receiving for the discerning few.

NRD 515  HF Monitoring Receiver . £948.75 inc VAT
NHD 515  Memory Unit . £161.00 inc VAT
NVA 515  Loudspeaker Unit . £27.60 inc VAT
CFL 260  600 Hz CW Filter . £34.50 inc VAT

LOWE ELECTRONICS Ltd.
CHESTERFIELD ROAD, MATLOCK, DERBYSHIRE DE4 5LE. TEL: 0629 2430/2817
TS530S building on success

The all new TS-530S is firmly based on the reputation of the TS-520 series incorporating many of the features of the superb TS-830. Now included as standard are the following features:

- Single conversion receiver and transmitter.
- Super accurate digital readout.
- Single master crystal PLL system for band to band accuracy.
- IF shift (passband tuning).
- All band coverage including WARC.
- RIT and XIT.
- Speech processor.
- Wide/narrow filter switching.

Also retained are the rugged reliable 61466 PA valves and the easy to use controls. Reliability is, of course, a Trio standard provision.

TS-530S transceiver £505.00 inc VAT carriage £4.50.

LOWE ELECTRONICS Ltd.
CHESTERFIELD ROAD, MATLOCK, DERBYSHIRE. TEL. 0629/2817.
A familiar name, but a whole new receiver. Building on all the excellent features of the SRX300 including the drift cancelling system covering 500 KHz to 30 MHz; the selectable sidebands and AM; the easy to use tuning system; we now introduce the all new SRX30D which incorporates the suggestions made by our customers. Outstanding new features are:

- Extended coverage 200 KHz - 30 MHz.
- Digital readout in large green display units which give true unambiguous frequency information even when you switch sidebands or use the clarifier.
- All new frequency synthesis using Plessey SL6 1641 balanced modular ICs for a new high standard of performance.
- All new audio system which produces outstandingly good quality on the built in speaker, and is capable of driving external hi fi speaker units for even better sound.
- All new IF filters with optimum bandwidth for mode in use. Automatic filter selection from mode switch.

There is so much that is impressive about the SRX30D that you have to see it and handle it to really appreciate the performance.

We predict that the SRX30D will be a landmark in low cost, high performance SWL receivers. Just consider how much you should pay for a receiver covering 200 KHz - 30 MHz with accurate digital readout; high performance USB/LSB/AM with switched filters; drift cancelling frequency synthesis; built in mains supply and built in speaker; high quality construction and advanced design — and so much more.

Then look at our price for the SRX30D and you will be even more impressed.

**£195.00 inc VAT, Securicor carriage £4.50.**

**Accessories for the short wave listener.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Inc VAT</th>
<th>Carr</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF5</td>
<td>80-10m vertical. No radials required when on ground post</td>
<td>48.50</td>
</tr>
<tr>
<td>EIS</td>
<td>Small egg insulator. Glazed ceramic 40 cm long</td>
<td>30</td>
</tr>
<tr>
<td>EIL</td>
<td>Large egg insulator. Glazed ceramic 50 cm long</td>
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<tr>
<td>SIR</td>
<td>Ribbed strain insulator for dipole end or centre</td>
<td>.35</td>
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<tr>
<td>MIZUHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KX2</td>
<td>Top quality 500 KHz-30 mhz aerial tuner. Perfect match for R1000</td>
<td>29.90</td>
</tr>
<tr>
<td>AX1</td>
<td>Aerial switching system. Handles 6 aerials &amp; 6 receivers</td>
<td>27.03</td>
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<tr>
<td>APM1</td>
<td>Audio peak and notch filter. Variable bandwidth active filters</td>
<td>33.00</td>
</tr>
<tr>
<td>SR1</td>
<td>Mini rack for above the system</td>
<td>14.09</td>
</tr>
<tr>
<td>MP1</td>
<td>Rack mount for APM1</td>
<td>5.20</td>
</tr>
</tbody>
</table>

**TRIO**

**pacesetter in amateur radio**

Trio 8400 the new way to 70 cm FM mobile, a fully synthesized 430-440 MHz. 10 watt output, mobile transceiver with memory 2 separate VFO’s all in a truly amazing compact package. Complete with up/down frequency shift, microphone and car mount bracket the TR8400 is the way to go. 70 cm is on the move.

**TR8400 70 cm. FM mobile.**

**£279 inc. VAT. Securicor carriage £4.50.**

Trio 9000 The exciting TR-9000 2-metre all-mode transceiver combining the convenience of FM with long distance SSB and CW in a very compact, very affordable package. Because of its compactness the TR-9000 is ideal for mobile installation; add on its fixed station accessories and it becomes the obvious choice for your shack.

**TR9000 2 metre multimode.**

**£345 inc. VAT. Securicor carriage £4.50.**

Trio 7800 Trio’s remarkable TR-7800 2-metre FM mobile transceiver provides all the features you could desire for maximum operating enjoyment. Frequency selection is easier than ever, and the rig incorporates new memory developments for repeater shift, priority, and scan. The TR-7800 by Trio, the most FM mobile.

**TR7800 2 metre mobile FM rig.**

**£268 inc. VAT. Securicor carriage £4.50.**
AMATEUR ELECTRONICS UK
Your number one source for YAESU MUSEN

NEW FT-101ZD Mk. III
Now from YAESU comes the latest version of the renowned FT-101 - AM/FM option, notch filter, audio peak filter, variable bandwidth - UNBEATABLE VALUE.

FT-480R High technology all-mode 2 metre mobile
The most advanced 2 metre mobile available today - USB, LSB, FM, CW full scanning with priority channel, 4 memory channels, dual synthesized VFO system.

FT-707 All solid-state HF mobile transceiver
The definitive HF mobile rig, digital, variable IF bandwidth, 100 watts PEP SSB, AM, CW (pictured here with 12 channel memory VFO).

FT-707 In base station format
Here we show the 707 together with the matching FP-707 PSU FC-707 ATU and FV-707DM VFO memory.

As factory appointed distributors we offer you - widest choice, largest stocks, quickest deal and fast sure service right through -

Access or attractive H.P. terms readily available for on-the-spot transactions.
Full demonstration facilities.
Free Securicor delivery.

For full details of these new and exciting models, send today for the latest YAESU CATALOGUE and LEAFLETS. All you need to do to obtain the latest information about these exciting developments from the world's No. 1 manufacturer of amateur radio equipment is to send 36p in stamps and as an added bonus you will get our credit voucher value £3.60 p - a 10 to 1 winning offer.
FL-2100Z High power all band HF linear

Conservatively rated at 1200W PEP input, the new WARC model incorporates all the new bands.

FRG-7700 Synthesized general coverage receiver

The very latest in receiver technology from YAESU. Receives USB, LSB, CW and FM—memory option with 12 channels and automatic band selection.

FT-902DM Competition grade HF transceiver

The YAESU world famous pace-setter with the acknowledged unbeatable reputation. 160 thru 10 metres including the new WARC bands. All-mode capability. SSB, CW, AM, FSK and FM transmit and receive. Teamed with the FTV-901R transverter coverage extends to 144 & 430MHz.

FT-225RD Deluxe 2 metre base station

The tried and proven all-mode 225RD has a very comprehensive specification including memory option, variable power output and DC operation for portable working.

FT-202R

2metre hand-held

Ultra compact lightweight (400g) FM hand-held 1 watt 6 channel, rugged and reliable —many thousands in use.

FT-207R Synthesized

2metre hand-held

400 channels on 144-146 MHz. Memory back-up, 2-5 watt output.

WHERE TO FIND US

Amateur Electronics UK
508-516 Alum Rock Road, Birmingham 8
Telephone: 021-327 1497 or 021-327 6313
Telex: 337045
Opening hours: 9.30 to 5.30 Tues. to Sat. continuous—CLOSED all day Monday.
Thanet Electronics for ICOM

the amateur's professional friends

Buy direct from us and get two years warranty on all equipment

IC-451 UHF Base Station

ICOM are proud to announce the introduction of the 70cm version of their famous 2m base station — the IC-251. Of course, it is engineered to the usual high ICOM standards and includes such features as:-

* 3 memory channels
* Automatic repeater shift on switch-on
* Additional selectable shift for European DX
* Selectable channel steps for FM (supplied with 25KHz — others are diode programmable)
* Full power control on SSB/CW/FM
* Superb receiver performance using MOSFETS
* Multipurpose scanning
* Covers 430-440 MHz
* Xtal controlled Toneburst
* Cool running chopper power supply

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* Automatic repeater shift on switch-on
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* Full power control on SSB/CW/FM
* Superb receiver performance using MOSFETS
* Multipurpose scanning
* Covers 430-440 MHz
* Xtal controlled Toneburst
* Cool running chopper power supply

As Versatile as an Egg
So get cracking Now!

IC-2E Handy Talky £159 INCL.

CHECK THE FEATURES

FULLY SYNTHESIZED — covering 144-145.995 in 400 5kHz steps.

POWER OUTPUT — 1.5W with the 9V rechargeable battery pack as supplied — but lower or higher output available with the optional 6V or 12V packs.

BNC ANTENA OUTPUT SOCKET — 50 ohms for connecting to another antenna or use the Rubber Duck supplied.

SEND/BATTERY INDICATOR — Lights during transmit, but when battery power falls below 6V it doesn’t light indicating the need for a recharge.

FREQUENCY SELECTION — by thumbwheel switches, indicating the frequency.

+5kHz SWITCH — adds 5kHz to the indicated frequency.

DUPLEX SIMPLEX SWITCH — gives simplex or plus 600kHz or minus 600kHz Transmit.

HI-LOW SWITCH — reduces power output from 1.5W to 150mW reducing battery drain.

EXTERNAL MICROPHONE JACK — If you do not wish to use the built-in electret condenser mic an optional microphone/speaker with PTT control can be used. Useful for pocket operation.

EXTERNAL SPEAKER JACK — For speaker or earphone.

This little beauty is supplied ready to go complete with nicad battery pack, charger, rubber duck.

On these, and all our other products:

* Free delivery for all transceivers, using registered first class post
* H.P. and Part Exchange welcome. All prices including V.A.T.

SEND FOR TECHNICAL DETAILS

Also available from our shop in Herne Bay are:

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* RSGB PUBLICATIONS
* J-BEAM
* G-WHIP
* WESTERN
* BEARCAT
* ANTENNA SPECIALISTS
* YAESU MUSEN
* VIDEO GENIE COMPUTERS

IMPORTANT

We would like you to phone, or write to us so that we can give you as much detailed information as possible on any particular product. Use our 24 hour anasafone when calls are cheap.

Thanet for ICOM

143 RECULVER RD.,
BELTINGE,
HERNE BAY, KENT.
Tel: 02273/63859
IC-255E
An experts mobile choice

25 Watts — 5 Memories — Scanning — 600kHz
AND User Selectable Repeater Shift — Full Coverage in 5kHz or 25kHz Steps.

- Crystal controlled Tone burst
- Full band coverage — extendable to 148MHz if required
- Four digit LED display
- 25 Watts output or 1W low power
- A superb receiver using grounded gate FET front end
- Scanning over a user programmable range
- Memory scan
- Stop on empty or busy channels
- Tuning in 25kHz or 5kHz steps
- 5 Memories — retained while the power is connected to the rig
- Built-in 600kHz Repeater/Shift
- Alternative programmable shift
- Reverse Repeater facilities
- RIT (± 3kHz for those off channel stations)
- Scan control from the microphone (optional mic available)
- Good loud audio
- Optically coupled tuning between control knob and CPU
- Multiway 24 pin socket on back for touchpad, computer, or external control
- Rugged modular PA (Guaranteed of course!)
- Mobile mount which can be padlocked
* Up-down scanning microphone available

CAN YOU RESIST SUCH A TEMPTATION

Enjoy VHF mobile at it’s best — IC-260E

The IC-260E offers such extras as full frequency read out, upper and lower sideband, and scanning as well as FM and CW. Thus, it makes an ideal base station, when used with a DC power supply, as well as a mobile. Now supplied with up-down scanning mic.

£339 INCL.

ICOM IC 251E

The Latest 2M Multimode Base Station

Facilities include: FM, USB, LSB and CW. Built in scanner and memories. Bright green digital readout.

only £479 INCL.

SEND FOR TECHNICAL DETAILS

AGENTS (PHONE FIRST — All evenings and weekends only)
Scotland Jack GM8GEC (031-665-2420) Midlands Tony GBAVH (021-329 2305)
Wales Tony GW3FKO (0874 2772) North West Gordon G3LEQ (Knutsford (0565) 4040)

See us at EVASION CASTLE RALLY JUNE 14th
LET Western the "MAST MAKERS" HELP YOU GET IT UP!

ULTIMAST

The ULTIMAST is a tubular steel two-section mast which is telescopic and tilt-over. Constructed of two steel tubes — the lower square section and the upper round section — and hot-dip galvanised for corrosion resistance, the ULTIMAST telescopes up to 30ft (9m) and down to 15ft (4.5m). Secured to a square section tubular base post, the mast can be tilted over to only 3ft (1m) above ground for ease of access to antennas. Two head units allow clamping of rotor to 2” (50mm) dia. stub, or internal flat plate mounting.

* Slim and unobtrusive
* One-winch operation
* Simple ground fixing
* Self-supporting
* For HF and VHF antennas

A COMPLETE TELESCOPIC TILT-OVERMAST for only UM-1: UHD-2

FULL PRICE LIST

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM-1 Basic mast</td>
<td>£215.00</td>
</tr>
<tr>
<td>UHD-2 Reducing head adaptor</td>
<td>£13.25</td>
</tr>
<tr>
<td>UHD-2 Rotor head unit</td>
<td>£31.05</td>
</tr>
</tbody>
</table>

All prices include carriage and VAT at 15%

For Scotland — add £10 extra carriage

ALUMAST

The ALUMAST is a 15" (375mm) wide triangular cross section lattice sectional aluminium mast based on a 10ft (3.05m) section length. It is supplied "knocked-down" in a tubular carton for ease of transport, but can easily be assembled needing no special tools or skills. The system includes top plate with bearing sleeve, rotor plate and a choice of a fixed base frame (FB 1) or one with hinge joints (HB 1) to enable the mast to be pivoted at ground level. Guy brackets are available for use at heights above 30ft.

* Made from high strength corrosion resistant alloy using WESTERN EXCLUSIVE 'W' section leg extrusions.
* Easy assembly using bolts and "Nyloc" locking nuts for security.
* Free-standing to 30ft (9.15m) with a typical tri-band plus VHF/UHF antennas.
* Heights to 250ft (75m) with appropriate guy configurations (ask us for quotes).
* Lightweights — only 25lb (11kg) per 10ft (3.05m) section.
* 30ft (9.15m) mast is delivered in a tube only 10ft 6in (3.2m) long 6in (1.26m) dia.

A COMPLETE 30ft (9.15m) MAST for 375/PSS/3; HB-1; RMP-1; TP-1

FULL PRICE LIST

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>375/PSS/3 30ft mast (3 sections)</td>
<td>£184.00</td>
</tr>
<tr>
<td>375/PSS/1 Additional 10ft section</td>
<td>£12.68</td>
</tr>
<tr>
<td>HB-1 Hinged base unit</td>
<td>£31.05</td>
</tr>
<tr>
<td>FB-1 Fixed base unit</td>
<td>£21.85</td>
</tr>
<tr>
<td>RMP-1 Rotor mounting plate</td>
<td>£12.08</td>
</tr>
<tr>
<td>TP-1 Top plate with sleeve</td>
<td>£13.23</td>
</tr>
<tr>
<td>GB-1 Guy brackets (set of 3)</td>
<td>£11.50</td>
</tr>
</tbody>
</table>

All prices include carriage and VAT at 15%

For Scotland — add £10 extra carriage

DEALER ENQUIRIES WELCOME
A Western SPRING SELECTION of HF TRANSCEIVERS . . .

**YAESU FT-101ZD**

The FT-101 series needs little introduction. Suffice it to say that the latest FT-101Z (analogue) and FT-101ZD (digital) transceivers represent a first-class continuation of a fine line of HF equipment. The latest technology brings you top performance at a price you can afford. Full details of this exciting transceiver available on request. WARC bands fitted, of course!

**YAESU FT-707**

The FT-707 is in the forefront of the new generation of compact HF solid-state transceivers. Little larger than a book, the FT-707 is a full-feature transceiver with performance you might expect only in a "top-line" piece of equipment. Ideally suited for a home base station or as a mobile travelling companion. Features digital display, IF with control, LED meter system — and of course all new WARC bands!

**TRIO TS-830S**

The TS-830S is in the forefront of the new generation of compact HF solid-state transceivers. Little larger than a book, the TS-830S is a full-feature transceiver with performance you might expect only in a "top-line" piece of equipment. Ideally suited for a home base station or as a mobile travelling companion. Features digital display, IF with control, LED meter system — and of course all new WARC bands!

**TRIO TS-130S**

The TS-130S series is an incredibly compact, full-featured, all solid-state HF SSB/CW transceiver for both mobile and fixed operation. It covers 3.5 to 29.7MHz (including the three new bands!) and is loaded with optimum operating features such as digital display, IF shift, speech processor, narrow/wide filter selection (for both SSB and CW modes), and optional (DFC-230) digital frequency controller.

**AND A GREAT PAIR OF GENERAL COVERAGE RECEIVERS**

**YAESU FRG-7700**

The short-wave listener’s dream is now a reality in the FRG-7700 — an advanced all-mode communications receiver featuring significant advances in circuit design and operating convenience.

**TRIO R-1000**

One of the best on the general coverage scene. Full coverage 200kHz to 30MHz with digital frequency readout and clock/timer. Switched selectivity for optimum performance and other features making it a joy to use and first class value for money.


AND OUR YAESU AND TRIO HAS A 2 YEAR WARRANTY . . .

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May’s Hi-Fi, Churchgate
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NORTHERN IRELAND
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Newtownards (0247) 815959

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TRIO TS830S £639.52

TRIO TS130S £491.05

TRIO TR2300 £166.00

TRIO R1000 £285.20

TRIO TR9000 £345.00

TRIO TR7800 £268.00

A brand new model having all nine bands fitted and providing 200 watts output SSB/CW. Built in 230V ac supply. E1468 tubes and full digital and analogue conversion. Plus a really comprehensive variable selectivity and notch filtering system. The DXer’s dream.

The receiver that revolutionised short wave listening. Full 80 band coverage 200kHz to 20MHz SSB/CW/WAM. Both digital and analogue receivers are provided together with 230V or 12V dc operation facility. Trip engineering at its best and at a very competitive price.

A brand new 2metre transceiver that serves the dual role of mobile and base station. Features include digital readout, 12% or 25kHz steps in FM, memories band scanning and a lot more! Send for coloured leaflet.

The TR2300 still amazes us as its value for money. Portable, mobile or base station it is equally at home in all 3 situations. 1 Watt 80 channels complete with hand held charger. An ideal rig for the beginner.

Base or mobile this solid state HF transceiver covers eight bands SSB/CW with a genuine 10W watts output. No tune up, IF tuning and speech processing changes are just a few of its features. 12V dc operation with full digital display plus optional PPS for 230V ac operation.

The latest Trio 25 watt FM transceiver with a host of features that makes mobile operating a real pleasure. Built in keypad, digital readout, 14 WCD incremental tuning — the list of features is endless. Send for full details.

TRIO TS830S £639.52

TRIO TS130S £491.05

TRIO TR2300 £166.00

TRIO R1000 £285.20

TRIO TR9000 £345.00

TRIO TR7800 £268.00

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The latest Trio 25 watt FM transceiver with a host of features that makes mobile operating a real pleasure. Built in keypad, digital readout, 14 WCD incremental tuning — the list of features is endless. Send for full details.
REMEMBER: When you deal with SMC you get:
- The SMC 2-year guarantee on Yaesu. The speedy free Securicor service.
- The spacious, very well-equipped, ably staffed test and service facility.
- The knowledge that we carry tens of thousands of pounds of spare parts.
- Our discreet "instant" H.P. Our personal export documentation scheme.
- Our in-person, or over the 'phone, time saving credit card acceptance.
- Our honest advice and evaluation of part exchange equipments’ worth.
- Our deep interest and knowledge in most facets of our common hobby.

AND DO NOT FORGET THE FREE FINANCE SCHEME
Give us a ring for full details (subject to clearance and a minimum of £100 invoice) we will help you to enjoy new regular priced Yaesu, KDK, Gem Quad, Ascot, SMCHS, CDE, Hy Gain, Stolle, Channel Master, SMC, Hansen, MFJ, KLM, Mirage, and Hi-Mound — Tomorrow!

NEW

FT101ZFM £529 inc.

FT107M £690* inc.
180-10m. SSB, CW, FSK, AM Memory option. Deluxe all solid state.

FT902DM £799 inc.
10-190m. SSB, CW, AM, FM, Deluxe Digital, IDE version £713.00, D version £724.50.

FRG7 £199 inc.
0.15-30MHz. General Coverage Receiver. AM, SSB, CW, FM (Memory Version £368).

FRG7700 £309 inc.
0.15-30MHz. General Coverage Receiver. AM, SSB, CW, FM (Memory Version £388).

FT480R £359 inc.
2m. Synthesised, 25, 125, 1kHz steps FM 1kHz, 100, 1kHz steps SSB, 10W PEP.

FT780R £409 inc.
70m. Synthesised, 100, 25, 1kHz steps FM 1kHz, 100, 1kHz steps SSB, 10W PEP.

FT707 £500 inc.
10-160m. 100W PEP, SSB, AM, CW, Variable IF Bandwidth, Digital. 8 Bandner.

FT225RD £565 inc.
2m. SSB, CW, FM, AM, Digital readout. 25 watts. Analogue version £529.

* SALE *

FT202R £109 inc.
144MHz 1W 6 Chan (3inc.).

FT70R £199 inc.
144MHz 1W 6 Chan (3inc.).

FT400R £199 inc.
435MHz 3W 6 Channel.

FT207R £199 inc.
144MHz 3W 12kHz Synth.

FT208R £199 inc.
144MHz 1W 6 Chan (3inc.).

FT720 RV £253 inc.
FT720R £253 inc.
FT720R £253 inc.
FT720RV £135, 720RV £145, 720RV £155, 720RV £165, 720RV £175, 720RV £185, 720RV £195.

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Carriage charges are for the mainland only (excluding post) and are shown at the end of each item. Where more than one carriage is quoted, total freight charge is likely to be lower than the sum of the individual charges.

Cables, ropes, etc., are shown as weight per unit length. Carriage is £1.50 to 7kg thereafter. Add an extra £0.15 per kg.
If you’re planning to spend some of your hard-earned money on a new piece of Amateur Radio equipment, you don’t want your choice restricted by the shop you visit to one or two makes, however good they may be. Our belief is that the only way to make sure you’re buying the item that’s right for you is to try as many alternatives as possible side by side.

As many makes...as many models...with all the accessories...secondhand as well as new. And where can you find that wide a selection of gear? Here, of course, in Ealing, where Brenda (G8SXY) and Bernie (G4AOE) are waiting to welcome you...or on our stand at Ally Pally. There’s just one difference — we can’t serve our usual coffee at the Exhibition!

BRAND NEW FROM YAESU...the all-mode 2m portable FT-290
So many features ● 10 memories ● Memory scan ● 2 VFOs ● Band scan ● Clarifier ● FM/LSB/USB/CW ● LCD readout ● Real S-meter ● Priority channel ● 2.5w out
Our price £230 inc. VAT

SONY ICF-2001
The world’s first HF communications receiver with keyboard frequency entry and Liquid Crystal Display confirming exact drift-free reception across its range, AM/SSB/CW 150kHz to 30 MHz and FM 76 MHz to 108 MHz and also providing memory indication for 5 station pre-sets plus 2 auxiliary pre-sets. As easy to use as a calculator, and so compact you can slip it into your briefcase.
...and all for just £159 inc. VAT.

BEARCAT 220FB
The super scanner which brings you all the excitement of the VHF and UHF frequencies...aircraft, marine, amateur, plus so much more.
£258.75 inc. VAT

FT-101 NEW SERIES
The tried and tested Yaesu HF base station, now with audio peak filter and reject/notch filter as standard, and choice of AM or FM.
FT-101Z from £499 inc. VAT and FREE cooling fan and mic.

FRG-7
Still the finest value-for-money communications receiver on the market at only £185 inc. VAT and FREE Heliscan aerial worth £15.

FRG-7700
Yaesu’s latest receiver with FM right across the band. Now offers yet more optional extras. Memory facility...Aerial tuning unit...and no less than four converters.
A. 118-130 MHz, 130-140 MHz, 140-150 MHz
B. 118-140 MHz, 140-150 MHz, 50-60 MHz
C. 140-150 MHz, 150-160 MHz, 160-170 MHz
D. 118-130 MHz, 140-150 MHz, 70-80 MHz
Basic receiver £299 inc. VAT and FREE Heliscan aerial worth £15.

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ADVERTISERS' INDEX

Page

Aero & General Supplies ... ... 159
Amateur Electronics UK ... ... 114, 115
Amateur Radio Exchange ... ... 126, 160
Amcomm Services ... ... 165
J. Birkett ... ... inside back cover
Bredhurst Electronics ... ... 157
British National Radio and Electronics School ... ... 167
Cambridge Kits ... ... 168
Catronics Ltd. ... ... 165
C.B. Electronics ... ... inside back cover
Colomor Electronics Ltd. ... ... 164
Datong Electronics Ltd. ... ... 155
Gemini Communications ... ... 164
G2YMH Aerials ... ... 168
G3HSC (Rhythm Morse Courses) ... ... 168
Heathkit ... ... 163
D. P. Hobbs Ltd. ... ... 168
K.W. Communications Ltd. 159, 164, 167, 168
Leeds Amateur Radio ... ... 162
Lowe Electronics front cover, inside front cover, 113
Northern Communications ... ... 161
Partridge Electronics Ltd. ... ... 166
P.M. Electronics Services ... ... 159
Quartslab Marketing Ltd. ... ... 160
Radio Shack Ltd. ... ... 128
Radio Society of Great Britain ... ... 161
R.T. & I. Electronics Ltd. ... ... 167
S.E.M ... ... 166
Small Advertisements 162, 163, 164
South Midlands Communications Ltd. 122, 123, 124, 125
Spacemark Ltd. ... ... 168
Stephen-James Ltd. ... ... 156
S.W.M. Publications back cover, inside back cover, 168
Thanet Electronics Ltd. ... ... 116, 117
T.M.P. Electronics ... ... 164
Uppington Tele/Radio (Bristol) Ltd. ... ... 159
Reg Ward & Co. Ltd. ... ... 167
Waters & Stanton Electronics ... ... 120, 121
Geoff Watts ... ... 167
Western Communications (Galway) Ltd. ... ... 158
Western Electronics (UK) Ltd. ... ... 118, 119
W. H. Westlake ... ... 167
Williamsons ... ... 168

SHORT WAVE

MAGAZINE

(GB3SWM)

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Vol. XXXIX MAY, 1981 No. 451

CONTENTS

Page

VHF Bands, by N. A. S. Fitch, G3FPK ... ... 129
Piptone Generators, by I. H. Moth, B.Sc., G8SOH, and R. W. Musto, B.Sc.,
G8WCR ... ... 133
"SWL" — Listener feature ... ... 135
For Those Who Have Fields, by Samuel Polson, GM3RFR ... ... 138
For S.C. Deluxe, Part I, by Rev. G. C. Dobbs, G3RJV ... ... 139
"Amateur Radio Techniques", 7th Edition — Book review ... ... 143
Clubs Roundup, by "Club Secretary" ... ... 144
Mobile Rallies — 1981 ... ... 147
"Enhance Your Q-Quotient", He Said, by Jack Hum, G5UM ... ... 148
"A Word in Edgeways" — Letters to the Editor ... ... 149
An End-Fed Aerial Tuner, by F. G. Rayer, T. Eng (CEI), G30GR ... ... 150
Communication and DX News, by E. P. Essery, G3KFE ... ... 152

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127
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Awards

BRYN Llewelyn, G4DEZ, becomes the first reader to win two QTH Century Club Squares certificates. His first award, no. 2 in the series, was obtained when he operated from Didcot. This latest one, no. 13 dated March 16, is for operation from his present QTH in Hullbridge, Essex. All 102 QSLs submitted were accepted and the breakdown was— Tropo: 62; 4; 10; MS 28 and one each via E’s and an MS/Tropo, mixture. Bryn’s present station comprises a Yaesu FT-225RD with a Tenna Yagi. The 14th QTHCC award for 2m. operation goes to José Mª Gené Llagostera, EA3LL, from Reus in Spain, (AB56b) and who is the VHF Manager for the Spanish National Radio Society, the U.R.E. His confirmed total is 151 squares, the breakdown being:— Tropo: 59; MS 40 and 4152, 52, which latter demonstrates the advantage of operating from the more southerly latitudes. José’s best DX was the memorable contact with 4X4IX on July 9, 1978, a QRB of 3.142 km. via E’s double hop. All the MS QSOs were on SSB.

AMSAT — UK

Your scribe attended the A.G.M. of AMSAT-UK in London on April 4 and counted 27 members present. Dr. Arthur Gee, G2UK, was re-elected Chairman and Ron Broadbent, G3AAJ, agreed to carry on as Secretary and Editor of Oscar News, the quarterly journal of the Society. Ron has also inherited the job of Honorary Treasurer since no other volunteer came forward. G2UK told members that, following the failure to get the AMSAT-International meeting off the ground last autumn, due to lack of support from other countries, the IARU had agreed to put on the agenda for the Region I meeting in Brighton at the end of April an item to discuss the setting up of a Satellite Working Group. This would endeavour to co-ordinate amateur satellite activities in Region I and later, Regions II and III as well.

The Secretary said that membership has grown to 720 now but reported that 75% of the Regional Representatives never communicated with HQ, so asked if it was worthwhile keeping the scheme. Peter Greed, G3MQD, the Education Officer, reported upon the educational aspects of satellite usage and that 17 schools were known to be using satellites for educational purposes. He said that AMSAT-UK’s UOSAT project was getting exposure in the educational press.

Dr Martin Sweeting, G3YJO, told the meeting that his University of Surrey team building UOSAT were faced with a likely earlier-than-expected launch date of July 30, which meant having the bird ready for shipment by the end of June. The budget for the project was £100,000, about half that for an equivalent commercial effort, and the Science Research Council had contributed £8,000 towards the launch cost and for a three month follow-up period thereafter. Once UOSAT leaves Guildford, the team of some two dozen, 25% of it being radio amateurs, which has been working so hard and putting in such long hours for such a long period, will find itself with time on its hands. Accordingly, Martin suggested to the meeting that it was a matter of some urgency for AMSAT-UK to decide what, if anything, to attempt next. If such a decision were long delayed, he said the team would likely disperse, the impetus be lost and likewise vital connections with outside commercial and scientific bodies.

Your scribe suggested to G3AAJ that a questionnaire be included in the next issue of Oscar News to seek members’ views on any future project, and this has been done. The Communications Officer Richard Limbear, G3RLW, stated that another Satellite Activity Week was proposed for October 4-10 with rules to be finalized. He said that, at the request of European satellite enthusiasts he had inaugurated a net for them on 80m. However, support was virtually nil, so he had abandoned the idea.

The new Committee consists of G2UK, G3AAJ, G3MQD, G3RLW, G3YJO, G4IQQ and G4JJ. Nick Crick resigned from his Honorary Treasurer post at the end of 1980 and G2BNO and G6TMM were unable to accept re-nomination.

On the operational scene, AMSAT reports that 0-7 is once again accepting Codeset messages from the Canadian command station but that subsequent playback is at a very slow rate, suggesting radiation damage to the electronics. Apart from that, both 0-7 and 0-8 are working satisfactorily.

Repeater News

A new VHF relay serving the Firth of Forth area was due to come on stream on March 14. It is on 2m. channel R4 with the callsign GB3FF and full details can be obtained from GMSLBC. For the Phase VI series of repeaters for 70cm., channel RB15 is to be used, and which is 434.975 MHz input, 433.375 MHz output. On the April 4 GB2RS’ News Bulletin it was announced that there are proposals for 23cm. band repeaters designated RM0 to RM15. RM0 is 1,291.000 MHz input and 1,297.000 MHz output with 25 k hits channel spacings.

Contests

The 144 MHz CW contest runs from 0900 to 1500 GMT on April 26. The 2nd leg of the 10 GHz Cumulative contests happens on May 17 from 0900-2000 GMT. The next three are scheduled for the third Sundays in June, July and August with the final session on September 13. The weekend May 2/3 is a busy one with the 144 MHz and s.w.f. affair and the 432/1,296/2,304 MHz event all running from 1600 to 1600 GMT. The 2m. one is all-mode, four section effort for single-op. fixed; multi-op. fixed; single-op. -P or /-A, and multi-op. -P or /-A. The UHF/SFH event is a single-op. or multi-op. affair with multi-op. stations allowed to use a maximum of two different callsign simultaneously.

Radial ring scoring on 70cm., but one point per km. on the others. The rules require the QTH to be given in a different form on each band, e.g. in your scribe’s case, 5km. south of Croydon on one band and 13km. northeast of Reigate on another.

The 144 MHz low power contest is on May 24 in which 25 watts is the maximum p.e.p. Tx. output. This is a two section affair for either fixed stations or all other types and runs for eight hours from 0900 GMT. The 2nd. leg of this year’s Microwave Contest is on May 17 and is for the 24 GHz band only, the times being 0900-2000 GMT.

Six Metres

José Mª Gené, EA3LL, has sent in a 6m. report covering the period from mid-September last. The following is a summary in abbreviated form which should be self-explanatory: — Feb. 21, 1808-2010, TEP, ZS6PW, ZS6DN, ZS3E pkg. S9 + 20 dB with QSB. Feb. 22, 1800-1830, TEP, ZS6PW and ZS6DN pkg. S2, Feb. 28, 1420-1800, F2, ZS6DN, ZS6PW, ZS6BGQ, ZS6BMS, ZS3E and ZS6LN, the last two pkg. S9 + 40 dB. Then 1500-1930, TEP, ZS6PW and ZS6DN pkg. S2. Feb. 29, 1100 to 2000, F2, ZS6’S LN, BMS, WM and XJ, pkg. S9. Mar. 6, 1740-1755, F2, ZS6PW and ZS6DN pkg. S2 in QSB. Then, 1415-1425, TEP, ZS6PW at S2 in QSB. Mar. 14, 1645-1815, F2, ZS6PW, ZS6LN and ZS3E, the latter pkg. S9 + 60 dB. Then, 1900-1930, TEP, ZS3E at S1. Mar. 15, 1520-1700, F2, ZS3E, ZS6LN at S1 only up to 1535, with CQs from EL2AV pkg. S9, Mar. 16, 1200-1620, F2, ZS6LN, ZS6PW and ZS3E pkg. S8 in deep QSB. Mar. 19, 1410-1730, F2, ZS6PW, ZS6DN and ZS3E further pkg. to S9 + 60 dB, with ZS or ZE TV heard on ch. B2 and B3, both vision and sound. (N.B. B3 sound on 60.75 MHz). Finally, 1915-2000, ZS3E at S2 and ZS6DN at S1, either TEP or F2.
John Baker, G3MHW, (Dyfed) reports that 24 inches of the director of his newly made 3-ele. Yagi at 40ft. a.g.l. has broken off, possibly due to some buzzards using it as a perch and taking off "out of phase!" John is keen to compile information on the evolution of the old 56 MHz band, so would welcome hearing from anybody who operated in those days.

Peter Turner, G4IIL, (Brighton) has written to say that it was he, as G4IIL/A, referred to in our March column and not GW4UL/A, operating from his alternative QTH in Tregaron (YM61j). The site is 1,000ft. a.s.l. with a convenient gap in the mountains to the north and west. Peter is another recipient of the "Cycle 21 Crossband Award" issued by Region 2 operators.

### Four Metres

Jack Kay, G3CO, (Essex) mentions the March 5 Aurora which was in full swing when he returned from work. Unfortunately he had to go out to evening so only managed to make four QSOs, the best being GM4JGS (XPC7c) on SSB and G6WY (Y303g) on CW. Len Dixon, G3XXQ, (Newcastle-upon-Tyne) caught the Feb. 6 and Mar. 8 Ar's, the latter yielding GM4DJJ (YP04C). His station comprises a Trio TS-520S and home made transverter capable of 200 watts p.e.p. input, the aerial being a 3-ele. Yagi at 27ft. Len's QTH is 150ft. a.s.l. in the Tyne Valley.

G4IIL operates from his GW4IIL/A station most weekends and would be happy to make skeds with anyone. He is often to be found in QSO with GW3MHW from 0830 on 3,718 kHz but warns, "...my CW is very slow!"

Looking ahead to August, Chris Tran, GM3WOJ, has send details of his proposed 4m. DX-pedition from Aug. 10 to 16 incl. 80m. talk-back on 3,725 kHz is envisaged at 1700BST GMT, with Ken Will's, G8VR, acting as S.E. England net control. The plan is to operate from XS square on the 10/11/12th and from YS on the 14/15/16th. Chris is hoping that stations will want to attempt MS QSOs on CW or SSB as the trip coincides with the Perseids shower. Further details from GM3WOJ at 21 Richmond Avenue, Dumfries, DG2 7JS.

GM3MHW writes: "...I am pleased with the general state of 4m. Greater activity, QSOs conducted in an orderly manner; matters discussed appear to amateur radio. So different from 70cm. to 160m!..." John would appreciate s.w.l. reports on his signals. He had a nice QSO at midnight on March 16 with G4KZW in Bradford and mentions G3OHJ as being QRV on the band. G3BVJ is back on from a new QTH in the Wirral and John has arranged to transmit, "Test de GM3MHW QRA XM60c", beaming north at 2015 to 2020 local time, thereafter listening for replies. G3LLS (Warks.) has rebuilt his VFO and is contemplating stacking a pair of 4-ele. Yagis.

### Two Metres

E3ALL confirms that SSB activity on 2m. in Spain is increasing but only on the Mediterranean and Atlantic coast regions. Elsewhere there is little VHF operation apart from FM through repeaters. José advises that the only way we are likely to work some of the rarer squares is to listen on 144,500 MHz FM during E's openings in the summer. He says that E3ASHM and EA5NY are sometimes active from ZZ square, but the other stations listed are well-known ones. The German trip to Spain mentioned in the March feature was not very successful due to failure of the amplifier. Only a few QSOs were made from AA square before the team moved to BC56j where they struggled along with 20 watts.

Mike Lee, G3YVF, mentions that 11TQJ, who operates -/1 from a holiday cottage in DE27/a, has gone off to do military service. This locator is the same as that of the 11A beacon on 144.830 MHz. Mike continues to add to his squares total steadily but suggests that many of the old hands in the MS game from Scandinavia seem to have lost enthusiasm, probably because they have worked nearly everything. During the March 5 Ar, he worked EI17VB (VL12g), E14AAB (VN4c) on SSB, GM3JFG (XR30b) and SP9MM (JK65b) for new ones. He also heard HGs in KG and JH squares and reports F6CJC (BF) as copying weak Ar signals. At 1630, OH0JN (KU) heard GM4COK via Ar by beamning southwest.

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**VHF Century Club Members**

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<tr>
<th>Cert. No.</th>
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<td>3</td>
<td>GSAEJ</td>
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<td>4</td>
<td>GBW0</td>
<td>Welwyn Garden City</td>
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<td>5</td>
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<td>6</td>
<td>GSAUM</td>
<td>London, S.E.3</td>
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<td>7</td>
<td>GAYM</td>
<td>Dartford, Kent</td>
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<td>8</td>
<td>GMCS</td>
<td>Aylesbury, Bucks.</td>
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<td>9</td>
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<td>10</td>
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<td>16</td>
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**Four Metres**

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In the “wet squares” department, both Mike and G4DEZ have recently worked BM in the guise of SM7LES/MM.

Tony Brown, G4CCB (Notts.) has now returned to SSB and CW after a seven year gap, running a new Liner 2 and an 8-ele. Yagi at 16ft. a.g.l., for the present. He was in on the March 5 Ar from about 1500 and noticed some weak signals when swinging the beam north to work G8UCN in Sheffield. After a tropo, QSO, the G8 beamed northeast and they completed an Ar contact, too. With CW coverage limited to 144.100, up, Tony nevertheless worked F6DWG (BJ41j); G4DSC (Z066e); PE1FNX (CLAS); PE1COP (CM16h); G5BM/P (WN57); G3CHN (YK61b); G4JIB (Z034d) and G4INP (AM68c) the last QSO at 1838. Tony also heard others on CW from GM, DL, OZ and some brief snatches of a UR2 and an SM7 swamped by heavy QRN.

Paul Turner, G4JIE, (Essex) has been trying some long distance tropo skeds and, on March 28, worked F8OP (CG36f) at 684 km. with signals peaking 539, and DK6AS on April 1 in FM44d, a QRB of 722 km. with 519/529 reports exchanged. This again proves the point that stations with good receiving systems, running modest e.r.p., can make long distance QSOs under flat conditions by prior skeds. Congratulations to Tony Haas, ex-G8VJJ, who is now G4LDY. His present 2m. station comprises a Ten-Tec Transmatch; G5BM/Microwave Modules transverter and home built, 40 watts PA. The aerial is a 9-ele. Tonna Yagi at 50ft. He also uses a home-brewed variable gain and “Q”, tunable audio filter. A new transverter is on the stocks using a 3SK88 RF amp. to an SBL-1 diode ring mixer, followed by a BR961 IF amplifier stage.

Ray Cox, G8FMK, (Oxon.) found the March conditions uninteresting with the 8th pretty awful for the contest when the best DX was G3AMW in Hull. Tony Collett, G8GXE, (Berks.) operated for eight hours overnight in the contest but only made 20 contacts on 2m. for 76 pts. However, G8W8DC/P (Clwyd) G84CGMO/P (Powys) and G4FSG (Suffolk) were new 1981 counties. He took part in the Barking Club’s contest on March 29 making 90 contacts in 27 counties in rather poor conditions. Even so, another five counties were added.

John Pilag, G8HHL, (Hants.) has a muTek front-end board on order for his Yaesu FT-221R. He was on for the Barking affair with GM8YUJ (Dumf. & Gall.) the best DX. Also heard was a GI in Antrim. Jackie and John Brakespear, G8RZO and G8RZP, will be operating portable from the Isle of Wight, at the Needles, for the low power contest. They will be there for a week from May 23, in a Coastguard cottage, operating on 2m. and 70cm. G8TFI and G8WAQ will also be going on this mini-DX-pedition. Notwithstanding the demands of the new baby, Jackie has managed to put in some time on the bands and enters the annual table with 71 pts.

Chris Easton’s (G8TFI) interference problems have been largely overcome. As the weather was too bad to go out portable, he operated from the home QTH in Ruislip for the 144/432 MHz contest on March 7/8. Best DX were GM3PXX (YP) in Strathclyde and GM8YUJ (Yo) in “D and G,” the latter always a good signal into London with his 25 watts and two 9-ele. Tonnas. Other counties added for the 1981 tally included Dyfed, Clwyd, Powys, W. Glam., Durham, N. Yorks. and Northumberland.

Kevin Piper, G8TGM, has not had too much time to operate recently due to a short move of QTH to Pagham (W. Sussex). He has traded in his Icom IC-260E for the simpler, SSB/CW only, IC-202S, as he found he was not using the costly scanning and memory gimmicks. A new Silverline PA/Preamp. has been acquired. At the time of writing, Kevin was waiting for a dry spell to put up his 9-ele. Tonna Yagi.

Neil Clarke, G8FVF, (W. Yorks.) was on for the March 5 Ar which he discovered at 1410. It yielded three all-time new countries in EI, GI and NZ, and six new squares, VN, WO, WP, YQ, YS and EQ. The event lasted till 1823 with QTFs 30°-45° and GJ14CD the strongest signal with the beam at 50°. Beacons copied were GB3CTC, GB3VHF, GB3GI, DL0PR and ON4VHF. Arthur Breese, GD2HDZ, also caught this event but reckons he could not match GB3W’s performance. Eight more counties were added in the Barking contest session on March 29.

George Szymanski, GM4COK, (Edinburgh) has a good station comprising an Icom IC-211E with Nag amplifier and a 16-ele. Tonna Yagi up at 80ft. with a mast head preamp. The feeder is LDF4.30. In the Ar on March 5, he made 112 contacts in 11 counties and 50 squares. The counties were DL, F, G, LA, ON, OZ, PA, OK, SM, SP and Y, best contacts being F3AT in BH16c and DF1CF in FH23J. The QTFs were 70°-80° and the best DX to the east was to JO and JT squares. No OH or Russian stations were heard, but an HB9 was. George was QRV from 1300 till 1820. Other weak Ar’s were on the 7th and 10th, the former providing 8 QSOs with ZO, DL, DN, GQ and IT squares, the latter 4 contacts with WS, ZO, DX and HT squares. On March 18 a weak Ar was detected at 48 MHz but nothing was heard on 2m. Welcome to D. Dhuaglas, GM4ELV (Strathclyde) who says he is fairly new to 2m. He refers back to the Ar last December 19 and asks, “How come repeater GB3HH had a net controller?” He is QRV on SSB and FM, with CW to come, from locqtor XQ71c.

Eddi Ramm, DK3UZ, tipped off your scribe about an Ar on March 26 at 1620. At 1630, GM3JFG was heard working G4JE
and at 1644 GM3J1J in Stornoway was heard calling CQ, but both signals were very weak in London.

**Seventy Centimetres**

G8FMK found conditions in the March 7/8 contest even worse than those in the 70cm. event in February. Ray's best DX was GW8AAP/P in Clwyd. G8GXE made 64 QSOs in his all-night session but only 229 pts. were accrued, which just about sums it up. Tony's best DX was DC6MV (DK11b), the only other Continentals being PE0MAR/P and F6KBF/P. G8JVM (Wills.), G4KCT (N. Yorks.) and GW3OXD/P (Powys) were new 1981 counties. The only other SSB QSO on the band was with G4BPY (Staffs.) on the afternoon of the 25th.

G8TFI has recently acquired a Belcom LS-707 to replace the previous transverter system. Chris reckons this to provide better sensitivity and strong signal handling. During the Two-band contest on March 7/8, GW4BRA/P gave a new all-time county, Dyfed, and square, XL, for the collection. Other GDX on March 7/8, GW3OXD/P and G8BWR (Warks.), Chris will be in the Isle of Wight, May 20-27 with high power from a good site. He is QTHR in the 1981 Call Book for arranging skeds, or can be reached by telephone up to May 19, most evenings from 6:00 to 7:30 p.m. on Ruislip 3A690.

GD2HDZ has not been able to work much lately on the band due to severe Sylleis QRM. Apart from locals G3BW and GD3EIG, Arthur has not heard a single station. GM4COK is hoping to mount two 21-ele. Tonna Yagis on an AZ-EL mount. This could be interesting for Auroral research on 70cm.

**Twenty-three Centimetres**

G8FMK and G8GXE took a few minutes off from the Two-band contest on March 7 to make the QSO they missed out on in January. G5HH1 is patiently waiting for an opening and is presently just working the locals. John welcomes the inclusion of 23cm. in the annual tape. And that is the sum total of 23cm. input this month!

**Sporadic E**

It is common knowledge that there is Sporadic E propagation which peaks in the winter months but it usually only affects the lower VHFs, like 10m. However, Dave Crisp, G8IXG, reports that an East German station on the 20m. VHF net, in HM square, mentioned working into Sicily in January on 2m. On April 1, Dave noticed some strong E's signals on Band I TV around 1300 and found a lot of East European BC stuff on 4m. too. Mike Gaskin, G8KYU, also telephoned his scribe at the same time about this event. However, nothing was heard on 2m.

**Solar Matters**

It seems that the peak of Sunspot Cycle No. 21 occurred in December 1979, the smoothed sunspot no. being 165.3. The forecast for the next minimum is currently January 1987. In the past, the period following maximum has been characterized by a rise in geomagnetic activity. This is now definitely under way. Sudden Ionospheric Disturbances — s.i.d. 's — were occurring almost daily on the HF bands in the period prior to editing this month's column, so we can expect more AR's than we had last year, some of which could be quite intense.

**Final Miscellany**

It is some time since lists of the holders of the 4m. and 70cm. VHF Century Club Certificates were published so, as there is space this month, these are being included. Some of the Club Members have since moved from their original QTHs and now have different call signs.

John Hunter, G3JMV, reports that the long-awaited QSLs from last year's Irish operation by ON5FF, ON6UG and G8RNM have now been despatched. These are for E12VAH/P from UN square, of course.

**Deadlines**

That's it for a rather uneventful month. Next time there will be a report on the VHF Convention, along with the usual items. Deadline for the June feature is May 6, and for the July issue June 3. All your contributions to: "VHF Bands," SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts. AL6 9EQ. 73 de G3FPK.
PIPTONE GENERATORS
I. H. Moth, B.Sc., G8SOH
R. W. Musto, B.Sc., G8WCR

SOME people like to hear a “beep” or piptone after a transmission period, others find it infuriating. There can be no doubt that when copy is poor, and when words and whole phrases are being lost, a piptone signals the end of one’s message most effectively. When conditions are rather better however, one tends to hear comments such as, “Are you speaking to me, or to Mission Control Houston?”

The following article presents two circuits to provide an automatic “end of message” signal, to help, amuse or irritate one’s radio friends, as the case may be.

Theory of Operation
Both circuits use CMOS Logic integrated circuits. Fig. 1a is for the benefit of beginners and shows the basic NAND gate (i.e., Not AND) with its associated “truth table”; ‘L’ indicates low voltage, 0 volts, and ‘H’ indicates high or almost supply voltage. Fig. 1b, showing where the gates are on a 4011 IC, will assist in the build phase. Fig. 2 is the circuit diagram of a ‘T’ generator. When it is in its latent or quiescent state point ‘B’ is at supply potential; this holds Q1 off and therefore its emitter is similarly high. IC1a inverts this logic state, holding the base of Q2 low and therefore Q2 is off. There is no path from point ‘A’ to earth. Skipping ahead to Fig. 5, point ‘A’ is seen to be the radio’s p.t.t. control, so the radio is on ‘receive’ as expected.

Nevertheless, the oscillator made up of IC1b and IC1c is oscillating, as careful working round the loop will reveal. Its output is blocked by IC1d, whose output is constantly high regardless of the oscillator’s output, because IC1d’s other input is held low. If point ‘B’ is taken low, Q1 switches on, C2 charges virtually instantly (but that’s by the way at this stage), Q1’s emitter goes low, IC1a’s output goes high, which turns on Q2, connecting point ‘A’ to ground and therefore the radio on to ‘transmit’. Simultaneously the lock on IC1d is released, which would allow the oscillator’s output to proceed to point ‘C’, except that point ‘B’ going low disables IC1b and stops the oscillator.

When point ‘B’ is taken high again, IC1b is enabled and the oscillator starts, this time its output goes through to ‘C’, because although Q1 switches off its emitter does not go high immediately. First, C2 must discharge through R8. Thus after a delay set by R8/C2, IC1a output goes low and switches off Q2. The circuit is then back in its quiescent (receive) state.

Fig. 3 is the circuit diagram of a ‘K’ generator; note that each diagram has a separate parts list. The ‘K’ is only slightly more complicated than the ‘T’. The most important part is IC1, which is a decoded decimal counter, the 4017. See Fig. 4. If its ‘inhibit’ is held low it switches on the ‘up’ transition of the clock pulses, advancing through the outputs making each go high in turn. The carry output is high if any of outputs 0 to 4 are high, and low otherwise. The reset going high forces output 0 and the carry high, regardless of clock or inhibit inputs. On this application neither reset nor carry is used.

The clock, constructed of IC2a and IC2b, runs continuously at around 9 Hz. IC1 stays in a quiescent state with output 0 high, since Q2 is normally off and therefore both inputs to IC3b are high, its output is therefore low, and IC3a inverts this to hold the inhibit high and prevent the counter from operating.

When point ‘B’ is taken low, C2 discharges, and at the same time IC3c’s output goes high to switch on Q1. Point ‘A’ goes low and enables the radio to go into transmit mode.

When point ‘B’ goes high again, C2 charges, a pulse appears across R4 and Q2 is switched on momentarily. This charges C3, which then starts to discharge, but this time much more slowly through R2. This downward going pulse on IC3b’s input changes the states of IC3b and IC3a and unlocks the inhibit. At the same time IC3a’s output going low ensures IC3c’s output remains high, keeping Q1 on and ensuring that the radio remains on ‘transmit’. It will be noticed that there will be a very short time delay between the switch on point ‘B’ opening and IC3c being reactivated, which will amount to about 10 nanoseconds; this is completely covered by C7 which delays Q1’s switch-off. The reason for extending the pulse with R2 and C3 is that the inhibit must be held low long enough for the next upward going clock transition to switch the counter into the next state, i.e., output 1 high. When this happens output 0 goes low, which maintains IC3b and IC3a in the required state.

Table of Values
Fig. 2

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>10 µF elec. or tant.</td>
</tr>
<tr>
<td>C2</td>
<td>2.2 µF elec. or tant.</td>
</tr>
<tr>
<td>C3</td>
<td>0.1 µF ceramic</td>
</tr>
<tr>
<td>C4</td>
<td>1 µF elec. or tant.</td>
</tr>
<tr>
<td>IC1</td>
<td>4011 CMOS</td>
</tr>
<tr>
<td>IC2a, IC2b</td>
<td>4017</td>
</tr>
<tr>
<td>IC3a, IC3b, IC3c</td>
<td>4011</td>
</tr>
<tr>
<td>R1</td>
<td>47K</td>
</tr>
<tr>
<td>R2</td>
<td>68K</td>
</tr>
<tr>
<td>R3, R4</td>
<td>100K</td>
</tr>
<tr>
<td>R5</td>
<td>4K7</td>
</tr>
<tr>
<td>R6</td>
<td>1M</td>
</tr>
<tr>
<td>R7</td>
<td>10K</td>
</tr>
<tr>
<td>R8</td>
<td>100K preset</td>
</tr>
<tr>
<td>Q1</td>
<td>BC178</td>
</tr>
<tr>
<td>Q2</td>
<td>BC108</td>
</tr>
</tbody>
</table>

Note: R1 to R7 are 1/2-watt, 5%.
IC3b and IC3d are connected as an audio frequency oscillator, which is enabled by the successive outputs of the counter. As the clock causes the counter to cycle, the oscillator will be: on, on, off, on, off, on, on. In other words, a perfectly formed K. On the next pulse, output 0 will go high, and put the inhibit on via IC3b and IC3a. When the inhibit goes high IC3a goes low, Q1 switches off, and the radio is returned to receive mode.

**Construction**

The circuit may be constructed on Vero board or, more satisfactorily, Vero DIP breadboard which is specifically designed for integrated circuits. IC sockets are strongly recommended for two reasons. They enable very quick maintenance and trouble shooting checks and secondly there is less chance of damaging the CMOS. Leave the ICs in their conductive foam until the moment they are to be inserted. Layout is not critical and the details are left to the individual constructor. With care, high packing densities are possible, the ‘T’ generator can be easily built on a 1 x 1 in. board and the ‘K’ generator not much bigger. By all means use plenty of flux, but clean the board thoroughly afterwards. The circuits use high resistances which may be affected by spurious resistance paths through dirty PCBs.

It is suggested that each circuit be installed in a box, with an input socket for the microphone and an output to the microphone socket on the radio. More intricate constructors may care to squeeze the circuit into the microphone casing. Fig. 5 shows the interconnections with the radio’s Tx/Rx control. If one is lucky one will find an extra terminal in the microphone socket, by which means the circuit could be supplied with the +12 volts nominal. The power consumed is virtually negligible.

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Table of Values

**Fig. 3**

<table>
<thead>
<tr>
<th>R1</th>
<th>47R</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2</td>
<td>390K</td>
</tr>
<tr>
<td>R3, R5, R7, R12</td>
<td>10K</td>
</tr>
<tr>
<td>R4, R9, R10</td>
<td>820K</td>
</tr>
<tr>
<td>R6</td>
<td>680R</td>
</tr>
<tr>
<td>R8</td>
<td>47K</td>
</tr>
<tr>
<td>R9, R10</td>
<td>1M</td>
</tr>
<tr>
<td>R11</td>
<td>4K7</td>
</tr>
<tr>
<td>C1</td>
<td>10 μF, elec. or tant.</td>
</tr>
</tbody>
</table>

C2 = 2.2 μF, elec. or tant.
C3, C6 = 1 μF, elec. or tant.
C4 = 1 μF non-polarised
C5 = 5 μF ceramic
C7 = 1 nF ceramic
C8, C10 = 47R
C3, C6 = 0.1 μF elec.
C7 = 1 μF ceramic
C8, C10 = 10K
C1 = 10 μF, elec. or tant.

IC2c and IC3d are connected as a audio frequency oscillator, which is enabled by the successive outputs of the counter. As the clock causes the counter to cycle, the oscillator will be: on, on, off, on, on, off, on, on. In other words, a perfectly formed K. On the next pulse, output 0 will go high, and put the inhibit on via IC3b and IC3a. When the inhibit goes high IC3a goes low, Q1 switches off, and the radio is returned to receive mode.

**Fig. 4**

Pinout diagram of 4017 CMOS, decoded decimal counter.

**Fig. 5**

Tx/Rx control switching diagram. P = mic. plug. S = mic. socket.
Adjustment

Adjusting should be done on the bench, not on the air, or you could start irritating people prematurely. The 'T' generator is adjusted by trimming R8 until the length of pulse, monitored at point C with either an earpiece or a microphone, is judged about right. The tone of the audio can be altered by changing the time constant of the oscillator, R2C3. Increasing either R2 or C3 or both will decrease the pitch of the sound. On the 'K' generator the morse speed has been designed at about 12 wpm, with a tone just under 1 kHz. The pulse stretcher components have been chosen to match by holding on for 270 msec; the circuit should work from switch on. Some problems may be encountered if low tolerance or high temperature drift components are chosen for the timing circuits. In this case it is suggested that extra components be added by trial and error to make the necessary compensation. The frequency of the clock generator and audio generator will be

\[ f_{\text{clock}} = \frac{1}{2.2 \text{R8 C4}} \]

and

\[ f_{\text{audio}} = \frac{1}{2.2 \text{R11 C5}} \]

Note also that R9 and R10 should be at least twice the value of R8 and R11 respectively.

If the R2C3 time constant is wrong then the problem may only show up intermittently. The time for which IC3b's gate needs to be held down depends on the state of the clock pulse at the instant the microphone PTT is released. If R2C3 is too small then some Ks may fail to go off, too big and some Ks will be sent twice. However, the range is so wide that one is most unlikely to hit trouble. If in doubt go for a 'T' of about 3 clock cycles, where \( T = 0.693 \times R2 \times C3 \).

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**SWL**

By Justin Cooper

Five marks out of five to the SWL who realises that he is part of a 'system' when he is listening. Apart from himself, there is the receiver with all its characteristics, the logging system, the recording system (not of the sounds but of prefixes, countries or whatever it is you collect), and of course the aerial system. This lot is usually put in a watertight box, known to hams and SWLs alike as "the shack" and the shack itself has a bearing on whether you get the best out of your hobby or not. Heat, ventilation, and comfort are the primes; and if comfort means packing up the front of the receiver so the dial of the tuning can be seen directly, while the hand falls easily to the tuning knob, so be it. As for the position of the receiver on the operating table, for most of us writing is a right-handed business, so the receiver needs to be to the left rather than central, and so forth.

By the same sort of token, one can look upon the aerial as the most important part of the electronics by far, and one can easily fool oneself into thinking about limitations which just aren't there. For example, a beam brings to mind for many amateurs a mental picture of a large tower, a triband Yagi array of commercial origin with, maybe, the odd wire aerial strung from the tower for the LF Bands. Now, a tower immediately brings to mind questions of planning permission and, if one is to be blunt about it, the darned thing is an eyesore to the locals and a bit of a status symbol anyway. One thinks of two people who understand the sense or otherwise of the view; G4BUE, who admittedly had a tower, but who makes a habit of straining up a temporary aerial for whatever band or contest he is thinking about. In the second place, the Old Man is leaving the peace of his editorial chair shortly to give a talk to a club about aerials; we will lay a small bet that on the night, he will produce, probably from a jacket pocket, at least one, and maybe two, beam aerials for 21 MHz, and show how they can 'do things' for a signal, in comparison with a piece of wire.

An aerial should be defined as a system in itself, comprising the aerial (the bit that collects the signal), a feeder (to transfer the collected signal from the aerial), and an ATU (to match the feeder impedance and the receiver input such that a maximum amount of the collected signal is injected into the front-end of the receiver). A system can be made such that one or more parts of the system are absent, but if we do so, then we must be sure that the function in question is properly catered for, or one may not get the hoped-for results.

On another tack, take a look at the Great Circle map. One needs to be able to put a fat lobe at 045° True for the Russians and out to short-path ZL, and another at 225° True will cover the same areas in the mornings by long-path, while taking in South America at other times. For North America a beam heading of about 300° True would do nicely, while its reciprocal bearing, round about 120°, would fill in those parts of Asia and Africa not otherwise well plastered. If one talks of a bi-directional beam, this means two headings, at 045° and 120° degrees, and a 21 MHz aerial would be about 22 feet long and, say five feet across, to a first approximation. Now take a look at your garden and house, compass in hand. Allow for variation, which can be regarded for most of the UK as about 8 degrees West, and reduce Deviation to zero by turning out your pockets and taking off your watch! Now at 0° True, your compass says 352°, so 0° Magnetic is 8° True: so, you are looking for headings of 053 degrees and 128 degrees — if possible from some spot to which one end of the aerial is attached (and we'll bet you can find a way of getting it in). Note where the far ends will land, find a pole of suitable height so the flat-top looks fairly flat. Imagine a screw-hook in the barge-board at the house end, and a mast of aluminium for the far end: bury a Coke bottle at each of the two places, and knock in a couple of guy pegs for each location (you'll probably get away with only three pegs if you think about it, one being common). Make the guys the same length, or even adjustable like a tent guyline. Make an 8JK beam, or the variant known as the ZL Special. The former is bidirectional, so you have it all covered, but the ZL Special is unidirectional and would therefore have to be turned over to reverse its direction. Note: turned over, like rolling a log, not rotated as in aerials! This can be done with the aid of a couple of bits of string. Hey Presto! You've joined the elite!

But of course, having done so, Murphy enters the picture — if the band is open to DX at the time you can be on, it will almost certainly be sleepy-byes time for the DX! Oh, well!
D. J. F. Gordon (Chesslow) has first shout this time; he seems to have been finding good DX, mainly on Twenty but with some other interesting and unusual ones on 3.5 MHz. He has claimed 1A0, which raises an interesting question. Although it has not been particularly visible, it seems to this writer that the "Sovereign Military Order of Malta" (the twentieth century rump of what was once the "Knights of St. John of Jerusalem, Rhodes and Malta") — particularly caring for the sick in their hospices, and partly a military order of Knights who did much to keep Christianity alive in the Dark Ages) will have to be accepted as a "country" for DXCC purposes on the criteria which are used today.

Now to F. C. D. Barnes (Cardiff) who heard lots of folk working the JAs on Eighty but couldn't hear them himself. Therefore, a preselector is on the stocks, but this writer is willing to lay a month's beer-and-baccy money that an attenuator will be more effective. After all, on 3.5 MHz, even natural noise is far higher than any reasonable receiver's sensitivity, even assuming the brute is a bit deaf; ergo, we can be pretty sure that we don't need more RF Gain, but less, because the noise is all occurring from mixer overload. The simple test to prove the point goes like this. First run all the gain controls to maximum. Now, pull the aerial plug out, and the noise will disappear save for the residue which is the noise which is inscapably present in the receiver.

Next, tweak the preselector control, or the "aerial trim" on an older receiver, and the noise from the receiver should go through a peak. If it won't, mend the receiver; if it will, you don't want a preselector!

The "gang of three" at Bury St. Edmunds have lost one member, who has become G6BJP — congratulations to R. Middleton on succeeding at the age of 66, and on his firm intent to press on for the Morse. About the only advice we can offer is that the exercise should be daily, and at first only in about ten-minute sessions, as the mind normally tires after this until trained. One can make up 30 minutes by doing it in three bites; and one must always have the Morse coming out just a bit too fast — if you have 100% copy you boost your ego but you don't learn to go faster. And, of course there is the infamous "hump" to get over — it afflicts some people more than others, and old G3KFE had it very badly. But you must realise this is a definite part of the learning, and occurs at each of the stages in which the brain reorganises itself to do the required tasks more efficiently. In the beginning everything is done in series as it were, and with too many stages to boot. Eventually the mind does everything in parallel, and to a large extent drops redundant bits of the 'program' by which the brain receives a noise input and outputs a wiggle on a bit of paper, and later dumps all the output into a brain store so that one only writes down the important bits on a scratch-pad. But the internal computer analyst in the mind seems to need to get stuck for a while before it accepts that the program is wrong, and a new one must be written.

A. Rowland has left Mansfield and re-surfaced in the area of Bude in Cornwall, so he goes back to Square One on the HPX Ladder; our distance of 250 miles for a move, maximum, is fairly handsomely breached. However, much can be written off to experience! On a different tack, reader Rowland wants to know where he can get the Mullard FX1588 ferrite rings, and the enamelled tape to make a balun as described in RSGB Handbook. We believe that this particular one is obsolete, but every maker of ferrite toroid cores has an equivalent. TMP Electronics are regular advertisers, and the Editor reckons that their Amidon cores are quite good. As for tape rather than wire, you really need to find a transformer maker and get him to supply you with an off-cut length. However, blowed if we can see why tape anyway! We suggest you do a little sum to find the cross-sectional area of the tape, and then look in the wire tables for an equivalent s.w.g. but of course, if you are only receiving, you don't need as big a ferrite ring, and you don't need the size of wire either!

Another Bury St. Edmunds' character is G. A. Davey, who talks about the operation of the 'hot line' that the local trio operate between themselves when DX is about. He has also joined the local club, and had the good fortune to hear G3KFE talking on arials.

In the second letter from Bury St. Edmunds, from the chap who started it all, E. W. Robinson, this time Ted has nowt to say for himself, but we observe his list is the 59th entry to HPX. D. Casson (Reading) is another of those who passed the RAE, and he is now pressing on with the Morse. Just as encouragement to those who say they are "too old to learn" — Derek's pass was the first time he had taken any sort of examination for over 30 years.

P. Ford (Longlevens) has been a night-worker for some 14 years, but has now had to return to normal day work; this is taking a bit of adjusting to, and so Phil has not been so active of late.

B. Shepherd (Staines) is one of those thrown on the labour market by the recession, but the time used has been well spent in HPX. However a character calling CQ on 28.531 MHz was almost certainly another strayed CB'er. This is something about which we will have to do things. Already CB chaps, who know nothing of Amateur Radio, remember, are looking at the clear area between 28 and 28.5 MHz and in true pirate fashion, taking it over. About all we can do is to D/F the blighter, and once located report him to the Police and the Home Office; then make quite

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**ANNUAL HPX LADDER**

**Starting date, January 1, 1981**

**SWL**

<table>
<thead>
<tr>
<th>Prefixes</th>
<th>SWL</th>
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<tbody>
<tr>
<td>M. N. W. Thornton</td>
<td>207</td>
</tr>
<tr>
<td>M. Hill (Bedworth)</td>
<td>207</td>
</tr>
<tr>
<td>(Romford)</td>
<td>370</td>
</tr>
<tr>
<td>Mrs. T. Parry (Blackpool)</td>
<td>239</td>
</tr>
</tbody>
</table>

200 Prefixes to have been heard since January 1, 1981, before an entry can be made. Entries in accordance with HPX Rules (see January 1981 issue).
sure he is harried out of those bands where he encroaches on our patch. CB is illegal at the time of writing and even when the thing has been legalised, it'll still be illegal to poach in our bands. Thus, we are not acting out of our licence conditions in sitting on them.

M. J. Quintin (Wotton-Under-Edge) has been slack of late and puts in a 'nil' return to hold his place.

Just a list, this time, from D. W. Waddell (Herne Bay), which takes him up to 1252.

Another neglectful type is H. A. Londesborough (Swindon) who doesn't say why, albeit we seem to recall he used to write from a different address in the same locale; which would suggest that the paintpots and things are due for a field-day, and indeed that it has already started!

It seems only yesterday when we last heard from M. Cuckoo (Herne Bay), who has in fact been absent for some five years; now he has a Trio R-1000 plus an ATU into either a Jaybeam three-band vertical and a 60-foot piece of wire. So he must make something of a record, coming back in with a "first" claim of 1262!

K. Kyezor (Brandon) has a fine crop of burns in his list; Z1DE in the last, GD7DSL, and G9EBH (being some 9kHz outside the band in any case). Just like Barnum said, there's one of them born every minute!

We press on now to a contest-loving SWL, J. P. Goodrick (Bognor Regis), who tackles quite a few subject to his firm rule of no night-work! One he did miss was BERU (shame!), largely because of what John sees as the inadequacy of his rig. On the other hand, he did have a play in the RSGB 7 MHz affair, digging up the DX from under the GS. It is a problem coping with strong contest-type G signals on a ground-plane, but John says that's the only aerial he can run.

B. L. Henderson (Laverstock) seems to be well settled in his new berth, and he is cheered by hearing of an RAE class to be started in April, given enough interest is there. However Brian, who was trained an electrical engineer, has a 15-year old son who is also keen to they are starting studies in competition, which should keep them both well up to the mark.

Another move is in prospect for H. M. Graham; he has found that Moulton is too far away from the families, so that a move back to Chesham is settled. Regardless of location, though, Maurice still seems to be able to find the DX, and the time on the air to hunt; he has been specialising on Ten of late, but with occasional forays on to the lower bands, Forty in particular.

J. F. Hobson (Ely) has some rueful words to the effect that the more you hear the harder it gets. Not quite true, only if because one gains steadily in skill all the time. In SWL-ing, as with anything, the difference between expert and beginner is very marked!

On we go to A. R. Darby (London SE16) who, having got his 500 up, was able to add some earlier ones which he had kept tucked away for this purpose. Old logs are interesting things too, when you come to look at them.

B. F. Hughes (Worcester) philosophises over the fate of the present B-licences — will they and their successors opt out of our licence altogether and just play CB, without a test or a licence? Well, who cares? After all, the vast majority come on the air, either with A or B licences, and have never been SWLs as such. Indeed the ex-SWL sticks out like a boil on a bald head, just because at his first QSO he knows more about operating than most of the others — he heard the bad ops and models himself on the savvy ones he has heard as a listener.

Congratulations are due to B. A. Payne (Leeds 18) for his RAE pass; no wonder he has not been too active as an SWL, if he was swotting it all up. However, Brian is continuing to listen around, and so we should expect to see him passing the morse test next.

It is unusual for us to have two YLs active in SWL at one time, perhaps even unique. The first list comes from Mrs. Parry of Blackpool, who has an EC-10 Mark 1, and a husband who used to be in the lists; so she is out to beat him! Of course, she has some advantages, in that Ten is much more lively now than it was some years ago, and the DK20C net on Ten comes at a time when hardly anyone over here would be at lunch and so able to listen.

Mrs. R. Smith (Nuneaton) has altered the aerial system, with some help from the OM, and seems to have been rewarded by a large influx of new prefixes; we have a hunch that Ruth will be chasing after K. Kyezor's spot at the top soon — and why ever not?

A kindly thought from P. Eggeman (Borehamwood) who corrects his list from last time, for a couple of mis-typings, one of which we spotted and corrected, but 't'll miss us altogether! However, it's not often that happens, and when it does, we feel fairly sure that someone will pick it up along the way.

"Where on earth is J88?", asks J. Worthing (Shrewsbury). Once upon a time, Echo says, it was known as VP2S, St. Vincent, in the Caribbean. On a different tack there is the question of the Datong Active Aerial, and Jeff wants to know whether to connect it through his ATU. One would not think so — what Datong says is what they mean, in our experience.

A very quick line comes in from S. Foster (Metheringham) with an up-date to his score. Stew says he hasn't been all that active of late, but he intends to redress the balance during the CQ WW WPX contest weekend.

And, the bottom of the pile this time, N. Askew (Coventry) who reports in after a longish gap with two lists, which together claw his score up into the four-figure bracket. On a different tack SWL Askew remarks that he recently had a chat with G2WK, who started in 1907 not knowing a licence was required, and got his first "ticket" in 1909. It's a very long time since your J.C. had the pleasure of a QSO with G2WK, back in the days of AM, when home-brew rigs could put out signals of BBC quality, and the writer's version was suffering from some malady which Bill diagnosed over the air and in doing so ended a long search for a fault. That rig, as we recall it, could make just about ten watts input to an 807 on Top Band, and by fiddling with a knob at the back it would go on Eighty quite well too — but an attempt to put it on Forty was beyond feasibility and was abandoned.

QRT

That's it for another month. The deadline for the July piece is May 21st, your letters to arrive by that date, and addressed to "SWL", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ.

"The side-swiper here is quite unusual . . ."
FOR THOSE WHO HAVE FIELDS

SAMUEL POLSON, GM3RFR

I REGRET this is not an antenna for town flats or small gardens. It is an antenna for open spaces and places where the winds blow.

That's how it came about: large beams and the Shetland Isles do not agree. When the winds pipe at 100 m.p.h., one is likely to get one's all-band quad around one's neck on a dark night — not appetising and certainly very expensive.

Yagi and quad beams are certainly very expensive to buy and very time consuming if you make them. Wire beams on the other hand, are relatively cheap to make and should they tumble down not very expensive to replace.

The writer for years has been a QRP addict, and a high-gain antenna is not necessity but is certainly a useful adjunct to QRP- ping. In recent years a number of gainful antennae have been tried — single element loops, phased verticals, short vee-beams, etc. None had the gain capabilities of the commercial quads or yagis.

What to do? The obvious answer was to go for larger size wire vees or rhombics. Rhombics need four masts for correct operation: up goes costs plus time usage. Therefore large wire Vees seemed a logical choice, all the more so as several can be strung in maypole-fashion from the same mast. The idea was to use down-slopers to avoid mast problems at the far end.

The main problem was how long should they be and could a Vee be produced using coax or twin-feeder which would cover more than one band.

<table>
<thead>
<tr>
<th>Wave-Length, 1 Leg</th>
<th>Calculation for Length in Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>234/F</td>
</tr>
<tr>
<td>3/4</td>
<td>738/F</td>
</tr>
<tr>
<td>5/4</td>
<td>1230/F</td>
</tr>
<tr>
<td>7/4</td>
<td>1722/F</td>
</tr>
<tr>
<td>9/4</td>
<td>2214/F</td>
</tr>
<tr>
<td>11/4</td>
<td>2706/F</td>
</tr>
<tr>
<td>13/4</td>
<td>3198/F</td>
</tr>
<tr>
<td>15/4</td>
<td>3690/F</td>
</tr>
<tr>
<td>17/4</td>
<td>4182/F</td>
</tr>
<tr>
<td>19/4</td>
<td>4674/F</td>
</tr>
<tr>
<td>21/4</td>
<td>5166/F</td>
</tr>
<tr>
<td>23/4</td>
<td>5658/F</td>
</tr>
<tr>
<td>25/4</td>
<td>6150/F</td>
</tr>
<tr>
<td>27/4</td>
<td>6642/F</td>
</tr>
</tbody>
</table>

Table 1. Vee-beam single leg lengths in feet.

I begn juggling with the figures shown in Table 1 to derive information which might be useful for vee-beam construction. Using a pocket calculator for speed reasons it was found that a certain size of leg could produce an antenna common to 3 bands, e.g. 80 metres, 15 metres and 10 metres. The 10, 15 combine is especially providential for a QRP DX-er; the 80 metre version is a useful addendum for closer range contacts. The size was as follows: $\frac{5658}{28.6} = 197.878 \text{ft.}, \frac{4182}{21.2} = 197.303 \text{ft.}, \frac{738}{3.73} = 197.878 \text{ft.}$.

In other words an antenna of leg length approximately 197.5 ft. will operate on 28.6 MHz, 21.2 MHz and 3.75 MHz. On the two HF bands gains should be 8dB and 6.8dB over a dipole. Thus we enhancing low angle directivity, and are attached to convenient fencing posts at the far ends. Ordinary cheap insulated wire is used in construction with 70-ohm twin feeder, and matching is pretty good despite their considerable length. Results have been very good using these vees: North America is easy with 2 watts out SSB, while South America is fairly probable if direction is right, and Australia and Far East is distinctly possible.

Remember that these antennae are bi-directional and if you mount two of them from a chimney or a mast and site one with the 'V' towards the North West and the other with the 'V' towards the South West you will get pretty good coverage of the best DX directions.

<table>
<thead>
<tr>
<th>Wave-Length</th>
<th>Apex Angle</th>
<th>Gain dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>100°</td>
<td>2.5</td>
</tr>
<tr>
<td>5/4</td>
<td>86°</td>
<td>3.3</td>
</tr>
<tr>
<td>7/4</td>
<td>76°</td>
<td>4.0</td>
</tr>
<tr>
<td>9/4</td>
<td>67°</td>
<td>4.75</td>
</tr>
<tr>
<td>11/4</td>
<td>60°</td>
<td>5.3</td>
</tr>
<tr>
<td>13/4</td>
<td>56°</td>
<td>5.8</td>
</tr>
<tr>
<td>15/4</td>
<td>52°</td>
<td>6.3</td>
</tr>
<tr>
<td>17/4</td>
<td>48°</td>
<td>6.8</td>
</tr>
<tr>
<td>19/4</td>
<td>46°</td>
<td>7.2</td>
</tr>
<tr>
<td>21/4</td>
<td>44°</td>
<td>7.6</td>
</tr>
<tr>
<td>23/4</td>
<td>42°</td>
<td>8.0</td>
</tr>
<tr>
<td>25/4</td>
<td>40°</td>
<td>8.4</td>
</tr>
<tr>
<td>27/4</td>
<td>48°</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Table 2. Vee-beam antenna: gain and optimum angle between legs for a given wave-length.

...
THE S.C. DELUXE, PART I

IMPROVING THE S.C.D., THE LOW COST, LOW TECHNOLOGY, TRANSCEIVER

REV. G. C. DOBBS, G3RJV

The author is joint winner of the 1981 “Short Wave Magazine” article competition, awarded for his original three-part article, “The S.C.D.” — Ed.

In January, March and April, 1980, Short Wave Magazine published a series of articles called “The S.C.D.” The original article described the S.C.D. as “...a complete simple amateur radio station that can be built on a kitchen table with simple hand tools, requiring no other test equipment than the average station multimeter”. Little did I suspect at that time what those articles would stir up: since then I have filled a file with letters of enquiry about the project, seeking advice and offering suggestions for modifications. I have also had the pleasure of working several S.C.D. rigs on the 40 metre band. Okay fellows, you can stop writing now! I have gone back to the S.C.D. armed with those queries and suggestions, and what follows are some simple improvements to enhance the usefulness of the transceiver. This article suggests some transmitter improvements, to be followed later by receiver and ancillary equipment improvements.

As with the original article, these improvements embody the amateur tradition of experimentation and compromise. Do not buy anything unless you have to, substitute if it’s cheaper, use what you already have, or if you can, get hold of it for nothing. The S.C. Deluxe will not look as good as the latest Far Eastern Grey Box, but you will be able to look your wife straight in the eye when you complain about her spending, and you might even be able to afford to buy her that new coat... dress... secondhand Mini.

VFO

One of the main disadvantages of the S.C.D. is that it is crystal controlled. A simple VXO was used in the original articles, but this extends the tuning range very little, and the basic VFO arrangement suggested was experimental and only really suitable for bands below 7MHz. It can be quite frustrating hanging around a channel with low power transmitting capabilities only to find a fat QRO station parking himself right on your frequency. So the first, and most obvious, improvement is the addition of a good quality external VFO.

Variable Frequency Oscillators can be something of a problem for us lesser mortals: the one that seems to work for the man who wrote the article in the magazine so often happily drifts up and down the band when we build it. So as the basis of the VFO for this application I have chosen a well known, well tried, circuit. The circuit is shown in Fig. 1. It is an often repeated design, and although I have tried many circuits for VFO’s, I always seem to return to this one; not least of all because it has been extensively used in articles by such well known amateur radio authors as Doug DeMaw and Wes Hayward, the laces of whose, ... A full explanation of the design criteria can be found in the ARRL book “Solid State Design For The Radio Amateur”, a book well worth owning from S.W.M.’s Publications Dept.

The circuit, based on a design by George Hachett, W2YM, in QST of December 1966, uses a JFET transistor in a Sieler-type oscillator followed by two stages of buffering. L1 is the tuned circuit inductance and VC1 is the main tuning capacitor. The diode, D1, acts as a gate clamp by reducing the positive going peaks on the gate signal. This limits the transconductance of the FET and the lower capacitive effects in TR1 reduce the harmonic content of the output from the oscillator; ZD1 provides voltage stabilisation for TR1. TR2 and TR3 form a two stage buffer amplifier using shunt feedback, which delivers up to 3 volts peak to peak sinusoidal output across R7. In an area fraught with dangers, this circuit arrangement has always given me a reliable reproduceable VFO.

Equally important with the choice of circuit for a stable VFO is the choice of components and the method of construction: the best VFO circuit will be badly behaved if carelessly constructed. The VFO must be stoutly constructed in a good screen box, using the shortest leads possible. I used a simple printed circuit board layout in the prototype, this is shown in Fig. 3. It is possible, and some even suggest preferable, to use point-to-point wiring for such a VFO. The same layout could be followed by mounting the components on plain (without the copper strips) perforated board; however I find making PCB’s is such a simple process that

Table of Values

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>100K</td>
</tr>
<tr>
<td>R2, R5</td>
<td>10K</td>
</tr>
<tr>
<td>R3</td>
<td>56R</td>
</tr>
<tr>
<td>R4</td>
<td>1K</td>
</tr>
<tr>
<td>R6</td>
<td>27K</td>
</tr>
<tr>
<td>R7</td>
<td>470R</td>
</tr>
<tr>
<td>R8</td>
<td>100R</td>
</tr>
<tr>
<td>C1</td>
<td>120pF</td>
</tr>
<tr>
<td>C2</td>
<td>47pF</td>
</tr>
<tr>
<td>C3, C5</td>
<td>400pF</td>
</tr>
<tr>
<td>C4, C6</td>
<td>680pF</td>
</tr>
<tr>
<td>C7</td>
<td>100pF</td>
</tr>
<tr>
<td>C8</td>
<td>1µF</td>
</tr>
<tr>
<td>C9</td>
<td>0.01µF</td>
</tr>
<tr>
<td>VC1</td>
<td>10pF variable</td>
</tr>
<tr>
<td>RFC</td>
<td>100 turns, 30 s.w.g., 1 watt resistor</td>
</tr>
<tr>
<td>L1</td>
<td>12 turns, 26 s.w.g., 5mm former with core</td>
</tr>
<tr>
<td>TR1</td>
<td>2N3819 or HPF102</td>
</tr>
<tr>
<td>TR2, TR3</td>
<td>BC109</td>
</tr>
<tr>
<td>D1</td>
<td>1N914 or similar</td>
</tr>
<tr>
<td>ZD1</td>
<td>9.1v zener diode</td>
</tr>
</tbody>
</table>

Note: all pF values are silver-mica except C1-C5 (see text)
it seems the natural technique. Whatever the method adopted try to ensure that capacitances formed between the connection pads and the screen are avoided. Do not use double sided PCB and mount the board on standoffs so it is not close to the screened container. All the components must be rigidly mounted and incapable of movement. A mechanically unstable VFO does not stand an earthly chance. Note: Fig. 3 appears in Part II.

The tuned circuit and its associated components is the most critical part of the VFO and it is here that most problems will arise. The coil L1, with C1, C2 and VC1 determine the frequency, and the varactor capacitor VC1 tunes the required range. Most instability problems are due to temperature effects within the tuned circuit, so components with low temperature coefficients are required. Inductors can be prone to such problems and this is usually associated with iron dust cores; many constructors steer clear of toroidal cores, although others claim good results with tightly wound coils on such cores. Most experienced VFO builders seem to stick with conventional coil formers, using tightly wound turns held by cement. The drawback here is that cores are so useful in adjusting the inductance to give the exact required frequencies.

My experience has been that coils with iron dust cores will produce stable VFO's, if the cores are firmly held in the coil former and the required inductance is attained with the core just entering the windings. This approach was used to give the values for the coil quoted in the Table of Values. Cores can be held firmly in the former by inserting a piece of thin elastic, cut from a rubber band, in the thread between the core and the inside of the former; Blutack will also serve this purpose. Polystyrene cement, used in plastic modelling can be used to hold the windings in place.

The choice of capacitors is also important in the tuned circuit; such capacitors should have the lowest temperature coefficient possible. The ideal capacitors are NPO ceramic types, the problem is that I find that they are almost unobtainable. Use them if you are lucky enough to find suitable ones, the commonest are shaped like dogbones and have a black painted tip. Polystyrene capacitors are usually used by most amateur constructors, being obtainable and inexpensive. These have a small negative temperature coefficient, and in some cases it appears that this cancels out the positive coefficient of an inductor. Professional engineers would probably throw up their hands in horror at the thought of two electronic ‘wrongs’ making an electronic ‘right’, but in practice I have found that polystyrene capacitors and coils with a ‘touch of core’ work well in home made VFO’s. Good silver mica capacitors in the VFO which require this special choice of type are C1, C2, C3, C4 and C5. VC1 should be a high quality airspaced variable capacitor, ex-government military types serve very well if they can be obtained.

It may seem from the above that VFO building is difficult. That is far from true. Most amateurs can build stable VFO’s with a little care in choice of components and a fair amount of care in the actual construction of the oscillator. The simplest way to check the frequency and the oscillator is to listen for it on a receiver. I set up the tuned circuit with a grid dip oscillator and checked the output with a frequency counter, but these are latter-day luxuries in the G3RJV shack and all my early VFO’s were checked only using the station receiver and a simple RF probe; the probe is shown in Fig. 8 and was used in the original SCD project. It is simple to build on a piece of scrap PCB or a small tagstrip. The range required on the multimeter will depend upon the amount of RF to be measured and the multimeter used. Low DC voltage ranges usually give a good indication of the RF output, but if the reading is low, a low DC current range can be used.

Even if more sophisticated equipment is available, listening to the output of the VFO on a receiver is a good test. Identify the signal and give it time after switch on to settle down, some initial
drift is to be expected, long term stability is the aim. A good test is to zero beat the VFO signal with the receiver's BFO and leave it on for several hours to check drift. Also try tuning either side of the signal to see if it sounds clean. These tests must be done with the VFO board in its final housing. A slow motion drive will be required to give a smooth tuning range with VC1: the common 8:1 epicyclic drives are ideal for this purpose, and a circular scale can be affixed to the geared down spindle on the outside of the case.

14 MHz Doubler

Armed with the VFO the freedom of the whole CW sector of the 40 metre band is now open to the S.C.D user and many good CW QSOs should now be possible. Another good band for CW QRP operation is the 20 metre band. If we were restricted to only two bands for QRP operation they would be 40 and 20 to allow the variety of inter-UK and international contacts. The natural progression from building the VFO is to use it with the S.C.D. transmit board on 40 metres and then add a doubler for 20 metres. But for the purposes of this article I will describe a suitable doubler circuit, before describing how to use the VFO with the doubler, or alone, in the transmitter.

The doubler is a simple bipolar transistor tuned doubler circuit as shown in Fig. 2. The output from the VFO at 7 MHz is fed to the base of TR1 and the output at the collector is tuned for the 14 MHz band. A switching arrangement allows the VFO signal to pass either through the doubler circuit, or direct, to the transmitter board. Purists who own spectrum analysers and read the best textbooks found on this type of circuit on the grounds of its relatively clean output and poor attenuation of the fundamental frequency. However it is possible to produce a good doubled signal, with a little care, and further filtering later in the transmitter will reduce the harmonic content to reasonable, and legal, levels. The great merit of the circuit is that it is simple, cheap and it works.

L1 is core tuned with C1, and tappings provide suitable matchings for the transistor collector and the output. Such a circuit has gain and this can be a disadvantage as we really require similar levels of drive to the transmit board from the doubler and the VFO alone; a simple drive control is provided with VR1 which controls the line voltage to the transistor. Screened leads must be used between the VFO, the doubler and the transmit board. A suitable PCB layout is shown in Fig. 3. Like the VFO the circuit could be built on plain perforated board using the same layout.

The doubler can be tested using a receiver and the RF probe. The VFO is connected via a screen lead to the input and the RF probe is connected to the output. Screwing the core should produce a peak in the reading from the RF probe. Listen on the receiver to check that the signal is on 14 MHz, and is clean. Avoid any minor peaks that could appear when tuning with the coil core. The 14 MHz signal should be a large peak and quite sharp. Lucky constructors with a frequency counter will be able to find the 14 MHz signal by direct reading.

The Transmitter

The VFO and doubler can now be used with the S.C.D. transmit board, but first some modifications have to be made to this board. Fig. 4 shows the original S.C.D. transmitter. TR1 is the crystal oscillator, TR2 an FET buffer and TR3 is the driver to the PA transistor TR4. The output is taken from the collector of TR4, with an impedance of roughly 50 ohms. Individual 50-ohm in and output impedance fixed pi-network filters tune the RF signal from the PA for each band. TR4 is run with a DC input of 2 watts which is attained by altering the drive level from TR3 by adjustment of the driver stage.

Before the VFO of Fig. 1 was tried, attempts were made to utilise the FET crystal oscillator section of the S.C.D. as a buffer to follow a single transistor oscillator. The results were not encouraging and the VFO as described was then built; this has two buffer stages and a relatively high RF output. This means that neither TR1 or TR2 of the original S.C.D. transmitter are required. So of the transmitter in Fig. 4 only the driver and PA stage are used. The modified transmit board uses a more sophisticated method of keying the driver stage.

A wide variety of transistors may be used for the PA stage and the driver stage. The prototype worked well with the common 2N30 and the BF51, although some of the BF51’s in my surplus-priced stock gave quite low outputs. Almost any suitable transistors capable of dissipating a few watts at the required frequency will work. (Some of the best results in the prototype were obtained from some unknown computer switching transistors, with short leads, coded 00652.) A reasonable heatsink is required for the PA transistor of the ‘star’ or clip-on kind; it is common for some transistors, even with heat sinks, to run quite hot in this circuit.

Fig. 5 shows the modified S.C.D. transmitter circuit. The two stages TR1 and TR2 have been completely removed, and what remains is the driver stage, from C5 onwards, and the PA stage. The keying point in the emitter of TR3 is shorted out and the driver is now keyed with a switching transistor TR5. The keying transistor TR5 acts as a DC switch to turn the driver stage on and off via the line voltage. It is a p-n-p device, whereas the TR506 was used in the prototype, but any high speed device would serve the purpose. When the key is open the transistor does not conduct, so no voltage reaches the collector of TR3; with the key down TR5 is forward biased into saturation and current flows through its junction supplying TR3. Such a switch has two advantages: the first being that the line voltage can be keyed with one side of the key connected to earth, and the other being that the keying can be “shaped” to avoid key clicks in the final transmission.

The circuit in Fig. 5 uses a 0.1µF capacitor between the base and earth and 2.2K ohms in series with the key lead. This series resistor must be maintained if the transistor is to survive, but variations in the keying circuit can produce various shaped keying...
characters. Try using two 1K ohm resistors in place of R9, and placing 0.1µF capacitors from the base of TR5, the junction of the two resistors and the key — all three capacitors going to earth. This will soften the keying, although it will still be quite sharp. It is possible to experiment with higher values of capacitance to obtain other keying characteristics. Too much capacitance will, however, produce a rather "mushy" note. If a keyer is to be used in this keying circuit it should have a relay contact output or be capable of positive keying.

A suitable layout for the modified transmitter is shown in Fig. 6. This board is etched in an unusual way, with the copper on the component side of the board; this type of board requires no drilling and the leads are soldered direct to the copper. (This method was fully described in the original S.C.D. article of January 1980 and allows for simple experimentation and component changing.) Those who already have the original S.C.D. board may cut it, as shown in the drawing, to retain only the driver and PA stages. The DC switch transmitter will not fit the original board and can be built on a tagstrip as shown. I found a very convenient tagstrip, which just fitted, to bridge the circuit board line voltage strips for the PA and driver. The DC switch could also be built on a small piece of PCB and mounted above the transmitter board.

The Transmitter Filters

The S.C.D. used an individual broadband pi-network filter for each band. These are shown in Fig. 1 and were built into 1oz. tobacco tins with a phono plug and socket on each end; the plug fitted a socket from the output of the transmitter at C10. As bands were changed — so were tobacco tins! The filters for the S.C. Deluxe are double pi-networks and are shown in Fig. 7. Additional filtering is required with the VFO to remove unwanted harmonic content in the transmitted signal. The 14 MHz filter has an additional tuned circuit L3/C4: this is a wave trap to remove unwanted 7 MHz VFO fundamental signal from the doubled signal, and the values are shown in the Table. The coils are wound on Amidon toroid formers. The capacitors should be as close as the desired value as possible, but more than one capacitor can be used to make up each value. Avoid using the very small ceramic types as these may get hot, silver mica or polystyrene types are suitable.

Once again the filters can be mounted in tobacco tins. I used the square 2oz. tin (I guess the Philistines call them 100gm. tins now) but it may be possible to use other suitable small tins; the filters are plugged into the back of the transmitter for each band. They could also be switched, but this can have problems. If switching the filters they ought to be screened and the inputs and outputs must both be switched; screened leads must also be used. One method is to use two double-pole changeover slide switches mounted at either end of the filters and gang the switching action with a homemade actuating bar. (Band switching is perhaps one of the most complex problems in multidband transceivers and I suspect that when an amateur buys an expensive commercial rig, he is really buying £500 worth of complex switching.)

Using The Transmitter

Once the transmitter board is completed, it can be tested with the VFO and doubler. The first operation is to set it up with the VFO alone on 7 MHz. The VFO with, or without, the doubler should be connected to the transmit board with screen lead. In my prototype the transmit board was mounted inside an aluminium case, with the VFO in its own box mounted to one side; the doubler came between the VFO box and the transmit board. When using or testing the transmitter the PA should have a load on its output at all times. The output of the filter has a termination of 50 ohms and for tests a dummy load is used; this should be carbon resistance of some 50 ohms, capable of dissipating a few watts, which may be made up from higher value, lower wattage, carbon resistors in series or parallel combinations.

A DC input of some 2 watts is required for the PA stage. This is measured by monitoring the current flow in TR4, in the line between RFC2 and the 12 volt line supply. Just lift the top end of RFC2 from the positive pad on the board and insert a milliammeter — a multimeter on a 250 mA range is suitable. The RF probe can be connected across the dummy load to check that an RF output is present if the constructor has a spare meter to use with the probe. The task in hand is to adjust the driver emitter resistor, Rr, to give a DC input of about 2 watts to the PA.

To give a DC input of 2 watts with a 12 volt supply, 166 mA is required; for 1.5 watts the current is 125 mA, and so on, according to Ohms Law. The value of Rx is altered to give the required input; in the prototype 33 ohms was required. This will depend upon the output from the VFO the gain of the driver and the PA transistor. I suggest the constructor begins with a higher value and reduces to obtain the required reading. Overdriving the PA could result in once again proving that the transistor can be "the fastest fuse on three legs". The transmitter is further tested by listening to the signal on a receiver. Transistor PA stages are not unknown for parasitic oscillations. Key the signal to check it sounds clean, and tune around each sideband to listen for "nasties". But remember that the transmitter, even into a dummy load, may be overloaded the receiver front-end. So ensure that any poor note is not the fault of the receiver. Listen with no aerial, or with just a short wire; the keying should also sound clean. Some constructors swear by using little ferrite beads on the input legs to PA transistors to cure parasitics. I have never done this but if you have a poor signal it might be worth trying.

The transmitter must now be tried with the doubler on 14 MHz. The value for Rx remains the same, but since the doubler will have some gain, the input to the driver must be reduced; this is done using the drive control, VR1, in Fig. 2. The doubler is switched into circuit with VR1 set to give the minimum voltage to TR1. The current to the PA is once again checked and VR1 is increased until the required current reading is obtained. In the prototype, VR1

![Fig. 7. TRANSMITTER FILTERS](image-url)
was a preset control inside the case of the transmitter. The same checks can be repeated with the transmitter on 14 MHz.

The transmitter is now completed and can be air tested. The output will be up, the aerial connected and long enough, and many other aerials will reveal the QRO (an L-Match is usually enough), see the original S.C.D. article, Part 3, March 1980 Short Wave Magazine. Because the oscillator is on all the time, even with the key up, the receiver used will require muting.

The transmitter only runs a DC input of 2 watts, but QRP operating is great fun, as more than a thousand members of the G-QRP club will testify. Techniques for low power operation have been discussed elsewhere — in the original S.C.D. article, the RSGB “Amateur Radio Operating Manual”, etc. Remember you will only be about two or three ‘S’ points down on the usual QRO signal, but call other stations rather than call CQ. With a fair aerial the transmitter should work into Europe with ease on 40 metres and two stations in the USA were worked with the prototype S.C. Deluxe on the first night of operation. So build it up and enjoy it. We will look at the receiver section in the next part of this article.

Component Sources

J. Birkett, 25 The Strait, Lincoln is a good source of most components.

The Amidon toroidal cores can be obtained from TMP Electronic Supplies, Britannia Stores, Leeswood, Mold, Clwyd, or Ambit International.

References


Correction

There is an omission in the circuit diagram of Fig. 2 in “Simple Memory Keyers for Meteor Scatter, Part 1” which appeared in the April issue: R3 is not shown, and should be connected between pin 11 of U2 (the 4040 chip) and earth. Also, in the Table of Values on p. 93, C2 should be 0.01 μF, not 0.001 μF as shown.

BOOK REVIEW

“AMATEUR RADIO TECHNIQUES”

7th EDITION

This book is the logical compilation of many of the more interesting items that have appeared in Pat Hawker’s, G3VA, monthly feature “Technical Topics” in Radio Communication over the last 25 years. “Amateur Radio Techniques” was first published in 1965 and this latest, seventh edition contains some fifty new pages of material over the previous one. The aim of this publication is to supplement the information contained in the standard amateur radio handbooks. As such, it does tend to be a little disjointed in parts; however, the comprehensive four page index should enable the reader to find items of any particular interest.

The nine chapters are entitled:— Semiconductors, Components and Construction, Receiver Topics, Oscillator Topics, Transmitter Topics, Audio and Modulation, Power Supplies, Aerial Topics, and Fault-finding and Test Units. Obviously a reviewer cannot read each one of over 300,000 words or carefully study some 800 diagrams, so this appraisal is of a general nature.

This book still contains many circuits featuring valves and the first impression is that it is rather “old hat”. However, as there must be thousands of pieces of gear of all kinds around using valves, the inclusion of such material is relevant. For example, in the Receiver Topics section, there is a circuit showing how to improve the local oscillator stability of an old Eddystone S-640 receiver by replacing the frequency changer valve by three 2N3819 transistors.

What does seem more questionable is the inclusion of so much valve circuitry which dates back to the 1960s. After all, to mention some examples, who would contemplate building a VFO using a 12AT7, a double-balanced modulator using a couple of 6AU6s, or a three-valve speech compressor? Or yet again, use valves in a small, regulated power supply? Such stuff may have been state-of-the-art twenty years ago but it is hardly relevant today.

One of the better chapters is that dealing with aerials and one cannot escape the feeling that this could be a topic very dear to the editor’s heart. In this section will be found suggestions to suit everyone, from the amateur with no back yard at all, to the lucky chap with acres of real estate for aerial farming.

Since the first edition of ART appeared, amateur radio has exploded into many, highly specialised facets, with microprocessor-controlled transceivers with memories and scanning facilities, for example. Is it practical to even try to cover all this diversification in one volume now? The reviewer feels that the publisher — RSGB — should seriously consider a drastically pruned and revised edition of this book. Indeed, it might be more logical to split it into more, thinner booklets, so that those covering the most rapidly changing and developing techniques could be up-dated more frequently, and those dealing with slower-moving topics, such as aerials, could be revised at longer intervals.

Amateur Radio Techniques is in 243 x 148mm. format and would be a useful addition to the library of the experimentally-minded amateur. It is available from S.W.M. Publications Department at £6.00 including postage and packing.

RETURNS!

UNDER THE PERSONAL DIRECTORSHIP
OF ROWLEY SHEARS G8KW
KW COMMUNICATIONS LTD.
VANGUARD WORKS, JENKINS DALE,
CHATHAM, KENT, ME4 5RT
One of the areas which is particularly booming is, with no doubt at all, this clubs feature. We are now getting to the point where we shall either have to be very hard in weeding out clubs who don’t update in time, or go to a simple listing. Frankly, a listing would use up much less space, but of course would do nothing to show an intending visitor or potential new member what the gang are like. In other words, updates on time, or OUT you go until we get one!

So — let’s get started immediately, with Acton, Brentford & Chiswick. Chiswick Town Hall is their place, on May 19, and the talk will be by G4HMC, who will be talking about his experiences with QRP on Forty.

Ashford — the Kentish one, that is — have their HQ up at the top of Hart Hill, which is near Charing, where they are to be found on Tuesdays each week. However, they owe us an update, so best check with the Hon. Sec. at the address in the Panel.

Our next port of call is Barking, where the locals foregather at Westbury Recreation Centre, Westbury School, Ripple Road, Barking, where they have four evenings each week: on Mondays they usually have a rig clinic, Tuesdays is morse night both for beginners and advanced, Wednesdays are constructional, while Thursdays are the “main” sessions when they usually have a speaker or films, etc. May 14 is down for “Professional Radio Communications” by G4FKI.

Over to Bournemouth and here we have a “stop press” follow-up to the newsletter which indicates that there is a likelihood of a change of club meeting-place by the time this gets to print. This being the case, we feel it best that you should contact the Hon. Sec. — see Panel — before making any attempt to visit this very large and successful group. The new place will probably be the Conference Rooms at the Coach House Motel, Tricketts Cross, Ferndown, if all goes to plan.

If you have an interest in RTTY, then you should be a member of B.A.R.T.G. This group caters for all those interested in the mode, whether by “old-fashioned” Creed machines or the electronic versions. Details from the Hon. Sec. — see Panel.

At Bury they have the problem of a large club; over 100 members tends to be a bit of a handful for the programme organiser, if he is to look at all their interests when putting the programme together. They are at HQ every Tuesday — Mosses Community Centre, Cecil Street, Bury — but they make the second one in each month the main one. Thus May 12 will see them listening to the RSGB’s RR, and doubtless putting their questions.

We seem to have gone a bit out of order and forgotten Bishops Stortford; the routine here is fairly simple, with a HQ at the British Legion in Windhill, on the third Monday each month. Details of whatever’s new from the Hon. Sec. — see Panel.

On to Cannock Chase, who are to be found at the Bridgtown War Memorial Club, Union Street, Bridgtown, near Cannock, every Thursday.

Cheltenham have May 7 and 15 booked at the Old Bakery, Chester Walk, Clarence Street, the first date being set aside for GJXJS to come along and talk about RAEN, while the other one is a natter evening.

The chaps at Cheshunt are still meeting at the Church Rooms, Church Lane, Wormley, near Cheshunt on Wednesday evenings. Details from the Hon. Sec. May 6 is down for RAE revision, and on 13th they have a natter night; May 20 is an illustrated talk by G8DJU on Sierra Leone, and on 27th another natter night. And we mustn’t forget the club magazine — one of the best we have seen lately. It will be of interest to both members and other locals who hope to pass the morse test that from the end of April they will be running a twelve-week course at Turnford branch of the East Herts. College; details from G3OJI QTHR. It should be noted that if there is enough support and it is maintained, they may be able to get a morse class running in September to go through the winter.

Chichester is one of many clubs we know to have gained membership through this feature; they are to be found on the first Tuesday and the third Thursday evenings of each month at the Lancastrian wing of Chichester High School for Boys, Basin Road, Chichester. On May 5, Cdr. H. Hatfield will be talking of the spectrohelioscope and how to drive it. May 21 is down to G3WPO, subject not specified, but we suspect not unconnected with his Mark 2 RX80.

Chiltern have a place at the John Hawkins factory canteen, in Victoria Street, High Wycombe, where they recently had an AGM, and elected a new Hon. Sec.; we aren’t given his name and address, so for this time we’ll put the old name and address in the panel and hope for the best. We don’t think he’ll refuse to give you the gen!

Deadline for “Clubs” for the next three months —

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Please be sure to note these dates!

Wednesdays at Chesham come next, and we are told the place to head for is Whitehill Community Centre, Chesham. On the second Wednesday they have a formal meeting to deal with business, suggestions and so forth, while the other Wednesdays are devoted to nattering, construction or whatever. However, note that the club are on the lookout for a new HQ so perhaps it would be as well to ask the Hon. Sec. — see Panel.

Now to Clifton, who we reported last time as having moved; it seems this may have been only temporary, and they may well be based in yet a third spot by the time this reaches you. We recommend, therefore a contact with the Hon. Sec. — see Panel for his address and phone number.

Colchester next; at Colchester Institute, Sheepen Road; May 14 is down for the NFD and Anglian Rally final details.

The handsome lads of York A.R.S. Founder member Arthur Horner, G3FTS, is sitting (with hands clasped) in the front row; he is now a honorary life member.
Another group who will be making their last appearance unless we get an up-date is Congleton; the venue is the local library, where they have been “promoted” to using the lecture theatre. All the latest from the Hon. Sec. — see Panel.

May for Cornwall is a surprise equipment sale, and the venue for this is the SWEB Clubroom, Pool, Camborne on May 7.

Another gang who are in need of an update are the Coventry crowd — they are at Baden Powell House, Radford, Coventry. Details of the rest from the Hon. Sec.

Still in Coventry, there is a group at the Coventry Technical College; they have Monday evenings in the Winfray Annex normally, but we note that there is a “provisional” down against May 4 for a visit to Mercia sound studios.

Now to Crawley which just has to be the most consistently successful club in a New Town; for the dates look at the second and fourth Wednesday. The first is the main one, at Trinity United Reformed Church Hall, Ifield, but the latter is an informal at a member’s home, so for this it would be courtesy to check with the Hon. Sec. — see Panel.

As the current issue of the Gray Valley newsletter is mainly about the AGM, it doesn’t give any programme details; for that we must refer you to the Hon. Sec. — see Panel.

No errors at Crystal Palace where the Hon. Sec. notes them for us — May 16 is down for “Valves: An Historical Survey” by G6JP — and we reckon he is the best qualified person in the country to do so. As for the venue, Emmanuel Church Hall, at 2000 clock, and the third Saturday in the month.

Dartford Heath D/F is a pretty clear sort of title for a club specialising in D/F, and is based at the Scout House, Bromhill Road, Dartford. Normally they are there on the first and third Fridays, but when the weather is nice in summer, check with the Hon. Sec. first — see Panel.

Every Wednesday at 119 Green Lane, Derby the top floor will be full of radio amateurs doing such things as: May 6, a junk sale; May 13, a talk on railway radio systems; May 20 a night on the air with the club station, and on 27th G3VWG will talk and demonstrate the use and misuse of coxial cable. There is also a plan to visit the Open Day at RAF Waddington — details from the Hon. Sec.

“Test your equipment!” is the theme for the Dumfries & Galloway group at the Cargenhorn Hotel on May 18. This follows the general pattern of having the first Monday for a natter and the third for the formal session.

East Antrim are still looking for new members, to appear on the second Tuesday of each month at Carrick Hill, near Mossley — details from the Hon. Sec.; and if you catch him let him know we need an update! May 12 is down for a VHF D/F event.

East Kent seem to have their main meetings at the Dominican Hall in Canterbury, but we have to look at the files to discover it is usually the first Thursday. Update please!!

At East London RSGB Group the newsletter is very well filled with details of the more interesting dates of other local clubs — and it is surprising to realise just how many there are! Anyway, back to East London, at Wanstead House, 21 The Green, Wanstead, not two minutes walk away from Wanstead Tube station. Unusually, they have Sunday dates — the third Sunday at 3 p.m.

Edgware the dates are May 7 and 21. The former is provisionally down for the RSGB’s “Open Door” programme on amateur radio, while the 21st is down for an informal natter and debate. As ever the venue is the Watling Community Centre, 145 Orange Hill Road, Burnt Oak.

Down to Exeter the P.R.O. has left us a bit puzzled; he speaks of informal on the first, third and fourth Mondays of the month at the Scout Hut, Emmanuel Road, Exeter. He then goes on to talk of an inter-club quiz on a second Monday; and the letter head says the Hq is at the Community Centre, St. Davids Hill, Exeter. Perhaps the Community Centre is just used for the main evening each month and the rest for a natter? Details from the Hon. Sec. — see Panel.

Verulam A.R.C. have raised nearly £400 towards an appeal on behalf of the maternity unit at St. Albans City Hospital. On February 7th, the club operated two special activity stations, G8VER and G3VER: sponsorship was sought for a total of 200 contacts during the day, and G8VER on 2m. sideband and FM, aided by the HF station mainly on 80m., reached the target with an hour to spare. Pictured here, left to right, are David Bathurst G8TVL, Derek Turner G8LDR (operating), Paul Read G8XBE, Hilary Clayton-Smith G4JKS, Gerald Howe, G8XDU, and Frank Clayton-Smith G3JKS (club chairman).

Foreham have May 6 for a talk on transmitters and TVI, and on May 20 they have a talk on power supplies; the venue is at Portchester Community Centre, in Room 12. The members may be interested to know that once we were in the area we were told the club could be found by following the feeder run!

Grafton are at the “Five Bells” pub in East End Road, Finchley, on the second and fourth Fridays in the month throughout the year. Programme details from the Hon. Sec.

For Guildford the last meeting of April was the AGM, so doubtless when this comes to be read the new committee will have sorted something out for the May evenings at the Model Engineers Hq, Stoke Park — the second and fourth Fridays. If you see steam about and hear chuffing noises, you’ve probably got the wrong club or the wrong night!

Hereford have the County Control, Civil Defence Hq, Gaol Street as their Hq, and despite its rather forbidding venue the club continues to grow. We can tell you that the meetings are on the first and third Fridays, but lack of an up-date means we can’t tell you what’s on!

Ipswich have a frustrated journalist somewhere among them; what with the advertising and the distribution to other clubs, he must have a fair old task on his hands.

The club is now based on the “Rose and Crown”, 77 Norwich Road, Ipswich, where they foregather on the second and last Wednesdays of each month. May 13 covers HF Contest Operating by G4GFW, and on 20th the last details for the East Suffolk Wireless Revival will be settled — this is May 24, by the way.

It’s nice to see an IRTS newsletter in the pile again — it almost seemed to be going to cease for want of an editor. Having got that back on the rails, they go on to indicate concern that the regular Monday evenings at 91 Lower Baggot Street, Dublin, seem to be falling away a bit. So — get in there and join!

Over on the Isle of Wight the locals are to be found from around eight on Friday evenings in the Unity Hall, Wootton Bridge, I.o.W.

It’s nice to see club news from GM-land, as they seem very reluctant to send their details to us. Not so Kilmarnock and Loudoun, who have the first and third Tuesdays in the month at the Buchanan Centre, Riccarton, Kilmarnock; we understand this month sees the AGM and then we shall be receiving detailed updates — good!
Names and Addresses of Club Secretaries reporting in this issue:

BARKING: A. Sammons, G8IZN, 80 Lyndhurst Gardens, Barking, Essex IG11 1RZ. (01) 594 3471.

CHESHUNT: M. Bragg, 2 Elm Drive, Cheshunt, Herts. (Waltham Cross 32114).

CHICHESTER: S. Talbot, G8FCX, 31 Pier Road, Littlehampton, Sussex BN 17 5LW. (Littlehampton 5082).

CONGLETON: N. R. Clayton, GRYU7, 2 Moorfields, Leek, Staffs. (Leek 385992).

ANTRIM: J. Welch, G4JXM, 20 Bryantang Brae, Doagh, Ballyclare, Co. Antrim BT3 6RJ. (Ballyclare 40384).

KENT: N. Gerolemou, G8PFE, 63 Cobblers Bridge Road, Herne Bay, Kent.

EXETER: G. Draper, 1 Carlyon Close, Exeter EX1 3AZ. (Exeter 37170).

LEEDS: Hon. Sec. ’s name and address wanted.

LIVERPOOL: R. Simmons, GPNS, 62 Daneville Road, Liverpool L4 9RG.

THE SHORT WAVE MAGAZINE
May, 1981

The Leeds gang are having a week-end Hamfest, all-same mid-1960s, in response to popular desire. This one is slated for June 26-27-28, and tickets for the various events will be available from the Leeds Amateur Radio Shop; while you’re at it see if you can get someone to send us some data on the club and the Hon. Sec.’s name!

Liverpool have a place in the Conservative Rooms, Church Road, Wavertree, where they have something organised for every Thursday evening.

Now to Medway, which means St. Luke’s Church Hall, King William Road, Gillingham, every Friday evening.

Melior means the first Thursday evening of each month at the Ship Hotel in Dolgellau at 7.30; we need an update here too!

Melton Mowbray have the Annual Construction Trophy, to be won on Friday, May 15, at the St. John Ambulance Hall, Asfordby Hill, Melton Mowbray.

Mexborough don’t tell us much about their programme, but they seem a happy group based, on Friday evenings, at Dolcliff Hall, Dolcliff Road, Mexborough.

At Midland we have a problem: we have the number of the new QTH over which they have been slaving for some months — 294A. However, although we believe this to be in Broad Street, we aren’t certain — so please refer to the Hon. Sec. This important as we have it that they have no further bookings at the University of Aston.

A familiar handwriting comes out of the past, to let us know that North Devon have some changes in their arrangements. In the even months they are at Bridgford Community College, Abbotsham Road, Bideford, and on the odd months they go to Pilton Community Centre, Barnstaple. August is left blank; we understand this has been done so that the reduced meeting rate will leave room for other activities such as RAEN.

May up in the Northern Heights sees them on May 13 listening to G3NXXM talking about HF aerials, and on 27th they will have a demonstration of Tandy computers. Someone hopes someone has an HF rig with them to hear how much QRM has to be suppressed before they can be used alongside the rig! The gang are there (Bradshaw Tavern, Bradshaw, Halifax) every Wednesday, the remaining meetings being down for nattering.

Peterborough are still steadily pressing on; they meet on the third Friday of the month in the Scout Hut, Lincoln Road, Peterborough.

Pontefract is a club we’ve not heard from for years; however they are happy and well at Carleton Community Centre, Pontefract, where the routine is to get together on alternative Thursdays. May 14 is film night, while on May 28, G8VFV will be talking about QTH squares. The club are up on the top floor of the Hq, and the bar on the ground floor — they say it’s safer that way!

Midland: N. Gutteridge, G8HBE, 68 Max Road, Quinton, Birmingham B32 2AN. (021-422 9758).

North Devon: H. G. Hughes, G4CG, Crimis, High Wall, Steepleham, Barnstaple, Devon EX31 2DP.

Pontefract: N. Whittingham, G4IJSU, 7 Ridgedale Mount, Pontefract, W. Yorks. WFR 1SR.

RA.I.B.C.: Mrs. F. Woolley, G3LWY, 9 Ramnoch Court, Adelaide Road, Surbiton, KT6 4TE.

Reigate: Dr. J. S. Roberts, G4FKL, 15 Bakehouse Road, off Horley Row, Horley, Surrey.

Sefton: L. Gurney, G4JBL, 1 Endbourne Road, Orrell Park, Liverpool L9 8DP. (051-321 6077).


Tamworth: C. Kirby, G4FZM, 35 Fontenaye Road, Tamworth, Staffs. (Tamworth 0352) 67058.

Wacral: L. Colley, G3AGX, Micasa, 13 Ferry Road, Wavre, Nr. Hall, Yorks. HU7 5XU.

See April issue ‘Panel’ for names and addresses not appearing here.

RA.I.B.C. needs to hear of possible new invalid or blind members on the one hand, and that they need supporters and representatives on the other. Details from the Hon. Sec.

Now to the Reading programme; firstly the home base is the club room of the “White Horse” pub in Emmer Green, off the B481 Reading-Nettlebed road. They will be in residence on May 12 for last details on HF NFD and an “alignment evening”, with a junk sale on 26th.

It looks as though the Reigate group have lost their newsletter. However the gang will continue to exist on the third Tuesday in each month at the upstairs meeting room of the Constitutional and Conservative Centre, Warwick Road; this gives us May 19.

The Royal Navy group is one of world-wide membership, covering RN, Merchant Navy, and members of foreign navies, present and retired — the membership (if you are eligible) is worth it for the newsletter alone! Details from the Hon. Sec. see Panel.

St. Helens appear next — always a welcome sight, the first “S”, as it means we’ve put a big dent in the pie! Anyway, they live in the Conservative Club, Boundary Road, St. Helens. May 7 is a night-on-the-air, and against 14th appear the magic letters TBA. On May 21 there is a surplus sale, and on 28th G4L.HL will talk about the history of British television.

On to Salisbury where the Hon. Sec. tells us they have a place at the Activity Centre in Wilton Road, every Tuesday.

At Saltash the first and third Fridays are the ones, at Burtaton Toc H hall, which lies on the junction of Warraton Road, and Oaklands Drive, Saltash.

Like Saltash, Scunthorpe owe us an update; their venue is in the Shack, Grange Farm Hobbies Centre, Franklin Crescent, Scunthorpe. They get together every Tuesday.

Next we head back to Liverpool to Sefton; the group have Hq at the Prison Officers’ Social Club, in Hornby Place, off Hornby Road, on alternate Wednesdays from May 6.

Silverthorn are about the only group we know of based in a “stately home”, namely Friday Hill House, Simmons Lane, Chingford, London E4, where they are to be found every Friday.

A new Hq is noted by the Southampton crowd, they having now moved to the Toc H building, Little Oak Road, Bassett, Southampton, where they have every Wednesday.

Now Southdown, and here the form is to head for the Chaseley Home for Disabled Ex-Servicemen, Southcliff, Eastbourne, on the first Monday of each month.

Southgate’s new P.R.O. forgot to tell us about the May meetings or the venue (shame!). However, our files tell us the venue is the Scout Hut in Wilson Street, Winchmore Hill Green, where they are to be found on the second Thursday of each month.
On now to Spalding where, on May 1, the group will foregather at the Teacher's Centre, Knight Street, Pinchbeck, for a discussion about the forthcoming Tulip-Time Rally.

Stevenage is still using the Senior Staff Canteen at British Aerospace Site B, Gunnells Wood Road, on the first and third Thursdays of each month.

Stourbridge always meet at Longlands School, Brook Street, Stourbridge, but we haven't had an update for some time so we must refer you to the Hon. Sec. for the latest details.

Sunderland have a radio club, based on the Brewery Yard, Westbourne Road, Sunderland, on Monday evenings; we have it that extra evenings will be used to take in morse and RAE classes. Details from the Hon. Sec. — see Panel.

On we go to Surrey and TS Terra Nova, 34 The Waldrons, South Croydon, first and third Mondays, but an update would tell us a bit more — so we have to refer you to the Hon. Sec. for the latest details.

Sutton & Cheam have two venues, and as we don't have a May programme list we can't give you either with any confidence. Hence we refer you to the Hon. Sec. — see Panel.

We have a new reporting from Tamworth: the group is to be found at the "White Lion", Lichfield Street, on the second and fourth Mondays, but on the remaining Mondays in each month they have their own shack to fall back on. Thus, May 4 they have a D/F Hunt, May 11 is a talk on Air Traffic Control by G8AIR, and May 25 is as it is Spring Bank Holiday, and that's it for the month!

thurrock next, in the rarefied atmosphere of the top floor of Grays Park Hall, Orsett Road, Grays, Essex, every Tuesday evening — visitors especially welcomed.

The Vale of the White Horse gang have produced a newsletter bearing a version of the famous chalk horse on the front page. They have a formal meeting on the first Tuesday in the month, with the others being informal sessions in the "White Hart" in Harwell Village. Details on the May doings can be obtained from the chap in the box — he's a "temporary" until the AGM, we guess!

Verulam's May meeting, on May 26 will be given by G3OHX, his topic being the old favourite of BCI/TVI. The venue is the Charles Morris Memorial Hall, Tyttenhanger Green, Tyttenhanger, near St. Albans.

Most regular readers will know that the letters WACRAL refer to the group of committed Christian radio amateurs and SWLs throughout the world. Details from the Hon. Sec.

At Wakefield May 5 is down for a talk on inland waterways by G4IKH, and on 19th they have a junk sale. The Hq is at Room 2, Holmfield House, Denby Dale Road, Wakefield.

A fat newsletter from West Kent tells us that on May 8 they have a Constructional Contest, the venue being the Adult Education Centre, Monson Road, Tunbridge Wells.

Wirral use the Sportcentre in Grange Road West on the first and third Wednesdays of each month for their meetings; May 6 for G3UJX to talk about amateur licence conditions and their interpretation, and on 20th they will be hearing G4KPY and "More Simple Circuits".

Yevoli have May 7 for "Measuring Aerial Input Impedance", and on 14th they tackle SWR; May 21 is down for making tuned circuits with G3YM3, and on May 28 they have a matter session.

Finally, York where the recent jumble sale produced of all things of pair of bath taps, not to mention a rogue halfpenny in the hands of G8PXB which added to the entertainment! The venue is the United Services Club, 61 Micklegate, York, every Friday except the third.

Finis

To a big pile of mail. Will all those who have been mentioned (and the rest, come to think of it!) please let us have their latest information, and in particular any changes. The deadline is in the "box", and the address "Club Secretary", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts AL6 9EQ.

Mobile Rallies — 1981

May 3, Maidstone YMCA A.R.S. Rally at the 'Y' Sportcentre, Melrose Close, Cripple Street, Maidstone, 10 a.m. to 5 p.m., trade stands and licensed bar. May 17, Northern Mobile Rally, Victoria Park Hall, Keighley, 11 a.m. to 4.30 p.m. (10.45 a.m. opening for wheelchair and blind visitors), talk-in on 2m. FM S22, and 70cm. FM SU8 and RB14, trade stands, licensed bar, children's attractions. May 24, Plymouth Rally, Tamar Secondary School, all the usual attractions; details from G4KXZ, QTHR. May 24, East Suffolk Wireless Revival, IACSSA sportsground, Buckleham, Ipswich, from 11 a.m., trade stands, transceiver clinic, aerial testing range, licensed bar, excellent family attractions, G84SR, talk-in on 2m. Further details from Jack Toothill, G4QFR, QTHR, tel: 0473-44047. June 7, Hull Mobile Rally, at the University of Hull Students Union Building, Cottingham Road, Hull, opens 12 noon, talk-in by GB3HS on S22 FM, trade stands and family attractions. Details from G8EAH, QTHR. June 14, HMS Mercury Mobile Rally, 10 a.m. to 5.30 p.m., details from G4DIU, QTHR. June 14, Elvaston Castle Mobile Rally, Elvaston Castle Country Park (5 miles S.E. of Derby), opens 10 a.m., talk-in on 144 and 432 MHz from 9.30 a.m. by GB2ECR, trade stands and several special family attractions. Full details from G4CTZ, tel: 0332-71875/799452.


Special Event Stations

To mark its Golden Jubilee, the Midland Amateur Radio Society, GB4MAR, will be running a multi-station operation throughout June, and issuing a special QSL card; they are also issuing an award for this event open to any radio amateur or SWL, worldwide. Full details are obtainable from J. K. Harvey, G4IV, QTHR. August 1, RNARS will be operating a station on Yeovilton Air Day. Details from G4DEP, QTHR.

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Watch for Further Announcements
ANOTHER ineffable club-night moment was nigh. The lecturer had long since departed in his swish company car. Most to the members, blinded by his science (the subject had been microcircuits) had straggled off down the hill after him. A final few of them remained standing in the doorway gazing at the city lights below.

"How about a final-final brew-up?" murmured Old Fangler. No second bidding was needed: in minutes the old tin tray was on the table by the door where two hours before Mister Treasurer had been collecting tenpee pieces, and the effulgence of warm tea rose upon the air.

"One of the delights of British civilisation, tea" observed Mister Maths "...and the more so when it's out of proper cups like these and not from horrible metal mugs"

There was a ripple of assent from the others: there would have been, any way, for club members regarded Mister Maths with a respect verging upon awe. He being a school teacher possessed the rare gift of rendering the immumerate capable of passing the Radio Amateurs' Examination.

"The Yanks have never been the same since they threw it into Boston Harbour in 1776" observed young Virginius Puerisque: "...and more's the French helped 'em do it... they were their allies at the time"

Old Fangler turned slowly round to young VP: "That's all past history, my young friend ...I know the Americans have not taken to tea like the British have, and I know that the French have got a lot to answer for, including these darned kilometres and kilogrammes and metric what-nots, but never forget, lad, they are all brothers with us under the skin".

Warming to his dissertation he added, perhaps a little unluckily: "And if you got yourself a Class A licence instead of talking around town with that silly little omni aerial sticking out of your chimney you'd soon find out!"

Young Virginius being a well brought-up lad who had been taught (unlike some of today's young) that you don't often argue with your elders because elders are generally better for the simple reason that they have been around longer, allowed himself the politely phrased observation that a lot of the Class B licensees knew a great deal more about electronic art than the oldsters, and at least they didn't go drooling on for hours on 80m. nets.

Always magnanimous, Old Fangler laughed and said "Points taken, lad" as he raised his tea cup.

"You really enjoyed that" said burly Ethelbald as he too drank up: "...there ought to be a Q-signal for 'quaff'."

Virginius observed that as a phone-only operator he thought Q-signals not only superflious but - dare he say it? - a wee bit exhibitionist when after all you could use plain language to say the same thing. From this view Old Fangler dissented strongly: he declared to him Q-signals represented much in little and thus had great value in keeping overs concise and to the point, be they via key or larynx. It made him wince, he went on, to hear people yarling repetitiously away when they could encapsulate much of what they wanted to say by using the appropriate Q-codes, even on voice, without appearing to be discourteously terse. It made him, he said, especially ill humoured to hear phrases like "Negative on that one" or "That's an affirmative" when all that was meant was "No" and "Yes".

Not to be entirely suppressed, Virginius Puerisque essayed the thought that over-use of Q-signals on voice approached some of the mindless baby-talk the CB-ers used. Perhaps he said it for devilry, knowing that even the tolerant Mister Maths would not agree.

Indeed, he didn't: "The Q-code is official, it's been used for decades and decades and carries a wealth of meaning to operators who bother to mug it up ... and don't ever mention CB again in my hearing, young man, because what they say is entirely artificial and rooted in exhibitionist one-upmanship".

Having delivered himself of this homily Mister Maths drew in his breath deeply and added: "It's getting late... better quaff the last cuppers and off down the hill ... we can discuss the Q-code a bit more on our way home".

They did. They agreed it had great potential - but then it always did ("Especially for talking with those Yanks and French and all those other foreign bodies" chimed in Virginius).

As Old Fangler turned the lock of the clubroom door Mister Maths said: "Yes, let's talk a bit more about it ... you know, there are many more Q-signals we could use but don't. What about QB, meaning the distance between stations? It's a lot more important than that stupid phrase 'the handle'"

This gave club-member Ethelbald the opportunity to fulminate on the folly of using artificial terms like "the handle" for he indeed had had great difficulty in putting over his first name to the importunate who insisted on knowing it before they would continue the QSO.

"When I say 'Ethelbald' they wonder whether I'm male or female" he complained, as the four of them walked briskly down the hill.

That's because of your rotten SSB quality" gibed Old Fangler: "Tell 'em they ought to try some slow scan television to see that ugly mug of yours and that rugby jersey; then they'd be in no doubt".

"Next bloke who asks me for the handle will be told it's in the smallest room in the house" growled Ethelbald.

There was not far to go now before the four of them would take their separate routes home. "Quick, before we part, shout out some of the Q-signals we don't often use but ought to" puffed Old Fangler, trying to keep in step with the younger ones.

"Well, if you are a morose man you can't do without QRQ, QRS and QSZ" replied Mister Maths.

"I like QUA, meaning Have You News of So-and-So" added Ethelbald: "... no need to mention QSP: we often use it, don't we? But I rather care for the next one, QSR, to ask for a repeat of a call. Could be used a lot on 144.3 when you get those pile-ups. It would be a change from QRZ".

To the surprise of the older three Virginius then piped up with QTR, which he said he often used because his wrist watch never kept time and he couldn't yet afford a digital clock for the shack.

Sadly, he added, few people on "Two" knew what he meant when he said "QTR please" and he had to go through it all again in longhand.

It was now almost the parting of the ways. "I remember" said Old Fangler, the ruminative look in his eyes barely visible to the others under the street lights: "I remember when we were in the habit of making up self-evident Q-signals of our own. There was QLF, meaning 'Send with your left foot now' if you met a rotten CW operator. And there were QMH and QHL, meaning tuning medium-to-high or high-to-low ... you never use 'em now ... everyone's co-channel'"

Mister Maths felt constrained to say that you had to be very careful in inventing new self-evident Q-signals or you might run into trouble. "I once wrote a letter to a mag saying we should adopt QWU for contests to signify 'Have Worked U' when a station calls you whom you've worked already. I may tell you that I was quickly snapped down the next month by a letter which said 'Sir, the man cannot be allowed to suggest this. The group QWU is already allocated. It means 'I am touting a glider' and it does!"

"So much for your flights of fancy" said Old Fangler ("What a rotten pun!" quipped Virginius).

"But what a subject of the next club meeting!" exclaimed Ethelbald: "Let's bill it as 'Enhance your Q-quotient'".
To this suggestion Mister Maths said that as a pedantic sort of chap he objected to the use of the mathematical term "quotient" ... it stood for the result given by dividing one quantity by another, he said.

"Now isn't that exactly what the Q-code does!" said O-F: "Yes, a good subject for the next meeting. Now I'm off before we start on a final-final-final". And he disappeared into the darkness.

Three examples of the expanding 'Thandar' range of test equipment. From the top, the TF-040 8-digit LCD frequency meter measures from 10 Hz to 40 MHz with a sensitivity of better than 40mV r.m.s., and costs including batteries, £110 plus VAT. Next is the TG-100 1 Hz to 100 kHz function generator; mains operated, the TG-100 has selectable waveforms of sine, square, triangle, and DC from a variable amplitude 600-ohm output, and costs £79 plus VAT. Below is the TM-353 3½-digit LCD multimeter, which has full measurement capability of AC and DC volts, AC and DC current, resistance and diode check, to a basic accuracy of 0.25%; price is £84 plus VAT. For further information on the above, contact Sinclair Electronics Ltd., London Road, St. Ives, Huntingdon, Cambs. PE17 4HJ.

"A Word in Edgeways"

Letters to the Editor

The views expressed here are not necessarily those of the Editor, nor should they be taken to represent any particular SHORT WAVE MAGAZINE policy.

Dear Sir — We felt we should say how amusing we found Mr. Kirk's letter in the April issue about the G4 who was trying to work the beacon on 160 metres. It's possible, one supposes, he was so sick of listening to the old-timers working this particular band that he thought working the beacon might be a little more stimulating. It's a pity he had trouble copying the call sign, though.

Mr. Kirk is obviously a gentleman who appreciates amusing incidents, and we would suggest that he listens from time to time on 10, 15 and 20 metres, where he will find equally amusing stories to relate. On a number of occasions recently we have been just a little amused, and at times extremely frustrated, when we have been waiting to work one of the rarer DX stations — who was very clearly just exchanging reports and trying to work as many of the world's amateurs as possible — only to have one of the G3's of about 1932 vintage attempt to explain in very great detail his entire life history, and that of his family, while the poor unfortunate DX man slowly disappeared into the noise. On two occasions recently, the DX station has broken in to say he would QSY 5 kHz higher, where he continued giving his reports, leaving the old G3 (possibly a refugee from Top Band) talking to anyone not fortunate enough to hear the DX station say he was moving.

Incidentally, in case you are wondering, myself and my wife have neither the antenna nor the inclination to work Top Band.

Lloyd (G4JQO) and Olivia (G4KQX) Hobson

Dear Sir — I read with astonishment, pity and compassion the cri de coeur from the lady amateur, G4FID, in your March issue.

Overcome with curiosity, I had to find out in what portion of our sceptred isle the unfortunate lady resided. I therefore consulted the great volume of amateur call signs to find that this person, who wastes a page-and-a-half of valuable space bleating that no one recognises her, has the impertinence to withhold her particulars.

Let her be informed in her unfortunate condition that there are those who recognise and know personally many lady amateurs, and who are proud to do so and are cognisant of their ability.

Perhaps if this lady would emerge from the convenience of her anonymity we could offer some more concrete consolation.

John Acton, M.Sc., FRSC, G8UXT

Dear Sir — Your somewhat loud-mouthed leader in April's S.W.M. encourages me to speak up and speak out for potential Open Channel operators — when autumn comes.

I write this as a one-time 'ham' (ex-G3EEE, ex-VP2GAY) whose heavy professional broadcasting activities unfortunately allowed me to let my licence lapse too long to pick up the traces (and my licence) latter when I had more time for this great hobby. I was a member of the BBC for over 30 years, ending my service as the first Manager of BBC Radio Humberside.

Not for me illegal CB activities! But I was looking forward to encouragement and help to legitimate new boys and girls on 27 MHz FM from the Magazine, which I have read regularly for very many years with enjoyment.
From your April Editorial, it could seem we may have to look elsewhere for advice. I am a member of RSGB and also hope the society will be prepared still to welcome my own membership and that of other Open Channel "learners". Incidentally, my own introduction to CB as a listener began when, at the age of 11, I first picked up Melbourne on a Sunday afternoon — with a homemade two-valve receiver.

So: why not be prepared to be friendly and helpful to us good boys and girls when we open up our channel? We shall need you.

As an extra earnest of my own utter respectability, in my retirement I am currently producing, editorially and operationally, and introducing a half-hour programme of hymns and hymn songs every week on our local radio station.

John Cordeau, Southwold

Dear Sir — I am a regular subscriber to your fine magazine and currently studying for my Class B licence. I am also chairman of the local CB club, formed a little over a month ago.

The purpose of this letter is to express support for any action that may be taken by Amateurs to rid themselves of CB operators on the 10 metre band. Along with a number of other serious CB operators, I have been concerned for some time about the number of rigs which are capable of entering the 28 MHz CW segment, and am fully aware that irresponsible CB-ers have at times used this band for copy.

CB is a very useful communication system when used correctly, but sadly I have to agree that there are many occasions when it is grossly misused — by people who do not care about TVI or interference in general, and it is these people who have got the name it has.

My aim as a CB operator, along with many others, is to try to work towards a better relationship between the Amateur and CB fraternity, and this I feel can only be done by showing a responsible attitude to the hobby, and certainly not by working out of band. Furthermore, I believe that 5 watts output maximum for CB is plenty.

Finally, may I ask that you do not tar all CB operators with the same brush, many of us enjoy the hobby, are eager to learn, and in many cases look to the Amateur operator for help and advice.

May I therefore offer the hand of friendship from the world of CB to the world of Amateur Radio.

Chairman, "Abingdon CB Club"

Dear Sir — Recently I had recourse to read some short wave listener reports, and was struck by the very low standard of reporting. Too many of these reports were of very little interest to the operator. It would be interesting to find out the percentage of SWL QSL report, experienced by our listeners; I should imagine that in many cases it would be very low. It should be noted that to the average operator an SWL report is only of academic interest. However this should not deter the SWL from reporting, but perhaps the following points may be of help:

(1) Do not send an operator a report who is located within a radius of 100 miles. Of course there are times when the SWL has to send out a report, such as requesting a QSL for a particular award, or for a contest report.

(2) Please put as much information as possible in your report; some of the reports I have received have been worthless in this respect.

(3) Try to be constructive in your comments regarding a transmission.

(4) Remember that not all operators are members of QSL Bureaux, so do not expect 100% return; also remember that not every operator seeks reports, or even QSL's.

The writer has sent out around 3,500 QSL cards as a listener, and had a return of 84%. No doubt the ones that got away were of no value whatsoever.

In case any listener may feel aggrieved about my comments, I must in all fairness point out that there are some listeners who do send out really valuable reports. I may also say that I always QSL 100%, but where necessary I advise the sender how to improve his report and thus enhance his return. Any listener who has sent the writer a report on transmissions made after August 1st, 1980 will not receive a confirmation as I have not been active on any band other than two-metres.

Best wishes in your hobby.

Dave Douglas, GM4ELV

Address your letters for this column to "A Word in Edgeways", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ.

AN END-FED AERIAL TUNER

F. G. RAYER, T.Eng (CEI), G30GR

During many years of operating, an end-fed aerial has usually been kept available, as offering a ready means of working any band from 160m. to 10m. The tuner described here is for 80m. to 10m., and has been in use for some time.

After using various home-built ATU's over the years, it was felt that clear dials for each control would be well worth while. These allow re-setting for minimum reflected power from a chart, in a few moments, when changing bands. It was also noted that series tuning could be dispensed with in circumstances where the ATU would be used, provided the aerial could be tapped down the coil; also, that separate link windings need not be used, input being to taps, as with an autotransformer.

Fig. 1 is the circuit of the ATU. Power is fed to VC1 by a 75-ohm or similar coaxial cable, a standing-wave indicator being placed between transmitter and ATU. VC1 allows tuning out or compensating for link reactance; S1 selects 2, 4, 6, or 9 turns as the "primary".

The whole coil has 27 turns, and S2 selects 2, 3, 4, 6, 8, 10, 13, 17, 20, 22 or 27 turns as connecting point for the tuning capacitor VC2; S3 makes use of the same tappings, to allow separate selection of 2 to 27 turns, as aerial feed point.

It would not be essential to use the exact numbers of turns shown, as tuning tends to overlap somewhat. When making the taps on the coil, they are actually staggered to avoid all coming near each other, especially at the earthed end of the coil, and to allow short and convenient leads to the switch tags.

Construction

A 12 x 7½ x 5½-in. metal case is used. The coil former is 5-in. long and 2½-in. in diameter, wound with 7/26 stranded wire; single 16 s.w.g. or other stout wire could be used.

The general layout will be seen from the photographs. S1 is centrally placed near the bottom of the coil, which stands back from the panel on brackets made for the purpose; S2 and S3 are as near as capacitors reasonably allow.

VC2 is earthed to the metal panel, as well as by stout leads; VC1 is insulated from the panel. This was done by cutting four pillars about ¾-in. long from insulated rod, tapping 6 BA each end, and using short 6 BA screws to secure the capacitor to the pillars, and pillars to panel. The capacitor spider is extended with a ¼-in. shaft coupler and piece of insulated ¾-in. rod, passing through a ½-in. hole in the panel. An alternative would be to mount VC1 on a paxolin panel, then to fit the paxolin panel behind the metal panel by means of long bolts with extra nuts, or spacers. VC1 is a 2-gang, 500pF each section; VC2 is wide spaced, 200pF. Somewhat similar capacitors, if to hand, could be used.

The coaxial lead was soldered directly to earth and VC1, no socket being used. An insulated lead from S3 is attached to an insulated terminal at the back when the tuner is in its case. The three switches were single wafer non-miniature types, and connections from them to the coil are of stout insulated flex.
Method of Use

S2 selects a number of turns which allows resonance within the band by VC2. Alternative switch positions can be tried for S2, to find the most suitable LC ratio available.

S1 selects taps allowing the Tx to be loaded — probably around 2 turns for the HF bands, and 4 to 6 turns for the LF bands.

S3 can usually be at the same settings as S2 where the aerial is a half-wave or multiple of half-waves (high impedance). For other lengths, it is tapped down suitably, as necessary to (a) allow tuning by VC2 and (b) allow loading the Tx.

Adjustment can begin with VC1 closed, but this can be opened as required to reduce reflected power.

Tune the Tx for best forward power, at reduced power, then switch to reflected power, and find switch and capacitor settings which reduce this to the lowest level. Check forward power, and touch up Tx tuning if needed, re-checking reflected power. It should be found possible to arrive at settings which give a zero or almost zero reflected power indication, with full-scale forward power reading.

With an aerial of 175-ft., the table shows S1, S2, S3, VC1 and VC2 dial settings used, but these are only of course a guide. In particular, an aerial intended to have a high impedance feed point would not be tapped down to this extent.

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>VC1</th>
<th>VC2</th>
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<tr>
<td>80m</td>
<td>4</td>
<td>20</td>
<td>4</td>
<td>62</td>
<td>92</td>
</tr>
<tr>
<td>40m</td>
<td>4</td>
<td>13</td>
<td>4</td>
<td>16</td>
<td>10</td>
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<tr>
<td>20m</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
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<tr>
<td>15m</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>10m</td>
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<td>3</td>
<td>2</td>
<td>30</td>
<td>7</td>
</tr>
</tbody>
</table>

The table is best made for favourite frequencies. Moving either way from these can result in slight touching up of VC1 or VC2 being in order. Very small changes in actual length of aerial can have considerable effect on 10m, or 15m, in particular; longish wires are more easily dealt with than rather short aerials. Many lengths very considerably less than the 175-ft. mentioned have been used. Power limitation seems most likely with rather short and half-wave aerials, resulting in a very high voltage across VC2, but except when using a 10-ft. indoor wire sparking-over has not been observed, using 280w. The surplus capacitor, VC2, has 8 plates per inch.
COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

The Bands

As always, part of the fascination lies in the unexpected things that happen - Top Band dead and Ten open, at one and the same midnight, for instance.

Top Band

Perhaps we should first mention WIWY. Frank, apart from writing that invaluable "Contest Calendar" in CQ, and passing on copies of his galleys for our benefit, is a very keen Top Band addict, and he writes about the CQ 160 affair, as seen from Stamford, Connecticut. Conditions, he reckons were phenomenal; the DX Window was crawling with DX, and Frank found the Europeans stepping all over each other, but still managed to raise 25 stations in 13 countries on this side. The Europeans who indicated where they were listening were racking up good scores; but, as always, there were a few who didn't indicate where to call and were wasting their time. Mind, one has to take issue mildly on this, insofar as it does seem to be the case that a quick listen around one's own frequency before swinging down to the bottom five kHz seems to pay off sometimes. No doubt about it, the phasing out of Loran-A has made the character of the band change yet again. The writer recalls when he first took on this piece everyone had 405-line TV and found it difficult to work the HF and VHF bands without TVI, resulting in lots of nattering, and lots of GDX reports, plus the Transatlantics each winter. Then the VHF black boxes and repeaters sent all the nets up to VHF, and the commercial rigs that superseded the KW-2000 series all lacked Top Band, so it became deserted. Over the past two or three years it has become a DXer's dream, with all the new countries that have appeared, which in turn resulted in Top Band again being available on the new rigs, but the band continues to lack the local traffic. This is a good thing in some ways, as many countries only have limited allocations, so that the old division of CW one end and Phone at the other has gone by the board, and both modes learn to live in harmony.

G3PKS (Wells) has a long and interesting letter this time, but while he kept his skeds he regrets he hasn't had enough time to spare on the band for DX'-ing.

Not so G4AKY (Harlow); albeit Dave and your scribe have been having all sorts of arguments as to why he gets out so well on an apparently impossible aerial! However, work it most certainly does: on CW some 37 European Russians, to include Estonia, Latvia, Lithuania, Byelorussia, Kaliningrads, Moldavia and UA6, not to mention all the small-fry to make up with; then Russia in Asia to include RS6GBX (Armenia), E26EX (Azerbaijan), a couple of UL7s for Kazakhstan, E9ZAB, UA9AIK, UA9CJ, RA5DMK, E9ZCAA, E9ZCAD and UA9YEN, plus OK/OLS and SPs, VO1HP, GM3TMM and GM3HTB, EA6BH (Balearic Is, QSL via DL7FT), PA0HIP, EI0CF, G3POA/5N0 who is back in UK and sent his card, OZ1W, OZ1UF, DM2AFA, ZDSTC for a nice surprise, and HB9FR. Turning the switch to SS there was UP2BAW, UQ2GDQ, UQ2GBU, RA3DKE, UA3DQS, UBSWF, UA6LJV, EA2JG, EG5HM, EA3RF, EA9EU (Ceuta, Spanish Morocco), YT0R and 4N3EF (both these two in Yugoslavia), OH1IHI, DL1了, DJ3UF, DJ6TK, DJ8WL, PA3BPM, OK3KF, SP9IQ, and GM4DTH. Not a bad month when you realise Dave also eats, sleeps and works! Aerial changes are being organised, in the hopes of on the one hand to keep TVI on the home set, on the other to reduce TVI from the QRM in the darned TV as well! But, 2300 to 0100Z as only operating hours help keep those two snags at bay.

G4GMZ is, as it were, transiting from Greenford up to Congleton. He states that he has found temporary haven in Congleton while the "proper place" is organised, and is running some 40 metres of wire around the loft, and a Top-Band helical comprising some 80 metres of wire on 20' x 1", these two are fed in parallel with coax, and a water-pipe earth is used, the matching being done by 20 turns of 1 1/4 inch (plus a capacitor on Eighty) and a switch to turn from one band to another. Coverage is 1.8 to 1.9 and 3.5-3.6 MHz. The whole works sits some 15 feet above ground level in the Dene valley with hills and houses all over the show. This unpromising all-indoor set-up, fed with a KW-2000B just back from a sole-and-heel at Decca-KW (and a good job too, apparently; quiet receiver and good RF out) started by hearing GI4KHZ and G3LQI, the latter being in Lancong on the South Coast. They had QSOs with G4HSF in Liverpool, PA0CMP, G3YMC, G3SUX, DK5AD; better reports here than were obtained from G3HZN in Manchester twenty minutes later! The final entry on Top Band was with G3ZHR in Dorchester on February 6, on which night he and several other stations on the band had a peculiar "echo" effect on them.

Top Band for G2HKU (Sheppey) meant some little time working PA0PN, PA0XNA and PA0UV, while CW found UA1CIN, UA3CH, RA9AKM, E25WB, UT5AB, UK2PRC, SP5IY, OK1KO, and UP2BAW.

News

We have a letter from VY9NS, who was sparkplugging away for the cancelled (as reported here last month) Heard Island expedition during the past winter. Jim says there were, apart from large donations, quite a lot of small offerings; he is now beavering away at a trip during the coming season. As he says, all is not lost in any case; he will be renewing the VK0JS licence in May, but if nothing else is achieved by himself, the way has been opened for any well-meaning and well equipped and organised party to tackle Heard with governmental blessing — and that alone can't be bad!

On a different tack and at the opposite end of the world, long-time readers will recall the efforts of Willy de Roos to activate some rare DX, and to sail the North-West Passage, back when the suspen count was at all all-time low and DX was at a premium. We note that he has written a book, entitled, not surprisingly North-West Passage detailing his feat. We have not yet seen the book, but would imagine it to be quite a good read.

G2HKU passes on as a post-script on the outside of the envelope to his letter, a mention of the passing of G6VC, a keen CW operator on the HF bands for many years. He will be missed by his friends around the bands.

From GM4ELV (Arrochar) we have a note that although he has been QRT on the HF bands since July last year, and is unlikely to be able to operate in the foreseeable future due to university studies and a loss of interest in HF, he has been receiving cards and reports clearly resulting from the work of a satellite. Should he return to the HF Bands, David says, it will be almost certainly 100% CW and QRP.

Eighty

Not much reporting from this chunk again. Naturally, much of the activity is QRP; G2HKU for instance runs three watts to his Argonaut, with which he managed to work EA1ITR, PA0WLN, G6AB, and G3VTT.

G4GMZ, with the odd pair of aerials already mentioned, can get the SWR down to 1.1 to 1, and 30 watts of CW got out to G4BWP and G8V — but subsequent stations called didn't reply, and CQs also
have not yielded any contacts to the time of writing. However, at the time your conductor is putting “CDXN” together John will be in the throes of moving to the new place, at which it is hoped aerials will be somewhat better.

G3ZPF (Dudley) is still madly in love with his home computer; however, that didn’t stop him working W/VEs at all, not to mention UA9 and the Mittel-Europa orchestra. The best was MIC, found wandering in the CW end, but on the other hand OY7ML remains a goaway despite all the wise David could bring to bear.

Very good at times but unstable during the day is the feeling of G3PKS, who heard little DX and didn’t call any of it, being at the moment more interested in his latest wonder-working all-band ATU, Top Band to Ten, with orchestration and keyboard obligato by G3E1W. The object of this machine is to enable the occasional bout of “RF in the shack” to be stopped by the use of a balun at the ATU end — something which seems to have worked well for G4ITL in Harlow too. Another activity was to build a little FET audio preamp to boost the mike output into the HW-101; and the third an exercise in brain-breaking which was primarily intended to shut up the TV timebase noises, but seems to have had side effects like a slightly improved picture and reduction in the key-thump being heard by the TV when Jack went on Ten.

Now we turn to G2NJ (Peterborough) who mentions that G6FU, a familiar call on the band was in Frimley Hospital at the time of his letter, and wished to thank all those who passed on good wishes for his recovery. It is understood that G4PS was in the next ward — must be something in the local air! Our best wishes to both. On the operating front, Nick mentions a QSO with G5NX/M (CW both ways) while the latter was on his way to Southwell, Notts., it was a pleasant surprise to be called by G2DFH down in Saltash, a wartime colleague who was copying both ends of the QSO. A new line for G2NJ is working YL stations around midnight — LA4YW in Trondheim runs 300 watts is collecting counties, and G2NJ added C9 to her collection. Then there was UBSMNK, Helena, Kirovsk, using fast morse and good operating.

**Forty**

One feels sure that a rude limerick could — and maybe should! — be composed to cover the topic of the odd noises on the band which sit on our poor amateur signals.

G3ZPF mentioned one foray on Forty to work a PA0, who worked for the JET project (Joint European Torus if you didn’t know!) as an astrophysicist. Sounds to have been a nice chat.

G3PKS found the band in excellent shape, both to DX and to locals; Jack picked up KG4W, and VE3GCE, but after waiting ten minutes to get the full call of a VK2, he went back to G3PDL. There was a sked on Eighty waiting so that was that.

G2HKU stuck to CW; with the QRP, he raised UB5LI, UQ2GFM, UA9CAL, YU2SAE, while on the FT-101 UL7B1 and VP2EV were collected.

### “CDXN” deadlines for the next three months—

| June issue | May 1st |
| July issue | June 4th |
| August issue | July 2nd |

Please be sure to note these dates.

### Here and — Where?

A Good Question at times. So many of the DX-peditions don’t pass the word out until the last minute, when they have all nailed down, or, if they do give advance word, we have mentioned it something has come adrift — perhaps we should do a weekly “CDXN”! On a more serious note, there is of course just such a thing, called Geoff Watts’ DX News Sheet, and another called the DX Bulletin which comes from K1TN in Vernon, Ct., to name only two from many. No doubt about it, these are a great help when later changes are made, although if you are active enough and not too high in the scoring, you can usually keep ticking over.

On the awards front, we have here a copy of the Canadianard from the Canadian Amateur Radio Federation Inc. For this one you have to work all Canadian Provinces and Territories on a single band (twelve in all) to cover VO1/V02, VE1-8, and Y1. Details from PO Box 2172, Station D, Ottawa, Ont., Canada K1P 5W4. We notice they have a five band version too — some sixty cards in all.

The same outfit mention their Canadian Contest, running through the 24 hours GMT of July 1. All contacts count, all bands 1.8 to 144 MHz. Ten points for Canadians, one point for others, with ten bonus points for working any CARP official news station using suffix TCA or VCA. You can work each station twice on each band, and the multiplier will be the number of provinces/territories on each band summed — a maximum of 192. For the rest, write to CARP at 203-1946 York Avenue, Vancouver V6J E13.

On a completely different tack, your scribe was listening on March 16, while occupied with other things, and between 1500 and around 1900z on 21 MHz there was a “thing” just sending the letter ‘C’ with a T4 note and chip. Eventually, I found a moment to tune down 21.1 to the bottom, and to my surprise it had “brothers” all down the band. At the club over a pint, others had noted it and wondered what it was and whence it came; it certainly wasn’t local, and we reckon not even in Europe. So anyone with ideas?

### Ten

Like everything else it has its ups and downs, but it has on occasion been superb.

First a new reporter in G4LDS (Chelmsford), who steps up from G6JGK, during that period one guesses he was well occupied with a tower and TA33 to be organised, not forgetting the shack which contains an FT-101 Mk 2 plus the G3LLL trimmings. Once the start was made, with a QSO with W71AA, some 26 countries were worked on the band, to include a quite handsome WAC — W, VE, VK, ZL, JA, UA, EA, DF, Gr(t), PY, UR, SM, YK, VE, HS, UB5, 8P6, HM, AP, VS, 5N6, FM7 and ZE.

G4BUE (Upper Beeding) is determined not to wear out his QRO valves, by the expedient of sticking to all-QRP and solid-state with the Argonaut. Chris has been somewhat busy at work also, which cut back on the activity, but the cards continue to roll in and so do the sheepkins. On the band, five watts CW was enough for him to get to PY1VOY and KL7PJ.

Another QRP merchant on Ten is G2HKU, who raised K7LR, W6ISQ, a character signing AFK1 and claiming to be in Algeria (wanting Ted to give his full QTH to Q5L to!), SV0A, and PY2CQM.

The analytical mind of G3NOR (Yeovil) says the long path to VK/ZL has been open from around 0800 to 0930z, followed by the short path opening at 1100 till lunchtime and sometimes including some Pacific stations heard over the North Pole route. As for the Americans, they’ve been in from 1000 till as late as 2200z, but not a lot has been heard from Africa. SSB QSOs were made with A4XIQ, AH2E, A77B, FK8DH, H44BH, HP1XAT, JA5, JT1AN, K6PL/CE0 (Juan Fernandez), KB71J/KH2, KL7JC, KL7Y, P29NCM,

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G2ADZ (Chessington) sticks to Ten, and notes it as good overall, with very good patches, such as the times when the beacons VP8ADE, VE8AAK, and VK2WI have all been audible at once. His CW worked H5S1AID, FM0FOL, VK4A1IN, VK6NLU, ZS6BUU, OA4IU, 9K2AH, DL2V/K/ST3, VP8AGY, HC4WA, and TA1UA. Gotaways included 912JK, 457MX, YC0BRT, EM6FAV from Georgia in Russia, W4P0/CE0D, EM6P/CE0D, and EM6P/CE0D. Just keep on working W4s; and also W/P7/PLU hams, which just aren’t worth it when time on the air is at such a premium for Bill.

“Cheers!” says G4H2W (Knutsford) who has for the first time for many moons been able to keep his FT-75 on the air for a full month without a breakdown! He runs it at 20 watts p.e.p., into a two-element quad at 24 feet. Tony found the conditions very reasonable, with the odd dead time offset by some periods when things were superb. He worked CX4BW, WA860V who was running three watts, NOFCJ in Iowa, HM0U, F0FGI/FC, followed by 200 W/VE during the ARRL DX Contest which was one way of progressing towards the WAS on Ten; KAG1TW, N6RZ, JAB8EKE, KH3AB (Johnston Is.), IM1AQF, W7KSK/M in Washington, VE5YO, XT2AU, VP8PP, 9J2KO, WA2ZJRC/P/YY1, P9NCM who had an FT-7 at ten watts out, HL4XM, T1J2D, JA1JWP/P/CI1 (Ogasawara Is.), VK5, VS6, assorted W/VE, VP2VGR, a gabble of VP9s, 8R1J, KH5SB and KH5SP, then at 21Z2S on 21st, VK6 and VL6 by the tinful. On 28th there was another session, with ZS3EG, ZD8XR, UA9s and UO0s, JAs, UM8, EA9B, HZ1AB, K7R in Idaho, TF2DCQ/OX, VP2MCL, HP1XAT, LUs, CF6, PP2ZZD, CX7BY, PY6AZ and LUECE. The night of the 21st was really “A1”, with beacons from VK, ZL, VE stations from W-17, all of South America, JAs, Easter Island and Ascension, all at one spin of the dial around 21Z2S.

G3PKS not only ran his QRO, but on occasion dropped to one watt during the ATU-and-balun experiments. The ten-metre loggings include an assortment of W and variants, UK5TK/5, VK4S5, J6SO, VK1ABT at 0740 beaming over the South Pole, and DJ6S/SI/TZ3 in Zone 35.

Now Fifteen
A favourite band for many including your scribe, in particular at the equinoctial peaks, and a nice compromise when thinking about wire beams.

G4LDS is pleased to note that there is still some evidence of the “ham spirit" around when he was asked this or that station to QSL; many have been happy to take his address for a direct QSL. But Chris has the wisdom to know there is more to this hobby than chasing countries, and he values the long ragchew as much as any. On 21 MHz, so far the following countries have been worked: W, VE, VP2S, EA, SP, VP5, DU, HS, AX9, ZE, YV5, and CR9.

Again QRP for G2HUK on this band, with three watts of CW to WBIESN, VO1AW, VE1CDX, and VE5HD. On a different line, Ted notes the grass is growing again, but has made a cunning move this season—bought an air-cushion mower that the XYL likes to drive!

G3NOE says things on 21 MHz have been rather like Ten only more so, save that the short path to VK has been in until as late as 1500z, when 1000z several VK7s were heard heard over the North Pole, with Africans to be heard at around 0900 and 1700z. Pacific stations were to be noted on occasion around 1100 but KH6s were heard from 1700 to 1800z. The latter points up something one often forgets—the Pacific Islands are spread over an enormous sea and an enormous spread of beam headings. SSB was used to work A7XD, DJ5RT/6/W8, DU6QEN, EL2AV, EP2TY, FO8D9, F8H9L, J3A9, J88AM, HC9A, H5C5B, HMAQ, JAs, K6LPC/CE0D, H9JSB, H9OF8, KORF (Colorado), K6ED, OH0XX/OJ0, T03A/PC, YHU0WAY, UF6CA, UA8FAL, UK9AA, UM8MAZ, VE7s, VK5s, VK9CCT/KVY, VP2MCL, VP8PP, VP9KB, VP9X5, WP3Q/KH6, W0BNR (N. Dakota), YC2BJR, ZL1A2V, 4U1UN, 5H3FD, 6W5DA, and 6W6IC.

Not a lot of activity on this band from G3PKS; CW to UA1ITW, W2PV, G2FMJ in Potters Bar, W2YMJ, YU7JDE7/T, VK2ZC, and W9L. It is of interest to note that the VK2ZC contact was, like VK1FT on Ten already mentioned, in the same opening and firing at the VK end over the South Pole.

The same might also be said for G4BUE this time with 21 MHz CW and QRP to work PY1BYV, PY1RY, and PUB1.

Twente
A noisy old band, and rather neglected while things have been going so well on 21 and 28 MHz, but in the long term it is the place for most of the DX traffic.

G2NJ, with the Uniden rig in the back of the car, operated /M while G5NX/M conducted the car and two metres, out to Eye in the Fens, where the latter was born. They headed for the parish church where the organ has just been re-sited, and G5NX was very soon QRL on the keys. A pity we could not have been there to listen.

Back to the /M, and Nick says it is quite surprising how many show interest in a /M call on CW.

G4K1L (Swinton) writes in for the first time; he has until now been on Two, but has now a 14 MHz dipole and a Frontier Electric 600GTB covering 80-10 metres. On Twenty SSB there was 1A0KM, most of the Europeans, WA2HHC, W4J1, KA1WH, K8AFOC, VE1AZR, U6F0Z, W3GX, W2SLF, KB5HG, W8LRC, C6ANU, W1BFA, KB2VM, VK2QT, and VK1LX. On the CW front we note lots of EUs, DE6X, UK6DAJ, P58RC, K17MF, W7LNE, WA2AXC/P, and a 20-minute ragchew with ZL4FT, and a 579 signal report inwards.

Just the one QSO mentioned by G4BUE, who raised the Market Reef group as OH0ZK/OJ0.

G3PKS had quite a run in BERU, but found there were other G3 types about. Back in February he worked VE2BPT and K2TR, then PA3AFD and G4GKQ in March while the one-watt output exercise was on, W7MB with an auroral note while he was firing on the long path, VK4AX and VO1HP; then it was PY7EMQ, ZB2EO, VE3JKZ, VE1ASJ, ZL1HY, VE4MF, VE7CC, VE4YI, VE2YU, VE5RA, VE6O, VP2VJ, VK3B, VK7BC, and VE1CDX. Again on March 18, W7QK was worked with an auroral note when the later was firing at the Pole", then G3DLH/W4, JA2AT, EA7EJ, EA3CGK, UD6DO, and AU0KCL.

Now we turn to G4LDS, who, in his first period of activity managed 15 countries, including W, SM, SP, SB4, KP4, S6P, LA, DL, UV, H9, T9, YU, VP, and VE2A. Thus the overall total so far is some 45 countries.

From the new chum to the OT; G2HUK kept up his skeds with ZL1VN, ZL3SE, and ZL3FV on SSB, while the CW went out to KH6IJ, N7EB, VK3MR, JA1JAN, KDBF8, plus QRP CW to VO1AW, and VO1HP.

Last but not by means least G3NOE; Don says he didn’t spend a lot of time on the band, although it seemed to open to some degree day and night. He passed SSB reports to and from CE0CJA (Juan Fernandez) KL7H, DK5PR, VK6AJW, ZL1AAS, ZL1AVZ, and ZL1BSF.

Finale
So, there you have the story of another DX month — which to this writer is notable for the number of just-past and just-coming DX which has been too close for us to mention. The dates for your letters to arrive are in the box, addressed to your scribe, SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ. And — the more reports the merrier!
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Volume XXXIX

159
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<thead>
<tr>
<th>Frequency</th>
<th>Price</th>
<th>Tolerance</th>
<th>Range</th>
<th>Price and Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>£2.50</td>
<td>10kHz</td>
<td>±5ppm</td>
<td>10 to 29.999kHz</td>
<td>£2.50</td>
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<tr>
<td>£2.50</td>
<td>100kHz</td>
<td>±5ppm</td>
<td>100 to 124.999MHz</td>
<td>£2.50</td>
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<tr>
<td>£2.50</td>
<td>10kHz</td>
<td>±10ppm</td>
<td>20 to 59.999MHz</td>
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<tr>
<td>£2.50</td>
<td>10kHz</td>
<td>±20ppm</td>
<td>29.5 to 29999MHz</td>
<td>£2.50</td>
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<tr>
<td>£2.50</td>
<td>10kHz</td>
<td>±50ppm</td>
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Whichever frequency you tune your receiver to, for PEAK PERFORMANCE on all frequencies you need good matching between your receiver and antenna to have the best from it. If you plan to listen on the high frequency bands then you almost certainly do have an antenna for every frequency. Or can you? — Well not quite! BUT we can offer you MUCH IMPROVED PERFORMANCE from your receiver by using an antenna tuning unit, that will electrically change the length of your antenna to match the frequency you select — in other words — A MATCH AT ALL FREQUENCIES.

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<tr>
<th>Lattice 10 x 8 20a, Signal Aerial Guide 50c.</th>
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<th>Price</th>
</tr>
</thead>
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<th>Price</th>
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</thead>
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