB, 36 Davington Road, Dagenham RM8 2LR. Tel/fax: 0181-595 0823.

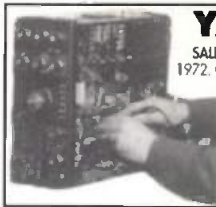
INSTRUCTOR MORSE PROFESSIONAL. The complete Morse Code software training package for beginners and advanced users. As used by the US Military, Canadian Military and the British Military! Price £169 + PP + VAT. Tel: 01526 833042. E-mail: imorse@sdesign.demon.co.uk

DISCLAIMER

Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. *Practical Wireless* advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available.

The publishers of *Practical Wireless* wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.

TO ADVERTISE ON THESE PAGES, JUST COMPLETE THE FORM ON THE OPPOSITE PAGE



YAESU, ICOM, AOR etc.

SALES & SERVICE Holdings of Blackburn Ltd. Inc. 1952. Yoesu Agents since 1972. G3JLL 40+ years in electronics. Best prices for callers (try us with cheque or 'real money' if you want to bargain) only say and sell to pay so we can afford to give good prices - valves and CW filters for old Yoesu eq. Phone, normally open Thursday, Friday and Saturday. Lunch 12.00-1.30 but phone first we enjoy a few holidays!
G3JLL HOLDINGS, AMATEUR ELECTRONICS
 45 JOHNSTON STREET, BLACKBURN, BB2 1EF
 (01254) 59595



J. BIRKETT

SUPPLIERS OF ELECTRONIC COMPONENTS

220 VOLT MECHANICAL DIGITAL CLOCK with buzzer as fitted in clock radios. Brand new @ £1.50.
FERRITE RODS 6"x6" with coils @ £3, 8"x6" with coils @ £2, 6"x6" @ £1.50, 3"x6" with coils @ 75p, 2 hole ferrite blocks @ 25p.
MULLARD TUNER MODULE 88 to 108MHz, 10.7MHz out type LP1179 @ 10 for £5.
MURATA PUCKS 10GHz @ 10 for £1.20.
AIR SPACED VARIABLE CAPACITOR 330+380pF with 3/4" spindle @ £2.50, 5 for £10.
GOOD QUALITY CERAMIC SWITCH 6 pole 3 way silver plated contacts @ £2.50.
RELAYS 600 type 2 pole C.D., 600 ohm coil @ 50p, 3000 type 3 pole C.D., 1000 ohm coil @ 50p.
RACAL PORTABLE DIPOLE AERIAL KIT consisting of 30-38, 38-45, 45-60, 60-76MHz aeralas with dipole centre down lead @ £16.50, (P&P £5).
HIGH POWER RF TRANSISTOR SD1487, 100 watt, 12 volt @ £12.95, £22 pair.
X BAND GUNN DIODES @ £1.65, X BAND DETECTOR DIODES like 1N23 @ 50p, SIM2 @ 50p, 1501E @ £1.60, GEM1 @ £1.50, GEM2 @ 1.50.
AIR SPACED VARIABLE CAPACITORS C804 type 10pF, 25pF, 50pF, 100pF @ £3.50 each.
SURPLUS DIE CAST ALLOY BOXES approx. dimensions, 3x1 1/2 x 1" @ £1, 4x3 x 1" @ £1.95, 7x4 x 2" @ £4.50, 7x4 x 3" @ £4.50.



25 The Strait
 Lincoln LN2 1JF
 Tel: 01522 520767
 Partners J.H Birkett
 J.L.Birkett

ACCESS, SWITCH and BARCLAYCARD accepted. P&P £1 under £10. Over Free, unless otherwise stated.
C.M. HOWES KITS. Available by post and for callers.

G6XBH G1RAS G8UUS

VISIT YOUR LOCAL EMPORIUM

Large selection of New/Used Equipment on Show

AGENTS FOR: YAESU • ICOM • KENWOOD • ALINCO
 Accessories, Revex/Diamond range of SWR/PWR, Adonis Mics,
 Mutek products, Barendo equipment, MFJ products.

WE SPECIALIZE IN ALL TYPES OF PLUGS, ADP, ETC

★ ERA Microreader & BPS4 Filter, SEM Products ★

★ Full range of Scanning Receivers ★

AERIALS, Tonna, Maspro, plus full range of base/mobile antennas.

BRING YOUR S/H EQUIPMENT IN FOR SALE

JUST GIVE US A RING

Radio Amateur Supplies

3 Farndon Green, Wollaton Park, Nottingham NG8 1DU
 Off Ring Rd., between A52 (Derby Road) & A609 (Ilkeston Road)
 Monday: CLOSED. Tuesday-Friday 9.00am to 5.00pm. Saturday 9am to 4pm

R.A.S. (Nottingham)

R.A.S. (Nottingham)

G6XBH G1RAS G8UUS Tel: 0115-928 0267

Rx LF/MF Aircraft ADF Rx compact unit for remote control Freq. 150Kc to 2Mc/s in 4 bands (1F 110Kc) power 24/19v DC or 19/250v DC as 17 min valves (10 in Rx) as 2 x RF & 2 x IFs BFO, Swt Selec 5/1.5Kc & 400c/s AF o/p at 33 or 600ohm. These Rx are intended for remote control (control box not available) however internal layout lends itself to mod to local control as Swt, Tuner etc. are located on or behind front panel & tuning cond fitted s.m. gear ass, supplied with circ & tech info. £48. CONTROL UNIT for remote HF ATU contains Collins SWR bridge, Coax relay, 50ohm load, N & BNC connect, Meter etc. est 100 watt 50ohm. £32. **FREQ CONV.** 1/P 24v DC O/P 115v 400c/s 150/200 watts sine wave 1 phase size 10 x 5 x 5" all transis tested. £95. **LOGIC PROBES** HP type 545A new. £24.50. **VALVES** CV1091 EF50 new 4 for £6.50 also EF39 4 for £6.50. **FREQ COUNTERS** Racal 520 Meg 8 digit. £135. **SCOPE SE LABS** Dual trace 18 Meg tested with book. £135. **AF OSC** CT439 gen purpose sine wave 10c/s to 100Kx mains tested small unit. £38. **SWT COAX** 1p c/o BNC 50ohm 1Gz panel mt. £9.50.

Above prices are inclusive. Goods ex equip unless stated new.
 2 x 26p stamps for list 62/1

A. H. SUPPLIES

Unit 12, Bankside Wks, Darnall Road, Sheffield S9 5HA
 Tel: 0114-244 4278

Collars by appointment only

LAKE ELECTRONICS

Ring for a brochure of full range

For Complete Kits with All the Bits!
Transmitters, Receivers, Test Equipment.
 7 Middleton Close, Nuthall, Nottingham NG16 1BX
 Tel/Fax: 0115-938 2509
 E-mail: 100775.730@compuserve.com

CO...CO! Call us on the "GOOD NEWS"
 CHRISTIAN NETS
 For more information write to our Membership Secretary
WACRAL
 51 ALMA ROAD, BRIXHAM, SOUTH DEVON TQ5 8QR

Every Sunday at 8am and 2pm on 3747kHz, sharing Christian fellowship over the air

ORDER FORM FOR CLASSIFIED ADS PLEASE WRITE IN BLOCK CAPITALS

The prepaid rate for classified advertisements is 42 pence per word (minimum 12 words), box number 70p extra. Semi-display setting £13.90 per single column centimetre (minimum 3cm). Please add 17.5% VAT to the total. All cheques, postal orders, etc., to be made payable to PW Publishing Ltd. Advertisements, together with remittance, should be sent to the Classified Advertisement Dept, Practical Wireless, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Tel: (01202) 659920, Fax: (01202) 659950

Please insert this advertisement in the issue of Practical Wireless (if you do not specify an issue we will insert it in the next available issue of PW) for insertion/s. I enclose Cheque/P.O. for £..... (42p per word, 12 minimum, please add 17.5% VAT to total).

Name:

Address:

.....

.....

.....

Telephone No.:

Box Number @ 70p: Tick if appropriate

Category heading:

BOOK STORE



TO ORDER YOUR BOOKS:

E-MAIL: bookstore@pwpub.demon.co.uk

TEL: (01202) 659930 (24 HOURS)

FAX: (01202) 659950 (24 HOURS)

OR USE THE ORDER FORM ON PAGE 94

The books listed have been selected as being of special interest to our readers. They are supplied direct to your door. Many titles are overseas in origin.

LISTENING GUIDES

AIRBAND

AIR BAND RADIO HANDBOOK 6th Edition. David J. Smith.....	192 pages	£8.99
AIR TO GROUND RADIO FREQUENCIES. Ken Davies.....	96 pages	£4.99
AIRWAVES 96.	100 pages	£8.95
AIRWAVES EUROPE.	124 pages	£9.50
CALLSIGN 97.	144 pages	£8.50
FLIGHT ROUTINGS 1996. Compiled by T.T. & S.J. Williams.....	140 pages	£6.60
INTERNATIONAL AIR BAND RADIO HANDBOOK. David J. Smith.....	192 pages	£9.99
THE AIRBAND JARGON BOOK. Ron Swinburne.....	72 pages	£6.95
THE POCKET UK AIRBAND FREQUENCY GUIDE Ron Swinburne.....	76 pages	£3.95
UNDERSTANDING ACARS 3rd Edition. Aircraft Communications Addressing and Reporting System. Ed Flynn.....	80 pages	£9.95
WORLDWIDE AERONAUTICAL COMMUNICATIONS FREQUENCY DIRECTORY 2nd Edition. Robert E. Evans. 260 pages. £19.95		
WORLDWIDE AERONAUTICAL HF RADIO HANDBOOK. Martyn R. Cooke.....	124 pages	£6.95

BROADCAST

A GUIDE TO THE WORLD'S RADIO STATIONS BP355. Peter Shore.....	266 pages	£5.95
GLOBAL RADIO GUIDE 1996/7 (The Association of International Broadcasting).....	30 pages	£3.95
RADIO LISTENERS GUIDE 1997. Clive Woodyear.....	81 pages	£4.50

DATAMODES

FAX & RTTY WEATHER REPORTS. Philip Mitchell.....	62 pages	£8.95
GUIDE TO UTILITY STATIONS. 15th Edition. Joerg Klingenfuss.....	588 pages	£35.00
GUIDE TO WORLDWIDE WEATHERFAX SERVICES. 16th Edition Joerg Klingenfuss.....	436 pages	£25.00
INTERNET RADIO GUIDE 1st Edition. Joerg Klingenfuss.....	350 pages	£21.00
WEATHER REPORTS FROM RADIO SOURCES. Philip Mitchell.....	32 pages	£6.00
POCKET GUIDE TO RTTY AND FAX STATIONS. Bill Laver.....	57 pages	£3.95
RADIO DATA CODE MANUAL. 15th Edition. Joerg Klingenfuss.....	604 pages	£28.00
INTERCEPTING NUMBERS STATIONS. Langley Pierce.....	96 pages	£9.95

DXTV

DXTV FOR BEGINNERS. Simon Hamer.....	31 pages	£3.95
GUIDE TO DX-TV. Keith Hamer & Garry Smith.....	36 pages	£3.95
GUIDE TO WORLDWIDE TV TEST CARDS		£4.95
THE ATV COMPENDIUM. Mike Wooding G6IQM.....	104 pages	£4.00

FREQUENCY GUIDES

1997 SHORTWAVE FREQUENCY GUIDE 1st Edition. Joerg Klingenfuss.....	484 pages	£23
1997 SUPER FREQUENCY LIST CD-ROM. Joerg Klingenfuss.....		£25.00
FERRELLS CONFIDENTIAL FREQUENCY LIST 9th Edition	386 pages	£17.95
PASSPORT TO WORLD BAND RADIO 1997.	528 pages	£15.50
UK SCANNING DIRECTORY. 5th Edition.....	540 pages	£18.50
VHF-UHF SCANNING FREQUENCY GUIDE Bill Laver.....	192 pages	£12.95
WEATHER REPORTS FROM RADIO SOURCES. Philip C. Mitchell.....	32 pages	£6.00
WORLD RADIO TV HANDBOOK 1997.	608 pages	£17.95

GENERAL

EAVESDROPPING ON THE BRITISH MILITARY. Michael Cannon.....		£17.50
THE COMPLETE SHORT WAVE LISTENER'S HANDBOOK 4th Edition Hank Bennett, Harry Helms & David Hardy.....	321 pages	£18.95
SHORT WAVE COMMUNICATIONS. Peter Rouse GUI1DKD.....	187 pages	£4.50

MARINE

MARINE SSB OPERATION. J. Michael Gale.....	96 pages	£11.95
SCANNING THE MARINE BANDS. F.F. O'Brian.....	152 pages	£ 9.50
SHORTWAVE MARITIME COMMUNICATIONS. B. E. Richardson.....	195 pages	£16.50
SHIP TO SHORE RADIO FREQUENCIES. Ken Davies.....	95 pages	£5.99
SIMPLE GPS NAVIGATION. Mik Chinery.....	96 pages	£9.95

SATELLITE

AN INTRODUCTION TO AMATEUR COMMUNICATIONS SATELLITES BP290. A. Pickard.....	102 pages	£3.95
AN INTRODUCTION TO SATELLITE COMMUNICATIONS BP326. F. A. Wilson.....	230 pages	£5.95
ARRL SATELLITE ANTHOLOGY 4th Edition.	150 pages	£8.95
NEWNES GUIDE TO SATELLITE TV. Derek Stephenson.....	371 pages	£18.95

SATELLITE BOOK - A Complete Guide to Satellite TV Theory and Practice

John Breeds.....	280 pages	£32
SATELLITE EXPERIMENTER'S HANDBOOK 2nd Edition. Martin Davidoff K2UBC.....	313 pages	£14.50
SATELLITE HACKERS HANDBOOK. Colin A. Grelis.....	120 pages	£18.75
SATELLITE PROJECTS HANDBOOK. L. Harris.....		£14.99
SATELLITE TELEVISION. A layman's guide. Peter Pearson.....	73 pages	£1.00
SATELLITE TELEVISION INSTALLATION GUIDE. 5th Edition. John Breeds.....	76 pages	£15.00
SPACE RADIO HANDBOOK (RSGB). John Branegan GM7411J.....	242 pages	£12.50
WEATHER SATELLITE HANDBOOK. 5th Edition. Dr Ralph E. Taggart WB8DQT.....	192 pages	£15.50
WRTH SATELLITE BROADCASTING GUIDE. 1996 Edition. Bart Kuperus.....	366 pages	£17.95

SCANNING

AN INTRODUCTION TO SCANNERS AND SCANNING BP311. L. D. Poole.....	152 pages	£4.95
SCANNER BUSTERS 2. D. C. Poole.....	100 pages	£6.00
SCANNERS 2 INTERNATIONAL. Peter Rouse GUI1DKD.....	261 pages	£9.95
SCANNERS 3 PUTTING SCANNERS INTO PRACTICE. New Edition 4th Revision. Peter Rouse.....	271 pages	£9.95
SCANNING SECRETS. Mark Francis.....	280 pages	£16.95

AMATEUR RADIO

ANTENNAS & TRANSMISSION LINES

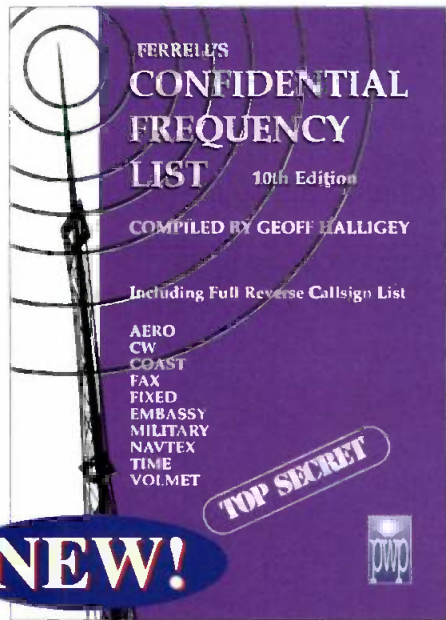
25 SIMPLE AMATEUR BAND AERIALS BP125. E. M. Noll.....	63 pages	£1.95
25 SIMPLE INDOOR AND WINDOW AERIALS BP136. E. M. Noll.....	50 pages	£1.75
25 SIMPLE SHORT WAVE BROADCAST BAND AERIALS BP132. E. M. Noll.....	63 pages	£1.95
25 SIMPLE TROPICAL AND MW BAND AERIALS BP145. E. M. Noll.....	54 pages	£1.75
ALL ABOUT VERTICAL ANTENNAS. W. I. Orr W6SAI & S. D. Cowan W2LX.....	192 pages	£8.50
ANTENNA EXPERIMENTER'S GUIDE (RSGB). Peter Dodd G3LDO.....		£15.00
ANTENNA IMPEDANCE MATCHING (ARRL). Wilfred N. Caron.....	195 pages	£14.50
ANTENNAS FOR VHF AND UHF BP301. L. D. Poole.....	104 pages	£4.95
ANTENNAS & TECHNIQUES FOR LOW BAND DXING (ARRL)	394 pages	£15.50
ARRL ANTENNA BOOK 17th Edition.	732 pages	£21.95
ARRL ANTENNA COMPENDIUM Volume One.	175 pages	£10.00
ARRL ANTENNA COMPENDIUM Volume Two.	208 pages	£10.00
ARRL ANTENNA COMPENDIUM Volume Three. Edited by Jerry Hall K1TD.....	236 pages	£12.50
ARRL ANTENNA COMPENDIUM Volume Four.	204 pages	£15.50
BEAM ANTENNA HANDBOOK. W. I. Orr W6SAI & S. D. Cowan W2LX.....	268 pages	£8.50
BUILD YOUR OWN SHORTWAVE ANTENNAS 2nd Edition. Andrew Yoder.....	208 pages	£15.95
CUBICAL QUAD ANTENNAS 3rd Edition. William Orr W6SAI and Stuart Cowan W2LX.....		£8.50
EXPERIMENTAL ANTENNA TOPICS BP278. H. C. Wright.....	70 pages	£3.50
G-QRP CLUB ANTENNA HANDBOOK. Compiled and edited by P. Linsley G3PDL & T. Nicholson KA9WRU/GW0LNQ.....	155 pages	£7.25
HF ANTENNA COLLECTION (RSGB). Edited by Erwin David G4LQL.....	233 pages	£10.99
HF ANTENNAS FOR ALL LOCATIONS (RSGB). Les Moxon G6XN.....	322 pages	£14.65
MORE OUT OF THIN AIR (PWP).	112 pages	£6.95
PRACTICAL ANTENNAS FOR NOVICES. John Heys G3BDQ.....	52 pages	£6.30
PRACTICAL ANTENNA HANDBOOK 2nd Edition. Joseph J. Carr.....	437 pages	£25.95
PRACTICAL WIRE ANTENNAS RSGB. John Heys G3BDQ.....	100 pages	£8.95
RADIO AMATEUR ANTENNA HANDBOOK. W. I. Orr W6SAI & S. D. Cowan W2LX.....	188 pages	£8.50
RECEIVING ANTENNA HANDBOOK. Joe Carr.....	89 pages	£17.50
SIMPLE, LOW-COST WIRE ANTENNAS FOR RADIO AMATEURS. W. I. Orr W6SAI & S. D. Cowan W2LX.....	188 pages	£8.50
W1FB'S ANTENNA NOTEBOOK (ARRL). Doug DeMaw W1FB.....	123 pages	£7.50

BEGINNERS (INC RAE)

AMATEUR RADIO FOR BEGINNERS (RSGB). Victor Brand G3JNB.....	65 Pages	£3.50
AN INTRODUCTION TO AMATEUR RADIO BP257. L. D. Poole.....	150 pages	£3.50
AN INTRODUCTION TO THE ELECTROMAGNETIC WAVE BP315. F. A. Wilson.....	122 pages	£4.95
ETI BOOK OF ELECTRONICS. Dave Bradshaw.....	208 pages	£10.95
HOW TO PASS THE RADIO AMATEURS' EXAMINATION (RSGB) Clive Smith G4FZH and George Benbow G3HB.....	88 pages	£8.75
PRACTICAL RECEIVERS FOR BEGINNERS (RSGB). John Case GW4HWR.....	165 pages	£12.00
THE NOVICE RADIO AMATEURS EXAMINATION HANDBOOK (BP375) Ian Poole G3YWX.....	150 pages	£4.95
THE RADIO AMATEURS' QUESTION & ANSWER REFERENCE MANUAL Fifth Edition.....		Ray Petri G0OAT. £13.95
RAE MANUAL (RSGB). G. L. Benbow G3HB.....	127 pages	£8.75
RAE REVISION NOTES (RSGB). G. L. Benbow G3HB.....	92 pages	£5.25
REVISION QUESTIONS FOR THE NOVICE RAE (RSGB). Esde Tyler G0AEC.....	60 pages	£5.75
THE NOVICE LICENCE STUDENT'S NOTEBOOK. John Case GW4HWR.....	124 pages	£6.50

Ferrell's Confidential Frequency List - 10th Edition

(Published by PW Publishing)



This popular, well read, frequency list compiled by Geoff Halligey continues to go from strength to strength and is now in its 10th Edition. This 'Top Secret' confidential listing covers 1.6 - 30MHz and it's spirally bound A5 format makes for easy reading and reference.

Included within its 350plus pages are frequencies covering all modes, utility services and for the first time NAVTEX. Also featured is the reverse frequency list showing every known frequency against each callsign, who's using what frequency and mode.

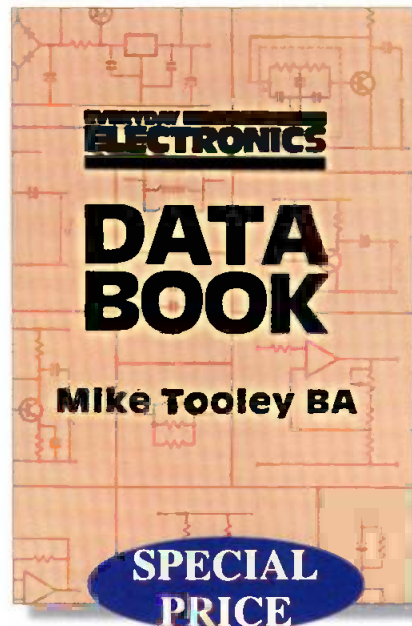
Ferrell's Confidential Frequency List is one book that every listening enthusiast should own

and at £19.95 it's well worth every penny. This new 10th Edition will be available from the Book Store in early March.

Everyday Electronics Data Book

This well-presented and neat book of 250 pages is - as the title suggests - packed with data for the electronics enthusiast. Although obviously biased towards the general electronics rather than radio communications, it's profusely illustrated with very clear and concise diagrams.

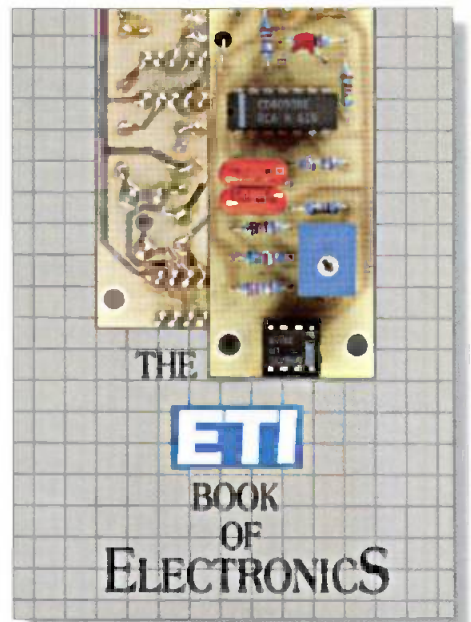
The book is also of a very convenient size, ideal for 'handy' reference use and for students with limited book space in their briefcases, etc. **Recommended.** Order this month and get the *EE Data Book* for the special price of £7.95.



The ETI Book Of Electronics

An unusual book this one - as it's a useful mixture of an introductory textbook and projects guide. Ideal for the raw beginner and the inexperienced who wish to learn while carrying out projects, it will provide good explanations and ideas.

Some interesting projects are included plus some 'chatty' explanations of basic electronic theory. Good diagrams and explanations are backed up with a 'light' reading approach. Good reading and helpful. **Recommended** at only £10.95.



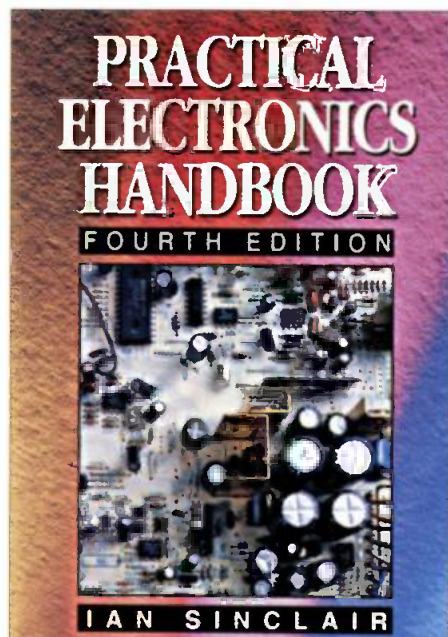
Practical Electronics Handbook

(4th Edition)

In effect this book is a reference

to order any of the titles mentioned or form in this issue or telephone M

Files



source for components and how they work and typical circuits, etc. Ideal for the more experienced electronics enthusiast, it provides 'thumb nail' design data and enough information to provide useful building blocks for circuit design and construction.

There's also very good coverage on digital and general computer and microprocessor electronics and digital techniques, backed up with pin-out details for important integrated circuits. A very useful reference and design source book, particularly for those interested in digital electronics and computer work. **Recommended.** The *Practical Electronics Handbook* is available for £13.95.

Secrets of RF Design

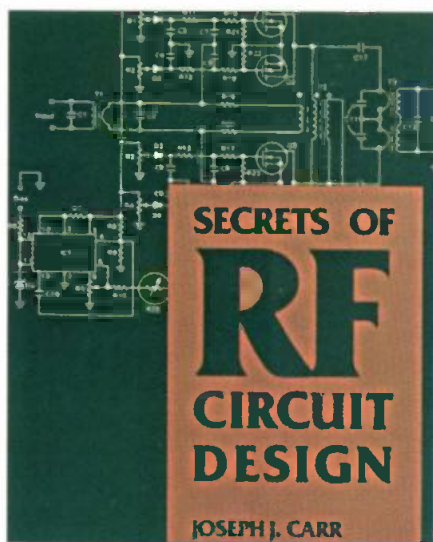
The author, Joe Carr, is very well known for his work in Amateur Radio and this book is a good

example of his output. Although the title of the book is rather misleading.

This is because rather than just being a 'circuit design' book...it's in fact packed throughout with circuits, projects and very practical ideas. Everything to do with r.f. is covered - from antennas to measuring devices and from receivers and transmitters to antennas.

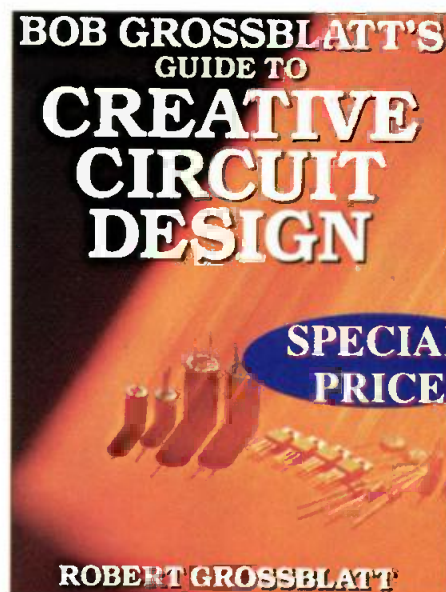
The author provides an excellent introduction to various components and techniques before leading the reader gently (and interestingly) into more complex r.f. techniques, circuits, ideas, projects and design suggestions. An excellent book - **very highly recommended** for any radio enthusiast's bookshelf.

Secrets of RF Design costs £18.95.



Bob Grossblatt's Guide To Creative Circuit Design

Here's another book with a somewhat misleading title. In reality it should be called 'Creative Digital



Circuit Design' because that's exactly what it covers. In effect the book provides a very good introduction for anyone starting off in digital electronics.

Although very 'American' in approach, anyone interested in introducing themselves to digital techniques would find it difficult to find anything better because of the author's style in describing theory, techniques and practical ideas.

Highly recommended for anyone interested in learning about and working with digital electronics.

Order this month and get the *Bob Grossblatt's Guide To Creative Circuit Design* for the special price of £12.95.

CALL NOW

On these two pages please use the order Michael Hurst on (01202) 659930

SHORTWAVE RADIO LISTENING FOR BEGINNERS.

Anita Louise McCormick K8BKGL	176 pages. £10.95
TRAINING FOR THE NOVICE LICENCE A MANUAL FOR THE INSTRUCTOR (RSGB)	
John Case GW4HWR	101 pages. £6.75
W1FB'S HELP FOR NEW HAMS (ARRL) . Doug DeMaw W1FB.	155 pages. £8.95

CALLBOOKS

AMATEUR RADIO CALL BOOK AND INFORMATION DIRECTORY (RSGB)	
1997 Edition.	529 pages. £13.50
INTERNATIONAL CALLBOOK 1997	£20.95
NORTH AMERICAN CALLBOOK 1997	£20.95
JOINT INT'L AMERICAN CALLBOOK CD-ROM 1997	£35

COMPUTING

ACCESS 95 ONE STEP AT A TIME BP408	115 pages. £5.99
AN INTRODUCTION TO COMPUTER COMMUNICATIONS BP177.	
R. A. Penfold.	2 pages. £2.95
HOW TO EXPAND, MODERNISE AND REPAIR PCs AND COMPATIBLES BP271	
R. A. Penfold.	166 pages £ 5.95
INTERFACING PCs AND COMPATIBLES BP272. R. A. Penfold	86 pages. £3.95
MS-OFFICE ONE STEP AT A TIME (BP402)	77 pages. £5.95
MS WORD 95 EXPLAINED BP406	175 pages. £6.99
MS WORKS FOR WINDOW'S 95 EXPLAINED BP405	175 pages. £5.95
NEWNES COMPUTER ENGINEER'S POCKET BOOK Third Edition.	
Michael Tooley.	256 pages. £12.95
PCs MADE EASY: Second Edition. James L. Turley.	38 pages. £15.95
THE INTERNET AND WORLD WIDE WEB EXPLAINED. J. Shelley.	130 pages. £5.95
WINDOWS 95 EXPLAINED (BP400).	175 pages. £5.95

EMC

INTERFERENCE HANDBOOK. William R. Nelson WA6FQG.	250 pages. £9.50
THE RADIO AMATEUR'S GUIDE TO EMC (RSGB). Robin Page-Jones G3JWL.	117 pages. £8.95

HISTORICAL

1934 OFFICIAL SHORT WAVE RADIO MANUAL. Edited by Hugo Gernsback.	260 pages. £11.85
OLD TIME RADIOS - RESTORATION & REPAIR. Carr.	256 pages. £15.95
EXPERIMENTAL TELEVISION (1932)	312 pages. £11.75
SECRETS OF HOMEBUILT REGENERATIVE RECEIVERS (Rockey)	127 pages. £7.95
THOSE GREAT OLD HANDBOOK RECEIVERS (1929 + 1934)	94 pages. £6.95
THE BRIGHT SPARKS OF WIRELESS (RSGB). G. R. Jessep G6JP.	£12.50
WORLD AT THEIR FINGERTIPS (RSGB).	307 pages. £6.30
VISION BY RADIO (1925) (Jenkin)	140 pages. £7.85

MAPS AND LOG BOOKS

AMATEUR RADIO LOGBOOK (RSGB).	£3.50
NORTH ATLANTIC ROUTE CHART	740 x 520mm. £8.50
QTH LOCATOR MAP OF EUROPE.	1080 x 680mm. £6.50
RADIO AMATEURS MAP OF THE WORLD.	980 x 680mm. £6.50
RECEIVING STATION LOG BOOK (RSGB).	£3.50
RSGB PREFIX GUIDE.	£5.00

MORSE

MORSE CODE FOR RADIO AMATEURS (RSGB)	28 pages. £4.25
---	-----------------

MICROWAVES

AN INTRODUCTION TO MICROWAVES (BP312).	F. A. Wilson. 134 pages. £3.95
ARRL UHF/MICROWAVE EXPERIMENTER'S MANUAL Various Authors.	446 pages. £14.50
ARRL UHF/MICROWAVES PROJECT MANUAL (ARRL).	400 pages. £15.50
MICROWAVE HANDBOOK - COMPONENTS & OPERATING Vol 1 (RSGB)	£10.50
MICROWAVE HANDBOOK - CONSTRUCTION & TESTING Vol 2 (RSGB)	£15.75
MICROWAVE HANDBOOK - BANDS & EQUIPMENT Vol 3 (RSGB)	£15.75 or buy all 3 for £32

OPERATING AND HANDBOOKS

AMATEUR RADIO OPERATING MANUAL (RSGB). Ray Eckersley G4FTJ.	249 pages. £12.23
ARRL HANDBOOK FOR RADIO AMATEURS 1997 (ARRL).	1200 pages. £25
COMPLETE DX'ER. Bob Locher.	204 pages. £8.95
HINTS AND KINKS FOR THE RADIO AMATEUR.	
Edited by Charles L. Hutchinson and David Newkirk.	129 pages. £9.50
RADIO COMMUNICATION HANDBOOK (RSGB).	
6th Edition. Dick Biddulph G8PDS.	750 pages. £21.00
SETTING UP AN AMATEUR RADIO STATION BP300. I. D. Poole.	81 pages. £3.95

PACKET

PRACTICAL GUIDE TO PACKET OPERATION IN THE UK.	
Mike Mansfield G6AWD NEW EDITION.	220 pages. £11.50
PACKET RADIO PRIMER (RSGB). Dave Comber G8UYZ & Martyn Corft G8NZU.	266 pages. £8.95
YOUR GATEWAY TO PACKET RADIO. Stan Horzempa WA1LOU.	278 pages. £8.95
YOUR PACKET COMPANION. Steve Ford WB8IMY.	170 pages. £5.95

PROPAGATION

AN INTRODUCTION TO RADIO WAVE PROPAGATION BP293. J.G. Lee.	116 pages. £3.95
LOW PROFILE AMATEUR RADIO - OPERATING A HAM STATION FROM ALMOST ANYWHERE (ARRL). Jim Kearman KR1S.	124 pages. £7.50

QRP

Q-QRP CLUB CIRCUIT HANDBOOK Edited by Rev. G. Dobbs G3RJV.	96 pages. £9.00
QRP CLASSICS (ARRL). Edited by Bob Scheigen.	274 pages. £10.50
W1FB'S QRP NOTEBOOK (ARRL). 2nd Edition. Doug De Maw W1FB.	175 pages. £7.95

TEST EQUIPMENT

GETTING THE MOST FROM YOUR MULTIMETER BP239. R. A. Penfold.	102 pages. £2.95
HANDS-ON GUIDE TO OSCILLOSCOPES. Barry Ross.	228 pages. £17.95
HOW TO USE OSCILLOSCOPES & OTHER TEST EQUIPMENT BP267.	
R. A. Penfold.	104 pages. £3.50
MORE ADVANCED TEST EQUIPMENT CONSTRUCTION BP249. R. A. Penfold.	102 pages. £3.50
MORE ADVANCED USES OF THE MULTIMETER BP265. R. A. Penfold.	96 pages. £2.95
PRACTICAL TRANSMITTERS FOR NOVICES. John Case GW4HWR	126 pages. £10.00
TEST EQUIPMENT FOR THE RADIO AMATEUR. Clive Smith G4FZ11	170 pages. £10.95

VHF

ALL ABOUT VHF AMATEUR RADIO. W. L. Orr W6SAL	163 pages. £9.50
AN INTRODUCTION TO VHF/UHF FOR RADIO AMATEURS BP281.	
I. D. Poole	102 pages. £3.50

ELECTRONICS

A REFERENCE GUIDE TO BASIC ELECTRONICS TERMS BP286.	
F. A. Wilson	472 pages. £5.95
A REFERENCE GUIDE TO PRACTICAL ELECTRONICS TERMS BP287.	
F. A. Wilson	431 pages. £5.95
BEGINNERS GUIDE TO MODERN ELECTRONIC COMPONENTS BP285.	
R. A. Penfold.	166 pages. £3.95
CIRCUIT SOURCE BOOK 1 - BP321. R.A. Penfold.	182 pages. £4.95
CIRCUIT SOURCE BOOK 2 - BP322. R.A. Penfold.	211 pages. £4.95
ELECTRONIC HOBBYIST DATA BOOK. BP396. R. A. Penfold.	242 pages. £5.95
GETTING STARTED IN PRACTICAL ELECTRONICS BP345. Owen Bishop.	198 pages. £4.95
NEWNES AUDIO AND HI-FI ENGINEER'S POCKET BOOK Third Edition.	
Vivian Capel.	210 pages. £12.95
NEWNES ELECTRONICS ENGINEER'S POCKET BOOK. Keith Brindley.	306 pages. £12.95
POWER SUPPLY PROJECTS BP76. R. A. Penfold.	89 pages. £2.50
PRACTICAL ELECTRONIC FILTERS BP299. Owen Bishop.	89 pages. £4.95
PRACTICAL ELECTRONICS HANDBOOK. Ian Sinclair.	439 pages. £13.95
PRACTICAL OSCILLATOR CIRCUITS BP393. A. Flind.	136 pages. £1.99
TEST EQUIPMENT CONSTRUCTION BP248. R.A. Penfold.	104 pages. £2.95
W1FB'S DESIGN NOTEBOOK (ARRL). Doug DeMaw W1FB.	195 pages. £8.50

DATA

ARRL ELECTRONICS DATA BOOK. Doug DeMaw W1FB.	260 pages. £8.95
BASIC RADIO & ELECTRONIC CALCULATIONS. Ray Petri G0OAT	£13.95
PRACTICAL ELECTRONICS CALCULATIONS AND FORMULAE BP53.	
F. A. Wilson	249 pages. £3.95
PRACTICAL ELECTRONIC DESIGN DATA BP316. Owen Bishop.	327 pages. £4.95
RADIO AMATEUR AND LISTENER'S DATA HANDBOOK. Steve Money. 2	40 pages. £12.95
RADIO DATA REFERENCE BOOK (RSGB) 6th Edition.	252 pages. £8.50
RADIO FREQUENCY TRANSISTORS PRINCIPLES AND PRACTICAL APPLICATIONS	
Norm Dye & Helge Granberg.	235 pages. £19.95
SECRETS OF RF CIRCUIT DESIGN. Joseph Carr.	405 pages. £18.95
SOLID STATE DESIGN FOR THE RADIO AMATEUR (ARRL).	
Les Hayward W7Z01 & Doug DeMaw W1FB	256 pages. £10.50
TRANSMITTER HUNTING - RADIO DIRECTION FINDING SIMPLIFIED	
Joseph D. Moell & Thomas N. Curlee	325 pages. £21.95
TRANSISTOR DATA TABLES (BP401).	178 pages. £5.95

PROJECTS

COIL DESIGN AND CONSTRUCTION MANUAL BP160. B.B. Babani.	106 pages. £3.95
HOW TO DESIGN AND MAKE YOUR OWN PCBs BP121. R. A. Penfold.	66 pages. £2.50
MORE ADVANCED POWER SUPPLY PROJECTS BP192. R. A. Penfold.	92 pages. £2.95
PROJECTS FOR RADIO AMATEURS AND SWLS BP304. R. A. Penfold.	92 pages. £3.95
SHORT WAVE SUPERHET RECEIVER CONSTRUCTION BP276. R.A. Penfold.	80 pages. £2.95
SIMPLE SHORT WAVE RECEIVER CONSTRUCTION BP275. R. A. Penfold.	88 pages. £3.95

VALVES/TUBES

ELECTRON TUBE LOCATOR. George H. Fathauer.	350 pages. £19.95
ESSENTIAL CHARACTERISTICS (TUBES & TRANSISTORS)	
(Original Publishers General Electric) Re-published by Antique Electronic Supply (Arizona).	475 pages. £9.95
HANDBOOK OF RADIO, TV, INDUSTRIAL & TRANSMITTING TUBE & VALVE EQUIVALENTS.	60 pages. £2.95
RADIO VALVE GUIDE BOOKS 1-5	£2.95 each
RCA RECEIVING TUBE MANUAL (Original Publishers Radio Corporation Of America)	
Re-published by Antique Electronic Supply (Arizona).	384 pages. £10.50
RCA TRANSMITTING TUBES	
(Original Publisher Radio Corporation of America) Re-published by Antique Electronic Supply (Arizona).	318 pages. £9.95

Take a good look at our book selection this month, one or two new titles have been added and several 'old friends' return. If you need a wall planner for your shack, please ask and I'll put one in your parcel. Some interesting titles appear on the Profile pages this month on the theme of electronics - well worth a look! Bye for now. 73, Michael.

THE UK'S BEST SELLING AMATEUR RADIO MAGAZINE

practical **wireless**



RADIO HISTORY:

○ Keith Orchard G3TTC provides a potted history of the BBC's transmitting station at Daventry.

REVIEWED!

○ The Watson DS-232 Multi-mode Modem.

○ A Single Paddle Key & A Touch Keyer from the Kent Keys Collection.

CONSTRUCTION:

○ Build an L&C bridge with the help of Denis Dayne G3KCR.

REGULAR COLUMNS:

- Scene USA
- Carry on The Practical Way
- Antenna Workshop

Plus much more!



SPECIAL FEATURE!

Dick Pascoe G0LPS takes a behind the scenes look at Channel Travel Radio the radio station responsible for keeping Channel crossers on the move!

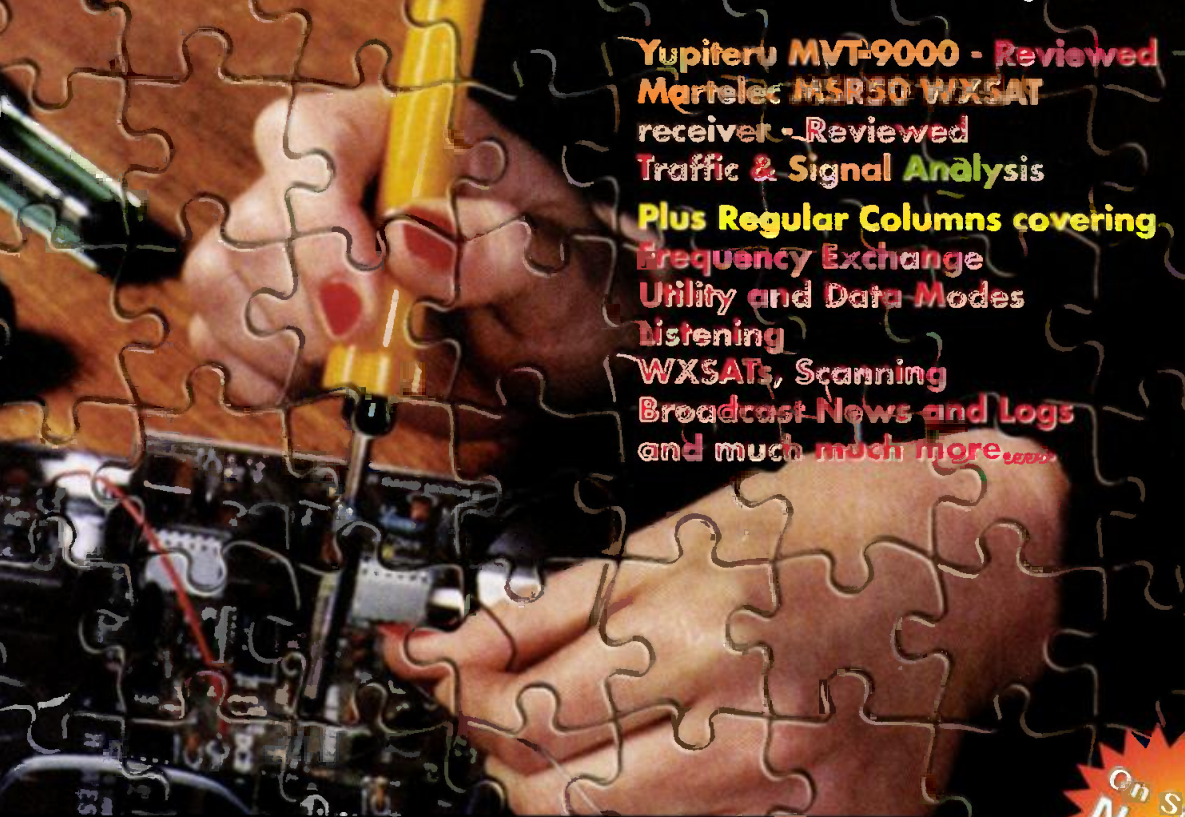
CHANNEL TRAVEL RADIO

Contents subject to change

CAN YOU AFFORD TO MISS IT? - ON SALE 13 MARCH 1997 - PLACE YOUR ORDER

short wave magazine

Build, build, build - Kits and-Projects



Yupiteru MVT-9000 - Reviewed
 Martelec MSR50 WXSAT receiver - Reviewed
 Traffic & Signal Analysis
 Plus Regular Columns covering:
 Frequency Exchange
 Utility and Data Modes
 Listening
 WXSATs, Scanning
 Broadcast News and Logs
 and much much more...

FIND THE ANSWERS IN SHORT WAVE MAGAZINE - ON SALE NOW!!!

On Sale Now!
Contents subject to change

YOUR LOCAL DEALERS

<p>LONDON HAYDON COMMUNICATIONS <i>For all your amateur radio equipment.</i> NEW, SECONDHAND, EX-DEMO 132 High St., Edgware, Middx HA8 7EL Tel: 0181-951 5781/2 Fax: 0181-951 5782 Open Mon-Fri 10-6, Sat 10-5 Outside office hours 0589 318777</p>	<p>SURREY Chris Rees G3TUX The QRP Component Company PO Box 88 Haslemere Surrey GU27 2RF Tel: (01428) 661501 Fax: (01428) 661794 KITS, KEYS & QRP MAIL ORDER - 9AM TO 6PM (NOT SUNDAYS) SAE FOR LISTS AND LITERATURE</p>	<p>MID GLAMORGAN SANDPIPER COMMUNICATIONS Unit 5, Enterprise House, Cwmbach Industrial Estate, Aberdare, Mid Glamorgan CF44 0AE Tel: (01685) 870425 Fax: (01685) 876104 A full range of transmitting & receiving antennas available for the amateur commercial market.</p>	<p>LONDON MARTIN LYNCH & Son For all your amateur radio needs 140-142 Northfield Avenue Ealing London W13 9SB Tel: 0181-566 1120 Fax: 0181-566 1207</p>
<p>BIRMINGHAM FREE CB RADIO CATALOGUE PHONE 0121-457 7788 ***** SRP RADIO CENTRE</p>	<p>SCOTLAND JAYCEE ELECTRONICS LTD 20 Woodside Way, Glenrothes, Fife KY7 5DF Tel: (01592) 756962 (Day or Night) Fax No. (01592) 610451 Open: Tues-Fri 9-5; Sat 9-4 KENWOOD, YAESU & ICOM APPROVED DEALERS <i>A good stock of new and secondhand equipment always in stock</i></p>	<p>KENT KANGA PRODUCTS <i>For QRP kits</i> A variety of kits for RECEIVERS, TRANSMITTERS & TEST GEAR. <i>Send an A5 SAE for a free copy of our catalogue</i> Seaview House, Crete Road East Folkestone, CT18 7EG Tel/Fax (01303) 891106 9900 - 1900 Only</p>	<p>SCOTLAND TENNAMAST SCOTLAND LTD Masts from 25ft - 40ft Adapt-A-Mast (01505) 503824 81 Mains Road, Beith, Ayrshire, KA15 2JF</p>
<p>To reach almost 40,000 readers every month, ring <i>Chris or Paul</i> on 01202 659920 and advertise YOUR company</p>	<p>DORSET THE SHORTWAVE SHOP Novice/C.B./Amateur/SWL Equipment. <i>Full range secondhand equipment always available.</i> 18 Fairmile Road, Christchurch, Dorset BH23 2LJ Tel/Fax: 01202 490099</p>	<p>AVON/SOMERSET QSL COMMUNICATIONS We stock all makes of equipment for the Amateur and Listener. Part Exchange Welcome Unit 6, Worle Industrial Centre, Coker Road, Worle, Weston-Super-Mare BS22 0BX Tel/Fax: (01934) 512757</p>	<p>SOUTHAMPTON SMC Ltd Main Dealer for: Yaesu, Kenwood, Icom AOR & Cushcraft SM House, School Close, Chandlers Ford Industrial Estate, Eastleigh, Hampshire SO5 3BY Tel: (01703) 255111 Fax: (01703) 263507</p>
<p>DERBYSHIRE Low Electronics THE HAM RADIO SUPERSTORE Kenwood, Yaesu, Icom etc. always in stock. Chesterfield Rd., Matlock, Derbys DE4 5LE Tel: 01629 580800 Fax: 01629 580020 E-mail: info@lowe.co.uk orders@lowe.co.uk</p>	<p>ESSEX Coastal Communications <i>Meeting your demands</i> FOR ALL YOUR AMATEUR RADIO NEEDS. 19 Cambridge Road Clacton-on-Sea, Essex CO15 3QJ Tel: 01255 474292. Fax: 01255 476524 Mon-Sat 9am-5pm; Wed 9am-2pm.</p>	<p>NORTHWEST ARC Ltd. <i>Everything for the radio amateur under one roof!</i> 38 Bridge Street, Earlestown, Newton-le-Willows, Merseyside WA12 9BA Tel: 01925 229881 Fax: 01925 229882</p>	<p>DORSET BOOKS BOOKS BOOKS PW PUBLISHING BOOK SERVICE Tel: 01202 659930 Fax: 01202 659950</p>

Index to Advertisers

A H Supplies.....	93	Lake Electronics.....	93	Radio Tech.....	31
Aerial Techniques.....	72	Langrex Supplies.....	79	RAS Notts.....	93
AKD.....	56	Maplin Electronics.....	6	RSGB.....	83
Cheshunt Marriott Hotel.....	53	Martin Lynch & Son.....	41, 42/3	Short Wave Magazine.....	99
Colomar Electronics.....	79	Monitoring Times.....	30	SMC.....	4/5
Comm Tech Services.....	76	Multicomm 2000.....	86/87	Sowter Transformers.....	79
Datong Electronics.....	31	NCT Enterprises.....	72	Specialist Media & Marketing.....	84
Eastern Communications.....	29	Nevada Communications.....	16/17	Spectrum Communications.....	69
Essex Amateur Radio Society.....	48	Norbreck Exhibition.....	30	SRP Trading.....	20
Fairhaven Electronics.....	93	Number One Systems.....	84	Sunrise Electronics.....	44
Hately Antenna Technology.....	31	Odyssey Phones.....	64	TAD Communications.....	76
Haydon Communications.....	11, 12/13	PCB Service.....	53	Tennamast.....	31
Holdings Amateur Electronics.....	93	Pervisell.....	69	Victor Brand (WACRAL).....	93
Howes, C M.....	48	Photo Acoustics.....	88	Vine Antenna Products.....	31
Icom (UK).....	IBC	Picketts Lock '97.....	49	Waters & Stanton.....	IFC/1, 2
J Birkett.....	93	PW Services.....	72	Yaesu.....	OBC
JPG Electronics.....	72	Pyramid Electronics.....	69		
Lab Centre.....	32	Quick Route Computers.....	81		

ICOM

IC-756

NEW HF/6M DSP TRANSCEIVER



This latest radio transceiver from ICOM is aimed at operators who need excellent performance and reliability at a sensible price. The IC-756 will appeal to all users from entry-level upwards and makes an ideal base rig for all HF/50Mhz enthusiasts.

FEATURES INCLUDE:

Integrated 4.9in. Data Display • Band Scope • Soft Key for Function Assignment • Visible Tx Message on Memory Keyer • DSP/Dual-Watch as Standard • CW Filter Options • Voice Synthesizer • All Usual ICOM Desk-Top Accessories.

WANT TO KNOW MORE? - CONTACT YOUR LOCAL DEALER TODAY!

ICOM... manufacturers of top performing base-stations, mobiles, handheld transceivers and receivers.
Icom (UK) Ltd. Sea Street Herne Bay Kent CT6 8LD. Telephone: 01227 741741. Fax: 01227 741742.
INTERNET: <http://www.icomuk.co.uk/> E-MAIL: icomsales@icomuk.co.uk.

Count on us!

NEW

Compact Dual Band Mobile FT-8000R

Now, a dual band that's so advanced it's simple!



"So easy to operate, I didn't even need the manual!"

"High-tech features, too, like the enhanced Smart-Search™."



"Advanced performance, and simple to use. I knew Yaesu would be first with this."

"Yaesu did it again!"

Continuing Yaesu's leading edge engineering philosophy, the FT-8000R Compact Dual Band Mobile introduces industry-first features and no-nonsense operation for today's demanding Amateur. No puzzling key combinations on the FT-8000R; eight clearly marked keys and Yaesu's exclusive Omni-Glow™ display make operation a snap. Want to change bands? Just push the VHF or UHF Volume control!

The FT-8000R is the first mobile to provide superwide receiver coverage – from 110 to 550 MHz and 750 to 1300 MHz*, receiving public safety, marine, and weather channels. Using Yaesu's exclusive Enhanced Smart Search™, the FT-8000R automatically seeks out and loads active simplex channels into up to 50 ESS memory channels in just seconds – ideal when traveling.

Built-to-last, the FT-8000R brings together the most-requested dual band features and a MIL-STD 810 rating for enduring performance. Dual receive (V+V, U+U or V+U), Crossband Repeat (bidirectional or one-way), up to 50 Watts of VHF power output (35 Watts on UHF) with High/Medium/Low selection on each band, and "plug and play" 1200 or 9600 bps packet are just a few.

Clearly a standout, the FT-8000R boasts 110 memory channels (55 per band including

one-touch "Home" channels) that store repeater shift, CTCSS encode tone, and packet baud rate. Other essential features include a Time Out Timer and an all-new S-Meter Squelch that opens based on the S-meter reading. Other options include a DTMF backlit microphone (another Yaesu first) and for a programming alternative, the ADMS-2C Personal Computer Programming Kit simplifies operation even more.

The FT-8000R is the most affordable, easiest-to-operate dual band mobile on the market today! Bring its high-tech performance features home with you. Available at your Yaesu dealer now!

YAESU

...leading the way.™

For the latest Yaesu news; hottest products, visit us on the Internet! <http://www.yaesu.com>

Features

- Frequency Coverage
RX: 110~550 MHz
750~1300 MHz*
TX: 144~146 MHz
430~450 MHz
 - 3 Power Output Levels
2m 50/10/5 Watt
70cm 35/10/5 Watt
 - 110 Memory Channels (55 per band, including "Home" channels)
 - Enhanced Smart Search™
 - CTCSS Encode
 - Time-Out Timer (TOT)
 - S-Meter Squelch
 - Dual Receive (V+V, U+U, V+U)
 - Crossband Repeat (bidirectional or one-way)
 - PC Programmable w/optional ADMS-2C
 - Intelligent Band Display (IBD)
 - Receiver Muting
 - Auto Power Off (APO)
 - MIL-STD 810 Rating
 - Omni-Glow™ Display
 - 1200/9600 bps Packet Compatible
 - Alternating-Band Memory Selection (ABMS)
 - DTMF Autodialer (one memory per band)
 - Accessories
- Consult your local Yaesu dealer.

*Cellular blocked.

FT-8500 Dual Band Mobile

Detachable remote front panel, Alphanumeric Display, Spectra-Analyzer™, Digital Voltage Display, 110 memories in 5 banks, choice of microphones, offers high performance operating flexibility.



Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.