

The SHORT WAVE Magazine

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an amateur band transceiver for the discerning, the JST100



The Japan Radio Company has, in the manufacture of the JST100, produced an amateur band transceiver, the quality of which most amateurs have only been able to dream about. Whilst other manufacturers have concentrated on producing transceivers which along with the amateur bands include a general coverage receiver, JRC has devoted time and effort to produce the finest performance possible on purely the amateur bands. Their considerable efforts have been justified, the JST100 is the finest amateur band transceiver that we have seen for many years. To produce perfection is not easy, neither is it cheap, there are amateur band transceivers which cost less than the JST100, but, and it is as large but, we are certain that none of them in any way approaches the quality found in the JST100. However there is one thing that is certain. As with other rigs in the Japan Radio Company's range, and I am referring to the NRD505 and the NRD515 general coverage receivers, they become the property of the discerning few. Indeed it is true that one can savour the enjoyment of owning a JST100 transceiver without ever switching it on.

Taking a trip across the front panel one finds a comprehensive display of operating information; a digital

frequency readout down to 10 Hz which in shift mode indicates the frequency difference between VFO's F1 and F2. Above the readout are a string of LED's showing that the transceiver is reading the frequency shift, transmitting, that the mike gain is set high (at the optimum setting the LED "twinkles"), that the attenuator is on, a memory channel is either in use or has been accessed and which of the four modes is being used. A fully backlit meter enables Vc, Ic, transmitter output power, compression level and reflected power to be closely and accurately monitored, whilst on receive it functions as an S-meter. Front panel controls adjust the intensity of the readout, set the mike gain and compression levels, adjust the threshold level of the noise blanker and provide VOX control. Transmitted power is adjustable, a front panel knob reducing output from 100 watts PEP to approximately 10 watts. All the usual modes of communication are available on the transceiver, USB, LSB, RTTY and CW wide, narrow (600Hz) and narrower (300Hz). The transceiver has 11 memory channels, each channel holding not only the frequency and band but also the operating mode. Two digital VFO's are incorporated in the transceiver, each tuning across the band in 10Hz steps. Use of the two VFO's together permits split frequency or cross-mode operation.

Taking into account the high levels of activity to be found on the HF bands today, JRC have included a notch filter as well as pass band tuning so that the desired signal may be "lifted" from the QRM. It is in the reception of extremely weak signals that the Japan Radio Company's careful attention to circuit design, components and construction can really be noticed. This, however, is the most difficult aspect of the transceiver to describe.

One way to experience the quality of the JST100 transceiver is to visit a Lowe Electronics shop, either here in Matlock, London, Glasgow or Darlington. Ask to see the amateur band rig for the discerning, a JST100.

JST 100 AMATEUR BAND TRANSCEIVER.....	£998.00
NDB500G POWER SUPPLY.....	£149.50
NFG97 ANTENNA TUNING UNIT.....	£150.00
NVA88 SPEAKER.....	£37.00
CFL260 600 Hz CW FILTER.....	£39.10
CFL230 300 Hz CW FILTER.....	£64.00
CHG14 HAND MICROPHONE.....	£14.26
CHG43 DESK MICROPHONE.....	£47.61

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- Long range communication. . . .
A newly developed dual gate MOS FET is used in the RF stage of the transceiver which considerably improves receiver performance. The internal 50mm diameter speaker ensures clear audio under difficult portable conditions.
- Full coverage of 2 metre amateur band. . . .
The transceiver covers 144 to 146 MHz in 5 kHz steps and has repeater shift and automatic tone burst.
- Switchable output power for extended operation. . . .
In order to extend portable operation, transmission power level is switchable, 1 W, 500 mW and 100 mW, so depending on the terrain and conditions, the most economical level can be selected.
- Simple to operate. . . .
Simplicity of operation is a special feature of this rig and many optional accessories are available. Of major interest is the matching headset SH-2 having built-in vox, this convenient accessory provides simple and safe operation whilst cycling, walking, etc.

check the price,
£128 inc vat.

ACCESSORIES

SH2	Headset (VOX built-in)	£ 19.50
CA610	AC charger	T.B.A.
CS612	Mobile charger	£ 6.50
SH1	Speaker mike	£ 13.80
SFT20	Soft case	£ 4.10
AAA	Ni-Cad battery (4 batteries required)	T.B.A.
CP615	Battery carrying pack	£ 10.25



Now, an opportunity for you to buy at a greatly reduced price the **LOWE TX40** c.b. transceiver. Now priced at **£29.50** carriage £3.00, the **LOWE TX40** is a reliable, well built and popular rig. A de-luxe version of the transceiver fitted with an additional filter is available for an additional £8.50. Take this opportunity to buy at this fantastic price a **LOWE TX40** c.b. transceiver.

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the **TR 3500** handheld for those seventy centimetre contacts

Without a doubt one of life's great mysteries to me is why, when the two metre band is at times so busy, few people are to be found communicating on the wide open spaces of the seventy centimetre band.

I have come to the conclusion that misapprehensions exist about the band. The first being the lack of activity. From my first comments you will have gleaned the fact that seventy centimetres is not a busy band, however there are stations on, myself G8GIY, my colleagues David G4KFN and Roy G8ROR form the nucleus of a UHF group here in Matlock, there are many others like us up and down the country. Seventy centimetre repeaters abound and are a perfect means of communication, their somewhat shorter range serving well their immediate area and, please remember, in the words of that doyen of seventy centimetres Jack G5UM, "Activity breeds activity", simple but true. The second misapprehension is that the equipment is expensive. Not so, the Trio TR3500 costs only slightly more than its matching stable mate, the TR2500, and here again, with the same sensible approach which we have all come to expect from Trio, the accessories which you bought for your TR2500 are compatible with the new TR3500. The appearance, size and weight are similar to the TR2500, output power is 1.5 watts high and 300 milliwatts low, repeater shift is programmable, ten memory channels are provided and frequency scan between operator-defined limits is included. The conventional memory scan and reverse repeater facilities help to make operating a pleasure no matter how difficult the conditions. With the Trio TR3500 handheld as part of your station, you are equipped to expand your operating and begin communicating on the wide open spaces of the seventy centimetre band.

£250.70 inc. VAT; carriage £6.00



and the **TR7930** for the two metre mobile operator.

Any amateur who has used or owns a Trio TR7800 has had the finest piece of 2 metre mobile technology at his fingertips. The TR7800 had simply everything that the keen mobile operator could ever want. Of course, there were a few points which customers said could be improved on and, I must admit, we, in the majority of cases, agreed. Trio, with the introduction of the new TR7930, have taken note of this feedback of information and the result, I am sure you will agree, is as close to perfection as you will find in a rig.

The improvements are, a green floodlit LCD readout which does not disappear in strong sunlight, additional memory channels, both timed and carrier scan hold on occupied channels, selectable memory channel for the priority frequency and automatically corrected mode selection (simplex or repeater) without having to instruct the rig. The most significant change is the liquid crystal frequency readout on a green illuminated background, but closely following this must be the ability to omit specific memory channels when scanning, and the programmable scan between user designated frequencies. This gives the rig the ability to scan simplex channels only, without holding on repeaters.

The Trio TR7930. The mobile 2 metre FM rig designed with ease of operation coupled to outstanding performance.

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 TS530S HF Tcvr..... £590

YAESU
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 FC902 ATU..... £135
 FT77HF Tcvr..... £515
 FT726 2m/70cm/Base..... £695

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AUTOMATIC WOODPECKER BLANKER MODEL SRB2
All too often in the past the appearance of the Woodpecker has wiped out that elusive DX, just when it was within your grasp. Now for the first time there is a really effective antidote, and at a highly competitive price. With Model SRB2 fitted in series with the antenna and loudspeaker of your receiver or transceiver everything is the same until the Woodpecker appears. Then after a few seconds a magical difference becomes apparent; the receiver comes back to life again and you can copy the original signal. What happens is that the receiver's antenna and loudspeaker are momentarily disconnected during each Woodpecker pulse. No synchronisation, pulse width, or 'in/out' adjustments are required. Instead the blanker's exclusive circuitry (patent applied for) analyses the Woodpecker's signals, and produces blanking signals to suit. It can even remove multiple Woodpeckers at the same time (a situation which occurs fairly often.) Because blanking occurs at both RF and AF, serious receiver desensitisation is avoided and yet the unit is also effective on AM broadcast signals as well as SSB and CW (of course, if the Woodpecker pulses are very wide then fast CW may become uncopyable). A built-in r.f. activated transmit relay will handle the output for normal HF transceivers and three push button switches are fitted for: power on/off, selectable 10 or 16 Hz pulse rate, and before-and-after comparison. The unit uses the same case design as Model ANF (see this ad), and a panel LED tells you when the unit is actually blanking. Price: £75.00 plus VAT (£86.25 total). Expected availability early July.

AUTOMATIC NOTCH FILTER MODEL ANF
Model ANF is a unique dual-mode audio filter designed to connect in series with a receiver's loud speaker.



As an automatic notch filter it will make a continuous tone disappear within about half a second. You just leave it permanently in circuit and forget about problems from 'tuner-uppers'. As a CW filter its 4 pole tunable filter dramatically pulls out weak signals from noise. At all times the 10 LED bargraph-type display shows the filter's centre frequency. In auto-notch mode for example, you can see the notch filter sweeping over the full tuning range every second, until it finds a tone to notch out. Performance is independent of receiver volume setting thanks to a built-in compandor chip, and the notch depth is typically well over 40 db. Price: £59.00 plus VAT (£67.85 total). Available now. Free data sheet on request.

AUDIO FILTERS MODELS FL2, FL3, FL2/A



Model FL3 represents the ultimate in audio filters for SSB and CW. Connected in series with the loudspeaker, it gives variable extra selectivity better than a whole bank of expensive crystal filters. In addition it contains an automatic notch filter which can remove a "tuner-upper" all by itself. Model FL2 is exactly the same but without the auto-notch. Any existing or new FL2 can be up-graded to an FL3 by adding Model FL2/A conversion kit, which is a Fully tested auto-notch module in P.C.B. Form. Datong filters frequently allow continued copy when otherwise a QSO would have to be abandoned. Prices: FL2 £78.00 with VAT £89.70, FL3 £112.50 with VAT £129.37, FL2/A £34.00 with VAT £39.67

COMPACT RECEIVING ANTENNAS MODELS AD270/370



Datong Active Antennas solve the age-old problem of finding space for a 'good' receiving aerial. Model AD370 mounted on a roof top or Model AD270 in a loft will give similar sensitivity to much larger conventional aerials yet are only 2 1/2 and 3 metres long respectively. Moreover they do not suffer from interference picked up by the feeder cable; such pick-up can be a problem with conventional dipoles because it is hard to maintain good balance over a band of frequencies. Although active antennas were introduced to the amateur market by Datong only a few years ago they have long been used by military and commercial receiving stations. The performance specifications achieved by the Datong AD270/370 are very close to those of "professional" active antennas selling for ten times the price - a point which is not lost on our many professional customers. The advanced design ensures two things: that you don't miss signals through inadequate sensitivity and that the antenna does not invent signals which are not there. Datong Active Antennas represent an advanced solution to a common problem and so far as we know have no serious competition in terms of performance at the price. (Reviewed in Rad. Com., June 1982). AD270 £41.00 with VAT £47.15 AD370 £56.00 with VAT £64.40

GENERAL COVERAGE RECEIVER CONVERTER MODEL PC1



Once upon a time it was the norm to use a ten metre receiver to receive the two metre band. Now, large numbers of special purpose two metre SSB rigs are in use and conversion the other way becomes a very attractive possibility. With the addition of Model PC1 each of these two metre SSB rigs becomes a really good general coverage receiver (from 50 kHz to 30MHz!). Two metre SSB rigs are not cheap and it makes good sense to get the most out of them. They also tend to have very good performance in terms of sensitivity, selectivity, and big signal handling. Each of these features is just as vital for short wave reception and Model PC1 is designed not to degrade them at all. The result, your two metre SSB rig receives below 30 MHz as well as it receives on many metres. And compared to many medium cost general coverage sets, that is saying a lot! Try this test. Listen on twenty metres after the band goes dead in the evening. With many general coverage receivers the band never dies. It remains populated with phantoms generated by the receiver from the many very strong signals on forty metres. This is the kind of effect that the higher quality receivers minimise, and that goes for PC1 plus a good two metre rig. Reviews: Rad. Com., April 1982. PC-1 £119.50 with VAT £137.42



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PRICES					
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FL3	112.50	(129.37)	AD370	56.00	(64.40)
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FL2	78.00	(89.70)	MPU	6.00	(6.90)
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			Basic Mobile DF System	159.00	(182.85)
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			Model ANF	59.00	(67.85)

Data sheets on any products available free on request -
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YAESU - Latest...

Latest news from YAESU - Expected in August is the new **FT-757GX** all-mode HF transceiver - 160 thru ten

of course plus general coverage RX. FM and all options fitted including dual VFO's, eight memories, programmable memory scan, full break-

in on CW, 100 watts PEP/DC output at 100% duty cycle and all this in a package measuring 238W x 93H x 238Dmm!

KEEP AHEAD WITH THE YAESU FT-102!

- Better Dynamic Range ● Total IF Flexibility
- New Noise Blanker
- Commercial Quality Transmitter
- Transmitter Audio Tailoring ● New VFO Design
- IF Transmit Monitor ● New TX Purity Standard

ANCILLARY EQUIPMENT

- SP-102 EXTERNAL SPEAKER/AUDIO FILTER
- FC-102 1.2 KW ANTENNA COUPLER
- FV-102DM SYNTHESIZED, SCANNING EXTERNAL VFO



FRG-7700 HIGH PERFORMANCE COMMUNICATIONS RECEIVER



YAESU's top of the range receiver. All-mode capability, USB, LSB, CW, AM and FM 12 memory channels with back-up. Digital quartz clock feature with timer. Pictured here with matching FRG-7700 Antenna tuner and FRV-7700 VHF converter.

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- NC-8 - Standard/quick charger/DC Power supply
- NC-9C - Compact charger (220-234V)
- PA-3 - Car adapter
- YM-24A - Speaker/microphone
- FL-2010 - 10 watt power amplifier for FT-208R
- FL-7010 - 10 watt power amplifier for FT-708R

FT-290R/790R 2m & 70cm PORTABLES

10 memories, 2 VFO's, LCD display, C size battery, easy car mounting tray, FT-290R 0.5 low/2.5 high watts out FT-790R 0.2 low/1.0 high watts out (incorporates speech compressor).



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- Two independent VFO's ● 10 memories
- Priority function ● Memory and band scan
- 12.5/25KHz steps (25/100KHz FT-730R)
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FT-980 ALL MODE HF CAT *

This incredible new transceiver incorporates the highest level of microprocessor control ever offered in an HF all solid-state radio. Including a general coverage (0.15-30MHz) receiver with its own, separate front end, this amateur transceiver offers a new dimension in frequency control; whereby frequencies can be entered by either front panel keypad or tuning dial, and then scanned in selectable steps either freely or between any two programmable limits. Twelve memories include four with special protection, and two large digital displays allow full flexibility and control for split frequency operation while two meters allow full transmitter information.

Additional controls include IF Width and Shift on concentric controls, AMGC (Automatic Mic Gain Control) to set microphone input threshold, RF Speech Processor, ALC Meter Hold function, IF Notch and Audio Peak filters, Transmit Monitor, Noise Blanker and CW Full Break-in. Controls



* Computer-Aided Transceiver

are also provided for FM Squelch and CW Keyer Speed when the optional FM and Keyer Units are installed.

The most important feature of the FT-980 is that practically all of the above features can be controlled by the user's separate personal computer, when connected through an optional Interface, also available from Yaesu. Where up to now the

few amateur transceivers that offered any kind of computer interfacing at all permitted only frequency control, the FT-980 permits almost total control of all functions from a separate micro-computer, including Mode; IF Width and Shift, Scanner Step, Speed and Limits; and switching of most other functions. (Microcomputers are not available from Yaesu.)

FT-77 THRIFTY HF TRANSCEIVER



UTILIZING THE NEW CAD/CAM* MANUFACTURING TECHNIQUES, YAESU PRESENTS THE FT-77 AS A NEW MILESTONE IN RELIABILITY, SIMPLICITY AND ECONOMY IN HF COMMUNICATIONS.

Thrifty

Featuring efficient, all solid-state, no-tune circuitry, the FT-77 offers a nominal 100 watts of RF output on all amateur bands between 3.5 and 30 MHz, including the WARC bands. New CAD/CAM techniques plus the simple design of the FT-77 add up to one of the smallest, lightest HF transceivers ever; both in your hands, and on your wallet.

Simple

The front panel control layout and operation are actually simpler than some VHF FM transceivers, with only essential operating controls; while the simple circuit design leaves fewer parts that could cause problems. Nevertheless, all of the essential modern operating features for HF SSB and CW are included, along with extras such as dual selectable noise blanker pulse widths (designed to blank woodpecker or common impulse noise), full SWR metering, and capabilities for an optional internal fixed-frequency channel crystal, narrow CW filter and FM Unit.

Reliable

Computer-aided design of the circuit boards in the FT-77 ensures the most efficient component layout possible in the smallest space, while automatic parts insertion and soldering greatly diminish the chance for human error. Reliability and quality control are thus improved and simplified beyond the degree previously attainable in amateur equipment. This means longer equipment life with less chance of breakdown.

Expandable

The extremely compact size and simple control layout make the FT-77 ideal for mobile operation, or as the heart of a complete base station with the optional FP-700 AC Power Supply, FV-700DM Digital Scanning VFO and Memory System, FTV-700 V/UHF Transverter and the FC-700 Antenna Tuner. The competitive price of the FT-77, coupled with the expansion capabilities presented by these accessories, make this transceiver the perfect choice for those new to amateur HF communication, or as a practical second rig for old-timers.

*Computer Aided Design/Computer Aided Manufacture

FT-726R VHF/UHF Multi-bander



Combining all of the best features from Yaesu HF and V/UHF transceivers, the FT-726R opens a new world of operating ease and flexibility for FM, SSB and CW on the 50*, 144 and 430/440 MHz amateur bands. The design of the FT-726R integrates the individual operating requirements of each of the three operating modes into one unit, and the user can then select which of the optional plug-in band modules he desires.

The VFO-A/B scheme has ten programmable memories, and can be tuned in 20Hz steps for CW and SSB operation, or in selectable steps for FM. FM tuning is accomplished by an indented tuning knob. IF Width and Shift controls are provided for CW and SSB operation, while both preset standard and user programmable repeater offsets can be selected for all modes. An optional Satellite Unit makes the FT-726R into a full duplex cross-band satellite transceiver.

*144 MHz Unit installed, other Units available as options according to local regulations.

For full details of these new and exciting models, send today for our latest SHORT FORM CATALOGUE. All you need 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—a 10 to 1 winner!

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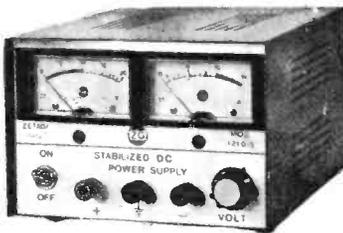


TRIO R2000 RECEIVER
£398.00
VHF CONVERTER. £113.00



TRIO TS830S
HF SSB TRANSCEIVER
£697.00

As the North West's only official Trio stockist we carry the full Trio range of equipment and accessories. Full service facilities. Send s.a.e. for up-to-date information.



MOD. 1210 S

SOLID STATE STABILISED POWER SUPPLIES
 Maximum ratings quoted. Prices include postage.
 Model 125 10-15V 5 amp. **£29.50**
 Model 156S 4-15V 5amp Twin Meter. **£40.00**
 Model 1210S 4-20V 10 amp Twin Meter. **£75.00**



J.R.C. NRD515D

General coverage receiver 100 KHz to 30 MHz fully synthesised. Digital readout PLL synthesiser with rotary type encoder pass band tuning — modular construction. **£965.00**

NSD515 TRANSMITTER & AC PSU £1,371.00
NEW 96 CHANNEL MEMORY UNIT.

J.R.C. JST 100HF TRANSCEIVER + Ac PSU £1,147.50

DATONG PRODUCTS
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 FL1 Frequency Audio Filter. **£79.35**
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Output Frequency Range	28-30 MHz	70.025-70.5 MHz	432-434 MHz 433.6-435.6 MHz (Repeater Mode)	432-434 MHz 434-436 MHz (Satellite Mode)	1296-1298 MHz
Input Modes	SSB, FM, AM, CW				
Input Requirements	10 Watts with standard attenuator — MMR15/10 (3 Watts with alternative attenuator — MMR7/3)				
Output Power	10 Watts	10 Watts	10 Watts	10 Watts	2 Watts
Conversion Principle	SINGLE	DOUBLE	DOUBLE	DOUBLE	SINGLE
Receive Gain	15dB				
Receive N.F.	2.0dB max.	2.0dB max.	3.0dB max.	3.0dB max.	1.2dB max.
Input & Output Impedance	50 ohm				
RF Connectors	SO239	SO239	SO239/BNC/N	SO239/BNC/N	SO239/BNC/N
Power Requirements	13.8V at 2.1A	13.8V at 2.1A	13.8V at 2.1A	13.8V at 2.1A	13.8V at 0.5A



MMT432/144-R



MMT1296/144

TRANSVERTERS FOR 10 METRE TRANSCEIVERS

MODEL No.	MMT70/28	MMT144/28	MMT432/28-S
Output Frequency Range	70.025-70.5 MHz	144-146 MHz	432-434 MHz 432-436 MHz (Satellite Mode)
Input Modes	SSB, FM, AM, CW		
Input Requirements	5-500mV (Continuously Variable)		
Output Power	10 Watts	10 Watts	10 Watts
Conversion Principle	SINGLE	SINGLE	SINGLE
Receive Gain	30 dB		
Receive N.F.	2.0dB max.	2.5 dB max.	3.0 dB max.
Input & Output Impedance	50 ohm		
RF Connectors	SO239	SO239	SO239/BNC/N
Power Requirements	13.8V at 2.1A	13.8V at 2.1A	13.8V at 2.1A



MMT144/28



MMT432/28-S

PRICES — including VAT

MMT70/28 : £119.95	MMT70/144 : £119.95
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SP102	External Speaker with Audio Filter	49.00	(1.50)
FC102	A.T.U. 1.2kW/average	225.00	(1.00)
FT77	H.F. Transceiver - 9 Band 12 v.d.c.	515.00	(-)
FP700	Power Supply/Speaker	110.00	(3.00)
FC700	Antenna Tuner	99.00	(1.50)

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FRG7700	Gen. Cov. Receiver 0.2-30MHz.	335.00	(-)
FRG7700M	Gen. Cov. Receiver + Memory Pack	399.00	(-)
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FRA7700	Active Antenna	38.70	(1.50)

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430726(2)	Multimode, Multiband Transceiver	699.00	(-)
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FT230R	2M FM 25W Mobile Transceiver	255.00	(-)
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FT290R	2M 2.5W Multimode Portable	285.00	(-)
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NC11C	Trickle Charger	9.20	(0.75)
NCB11	Mobile Mount	24.90	(1.00)
CSC1A	Soft Carrying Case	3.85	(0.75)

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NC9C	Trickle Charger	8.00	(0.75)
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XF8.9HC(IN)	600Hz or 300Hz (N)	£26.05
FV707DM	Digital Memory VFO	£200.00
FC700	Antenna Tuner	£99.65
FP700	Mains P.S.U.	£110.00
FTV707	Transverter, frame only	£79.00
Modules:	432... £195.00 144... £109.65 70... £84.70	

FREE CREDIT COVER*



FT 77 £515 inc.



FT 102 £839 inc.



2 YEAR GUARANTEE*

- ★ 1.8-3.5-7-10-14-18-21-24.5-28MHz.
- ★ All modes: — LSB, USB, CW, AM±, FRM±, FM±, (±Option-board).
- ★ Front end: extra high level, operates on 24V DC.
- ★ RF stage bypassable, boosts dynamic range over 100 dB!
- ★ Variable bandwidth 2.7kHz → 500kHz and IF Shift.
- ★ Fixed bandwidth filters, parallel or cascade configurations.
- ★ IF notch (455KHz) and independent audio peak.
- ★ Noise blanker adjustable for pulse width.
- ★ External Rx and separate Rx antenna provisions.
- ★ Three 6146B in special configuration — 40 dB IMD!
- ★ Extra product detector for checking Tx IF signal.
- ★ Dual meter, peak hold ALC system.
- ★ Mic amp with tunable audio network.
- ★ SP102: — Speaker, Hi and Lo AF filters, 12 responses!
- ★ FV102: — VFO, 10Hz steps and readout, scanning, QSY.
- ★ FC102: — ATU, 1.2kW, 20/200/1200W FSD PEP, wire.
- ★ FAS-1-4R: — 4 way remote waterproof antenna selector.

- ★ Rx 150kHz-30MHz.
- ★ Tx 160-10m, 9 bands x 3 x 500kHz Aux bands.
- ★ All modes AM, CW, LSB, USB, AFSK & FM (inc.)
- ★ IF shift & variable bandwidth 2.6kHz → 300Hz.
- ★ Inbuilt keyboard operation & scanning.
- ★ Switchable attenuator 10, 20, 30 dB.
- ★ Audio peak & notch filter — 40dB.
- ★ RF processor and Auto mic gain control.
- ★ 3rd order IMD — 40dB at 100W PEP.
- ★ AFSK shift 170, 425, 850 Hz selectable.
- ★ Multi channel memory + programmable scan limits.
- ★ Optional computer interface available.
- ★ Notch filter in IF (AGC immune to heterodynes).
- ★ Full break in keying, 500/600/700Hz beat.
- ★ Unique analogue scale of digital type.
- ★ Comprehensive twin meter metering.
- ★ Memory retains mode information.

INSTANT FINANCE*



FT 980 £1,215 inc.



FT ONE £1,450 inc.



FREE SECURICOR*

- ★ Rx: 150kHz-30MHz. Continuous general coverage.
- ★ Tx: 160-10m (9 bands) or 1.5MHz commercial.
- ★ All Modes: AM, CW, FM*, FSK, LSB, USB.
- ★ 10 VFO's!!! Any Tx-Rx split within coverage.
- ★ Two frequency selection ways, no bandswitch.
- ★ Main dial, velvet smooth, 10Hz resolution.
- ★ Inbuilt keyboard with up/down scanning.
- ★ Dedicated digital display for RIT offset.
- ★ Receiver dynamic range up to 100dB!!!
- ★ SSB: Variable bandwidth and IF shift.
- ★ 300* or 600Hz*, 2,400 → 300Hz*, 6kHz*, 12kHz*.
- ★ Audio peak and notch filter, FM squelch.
- ★ Advanced variable threshold noise blanker.
- ★ 100W RF, key down capability, solid state.
- ★ Mains and 12VDC. Switch mode PSU built in.
- ★ RF processor, Auto mic gain control, VOX.
- ★ Last but not least full break-in on CW.



URGENT!

THEN USE
HOTLINE
NUMBERS

URGENT ORDERS
SERVICE INQUIRIES
NORMAL CALLS

0703 867330
0703 861829
0703 867333

SMC SERVICE
Free Securicor delivery on major equipment.
Access and Barclaycard over the phone.
Biggest Branch agent and dealer network.
Securicor 'B' Service contract at £4.49.
Biggest stockist of amateur equipment.

FREE FINANCE
On many regular priced items SMC offers
Free Finance (on invoice balances over £120).
20% down and the balance over 6 months or
50% down and the balance over a year.
You pay no more than the cash price!!

GUARANTEE
Importer warranty on Yaesu Musen products.
Able staffed and equipped Service Department.
Daily contact with the Yaesu Musen factory.
Tens of thousands of spares and test equipment.
Twenty-five years of professional experience.

Communications Ltd.

MAIN DISTRIBUTOR FACTORY BACKED



- ★ 160-10 metres including new allocations.
- ★ Variable IF bandwidth 2.4kHz down to 300Hz.
- ★ Audio Peak and independent notch controls.
- ★ AM, FSK, USB, LSB, CW, FM, (Tx and Rx).
- ★ Semi-break in, inbuilt Curtis IC Keyer.
- ★ Digital* plus analogue frequency displays.
- ★ VOX built-in and adjustable.
- ★ Instant write in memory channel.
- ★ Tune up button (10 sec. of full power).
- ★ Switchable AGC and RF attenuator.
- ★ 350 or 600 Hz CW, 6kHz, AM filters included!
- ★ Clarifier (RIT) switchable on Tx, Rx or both.
- ★ Plug in modular, computer style constructor.
- ★ Fully adjustable RF Speech processor.
- ★ Ergonomically designed with necessary LEDs.
- ★ Incredible range of matching accessories.
- ★ Universal power supply 110-234V AC and 12V DC.



FT 902DM £885 inc.



KDK FM 2030 £199 inc.



EXCEPTIONAL
VALUE

- ★ 2M, 12 VDC compact 2 1/8" x 6 3/4" x 7 1/8"
- ★ 25W (+ adjustable low power), 12 1/2 kHz steps.
- ★ 10 "year long" memories for "crystal control".
- ★ Digital RIT 1kHz steps, adjusted from main tuning.
- ★ Sensitivity < 0.2µV for 12dB SINAD (0.14µV typical).
- ★ Single knob frequency selection, 20 steps rev.
- ★ Rapid QSY button, end to end in a single turn.
- ★ Digital RIT 1kHz steps, adjusted from main tuning.
- ★ 2, 5 slot memories, simplex, cross or 600kHz split.
- ★ Memories entered by pushing main tuning knob.
- ★ ± 600kHz split. Instant repeater input monitor.
- ★ Band scan between front panel selectable, limits.
- ★ Scan stop requires squelch open and centre zero.
- ★ Scanning and up/down tuning on the microphones.
- ★ Reprogrammable; steps, tone, splits, and coverage.
- ★ C/W mic. "Easy out" mobile mount and handbook.

- ★ 3 Bands* 1.2 metres. 70cms* (10MHz) & 6M* plugs-ins.
- ★ Full Duplex* 1 Cross band Tx & Rx simultaneously.
- ★ SSB-CW-FM! All optimally catered for, clarifier all modes.
- ★ Variable bandwidth and IF shift! SSB & CW.
- ★ Processor! Front panel mic gain and variable power.
- ★ Two main VFO's! A & B with 20Hz/1kHz steps.
- ★ Separate channelised VFO! (for FM operation).
- ★ Scanning! band scan, memory scan, memory mode.
- ★ Repeater splits! programmable and preset.
- ★ Instant reverse! and + & - splits and A/B.
- ★ Twin meters; PO/DISC, S/ALC. Duplex switchable.
- ★ Switchable; AGC, CW bandwidth, * dial lock, noise blanker.
- ★ Priority channel operational split mode and split band.

FT 726R12)	Transceiver c/w 144 MHz	£699.00
430T 726	430-440 MHz module	£230.00
50T 726	Six meter module	£170.00
SAT 726	Full duplex unit	£90.00

AVAILABLE SOON
★ HF MODULE ★
21, 24, 28 MHz

FT 726R £699 inc.



MOBILES FOR 2m or 70cm



**FT230R 2m
£255 inc.**
**FT730R 70cm
£299 inc.**

- ★ 150(W) x 50(H) x 176(D)mm.!!
- ★ Up/down, memory/band scanning.
- ★ Easy "write-in" memory channels.
- ★ Memory back-up "5 year" lithium cell.
- ★ Ten memories with priority functions.
- ★ Supplied with scanning microphone.
- ★ Illuminated "any angle" LCD display.
- ★ Display to 100's of Hz and functions.
- ★ Two completely independent VFO's.
- ★ Operation between memory and VFO.
- ★ Full reverse repeater function.
- ★ Manual and automatic tone burst.
- ★ Large "full sound" internal speaker.
- ★ Concentric volume and squelch.

- ★ Multimode USB, LSB, FM, CW.
- ★ 100Hz backlit LCD Frequency display.
- ★ 10 memory channels 5 year* backup.
- ★ Any Tx/Rx split with dual VFO's.
- ★ Up/down tuning from microphone.
- ★ AF output 1W @ 10% THD.
- ★ Bandwidth 2.4kHz and 14kHz @ -6dB.
- ★ LED's "On Air", "Busy", m/c meter; S, PO.
- ★ 58(H) x 150(W) x 195(D) (1.3kg).

MULTIMODE PORTABLES FOR 2m or 70cm

SMC 2.2	Nicad 2.2 A/hr "C"	£2.70
SMC9C	Slow Charger (220mA)	£8.80
MMB 11	Mobile Mount	£24.90
CSC 1A	Soft carrying case	£3.85
FL2010	Linear Amplifier 2m 10W	£59.00
FL7010	Linear Amplifier 70cms	£91.00
YHA 15	Helical antenna FT290	£5.00

**FT290R 2m
£285 inc.**
**FT790R 70cm
£349 inc.**



Only authorised Yaesu dealers have direct contact with the factory in Japan, and only if you buy your radio from an authorised dealer can you be assured of spares and service back up. So BEWARE of grey importers who offer sets a few pounds cheaper, they may not be around if your set goes wrong!!

★ NEW BRANCH ★



LEEDS
SMC (Leeds)
257 Oley Road
Leeds 16, Yorkshire
Leeds (0532) 782326
9-5.30 Mon-Sat

CHESTERFIELD
SMC (Jack Tweedy) Ltd
102 High Street
New Whittington, Chesterfield
Chesterfield (0246) 453340
9-5 Tues-Sat

BUCKLEY
SMC (TMP)
Unit 27, Pinfold Lane
Buckley, Clwyd
Buckley (0244) 549563
9.30-5.30 Tues-Sat

STOKE
SMC (Stoke)
76 High Street
Talke Pitts, Stoke
Kidsgrove (07816) 726644
9-5.30 Tues-Sat

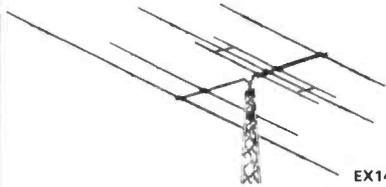
GRIMSBY
SMC (Grimsby)
247A Freeman Street
Grimsby, Lincs
Grimsby (0472) 59388
9.30-5.30 Mon-Sat

JERSEY
SMC (Jersey)
1 Belmont Gardens
St. Helier, Jersey
Jersey (0534) 77067
10-7 Mon-Sat

EDINBURGH
SMC Scotland,
23 Morton Street,
Edinburgh EH15 2HN
Tel: 031 657 2430
10-5 Tues-Fri, 9-4 Sat

HF ANTENNAS

S. M.C. have the greatest range of H.F. antennas eg., Multi Beams/Quads, over 20 models. Shown below is the sensational new Explorer 14 — contact us for full details.



EX14

		Inc VAT	P&P
EX14	Explorer 10-20		
TH3JN	3 Ele 10-20	£202.40	£3.50
TH2MK3	2 Ele 10-20	£169.05	£3.50
TH3MK3	3 Ele 10-20	£274.85	£5.30
TH5DXX	5 Ele 10-20	£419.75	£6.70
TH7DXX	7 Ele 10-20	£511.75	£8.75
TB3	3 Ele 10-20 Jaybeam	£181.70	£5.40
HQ1	Mini Quad 10-20	£139.00	£4.00
G4MH	Mini Beam 1-20	£82.50	£4.00
TA33JNR	3 Ele 10-20 Moseley	£161.00	£3.40
Mustang 2	2 Ele 10-20	£177.10	£3.50
Mustang 3	3 Ele 10-20	£220.80	£3.70
GQ2E	2 Ele 10-20 Quad	£189.75	£5.40
GQ3E	3 Ele 10-20 Quad	£313.95	£9.20
GQ4E	4 Ele 10-20 Quad	£446.20	£10.00
Hyquad	2 Ele 10-20	£171.35	£6.70
LP1007	Log Periodic 13-20MHz	£1474.30	DIST
3Y1015D20	3 Ele 10-20	£134.95	£5.00
DB10/15A	3 Ele 10-15	£198.95	£4.80



TB3

MONO BEAMS

103BA	3 Ele Yagi 10M	£67.85	£3.50
106BA	5 Ele Yagi 10M	£155.25	£3.75
153BA	3 Ele Yagi 15M	£90.85	£3.50
156BA	5 Ele Yagi 15M	£236.90	£5.90
203BA	3 Ele Yagi 20M	£178.25	£4.90
204BA	4 Ele Yagi 20M	£286.35	£7.30
206BA	5 Ele Yagi 20M	£396.75	£9.40
402BA	2 Ele Yagi 40M	£247.25	£6.50
18TD	Dipole Tape 10-80M		



HF5V



HF5R

VERTICALS

12AVQ	Vertical 10-20M	£50.60	£2.75
14AVQ	Vertical 10-40M	£64.40	£2.75
18AVT/WB	Vertical 10-80M	£113.85	£2.75
18V	Vertical 10-80M taped	£36.22	£2.75
C4	Vertical 10-20	£59.00	£2.50
SMCHF5	Vertical 10-80	£54.80	£2.50
SMCHF5P	Radial Kit for above	£34.90	£2.50

TRAP OIPOLE

SMCTD/HP	High Power 10-80M	£43.41	£2.50
SMCTP/P	Portable inc coax	£59.80	£2.50

MOBILE

Tribander	10-20M Slide sw.	£25.88	£1.50
Multiband	10-20M	£30.48	£1.50
Flexiwhip	10M only	£18.11	£1.85
Bases	For above	£5.75	£1.00
Extra Coils	For above to 160	£5.70	£1.00

NB: PRICES INCLUDE VAT AT 15%
Carriage extra, mainland rate shown

POWER METERS

POWER/SWR BRIDGES P.E.P., R.M.S. 1.8-440 MHz

The Hansen range covers 30 quality models with top-of-the-line the FS710. This is a flat frequency response peak envelope power and average in-line wattmeter with many novel features. Notable being the 'power independent' SWR scale — nor forward power calibration knob, just direct reading SWR.



HANSEN FS500H

HANSEN

		P&P
FS710H	1.8-60 MHz 15/150/1500W Pep	£89.70 FOC
FS710V	50-150 MHz 15/150W Pep	£89.70 FOC
FS50HP	1.8-60 MHz 20/200/2000W Pep	£89.70 FOC
FS50VP	50-150 MHz 20/200W Pep	£89.70 FOC
FS50CH	1.8-60 MHz 20/200/2000W Pep	£69.75 FOC
FS50CV	50-150 MHz 20/200W Pep	£51.35 FOC
FS300H	1.8-30 MHz 20/200	£46.40 FOC
FS300V	50-150 MHz 20/200/1000	£46.40 FOC
FS200	1.8-150 MHz 20/200	£50.60 FOC
FS601M	1.8-30 MHz 20/200W Pep	£51.35 FOC
FS601MH	1.8-30 MHz 200/2000W Pep	£51.35 FOC
FS602M	50-150 MHz 20/200W Pep	£51.35 FOC
FS603M	430-440 MHz 5/20W Pep	£51.35 FOC
FS210	1.8-150 MHz 20/200W Auto SWR	£55.20 FOC
FS301M	2-30 MHz 20/200W	£35.65 FOC
FS301MH	2-30 MHz 200/2000W	£35.65 FOC
FS302M	50-150 MHz 20/200W	£35.65 FOC
FS711H	2-30 MHz 20/200W Head	£36.80 FOC
FS711V	50-150 MHz 20/200W Head	£36.80 FOC
FS711U	430-440 MHz 5/20W Head	£36.80 FOC
HB1	FS711H Coupler	£23.75 FOC
VB1	FS711V Coupler	£23.75 FOC
UB1	FS711U Coupler	£23.75 FOC
FS5E	3.5-150 MHz 20/200/1000W HF	£37.20 FOC
FS5S	1.8-150 MHz 20/200/1000W HF	£37.95 FOC
FS7	145 & (432 MHz) 5/20/200 144	£41.00 FOC
SWR3E	3.5-150 MHz 20/200/1000W HF	£25.00 FOC
SWR3S	3.5-150 MHz F/S Meter ant.	£28.45 FOC
SWR50B	3.5-150 MHz Twin Meter	£28.45 FOC
FS200	3-150 MHz 5/20W	£37.95 FOC
FS-800	1.8-150 MHz 6/30/150W	£115.00 FOC

JO

JD110	1.5-150 MHz 10/100W	£13.80 FOC
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MIRAGE

MP2	50-150 MHz 50/500/1500W Pep	£100.00 FOC
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SMC

S3-30L	Mini CB	£8.80 FOC
T3-170L	3.5-170 MHz Relative	£14.95 FOC



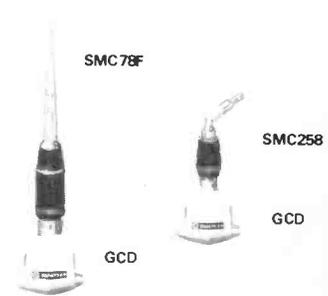
SMC T3170L

NB: PRICES INCLUDE VAT AT 15%
Carriage free (surface post) worldwide

SMC-HS

HF, VHF, UHF ANTENNAS MOBILE VERTICALS

SMC-HS Mobile Elements, tabulated below, feature an inbuilt PL259M connector, which mates with the SO239M on any of the four standard models. This arrangement is ideal for easy removal — band changes, comparative test, car wash, and anti-vandal, system checks from the feed point, portable operation and for ease of garaging, etc. All models have fold over bases (either lift and lay or locking collar) except the 78B which has an inbuilt ball in case the mount must be fitted askew.



SMC78F

SMC258

GCD

GCD

		£	P&P
3.3	SMC-HS MOBILE ANTENNA		
SMC6P2T/PL	Telescopic 2M PL259 fitting 0dB %	£3.45	£0.60
SMC6P2T/BNC	Telescopic 2M BNC fitting 0dB %	£5.00	£0.60
SMC2H/PL	Helical 2M PL259 fitting	£3.45	£0.60
SMC2H/BNC	Helical 2M BNC fitting	£5.00	£0.60
SMCHS430	70cm 1/2 wave BNC fitting 2.5dB %	£6.90	£0.60
SMC2QW	2M 1/4 wave 0dB % 1.6'	£2.30	£1.50
SMC2NE	2M 1/2 wave fold 3.0dB % 4.3'	£6.90	£1.80
SMC2VF	2M 1/2 wave fold 3.0dB % 3.5'	£11.50	£1.80
SMC78F	2M 1/2 wave fold 4.5dB % 5.7'	£13.80	£2.00
SMC78B	2M 1/2 wave ball 4.5dB % 5.6'	£13.80	£2.00
SMC78SF	2M 1/2 wave short 4.7'	£13.80	£2.00
SMC88F	2M 8/8 wave 5.2dB % 6.5'	£18.80	£2.00
SMC118M	Colinear 2M 11/8 wave fold 7dB % 9.7'	£29.90	£2.50
SMC258	70cm 2 x 1/2 fold 5.5dB % 3.1'	£12.65	£1.80
SMC358	70cm 3 x 1/2 6.3dB % 4.7'	£16.85	£1.80
SMC70N2M	Dual band 2M 2.7dB % 70cm 5.1dB %	£16.85	£1.80
SMCHS770	144/432 Duplexer 50W	£15.35	£1.50
SMC20SE	20M 1.72M 'fold over' 100W PEP	£17.65	£2.00
SMC15SE	15M 1.72M 'fold over' 130W PEP	£14.55	£2.00
SMC10SE	10M 1.72M 'fold over' 200W PEP	£13.80	£2.00
SMC17SE	17M 1.915M 'fold over' 200W PEP	£15.70	£2.00
SMC12SE	12M 1.915M 'fold over' 200W PEP	£14.20	£2.00
SMCGCCA	Gutter clip 4 mtrs cable	£9.95	£1.80
SMCSOCA	Cable assembly 4M	£5.00	£1.20
SMCSOCAL	Cable assembly 6M	£5.35	£1.20
SMCTMCAS	Trunk mount c/w 6M cable	£8.45	£1.80
SMCSOMM	Magnetic base c/w 4M cable	£9.95	£1.80
SMCSOWM	Adjustable wing mount base	£4.20	£0.90
SMCGCD	Gutter clip deluxe	£4.60	£1.20
SMCBSDD	Bumper strap deluxe	£8.80	£1.20
HS88BK	Bumper mounted extension for 144 MHz ant.	£18.80	£1.80

SOMM

HS770



NB: PRICES INCLUDE VAT AT 15%
Mainland delivery rate shown

SMC BRANCHES AT TOTTEN (SOUTHAMPTON), CHESTERFIELD, STOKE, GRIMSBY, LEEDS, BUCKLEY (N. WALES), JERSEY, EDINBURGH

Stourbridge Andrew

(03843) 72632

SMC STOCK CARRYING AGENTS WITH DEMONSTRATION FACILITIES

Bangor John G13KDR (0247) 55162
Tandragee Mervyn G13WVY (0762) 840656

Neath John

GW4FOI

(0639) 52374 Day
(0639) 2942 Eve

ROTATORS

The finest range: be it Kenpro, C.D.E., Channel Master, S.M.C. has over 19 models to choose from. Ask the experts for the right model to suit your requirements — it should save you money. Write, phone or call.



Type	Core	Light Duty	Price
RLD3 Bell	5	Core Light Duty	£40.25
S05 Bell	5	Core Light Duty	£40.25
AR30 Offset	5	Core Light Duty	£50.35
KP250 Bell	6	Core Lighter Duty	£54.91
9502B Offset	3	Core Lighter Duty	£56.92
AR22 Bell	4	Core Medium Duty	£67.85
9508 Offset	3	Core Medium Duty	£80.21
AR40 Bell	5	Core Medium Duty	£90.85
BT1 Bell	5	Core 4 Preset Medium	£91.43
KR400 Bell	6	Core Medium matches	£97.75
		KR500	£97.75
KR500 Thro	6	Core Elevation	£97.75
AR50 Bell	5	Position Medium	£113.85
KR400RC Bell	6	Core Medium Duty	£114.94
CD45 Bell	8	Core Heavy Duty	£136.85
KR800RC Bell	8	Core Heavy Duty	£163.30
HAM IV Bell	8	Core Heavy Duty	£258.75
KR2000RC Bell	8	Core Heavy Duty	£314.52
TR2 Bell	8	Core Very Heavy Duty	£327.75
H300 Bell	8	Core Digital Readout	£493.35

Control Cable	Way	Price/mtr	Carriage
RC4W	4	28p/mtr	£1.80
RC5W	5	33p/mtr	£1.80
RC6W	6	51p/mtr	£1.80
RC8W	8	55p/mtr	£1.80

Support Bearing	Price	Carriage
9502	£15.81	£2.50
KC038 Lower Mast Clamp	£12.07	£2.50

Prices including VAT and Carriage, but accessories are extra unless sent with rotators.

ANTENNA ACCESSORIES

MASTS & TOWERS

TT24	79' Tower c/w rigging	£626.00	DIST
TT30	101' Tower c/w rigging	£730.00	DIST
SMC16	16' Portable c/w rigging	£21.28	£2.20
SMC24	24' Portable c/w rigging	£25.88	£2.20
SPK 16	16' Light duty portable	£17.25	£2.20
10P30	30' Telesc. Versatower	£388.00	DIST
13P40	40' Telesc. Versatower	£436.00	DIST
13P60	60' Telesc. Versatower	£534.00	DIST
16P40	40' Telesc. Versatower	£650.00	DIST
16P60	60' Telesc. Versatower	£739.00	DIST

COAXIAL CABLE (per metre)

UR43	50 ohm 5mm	£0.27	£2.20
UR76	50 ohm 5mm Stranded core	£0.29	£2.00
UR67	50 ohm 10.2mm low loss	£0.67	£2.40
LDF2	50 ohm 1/2" Foam Heliax	£2.85	£2.50
LDF4	50 ohm 1/2" Foam Heliax	£3.58	£2.50
307EP	75 ohm Economy	£2.21	£2.00
UR70	75 ohm 6mm	£0.30	£2.00
UR39	75 ohm 7.8mm	£0.44	£2.40
UR57	75 ohm 10.2mm low loss	£0.69	£2.50
302	75 ohm Galv. twin	£0.17	£1.50
306	300 ohm Galv. twin	£0.23	£1.50

ANOREWS HELIAX CONNECTORS

L42W	'N' Plug male LDF2/50	£12.07	£0.65
L42N	'N' Jack female LDF2/50	£12.07	£0.65
L42P	UHF Plug (PL259) LDF2/50	£12.07	£0.65
L44W	'N' Plug male LDF4/50	£12.42	£0.65
L44N	'N' Jack female LDF4/50	£12.42	£0.65
L44P	UHF Plug (PL259) LDF4/50	£11.09	£0.65

2M ASCOT ANTENNAS MOBILE

(The keenest prices)

Complete with bases and cable	Price
340COM 1/4 X Standard	£6.10
310COM 1/4 X Swival	£8.10
344COM 1/4 X Sprung	£10.38
440COM 1/4 X Standard	£7.11
330COM 1/4 X Swival	£10.01
341COM 1/4 X Sprung	£12.31
092 Magnetic Mount	£10.75
350 1/2 X Standard	£14.26
351 1/2 X Sprung	£15.01
091 Magnetic Mt 1/2 X	£10.75



J-BEAM

4 METRES

4Y/4M	Yagi 4 element	7dBd	£29.90	£2.20
PMH2/4M	Phasing harness 2-way		£16.10	£1.50

2 METRES

HQ/2M	Halo head only	0dBd	£5.98	£1.20
HM/2M	Halo with 24" mast	0dBd	£6.55	£1.50
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LW8/2M	Yagi 8 element	9.5dBd	£17.82	£2.50
LW10/2M	Yagi 10 element	10.5dBd	£24.15	£2.50
LW16/2M	Yagi 16 element	13.4dBd	£35.07	£3.20
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PBM10/2M	10ele Parabeam	11.7dBd	£44.85	£3.20
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Q4/2M	Quad 4 element	9.4dBd	£29.32	£2.50
Q6/2M	Quad 6 element	10.9dBd	£39.10	£2.50
Q8/2M	Quad 8 element	11.9dBd	£44.85	£2.50
D5/2M	Yagi 5over 5slot	10dBd	£25.30	£2.50
DB/2M	Yagi 8over Bslot	11.1dBd	£34.50	£2.50
5XY/2M	Yagi 5ele crossed	7.8dBd	£28.17	£2.50
8XY/2M	Yagi 8ele crossed	9.5dBd	£35.65	£2.50
10XY/2M	Yagi 10ele crossed	10.8dBd	£46.00	£2.50
PMH2/C	Harness clr polarisation		£9.77	£1.50
PMH2/2M	Harness 2-way 144MHz		£12.65	£1.50
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SEVENTY CM

CB/70	Colinear Omni Vertical	6.1dBd	£62.10	£2.50
DB/70	Yagi 8over Bslot	12.3dBd	£25.87	£2.50
PBM18/70	18ele Parabeam	13.5dBd	£32.20	£2.50
PBM24/70	24ele Parabeam	15.1dBd	£42.55	£2.50
LW24/70	Yagi 24 element	14.8dBd	£27.02	£2.50
MBM28/70	28ele Multibeam	11.5dBd	£21.27	£2.50
MBM48/70	48ele Multibeam	14.0dBd	£35.65	£2.50
MBM88/70	88ele Multibeam	16.3dBd	£48.87	£2.50
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12XY/70	Yagi 12ele crossed	12dBd	£52.90	£2.50
PMH2/70	Harness 2-way		£10.35	£1.50
PMH4/70	Harness 4-way		£22.42	£1.80

1296 MHz

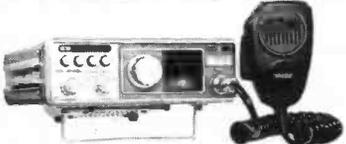
CR2/23CM	Cornet reflector	13.5dBd	£40.25	£2.50
PMH2/23CM	Harness 2-way		£31.05	£1.50

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FT227RBS	FM10W Scanner 25 kHz stepper	£189.00
FM2025	FM25W Scanner ect	£179.00
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YK901	Keyboard	£89.00
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OSC225		
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MML144/25	3W-25W amplifier - pre-amp	£49.00
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MMC70/18	Converter 70MHz to 18MHz	£19.00
MMC1296/28	Converter 1296MHz to 28MHz	£25.00
MCC1296/144	Converter 1296MHz to 144MHz	£25.00
MMC156/28	Converter marine band to 28MHz	£27.00



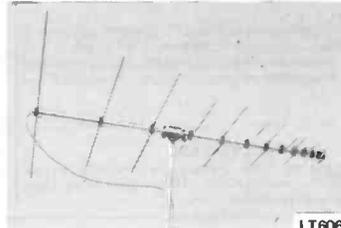
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Datong

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CRYSTALS MANUFACTURED TO ORDER

AMATEUR SPECIFICATIONS

Prices shown are for "one off", to our standard amateur specs., closer tolerances are available. Please send us details of your requirements.

A Low frequency fundamentals in HC13/U or HC6/U

Total tolerance ± 100 ppm. 0° to 70° C.

6.0 to 9.99 kHz HC13/U	£32.80
10 to 19.99 kHz HC13/U	£31.00
20 to 29.99 kHz HC13/U	£23.08
30 to 59.99 kHz HC13/U	£21.73
60 to 79.99 kHz HC13/U	£15.69
80 to 99.99 kHz HC13/U	£13.08
100 to 159.9 kHz HC13+6/U	£11.32
160 to 399.9 kHz HC6/U	£7.83
400 to 499.9 kHz HC6/U	£7.00
500 to 799.9 kHz HC6/U	£7.83

B High frequency fundamentals/overtones

Adj. tol. ± 20 ppm. Temp. tol. ± 30 ppm -10° to $+60^\circ$ C.

800 to 999.9 kHz (fund) HC6/U	£11.01
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3.4 to 3.99 MHz (fund) HC18 & 25/U	£6.75
4.0 to 5.99 MHz (fund) HC18 & 25/U	£5.36
6.0 to 21 MHz (fund) Allholders	£4.87
21 to 25 MHz (fund)	£7.31
25 to 30 MHz (fund)	£9.00
18 to 63 MHz (30/T)	£4.87
60 to 105 MHz (50/T)	£5.61
105 to 125 MHz (50/T)	£8.44
125 to 147 MHz (70/T)	£11.25
147 to 175 MHz (90/T)	£12.66
175 to 250 MHz (90/T)	£13.50

Delivery - Mid range 1 MHz to 105 MHz normally 4/6 weeks. Other frequencies 6/8 weeks.

Holders: Low Frequencies 6 to 150 kHz HC13/U, 150 kHz to 3.4 MHz HC6/U, 3.4 MHz to 105 MHz HC6/U, HC18/U or HC25/U, over 105 MHz - HC18/U and HC25/U. HC33/U (wire end HC6/U) is available on request as per HC6/U.

Unless otherwise specified, fundamentals will be supplied to 30db circuit conditions and overtones to series resonance.

COMMERCIAL AND PROFESSIONAL CRYSTALS NEW FASTER SERVICE

We are now supplying crystals to most commercial and MIL specifications in the range 1MHz to 60MHz ordered in small quantities in 2 1/2 weeks AT NO EXTRA CHARGE. We also have even faster EXPRESS SERVICES available for that VERY URGENT order.

We can also supply crystals for commercial applications e.g. Microprocessor, TV, etc., at very competitive prices. Let us know your needs and we will send you a quote by return, alternatively telephone or telex our Sales Engineer Mr. Norcliffe who is normally available in the office for technical enquiries between 4.30 and 6.30 p.m.

TERMS: CASH WITH ORDER - MAIL ORDER ONLY. PRICES INCLUDE P. & P. (BRITISH ISLES) EXCEPT WHERE STATED - OVERSEAS CHARGED AT COST.

TWO METRE CRYSTALS

CRYSTAL FREQUENCY RANGE USE (TX or RX) and HOLDER	4MHz-TX-HC6/U	6MHz-TX-HC25/U	8MHz-TX-HC6/U	10MHz-RX-HC6/U	11MHz-RX-HC6/U	12MHz-TX-HC25/U	14MHz-RX-HC25/U	18MHz-TX-HC25/U	44MHz-RX-HC6/U	44MHz-RX-HC25/U	52MHz-RX-HC25/U
144.4 (433.2)	b	e	b	e	e	c	e	e	e	e	e
144.800	e	e	e	e	e	e	e	e	e	e	e
144.825	e	e	e	e	e	e	e	e	e	e	e
144.850	e	e	e	e	e	e	e	e	e	e	e
145.000/ROT	a	a	a	c	c	b	e	b	e	a	c
145.025/R1T	a	c	a	e	e	b	e	b	e	a	c
145.050/R2T	a	c	a	e	e	b	e	b	e	a	c
145.075/R3T	a	c	a	e	e	b	e	b	e	a	c
145.100/R4T	a	c	a	e	e	b	e	b	e	a	c
145.125/R5T	a	c	a	e	e	b	e	b	e	a	c
145.150/R6T	a	c	a	e	e	b	e	b	e	a	c
145.175/R7T	a	c	a	e	e	b	e	b	e	a	c
145.200/R8R	a	c	a	e	e	b	e	b	e	a	c
145.300/S12	e	e	e	e	e	e	e	e	e	e	e
145.350/S14	e	e	e	e	e	e	e	e	e	e	e
145.400/S16	e	e	e	e	e	e	e	e	e	e	e
145.425/S17	e	e	e	e	e	e	e	e	e	e	e
145.450/S18	a	e	a	e	e	b	b	a	a	e	e
145.475/S19	a	e	a	e	e	b	b	a	a	e	e
145.500/S20	a	c	a	c	b	b	b	a	a	c	c
145.525/S21	a	c	a	c	b	b	b	a	a	c	c
145.550/S22	a	c	a	c	b	b	b	a	a	c	c
145.575/S23	a	c	a	c	b	b	b	a	a	c	c
145.600/ROR	a	c	a	c	e	b	b	a	a	c	c
145.625/R1R	e	e	e	c	c	e	b	e	a	a	c
145.650/R2R	e	e	e	c	c	e	b	e	a	a	c
145.675/R3R	e	e	e	c	c	e	b	e	a	a	c
145.700/R4R	e	e	e	c	c	e	b	e	a	a	c
145.725/R5R	e	e	e	c	c	e	b	e	a	a	c
145.750/R6R	e	e	e	c	c	e	b	e	a	a	c
145.775/R7R	e	e	e	c	c	e	b	e	a	a	c
145.800/R8R	a	a	e	c	e	b	b	a	a	c	c
145.950/S38	a	e	e	c	e	e	e	e	a	e	e

PRICES: (a) £2.15, (b) £2.55, (c) £2.80, and (e) £4.87.

AVAILABILITY: (a), (b), (c) stock items, normally available by return (we have over 5000 items in stock). (e) 4/6 weeks normally but it is quite possible we can supply from stock. N.B. Frequencies as listed above but in alternative holders and/or non stock loads are available as per code (e).

ORDERING. When ordering please quote (1) Channel, (2) Crystal frequency, (3) Holder, (4) Circuit conditions (load in pf). If you cannot give these, please give make and model of equipment and channel or output frequency required and we will advise if we have details.

EXPRESS SERVICE

Many types of made to order crystals are available on our "EXPRESS SERVICE" - with delivery of three days on our class "A" service. Telephone for details.

70 cm CRYSTALS

Due to the much higher multiplication involved compared with 2 metres all our stock 70cm crystals are to much higher tolerances than our standard amateur spec. crystals.

We are stocking the following channels: RB0, RB2, RB4, RB6, SU8, RB10, RB11, RB13, RB14, RB15, SU18, and SU20. TX & RX for use with: - PYE UHF Westminster (W15U), UHF Cambridge (U10B), Pocketfone (PF1) and UHF PF70 Range, and STORNO CQL/CQM 662 all at £2.55.

For other channels and/or equipments crystals can be made to order to the same closer tolerances as our stock range at a cost of £5.72 for frequencies up to 63MHz and £6.58 for 63-105 MHz, or to our standard Amateur specifications see "CRYSTALS MANUFACTURED TO ORDER" prices opposite.

4m CRYSTALS FOR 70.26MHz - HC6/U
TX8.7825MHz and RX6.7466MHz or 29.7800MHz £2.55

10.245MHz "ALTERNATIVE" I.F. CRYSTALS - £2.55.
For use in Pye and other equipment with 10.7MHz and 455kHz I.F.s to get rid of the "birdy" just above 145.0MHz. in HC6/U, HC18/U and HC25/U.

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HC6/U and HC13/U 25p each, HC25/U 20p each plus 20p p. & p. per order (p. & p. free if ordered with crystals).

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All at £3.00, 38.666MHz (144/28), 42MHz (70/28), 58MHz (144/28), 70MHz (144/4), 71MHz (144/2), 96MHz (1.296/432/144), 101MHz (432/28), 101.50MHz (434/28), 105.666MHz (1.296/28) and 116MHz (144/28).

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200kHz and 455MHz in HC6/U £3.50
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Please let us know your requirements e.g. 4MHz HC18/U 1 off £2.00; 100 off £1.10; 1000 off 99p; 2500 off 50p.

AERIALS

THE ARAKI RANGE OF AERIALS

10 metre whip only 1.3 metre long with magnet	£18.00 p. & p. £3.00
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The Araki Range are handmade of top quality anti-corrosion treated aluminium or stainless steel.

DOUBLE BALANCED MIXER

We are now stocking two new double balanced mixers which are pin compatible with both the MD10B we used to stock and also the SBL1, but have much superior specifications covering 500kHz to 500MHz.

The M8 is hermetically sealed @ £7.83.
The M18 is non hermetically sealed @ £6.09.

PLEASE ENCLOSE S.A.E. WITH ALL ENQUIRIES



Pictured left with its companion ATCS 144s controller is the GFBA 144e high performance 'masthead' preamplifier for the 144-148 MHz amateur band. It is unique in using a 'noiseless' negative feedback circuit (the result of several months research at muTek) around a MGF 1202 gasfet - resulting in a combination of very low noise figure (typically <0.9dB) with quite outstanding large signal performance (the input third order intercept point is typically around +14dBm!). Through power handling in the transmit mode is 1kW pep (500W carrier) for vswr's of <1.1 and 500W pep (300W carrier) for vswr = 2.0:1. The companion ATCS 144s controller allows preamplifier control with proper power amplifier sequencing and will interface with all transceivers (that we're aware of!) currently in use.
Need more information? - then an sae or phone call will do the trick.

GFBA 144e (incl. ATCS 144s) £129.90 inc. vat, p&p £2.50.

At the other end of the range (but manufactured with no less attention to detail) is our SLNA 145sb Transceiver Optimised Preamplifier for the popular FT290 transceiver. Fitting in the location occupied by the tone squelch unit in some foreign models this preamplifier will ensure an externally noise limited receiver. The use of an on-board antenna relay and the provision of a variable output attenuator allow this level of sensitivity to be obtained with a minimum of strong-signal performance degradation. The excellent bandpass filtering incorporated in this design also results in very much improved image rejection and will eliminate much of the breakthrough from aircraft band which seems to plague some people.

The SLNA 145sb is supplied complete with step-by-step fitting instructions and a high-quality cable kit to simplify installation. It's not difficult to do but if you'd rather not attempt fitting yourself please contact Amateur Radio Exchange who are offering a fitting service.

SLNA 145sb £24.90 inc. vat, p&p £1.20.



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VHF BANDS

NORMAN FITCH, G3FPK

THE past month has been a very eventful one, some of the highlights being the successful launch of *Oscar-10*, many *Sporadic E* openings on 2m., some fine periods of tropospheric propagation and VHF NFD in which some very long distance *E's* contacts were made. Also the first two-way 6m. trans-atlantic QSOs took place since the permits were issued this year. To chronicle all these events and the more usual topics your scribe has cajoled the Editor into providing a record number of pages this month.

Awards News

Three readers have joined the 2m. QTH Squares Century Club this time and all are Class B licensees who have had to do it all without the advantage of CW operation. Certificate no. 27, dated June 29, has been issued to regular contributor Mick Cuckoo, G6ECM, from Herne Bay in Kent, who took the R.A.E. in May, 1981 after ten years as an *s.w.l.* First licensed in August, 1981, his first station consisted of an *Icom IC-260E* and *Jaybeam 8-ele. Yagi* antenna, the transceiver being replaced two months later with the present *Yaesu FT-221R* with *muTek* "front-end". The present antenna is an 11-ele. *H.A.G. Yagi* at 35ft. *a.g.l.*, the site being 150ft. *a.s.l.* Mick's 100 cards were all for tropo. contacts apart from GM8YPI via Aurora and IT9TDN via *E's*. Antenna improvements are contemplated and he intends to master morse to get the Class A licence.

Kevin Piper, G8TGM, from Pagham in West Sussex, receives certificate no. 28 dated July 5 for 101 confirmed squares; 88 via tropo., 11 via *E's* and two via *Ar* propagation. He was licensed in Sept. 1979 and used an *Icom IC-202E* and 9-ele. *Tonna Yagi* at first plus a 25 watts amplifier five weeks later. Various other *Icom* and *Yaesu* gear has been used, the present station comprising an *IC-260E* and a *Microwave Modules MML-100S* amplifier. Kevin began using the Soviet *RS* satellites last February and has 42 countries in four continents worked, the goal being a *DXCC* on this mode. He will soon have 50 MHz receive capability and will probably take a morse test some time so that he can explore CW MS operation.

Gordon Emmerson, G8PNN, from

Widdrington in Northumberland, was awarded certificate no. 29 on July 5 during a visit to your scribe's QTH. He has 101 squares confirmed, comprising 90 on tropo., 9 via *Ar*, and one each on *E's* and MS. Gordon operates on 70cm. and 23cm. and, being in a rare county and square, ZP, is naturally sought-after. His QTH is a couple of miles from the North Sea so he enjoys the benefits of a sea path to the east.

Graham Taylor, G4JZF, holder of QTHCC certificate no. 16, was awarded his "125" sticker on June 29, his confirmed total now being 129. The 26 new ones were all worked on SSB, made up from two *Ar*, three *E's* and 21 tropo QSOs. Pick-of-the-bunch was EA8XS (SO) worked via *E's* on June 8 last year. G4JZF has been QRT since last September but a possible move may bring renewed opportunities to get going again.

Phil Ingham, G6HDD, from Farnworth in Greater Manchester is member no. 357 of the 2m. VHF Century Club, his certificate being issued on June 20. The site is 450ft. *a.s.l.* and Phil's station consists of a *Standard C58* transceiver, *Zetagi 100* watts amplifier and a 14-ele. *Jaybeam* Parabeam antenna. For details of the QTHCC and VHFCC send an *s.a.e.* to the address at the end of this feature.

Oscar Ten

At 1159 and 2 seconds on June 16, the sixth *European Space Agency ARIANE* vehicle was successfully launched from the Kourou facility in French Guiana. 942 seconds later, rocket and payloads were in orbit and at 1216 and 53s., when the *Phase 3B* satellite was ejected from *L-06*, *Oscar-10* was officially born. The telemetry from *A-O-10* soon showed that *E.S.A.* had failed to spin the satellite upon ejection and this initially posed a serious problem in that the solar panels were not seeing enough of the Sun to charge the batteries. With the General and Engineering beacons operating, the system was on a negative power budget until the spacecraft's attitude began to change, overcoming this particular problem.

It subsequently transpired that, during separation, one of the three 2m. antennas had been bent and some slight damage to the kick motor had occurred. The initial orbit, in round figures, was inclined at 8½° to the equator, with an *apogee* of 35,500 kms. and a *perigee* of 200 kms. The period was just over 625 minutes. The first firing of the kick motor, designed to tilt the spacecraft towards the desired orbit, was delayed until July 8. However, the "burn" did not take place as Dr. Karl Meinzer, DJ4ZC, in Marburg, was unconvinced that *A-O-10* was in quite the right attitude. Should the first firing occur before our printer's deadline, there will be a "stop press" item.

At the time of editing, the signals from both beacons are quite strong at times. The

General beacon, on 145.810 MHz, transmits very slow morse bulletins for the first five minutes of each hour, in plain language, followed by a lot of telemetry data in phase-shift keying. This beacon runs at a 2w power level. The Engineering beacon, on 145.987 MHz, operates at a 15w power level. the transponders are not yet available for general use but the "B" system has been used briefly between Germany and the U.S.A. to prove it works well. For further details of uplink and downlink bands, transmitter and receiver and antenna requirements, see page 254 in the July issue of the *Magazine*.

AMSAT-UK members have been kept informed of the day-to-day situation and given orbit predictions over the 80m. net at 1800 GMT on 3,780 kHz. This is very efficiently run by G3AAJ, with very authentic data given by G4GPQ. In several parts of the U.K., informal *AMSAT* nets take place from 1830 GMT on 144.280 MHz for the benefit of VHF operators who may not be able to listen on 80m.

Provided the damage to the *A-O-10* kick motor, caused by the *E.S.A.*'s failure to eject this payload cleanly, is relatively minor — but there has been talk of a possible leak condition in one of the fuel pipes — then there seems no reason why the transponders should not be switched on as soon as the final orbit is achieved. However, even is it should prove impossible to achieve the originally desired orbit, coverage would be extensive.

Other Satellite News

It seems that *Oscar 8's* batteries are no longer working properly, the telemetry having been "stuck" for a long time now indicating insufficient power to operate the space craft properly. *AMSAT* requests that, even if the transponder(s) appear to be working, that neither be used. For some time, *O-8* has been in the Earth's shadow but is now emerging therefrom. Perhaps this will be of some help in extending the life of this satellite, as was the case with *O-7*. Russell Coward, G6HRI, (Blackpool) reports his last QSO on Mode "J" on May 30, with N4AR during orbit no. 26681.

The *UOSAT* Bulletin from the *University of Surrey's* answering service, prepared on July 6, stated that the boom had been straightened and retracted and that HF antennas had been deployed on June 21 with the beacon on 21.002 MHz activated. Some successful *packet radio* experiments have recently been carried out with the *U-O-9* space craft. Any reader wanting current information can telephone Guildford (0483) 61202, the recorded message including orbit details and brief information about experiments, etc.

The Soviet *RS 145/29* MHz satellites continue to work satisfactorily and, now that *O-8* is ailing, are the only amateur transponders available until *O-10* gets

going. Tim Kirby, G6TTU, (Gloucs.) is active on the RS transponders and on June 18, worked 10XPS (GB) who had worked G8BKL via E's on 2m. a couple of days previously. Tim uses a revamped BFR99 preamplifier in the receiver which has improved reception immensely so that he hand out S8 and S9 reports to many contacts now.

Contest Notes

The B.A.R.T.G. has sent the results of its Spring VHF/UHF RTTY contest which revealed a considerable increase in the number of active stations over any previous year. On 2m. there were 196 stations, on 70cm. 38, and on 23cm. six. On 2m., in the Multi-operator section, the *Ealing and District ARS*, GW3UUP/P, won with 487 points from 57 contacts, with G2BRS, *The P.D. Barrett Group*, second with 355/45. In the Single-op. 2m. part, G3NNG won, 358/54, while ON7CB was second with 316/31. The *Ealing* lads also won the 70cm. Multi-op. contest as GW8UUP/P, 128/18 with the *Worthing and District ARS* in second place, 51/15. The Single-op. winner was again G3NNG, 80/16, with G4NQC runner up, 34/8. In the two 23cm. sections, there were only two entries each and yet again, the *Ealing* folk won, with the G3WOH group second, while G3NNG won the Single-op. part with G4NQC second.

The next contest in the calendar is the 432 MHz QRP event on July 31, from 0900 to 1700 GMT, QRP being 15w output. This is a two section affair, fixed station and all other. The 70 MHz Trophy and S.W.L. contest is on Aug. 14, 0900-1700 GMT and is another two section event; fixed and all other. The 5th leg of the 10 GHz *Cumulatives* is on Aug. 21, 0900-2000 GMT, as is the 5th leg of the Microwave event which is for 5.7 GHz operation.

DX Notes

Readers may recall that last year, GW3NYY and friends put on a very good show on MS and tropo from the rare XM square, using the special event callsign, GB2XM. The exercise will be repeated this year from XN square with the callsign, GB2XN between Aug. 6 and 14. Operation on 2m., 70cm. and 23cm. is planned with good gear. At weekends and for tropo operation, the QRGs will be 144.265 MHz and 432.215 MHz. MS skeds by prior arrangement, either over the 20m. VHF net with GW3NYY, or by letter to P.O. Box 21, Swansea, Wales, SA1 1ED. Walter can be reached over the telephone in the evenings on Swansea (0792) 201111.

Your scribe had a QSO with Leif Breie, LA9BM, recently and learned of some interesting *Perseids* activity from EV square by the club station LA8N. Skeds can be arranged via LA9FY. There will also be operation from FW square from LA8KV's portable QTH, he being one of

the operators of LA1K. Leif also mentioned operation from GA square by LA9MW, who has a good station.

By the time these words are read, G4RZI should be operating from the south part of Ireland until Aug. 11. He was due to be based in WM square till July 30, with operation likely one evening from WL. From July 31, he should be in VM with possible operation from VL, UL and UM. The QRG is 144.180 MHz from 1900 GMT and the equipment an FT-480R and 100w amplifier, plus an 8-ele. *Yagi* antenna.

The Scilly Isles do not have a resident VHF operator but G4SGK should be operating -/A from WJ09 till Aug. 14. The CW and SSB QRGs are 144.035 and 144.335 MHz respectively. This expedition would seem to be a replacement for the *Falcon Contest Group's* trip advised on page 255 last month. Chris Easton, G8TFI, and friends should be operating from various Scottish locations till Aug. 6 on 2m., 70cm. and 23cm. with good equipment. On each of the bands they will use .220 and use the 40m. band for U.K. talk-back. Main operation will be from XO square but they may go to other western Scottish squares and return via some of the rarer English counties.

Another GM-bound traveller is Geoff Toulalan, GW8AAP, (Clwyd). On the way he plans to operate from AN square in the 70cm. contest on July 31, staying there the next couple of days. On the 3rd and 4th of August, he will be in ZP square, then from the 5th through 8th at YQ64; on the 9th and 10th in XQ80, and in YP on the 11th and 12th. Geoff will be on 70cm. with 100w output and *may* take 23cm. gear too, if he can finish a couple of 38-ele. Quad loops in time. Operation from 1830 GMT is envisaged until everyone has been worked!

Use and Lose

Some readers will be aware of the serious situation in Belgium concerning the fate of the UHF bands. Your scribe was first made aware that something nasty was afoot from rumours being discussed on 2m. at the beginning of July. Further details were communicated by Paul Whatton, G4DCV, after which the full story — more-or-less — was pieced together.

It seems to have started on June 24 when four U.B.A. representatives were at a meeting with the licensing authorities. They were shattered to learn that it was proposed to withdraw all but the 434-438 MHz part of the 70cm. band, and to take away *all* amateur bands from 1.24 to 5.85 GHz. It is possible that "the Military" are behind this outrageous proposal which appears to be at odds with the International Radio Regulations. Following the W.A.R.C. 1979 conference in Geneva, in Region 1 the band 430 to 440 MHz was allocated to Amateur and Radiolocation on an equal, shared basis.

As usual though, many administrations added footnotes which, in the case of the U.K., for example, demoted the Amateur Service to that of a secondary user.

From a perusal of these Regulations, no reference can be found to any footnotes added by the Belgian authorities in relation to the 70cm. band. Thus it would seem that the Belgian government could be acting illegally under international law. Naturally this proposal has galvanised Belgian amateurs into vigorous opposition and no doubt the U.B.A. will use all legal means to challenge this act. What has, understandably, incensed Belgian VHF-ers even more, is that it was proposed to bring these severe restrictions into law by July 15, leaving no time for them to prepare a case for a fight. Furthermore, this is being done just before the summer vacation season — a favourite ploy by governments who seek to push through contentious legislation with as little opposition as possible.

This is a very serious matter since, if the Belgian authorities get away with it, then those in other western European and NATO countries might consider the same trick if faced with demands for more UHF allocations. Another blow is a power limit of 30 watts on the remaining part of the 70cm. band, and on 2m. there were to be power restrictions, thus rubbing further salt into the wounds.

Thanks are due to Walter Vinken, ON5NY, who took time off from working the DX on the night of July 11, to explain to your scribe and to John Nelson, G4FRX, Assistant General Manager of the RSGB, exactly what had so far occurred, as gleaned from correspondence sent by the U.B.A. to its members.

VHF NFD

The main features about this year's VHF NFD on the July 2/3 weekend were the superb weather in the central and southern parts of the realm, and the very long distance E's contacts made by many participants on the 2m. band. It is some time since David Whitaker, BRS 25429, (N. Yorks.) wrote, and he heard UC2ABT (NN18a) at 1914 on the 2nd at S8 trying to attract the attention of a local station. It later transpired that G4CDC/P, while working a local in Grimsby, was being called by a UA3 in SN03a: goodbye to 93 points!

On the Saturday evening, the 2m. station G4BWG/P, in Sheppey, Kent, were heard working many Russian and Balkan stations on CW, including PK and RI squares. They were part of the *Combined Sheppey Contest Group*, an amalgam of the *South Bucks. Contest Group*, the *Malvern Hills Group* and the *SOCOM Group*, and making over 900 QSOs. The 4m. station was G4BVY/P, which made nearly 200 contacts in difficult conditions on the Saturday night due to the tremendous East European BC QRM.

The 70cm. station, G8TFI/P, was that of Chris Easton and which had 430 QSOs in above average tropo. conditions. On the morning of the 3rd, many Germans in EN and FN were worked with an anticipated points total around 5,000. The 23cm. call was G4NXO/P, the station running 150w to 8 x 23-ele. Yagis. In the 130 contacts, about half were with continentals around the 500 kms. DX and GM4BYF/P (XO) was also worked. G8TFI supplied the foregoing notes and offers grateful thanks to the local *Swale Radio Club* and to John, G4RZP, and Jacky, G8RZO, Brakespear for their encouragement.

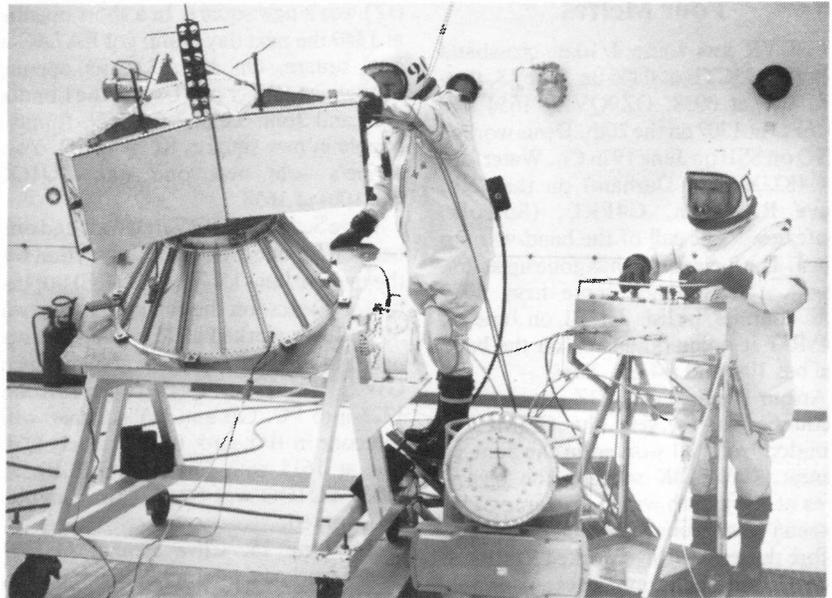
Denis Jones, G3UVR, (Wirral) now seems quite unstoppable in the Annual Table. His NFD contacts from home on 4m. included 10 new 1983 counties, while 2m. yielded three, including EI7DJ/P (Co. Cork) in WL sq. on the 3rd. Three more were added on 70cm.

Jon Stow, G4MCU, (Essex) makes the valid point that the *E's* in NFD caught many inexperienced portable station operators quite unaware; they seemed to have little appreciation of the fleeting nature of these QSOs. He also suggests that to have NFD in the middle of the *E's* season may not be a very good idea when one considers the BC QRM on 4m. He reckons that if ZB2BL had been on, he would not have been heard through the racket. On the other hand, many participants no doubt feel this is all part of the fun and challenge of the event. Anyway, Jon did contact UC2AAB (NN) on SSB at 1656 on the 2nd for a new square, and EI7DJ/P later on 2m.

Adrian Chamberlain, G4ROA, (Coventry) found three new 1983 counties in NFD on 70cm. in GM4DIJ/P, (Dumf.), G4PUL/P (Shrops.) and G3RAF/P (Somerset), and on 23cm. G3VCT/P (Oxon.), G3WOH/P (Staffs.), G3NNG/P (Wilts.) and GW3WDG/P (Clwyd). Andy Renouf, GJ8SBT, monitored 23cm. during NFD and made nine QSOs. Signals were strong when stations were occasionally beaming to Jersey.

Six Metres

The big news this month is the transatlantic, two-way QSOs which occurred on June 19. First to "make the trip" was GU2HML at 2230, who worked CZ1YX who peaked some 30 dB over S9, followed by CZ1BNN three minutes later. CZ1YX next worked G5KW at 2238 and GJ3RAX at 2240, then GW3LDH and GI3ZSC. Ken Ellis, G5KW, then worked CZ1BNN at 2310 and CZ1YX again at 2312. Ken's signals were heard by CT2EE on 50.1 MHz at 2312. (The CZ prefix was a special one for the Royal visit to Canada). GW3LDH also worked KITOL this night on CW. Before the magic open-up time of 2230, GU2HML had a crossband 10/6m. QSO with W2CAP/1 and it must have been a nail-biting situation hoping that



This photograph, taken by DJ5KQ/FY0ESA, shows the Phase III-B spacecraft under final tests prior to its launch as AMSAT *Oscar-10* from French Guiana on June 16th.

photo: Pat Gowen, G3IOR

propagation would hold up after 2230. The three North American stations also copied the GB3SIX beacon so knew there was a good chance of success.

The propagation mode is open to conjecture. As G5KW suggests, it could be a mixture of extended *E's* and ducting due to temperature inversion in the stable, hot weather conditions. But as Ken wrote, whatever mode(s), it was an effective answer to those who reckoned 50 MHz would be useless after TV hours.

On June 20, Icelandic TV in Band 1 was very strong *via E's* and at 2232, G5KW worked TF1T. Next to work the TF were GU2HML and GW4HXO, all these QSOs being claimed as "firsts" with Iceland on 50 MHz from the British Isles. Earlier that day, between 0645 and 0730 GMT, several British 6m. operators worked CT1WB (VB) crossband 6/10m.. At this time GB3SIX, which beams west from Anglesey, was copied *via* backscatter by G4IJE (Essex) and others at a QTF between 190 and 250° for some time.

G5KW reports consistent reception of ZB2VHF most every day in June. On the 22nd, Ken had a crossband 10/6m. QSO with ZB2BL in the evening, followed by a two-way one at 2230, both stations reporting S9-plus-20 dB signals on their *Icom* IC-551 transceivers. Other crossband contacts by G5KW were OZ9QV at 0420 and I5CTE at 0718 on June 18; SM6PU at 0700 on the 19th, and TF1T at 2015 on the 20th.

It was a tale of woe for Brian Bower, G3COJ, (Bucks.) on the 19th. He heard

CZ1YX who heard him but then, before a QSO could be completed, a couple of electrolytics in Brian's Tx PSU exploded, filled the shack with steam and pong, no doubt, thus abruptly ending procedures! On July 7, with the 6m. TX working again, Brian had crossband QSOs with SM6PU and OZ9QV between 0522 and 0554. Steve Richardson, G4JCC, (Hants.) reports reception of the Cyprus beacon 5B4CY (QU14g) on 50.501 MHz between June 6 and 18.

G3UVR listens on 6m. and on July 1, for 15 mins. from 1755, Denis heard WA1OUB calling "CQ crossband" on 50.1 MHz on CW at S7. Later that night, TF1T was S9-plus with his 10w. Paul Turner, G4IJE, reports a crossband MS QSO with EA3LL on July 7 on 6/2m. at 0600. it was completed in half an hour and José gave Paul his first ever "57" report after receiving a three *minutes* burst. On the 9th Paul worked YU3ES the same mode and got a "27" report.

Terry Hackwill, G4MUT, (Bucks.) has built a *Wood and Douglas* 6m. converter and will be looking for 6/4m. crossband contacts, using a 50 MHz dipole antenna. Dave Lewis, GW4HBK (Gwent) worked ZB2BL at 2234 on June 3, and again on the 17th, 19th and 20th. CT1WB was contacted crossband 6/10m. at 0655 on the 20th. TF1T was copied at S3 on July 2 and called on 10m. without success, but Dave worked G4BAO for the first time at 0725 on July 4. Another reader who will have 50 MHz receive capability soon is Kevin Piper, G8TGM.

Four Metres

G3UVR lists some 4/10m. crossband contacts; I5CTE at 0805 on June 18, then CT1WW at 0958, OZ9QV at 1654 and SM6PU at 1707 on the 20th. Denis worked EI9Q on SSB on June 19 in Co. Waterford a G4KUX (Co. Durham) on the 26th. Dave Robinson, G4FRE, (Suffolk) confesses, "The call of the band was too much. The 3-ele. beam has gone up at 8m. again..." Amongst some new, 1983 U.K. counties, he lists ZB2BL on June 18. G4MUT is doing quite well on the band and has 10w and a 4-ele. *Yagi*.

Arthur Breese, GD2HDZ, lists another 8 counties for the year plus GI4MFT/P (Londonderry) all worked in the June 12 contest. GW4HBK suggests the biggest news of the month was the collapse of his antenna mast on June 23! However, before this event, Dave worked ZB2BL at 1816 on June 3 at S9 both ways and on July 4, using a 4-ele. *Yagi* at 8ft., he worked SM6PU who was on 10m. An odd QSO on the 17th was G4JRN in Portland Bill Lighthouse.

Two Metres

First, the *Sporadic E* reports. This mode was recorded on June 6, 7, 10, 15 to 18, 20 to 22, July 2, 3, 7 and 8, *i.e.* on 14 days out of 32 days in the British Isles. Many of the events were the result of E-layer ionisation only just sufficient to refract 144 MHz signals back to the ground. Consequently, there was a lack of very strong signals from nearer distances, but more opportunity to work really distant stations up to 2,500 kms. away, in some cases.

David Whitaker caught the final half hour of the June 15 opening and logged IW9AMX (HY67b), IW9AIG (GY67d), IW8PCW (HY79a) and IC8EGJ (HA32g). Also heard were IW0BJF, LZ2VR and I0KHV. The same day, John Heys, G3BDQ, (E. Sussex) worked SV4LD (LZ), SV3QD (LY), IK0BRC (FC), IW9AOR and I8YZO in HY and IC8EGJ between 1500 and 1710. On July 8, he worked UB5GBY (QG24f) at 1515 and John reports that on July 2, the Hungarian stations were working into Spain.

In the opening to the Mediterranean on June 7, Roger Thorn, G3CHN, (Devon) worked nine different Maltese stations, including 9H4P on Gozo Is. (HW). A Sicilian in GX provided another new square. On June 22, between 1715 and 1800, two LZs in MD and four YUs were worked, with JE and KC two more new squares. EA7 and EA8 were heard in the southwest on July 7. G3COJ heard CT1AYC (VY24g), CT1BYL ? and CT1ALF (VZ45) between 1850 and 1855, and at 2015, I0SNY/EA9 (XV04e) was heard very briefly.

John Hunter, G3IMV, (Bucks.) managed five 9Hs and 16 Italians in the 8, 9, 0 districts in the June 15 event. I8TUS

(IZ) was a new square. In a short opening at 1340 the next day, John got EA7AG in YW square. On June 22, the opening brought a number of YUs into the London area and John Tindle, G3JXN, found a couple in new squares KC and KD. Your scribe's sole new one was YU100 (KC10b) at 1658.

Dave Sellars, G3PBV, (Devon) had only been on for one event up to July 5, that was the one on June 15. YU1EU (KE) popped up for 30 secs. on the calling frequency at S9 and was worked at 1505. EA6LQ was heard at 1519 for a minute at S3 calling a GW. The main part was between 1610 and 1725 into FC, GB and HY squares, with someone in IB heard, too. The only QSO was at 1615 with IW0BOS/0 (GB). At 2033, YU100 was S9-plus for a minute and worked.

On June 15, Clive Penna, G3POI, (Kent) worked a number of 9Hs including 9H4P, and LZ2QA (OD) for two more new squares. I, IT9 and YU were also contacted. Clive mentioned that G3NSM heard RO5OAA (OF) in this event. In an opening to the Ukraine on July 8, Clive got UB5EFS (RI33j) his first G contact; on the VHF net he said he was only using *five* watts to a pair of 16-ele. *Yagis*. UT5BN (PK43e) and UK5HAG (RJ) were also worked. Gordon Higgins, G3PXT, (Norwich) who used to be G8HWD, worked IS0 and F0HI/FC on the 15th and some YUs on the 22nd.

G3UVR missed most of the June 15 affair but did get I8MSY and I8WY in HA square. Peter Atkins, G4DOL, (Dorset) caught the pre-NFD opening from 1020 on July 2 worked 9H1s BT, ED, B, FL, CG and GK within 26 mins. I8TUS (IZ) was worked at 1135. Beacon IT9G was heard at 1140 but with rapid flutter fading. John Cleaton, G4GHA, (Dorset) managed to get 9H1BT and 9H1FX and IT9VZS (GY) on June 7, but lost three others due to deep fading. G4IJE got country no. 53 on July 7 when he caught I0SNY/EA9 and the next day, Paul heard UB5EFS and worked UT5BN and UB5PAZ (ML73a). G4MCU worked 9H1GK at 1042 on July 2 but missed all the other events.

G4MUT heard only southern Italians on June 15 and had a QSO with IW9AIG at 1619. The next day Terry got EA7AG at 1342, even though ZB2VHF on 70 MHz was inaudible from the next square. Roger Greengrass, G4NRG, (Essex) lists IT9IHS (GY) and IW9AIG, 9H1s BT and ES on June 15. David Dibley, G4RGK, (Bucks.) was in the shack waiting for the June 15 event to reach 2m. He heard G3BDQ working the Greeks which were inaudible in Marlow. At 1600, three 9Hs were worked in quick succession, followed by IW9ABZ (GY) and I8REK (HA) but by 1700, he had had enough!

Martyn Jones, G4TIF, (Warks.) got IC8EGO (HA) on the 15th and EA7AG the next day. On the 22nd, a "CQ" call at 1635 was answered by YU2KDE (JF) and

QTH LOCATOR SQUARES TABLE

Station	23cm.	70cm.	2m.	Total
G3POI	—	—	404	404
G3IMV	—	71	329	400
OZ1EKI	—	101	314	415
DK3UJ	—	—	311	311
G3VYF	—	117	307	424
G4IJE	—	—	307	307
SP2DX	—	—	280	280
EA3LL	—	30	261	291
G4IGO	—	19	246	265
G4ERG	—	16	243	259
G4DEZ	—	—	240	240
G3CHN	—	—	229	229
G8VR	2	3	228	233
GJ4ICD	1	103	225	329
9H1BT	—	11	210	221
G3BW	6	36	204	246
LA8AK	25	62	200	287
GM4COK	—	26	194	220
G3FFK	—	—	194	194
G3KEQ	—	—	194	194
GW4EAI	—	—	192	192
GJ8KNV	12	76	191	279
G3UVR	—	59	187	246
GW3NYY	—	48	185	233
G8KBQ	4	91	172	267
GJ8SBT	7	—	168	175
G4MCU	—	54	167	221
G4PCI	—	28	167	195
G3PBV	18	86	165	269
G4OAE	—	28	165	193
GM4CXP	—	26	163	189
G6ECM	—	—	159	159
G8LFB	—	—	158	158
G3JXN	60	100	157	317
G3COJ	37	87	154	278
G4TIF	—	66	153	219
G4AWU	—	50	150	200
G8RZ0	—	75	148	223
G4RZP	—	76	147	223
G4HMF	2	35	144	181
G8TGM	—	—	144	144
G4NQC	24	47	142	213
G4JZF	—	68	140	208
G8WPD	—	24	139	163
GM4IPK	—	—	139	139
G4NFD	—	36	138	174
G8HHI	12	70	133	215
G4ERX	7	61	132	200
G3XDY	30	86	131	247
G6ADH	—	29	131	160
G8ATK	15	81	129	225
G3NAQ	—	58	128	186
G6DDK	2	13	127	142
G6HKS	—	—	127	127
G8TFJ	28	104	126	258
G2AXI	9	76	121	206
GM80EG	—	—	115	115
G8XIR	—	—	115	115
G4MEJ	—	—	114	114
G4STO	20	44	113	177
G4NQX	—	47	113	160
G8PNN	30	71	111	212
G4MJC	—	12	108	120
G8ULU	12	68	107	187
G4HFO	—	60	106	166
G4KUX	—	30	105	135
G4GHA	—	2	105	107
G8VFF	—	—	97	97
GW8UCQ	1	38	96	135
G4MWD	—	—	95	95
G4NBS	13	75	92	180
G3FJ	—	29	92	121
GD2HDZ	13	46	91	150
G6HKT	—	60	89	149
G6DER	8	44	88	140
G4MUT	—	57	87	144
G6JNS	—	3	84	87
GW4TTU	—	2	84	86
G8RWG	—	—	84	84
G8SRL	—	21	83	104
G8KAX	17	57	82	156
G4TJX	—	39	82	121
G8FUO	3	86	80	169
G6ABB	—	—	80	80
G8WPL	—	30	79	109
GW3CBY	5	16	79	100
G8XQS	—	4	76	80
G8FMK	21	59	74	154
G4RSN	2	21	74	97
G8WUU	—	27	72	99
G6ADE	—	64	70	134
G4RGK	—	19	70	89
G6ELQ	—	—	69	69
G4NRG	—	14	68	82
G6HTJ	—	17	66	83
G6DFT	—	—	66	66
G4PEM	—	—	63	63
G6CNX	—	—	63	63
G8XMP	—	—	62	62
G4ROA	13	50	60	123
G8ZYL	—	—	54	54
G8XTJ	—	—	54	54
GM8BDX	—	33	53	86
G4FRX	—	15	45	60
G6HRI	—	14	41	55
G4FRE	15	67	24	106
G4BVY	9	72	—	81

Starting date January 1, 1975. No satellite or repeater QSOs. "Band of the Month" 2m.

later YU4BMN (JE) was worked. David Dodd, G6DOX, (Cumbria) heard a loud signal from HG8ET at 1745 on June 17. At 1705 on the 21st, HG6NP (JI) and OK2KK (IJ) were worked. Mick Cuckoo, G6EGM, (Kent) lists 12 assorted 9Hs and Italians worked on June 15 in GB, HA, HV, HX, HY and GY squares and three more Maltese on the 17th, followed by two more on the 20th. On the 22nd, he worked LZ2AR (LD) and 13 YUs in JC, JE, JF, KC, KD and KE.

Richard Mason, G6HKS, (Cambs.) is one of several new contributors this month and he lists ten assorted Maltese and Italians worked on the 15th between 1610 and 1727. This was his first E's experience. On the 22nd, three YUs were contacted, including YU6ZAH (JC47h) at 1717. G6HRI worked IC8EGJ at 1727 on June 15, a QRB of 1,949 kms. from Blackpool, while on the 17th OK1KPU (HK) was heard. On the 15th, G6TTU heard stations from GY, HA, HV and HY and worked IW0BFZ (GB). Tim could not get through the pile-up to 9H1BT, though.

G8TGM caught six of the openings and had 33 QSOs in nine new squares. On June 7, only the Icelandic TV test card was coming through on Band 1 and E's possibilities seemed remote on 2m. Then, at 1420, 9H1FBs appeared, after which seven more IT9s and 9Hs were worked up to 1500. Kevin mentioned that Mike Chace, G6DHU, worked 9H1BT with a C-58 transceiver and 9-ele. Yagi. More Italians were worked on the 15th from 1651 to 1710 and a brief event on the 17th brought three 9H1s, with a repeat performance on the 20th. On the 22nd from 1658 to 1728, 11 YUs were contacted. On July 2, at 1135, I8TUS was another new one from IZ52f. On July 7, CT1ALF was literally "end-stop" on Kevin's S-meter for 25 mins. from 1840, but was such a poor operator that he only made about four contacts. At G3FPK, he was RS29, and had dreadfully over-processed audio. CT1AYC was also heard from 1845. At 2007, I0SNY/EA9 was worked, followed by EA7BVD (XX07f).

Chris Janes, G8KMT, (Beds.) uses a Belcom Liner-2 and MM 30w. amplifier with a 9-ele. Yagi at 35ft. He worked into YU on June 22. Jim Rabbits, G8LFB, (London) worked 9H1BT on June 7, the two EA7s on the 16th and eight YUs on the 22nd, while July 2 brought 9H1GK at 1051. G8TFI caught the June 22 affair quite by chance and worked 13 YUs, including 4N4DN, in 7 new squares.

Peter Godfrey, G8ULU, (Kent) was QRV on June 6, 7, 20 and 22 and managed some of the 9H, IT9s and YUs already reported. Neil Clarke, G8VFN, (W. Yorks.) only heard the June 22 event but did not contact any YUs. GD2HDZ missed it all, too, but did hear a couple of OKs one day, who quickly faded. Andy Renouf, GJ8SBT, mentions working I6WJB (HC) and refers to TA3EAQ at a

ANNUAL VHF/UHF TABLE

January to December 1983

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		23 CENTIMETRES		TOTAL Points
	Counties	Countries	Counties	Countries	Counties	Countries	Counties	Countries	
G3UVR	55	7	85	24	60	14	—	—	245
G8TFI	—	—	58	16	60	15	23	7	179
G2AXI	24	3	51	14	33	8	6	2	133
G8FMK	—	—	43	8	36	8	29	4	128
G4MUT	29	4	46	13	29	6	—	—	127
G8PNN	—	—	49	13	35	11	9	7	124
G6DER	—	—	53	13	37	10	7	3	123
G4ROA	—	—	42	9	36	10	17	7	121
G4FRE	33	5	11	6	47	15	8	4	117
G8ULU	—	—	42	19	32	12	7	3	115
G4ARI	25	2	69	17	1	1	—	—	115
G6HRI	—	—	62	12	30	7	—	—	111
G3BW	15	5	43	10	24	5	—	—	102
GW8UCQ	—	—	50	12	26	8	1	1	98
G4FRX	—	—	54	13	26	4	—	—	97
GW3CBY	22	5	43	11	10	4	—	—	95
G4STO	—	—	39	12	27	4	9	4	95
G3FPK	—	—	74	20	—	—	—	—	94
G3PBV	3	1	27	15	28	10	9	4	93
G4NBS	12	1	28	8	33	11	—	—	93
GD2HDZ	31	4	20	9	21	7	2	2	92
G6ECM	—	—	67	25	—	—	—	—	92
G4DEZ	—	—	66	24	—	—	—	—	90
G3FIJ	17	1	39	10	18	2	—	—	87
G8KAX	—	—	31	9	35	8	—	—	83
GW4TTU	—	—	61	18	1	1	—	—	81
G6TTU	—	—	59	14	—	—	—	—	73
G8VFN	—	—	47	15	—	—	—	—	62
G8KMT	—	—	47	12	—	—	—	—	59
G8XTJ	—	—	46	9	—	—	—	—	55
G4NRG	4	1	29	11	3	2	—	—	50
G8RWG	—	—	42	8	—	—	—	—	50
G6HDD	—	—	37	10	—	—	—	—	47
G6PFR	—	—	37	8	—	—	—	—	45
GW4HKB	28	5	—	—	—	—	—	—	33
G4FKI	7	1	20	2	1	1	—	—	32
GM4CXP	—	—	18	12	—	—	—	—	30
GU4HUY	—	—	23	6	—	—	—	—	29
G2DHV	4	1	2	1	3	1	—	—	12

Three bands only count for points. Non-scoring figures in italics

time when French stations were working into Greece. Unfortunately, he did not date his letter so your scribe is at a loss.

Kelvin Weaver, GW4TTU, (Gwent) is ex-GW6JDK and made some Italian and YU contacts in the E's sessions on June 15 and 22. In a later inquest, some in the southwest think they heard 4X4 and 4X6 calls during the cacophony on the 22nd. What with Germans rumoured to have worked into Egypt, where will it all end?

Now the tropo. news, and there have been some fine manifestations via this mode, too. Starting with David Whitaker, he reckons the best lift was that to southern Scandinavia on June 24, when many OZs and SM6s were copied in Harrogate. An unusual one was PA3AGX/MM in BN square. In Devon, G3PBV heard little of the Scandinavian stuff but mentions reception of DL0PR on June 18 and 24 and of LA5XAA (CS) on the 20th. From G3UVRs list, there are EI5BLB in Galway on June 5, EI2BBB in Limerick on the 17th and EI5AOB in Roscommon on the 27th, while to the east, there is Y31QM/A (GL) on CW on the 18th. Ray Elliott, G4ERX, notes LA1BM (CT) for a new one on the 20th.

On the afternoon of the 21st, G3PXT reported OY portables 9A, 9D and 9JD

from WW76g very loud. F6FLB worked them at 2000. G4MCU lists some very nice DX such as GM3XOQ (ZT) and GM6JWR (YS) on the 21st, plus various Scandinavians and East Germans at other times. G4NRG worked into the "O" and "N" squares on the 17th and to OZ and SM on the 24th and 25th.

Rod Burman, G4RSN, wishes people would get through QSOs a bit quicker in lift conditions. This can be rather frustrating, but it must be realised that some operators are slick, two-a-minute QSO-ers, while others like to rag-chew. Congratulations to Pam Rose, ex-G8VRJ, now G4STO, from Lincoln. G4TIF worked into CS and CT squares on the 20th, into EP, ER, FQ, and GP on the 24th and Y22HA in GO on the 25th. Keith Hewitt, G6DER, (S. Yorks.) has got his act together again with a 14-ele. Yagi at 30ft.

G6ECM lists some "quality stuff" as usual, starting on June 7 with a couple of HB9s, followed by 5 LAs, 32 OZs and 3 SMs on the 18th. Y22IC in rare GN square was worked on the 19th and on the 21st, Mick's list includes GMs from the far north. More Scandinavian were netted on the 24th and 25th. Phil Ingham, G6HDD, had a bit of time available following a knee

operation, and mentions a French station in AK worked from Bolton on June 6. G6HKS reports similar openings to OZ, LA, SM and D as did G6ECM.

G6HRI went out portable in YO sq. on June 6 and enjoyed some pile-ups to the southeast from 2010. Welcome to Keith Hayward, G6PFR, (Beds.) who runs an Icom IC-251E with *muTek* board, and a 6-ele. *Quad*. He worked into OZ and SM on June 24/25 and took part in the WAB Contest on the 26th. G6TTU found conditions exceptional the morning of the 25th and did not get to bed till 0200 due to working into OZ, SM and northern D.

G8LFB comments that the June 18/19 event was very typical of previous openings to the NE — very strong signals to the "F" squares, but little beyond, but with DL0PR "end stop." OZ7IGY and Y41B beacons were respectable, too, the latter lasting longest. SK6VHF was audible. On the 21st, when the whole of eastern U.K. was trying to work 4 LAs, Jim finally worked LA1BM (CT) at 0013. Although Y35YC (HN) was contacted on the 26th, no Polish beacon or stations were heard.

Glyn Watson, G8UHV, (Sheffield) is another new contributor and tried some real QRP on June 20. Using a *Mizuho* MX-2 at 150 milliwatts and a 4-ele. *Quad*, he worked PA0OOM (DN74g) and got an S4 report. G8VVF's best DX on June 24 was SM7AED (GQ). Neil analyses weather data and says that at 0300 on the 25th, ground temperature was 6°C rising to 13°C at 1,300ft., then dropping to 5°C at 5,000ft.

Seventy Centimetres

The tropo. openings that provided fine opportunities for DX on 2m. also applied to 70cm. and on June 20, a couple of LAs gave G3JXN his 100th square. The same day, John Neal, G4NQC, (London) worked into EQ and ER and heard SM6GWA (FS) who was running just 2½w to a 23-ele. antenna. The next night John got GM5DTB (ZR). G3UVR has been steadily adding to his score, picking up 13 new squares in the process in the various openings. In the period June 18-20, G4ERX added eight.

Ringed heavily in red on G4FRE's letter is OY9JD/P (WW) on the 21st, while in the preceding days, Dave got his share of OZs, Ds, PAs and LA. From Dorset, G4GHA is now QRV on the band. G4MCU got four new squares in the June 18-20 openings, DC6ZZ/M (EO), DC2XK (EN), OZ1CFO (ER) and LA8AE (FT) which was a new country, too. He could not raise GM5DTB on the 21st, though.

G4ROA added five more squares in this period, too and is pleased with the difference his new *H-100* feeder has made.

G4TIF concentrated on 70cm. on the 18th and lists nine PA and D stations worked in the M, N and O line of squares. G6DER now has a 21-ele. *Tonna* antenna aloft at 36ft. but says, "Everything is still very temporary." From Kent, G8ULU lists G4JHV (Cumbria) on June 6, SM6GWA and OZ1DPR (EP) on the 18th, more OZs and LA8AK (DS) on the 20th, plus G8PNN (Northumberland) "at last" in ZP. Said G8PNN mentions Fife, GM8XZY, worked on June 6, and OZ1FEF, then SM6HGY the next day.

Gigahertz Bands

G3JXN added LA8AE (FT) and an OZ in FQ on June 20, so now has 60 sq. on 23cm., a fine achievement. G3PBV uses a *Trio* TS-120V to drive his transverter. Dave has modified a *UPX-6* cavity, has built the PSU and control unit, so should have 30w. on 23cm. now. During NFD, he worked GU3KFN/P on Sark. Angus McKenzie, G3OSS, has worked G4RCD, the son of G3JYP, in Cumbria on the 25th. G4RCD was running 1½w.

John Tye, G4BYV, (Norfolk) reports that SM6HYG has permission to use 9cm., the only Swede so allowed. LA8AK has a permit for 13cm. On June 18/19, the SM6 was S9 on 13cm. and could just find John on 9cm. but cannot yet transmit on that band. G4BYV has worked DF9LN (FO) at 622.5 kms., and DC9XG (EN) at 558 kms. on 9cm. and heard his first 6cm. signal from DC9XG. John has a 6ft. dish with a DL7QY 1-12 GHz feed system. He reports that G8EUQ and G8ADC, both in Luton, worked DB4LT (EO) on 13cm. and that G4LRT in Northants. was hearing DC9XG on 9cm. and had a two-way with him on 13cm. In a later note, G4BYV says that SM6HYG has his Tx going now and has worked PA0CRA on 9cm. and 6cm. being the first SM/PA and best DX on these bands.

G4FRE has 5w. a 26-ele. *Q-L-Y* and MGF1400 preamp. on 23cm. and lists some OZ, D, and PA contacts in the 18/19 lift, and PE1CHQ (DN) again on the 25th. On 13cm. Dave has 300mw, with a 42-ele. *Q-L-Y* and MGF1400. On the 18th, he got G4LRT (ZM) and DF9LN (FO) and now has 5 sq. on the band. G4NQC is going great guns on 23cm. and on June 18/19 worked into CL, CN, DM, EM, EO and FO sq. On the 20th, John worked an OZ in EQ and heard an SM.

G4ROA was "very impressed" with 23cm. in the lift periods, his one watt bringing three new countries and four

more squares, in PA, DL, ON and GW. G6DER has a 23-ele. *Tonna* beam at 40ft. from his Barnsley QTH. Mike Harsey, G8ATK, (Surrey) is building for 13cm. He says that Cyril James, G3VVB, at St. Austell, in Cornwall, has a couple of 3cm. transceivers. G8PNN is a sought-after chap in ZP and Northumberland on 23cm. Gordon's June successes include Kent, Suffolk and Cumbria QSOs.

On June 19, G8TFI worked PA0FRE on 23cm. for his first outside-G QSO, and followed with another 11 PAs who were in a contest at the time. Chris runs 80w. now and gets replies from "locals" in London to his "CQ" calls. G8ULU took advantage of the German contest on the 18th and worked a number of them on 23cm. with his one watt. GJ8SBT should have 100w and two 45-ele. loop *Yagis* on 23cm. by the time this appears. Andy promises to be very active in the band now.

GW8AAP in Prestatyn, N. Wales has worked those friendly rivals, G3BW and GD2HDZ on 23cm. on the 22nd and 24th respectively. Geoff has 25-30w of RF available from a newly completed amplifier.

Late News

At 2232 on July 11, the rocket motor on *Oscar-10* was fired for 190 seconds, much longer than planned. The parameters of the new orbit were: inclination 26.4°, *apogee* 35535 km., *perigee* 3920 km. and period 699.54 minutes. A second firing was expected about July 19 when it was hoped to place the spacecraft into the originally planned orbit.

Neil Montanana, G8RWG, is contemplating publishing a quarterly journal aimed at VHF/UHF DX-ers. Contact him at 324 Yorktown Road, College Town, Camberley, Surrey, GU15 4PZ, for details.

Deadlines

A mammoth production this month. All your news, etc., for September by Aug. 3 please, and for the next issue, by Sept. 7. Send it to;— "VHF Bands," SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts., AL6 9EQ.
73 de G3FPK.

Stop Press

G3CHN has advised of a Spanish SSB contest on 2m. on Aug. 6/7 and of an FM one on Aug. 27/28, but no times mentioned. G6ECM says that OZ1DOQ/MM will be QRV from DP, from 1200 on Aug. 22, and later in CQ, BR, AS, ZT, YU and XV on the 23rd.

Orders sent to "Short Wave Magazine" Publications Dept.
are despatched by return of post.

THE "WHITFIELD" SSB/CW/QSK TRANSCEIVER, PART VI

CONCLUDING THIS EASY-TO-BUILD,
5 WATTS OUTPUT, MODERN DESIGN
COVERING 160 METRES, 80 METRES,
AND 3—3.5 MHz

IAN KEYSER, G3ROO

THIS month we complete the "Whitfield", having only to cover the TRx control PCB, the optional RF amplifier, a few odds and ends such as the RF attenuator and rounding-off with operating hints on QRP.

We start with the RF amplifier. This is a purely optional item and does nothing to help the rig's performance after dark — in fact it could, under the very heavy European QRM in the south, increase the chances of cross-modulation and so be a hindrance. The reason why I have included it is that a large number of LF band operators are only active during the daytime and the noise floor at this time can be so low that an RF amplifier may play a useful role.

**Table of Values
Fig. 25**

R8001 = 470K, ¼W	C8003 = 15pF disc ceramic
R8002 = 47K, ¼W	Q8001 = 40673, or similar
R8003 = 22K, ¼W	Mosfet
R8004 = 470R, ¼W	RFC8001 = 1mH RF choke,
RV8001 = 10K min. preset	Siemens 378108 (<i>Ambit</i>
C8001, C8002, C8004 = 0.01	35-71105)
µF, disc ceramic	

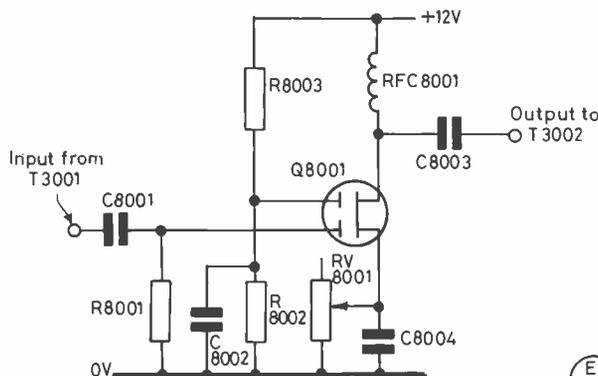


Fig. 25 OPTIONAL RF AMPLIFIER

E 103

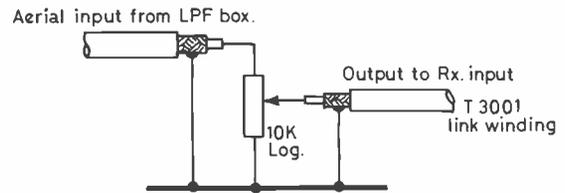


Fig. 26 SIMPLE RF ATTENUATOR

E 104

The RF Amplifier

The circuit is given in Fig. 25. This PCB can be mounted above the wavechange switch on wire feet from the capacitor frame; the wires to the switch wafers support the other end of the board. It is used to replace C3001 and C3002 which are for top coupling between T3001 and T3002. The signal from the input tuned circuit (T3001) is fed to gate 1 of Q8001. The preset resistor in the source governs the gain of the stage and is set to suit the operator. R8001 and R8002 set the gate 2 bias and C8002 is to decouple this point. In the drain circuit, RFC8001 is used as the load and C8003 as the DC block capacitor and coupling to T3002; the value of C8003 is only 15pF, the reason for this being that the output impedance of the amplifier is only moderate and the input impedance of the transformer is high, so keeping the value low reduces the loading on the tuned circuit and helps to maintain a fairly high 'Q'.

A simple input attenuator is used in the aerial input rather than adjusting the gain of this stage, and the circuit of this is given in Fig. 26.

TRx Control PCB

This circuit is based on a circuit by Ian, G3RVM, who designed it to enable Yaesu equipment to be run full QSK. The circuit is given in Fig. 27 and the waveforms within the circuit in Fig. 28. I will describe the action of the circuit with reference to these drawings.

When the key or p-t-t switch is activated, pins 1 and 13 of IC7001 are reduced to a low state making pins 2 and 12 go high. Pin 12, via Q6001, energises the aerial relay changing the aerial from the receiver to the transmitter, supplies bias to the PA, and shifts the VFO if the IRT is in use; pin 2 going high charges C7002 via R7002, but due to the time constant inverter IC7001b will not change state immediately, but some milliseconds later. R7003 and C7003 have the same effect on IC7001c, but in this case it is the discharge of C7003 as the output of IC7001c goes from high to low state. The sum of these two delays means that pin 4 will go high about ten milliseconds after key down. At this point in the circuit two things happen: we charge the hang circuit and enable the



"The Whitfield"

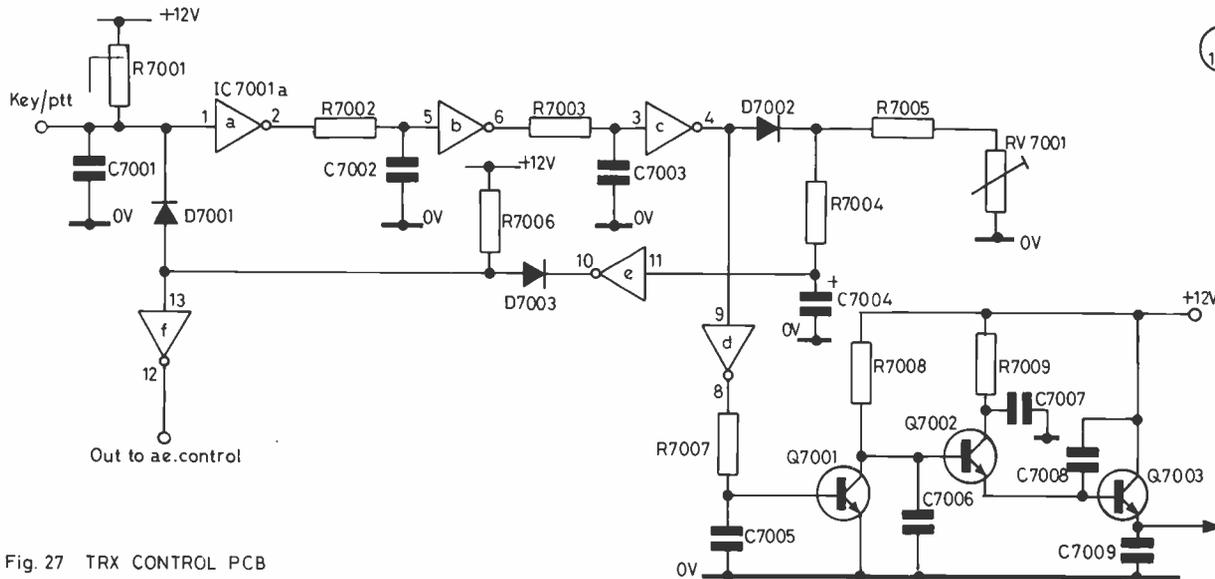


Fig. 27 TRX CONTROL PCB

shaped keyed +12V circuit which feeds the Tx mixer and tuned amplifier.

Firstly we will cover the hang circuit. Pin 4 going high charges C7004 via D7002 and R7004. At the end of the dot period pin 4 goes low and C7004, having to discharge (which cannot do so via

Table of Values
Fig. 27

R7001, R7006 = 47K, ¼ W	C7002, C7003 = 0.33µF, C280
R7002, R7003 = 22K, ¼ W	C7004, C7008 = 1 µF, elec.
R7005, R7007 = 10K, ¼ W	C7006, C7009 = 2.2 µF, elec.
R7004, R7009 = 1K, ¼ W	D7001, D7002, D7003 = 1N4148
R7008 = 2K2, ¼ W	Q7001, Q7002 = BC107
RV7001 = 470K min. preset	Q7003 = BFY50
C7001, C7005, C7007 = 0.01 µF, d/c	IC7001 = 4069

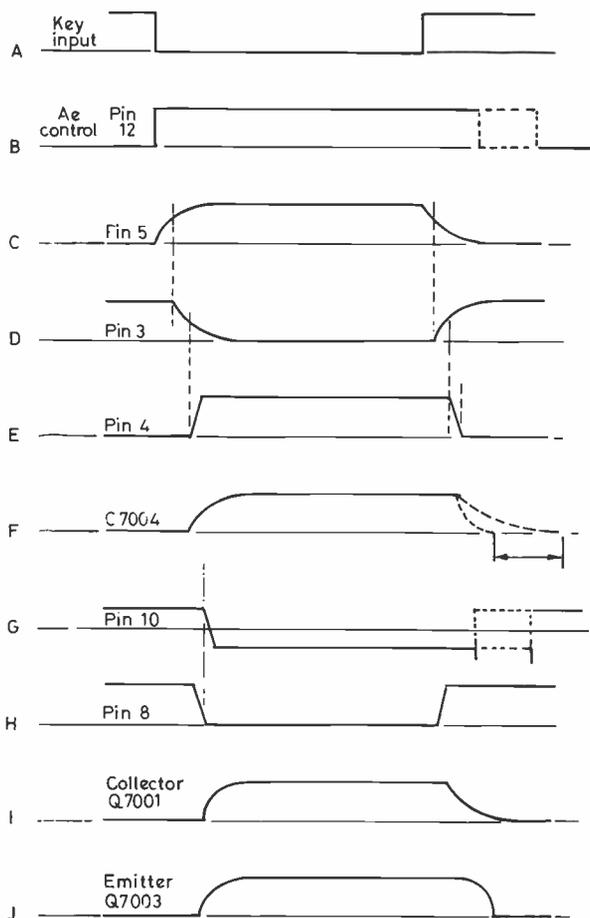


Fig. 28. ACTION OF CONTROL PCB ?

D7002 as it is back-biased), discharges via R7004, R7005 and RV7001. By altering the value of RV7001 the discharge time, and hence the hang time, is varied. Now cast back to the time of the end of the dot period: at this point pin 13 would like to go to a high state as the key is lifted, but C7004 is charged — holding pin 11 high, so holding pin 13 low via inverter IC7001e and D7003; D7001 allows this to happen without pulling the key input on pin 1 low. This state will hold until C7004 has discharged sufficiently to allow IC7001e to change state, so creating the 'hang'. As this circuit is adjusted for a very short hang time it is possible to use the same circuit on SSB as the delay is not noticeable.

Now to cover the shaped keyed supply. On key down there is a slight delay before pin 4 goes high; when this happens pin 8 goes low, turning off Q7001 and allowing C7006 to charge to full supply potential via R7008. This shapes the leading edge of the keyed supply. When the base of Q7001 goes high at the end of the dot, Q7001 turns on thereby discharging C7006 and reducing the potential on the base of Q7002 to zero. This means that the emitter of Q7002 tries to reduce to zero, but there is no charge in C7008, the charging of this capacitor shapes the trailing edge. There is a small problem here as there is a slight step in the curve and C7009 is included to remove this and decouple the supply line. It is important to note that there is no current limiting in this circuit and if the output of Q7003 is shorted to ground it is almost certain that this transistor will need replacing!

The Power Supply

At first there was not going to be a PSU in the "Whitfield", but two things changed that decision. Firstly it was discovered that it was not possible to get more than four watts from the PA with

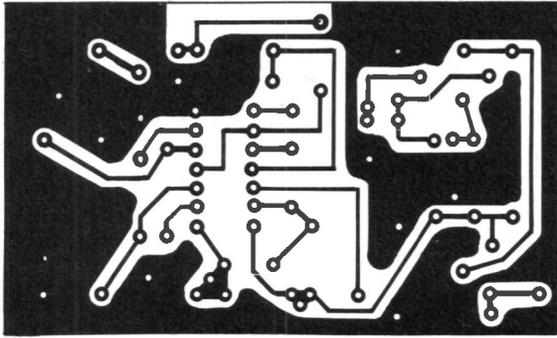


Fig. 29 TRX PCB - FOIL SIDE

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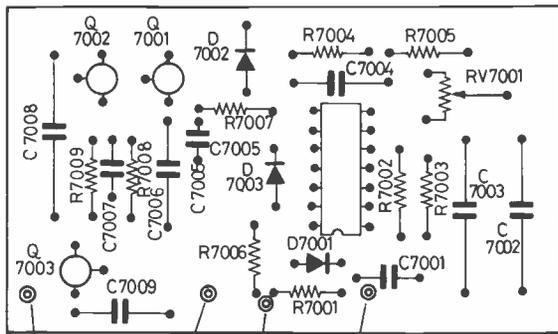


Fig. 30 TRX PCB - COMPONENT SIDE

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only 12V and, secondly, that there was room on the backdrop to accommodate it to the rear of the receiver PCB. There is not much to be said about the circuit except that the supply for the PA is from Reg 9001; this is to safeguard the PA transistor as the output from the bridge rectifier is in excess of 20V. In the rest of the rig the input voltage is not critical as the majority of the circuit

is protected by on board regulators, or consists of devices that could, in the case of mishap, stand this voltage. The exception to this is the audio output IC that is certain to perish with 20V. Reg 9002 is used to supply 12V to the rest of the set, and both of these regulators must be mounted on the backdrop to ensure sufficient cooling.

Two other points: firstly, there is no input fuse and for safety the plug fuse must be reduced to 2 rating. Secondly, there is a supply switch shown on the diagram; this could either be on the RF attenuator potentiometer or be mounted on the left hand side of the dial, the right hand side being reserved for future metering. An 'S' meter and SWR metering will be the subject of a future article.

Using the "Whitfield"

Most QRO operators consider QRP-ers as freaks of one sort or another! The usual cry is "you can't get out on three watts of RF", but they have not thought it out. By decreasing power from 100W to 3W means that the received signal drops by 15dB; this means that a 100W signal giving S9 + 20 would be S9 + 5 on the "Whitfield", and an S9 would be reduced to S5 or S6 — still a good signal. But then think of the advantages of these low power levels: not a trace of TVI, BCI, etc., and no 'hot' points in the shack. Also broadcast capacitors can be used in the ATU saving vast sums of money.

Of course this does not mean that it is simple on QRP. Your signal is still weaker than the majority, but this can be helped considerably by paying more consideration to the aerial system. Not everyone can have Rhombics and V-beams, but even the G5RV and its ilk can be improved with a little attention. Are the end insulators good enough? Remember a little loss here at a high impedance point means a large loss of useful power — and we haven't a lot to lose! Would it be better to use open-wire feeders? 300-ohm ribbon is not too good in wet weather. Finally, increasing the height of the aerial system a few feet can make a lot of difference.

First contacts are best made by sked to ensure that there are no serious problems such as distortion. When hunting for QSO's try 'tail ending' to begin with as the chances of getting a reply are far higher than answering a CQ call, and only call CQ when desperate for a QSO as this method is the least rewarding.

I have brought all the important 'socketry' out to the rear drop to enable full flexibility on how the set is used. It is possible to run the output of the driver stage through the LPF box to give 'real'

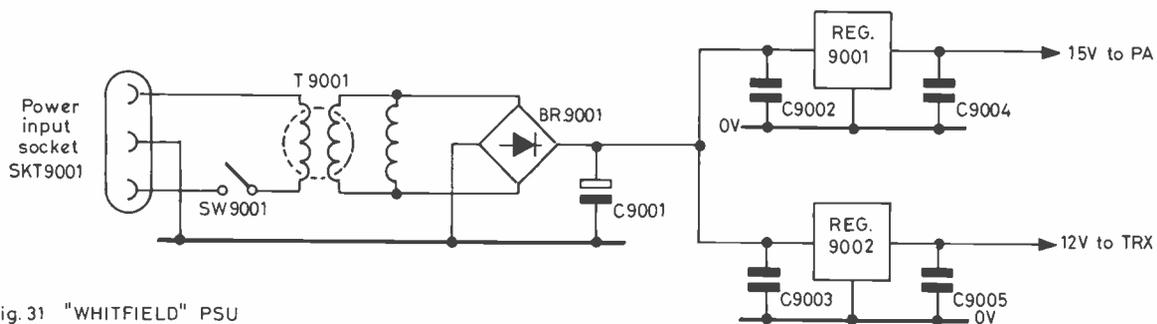


Fig. 31 "WHITFIELD" PSU

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Table of Values Fig. 31

C9001 = 3K μ F, 25v. working	SW9001 = 1-pole 250v. 1A mains
C9002 to C9005 = 0.01 μ F, C280	on/off switch
T9001 = ILP12014	Reg 9001 = 7815
BR9001 = 2A bridge rectifier	Reg 9002 = 7812
SKT9001 = Bulgin 5A, 3-pin chassis mounting socket	

QRP. Another combination is the ability to run the QRP output from the drive into a transmit converter and feed the receiver converter into the "Whitfield" receiver; this avoids a lot of switching in transverters. Also the PA can be used for testing purposes and on several occasions I have used this for various tests on the output of the signal generator. The advantages of that facility are extensive, as one can imagine!

That brings the article to its conclusion, and I would like to thank Dick, G2ACG, for all his assistance in testing the rig on the air, and John, G3YCV, for the photography.

A SIMPLE POWER CONTROL SYSTEM

NEIL MONTANANA, B.Ed., G8RWG

WHILST constructing the power supply unit for a linear amplifier, it was felt necessary to be able to change the EHT voltages applied to the anode of the valve. This would enable tuning and other adjustments to be made at a low power level, and then switch to the high power level once everything was set up correctly.

There are several methods which can be used to obtain different output voltages from a transformer. These include switching between different secondary taps, combining transformers in series/parallel arrangements, using a variac to control the primary voltage, or using a system such as that designed by G4FRX and described in the June 1981 to February 1982 issues of *Short Wave Magazine* ("A High Performance Power Supply and Control System for 4CX350/4CX250 Amplifiers").

After some thought about the options available it was decided to look for a simple circuit which would incorporate some form of thyristor control. This would be used to alter the primary voltage of the EHT transformer and also include some form of antisurge protection to overcome the problem of large currents flowing whilst the EHT smoothing capacitors charged up. The final circuit, Fig. 1, is fairly straight forward and includes a small three-pin power controller IC.

Circuit Description

Initial switch-on surge is limited by R2. After a short period of time, typically 1 second, C1 charges sufficiently to allow the relay to close and normal operating current is then allowed to flow; R1 is chosen to allow the normal operating current of the relay to flow. C1 may be increased if a longer time delay is necessary, and R2 may be changed for different values of current limiting.

The transformer primary is placed between points 'A' and 'B'. Other power devices may also be placed in this position, e.g. motors, drills, etc., but the maximum power rating of the IC of 12A must not be exceeded. L1 and C2 provide RFI protection, although very little was experienced without them.

S1 provides the switching between high and low power positions; resistors can be placed in both positions if different voltages are required. Alternatively, R3 and S1 may be substituted by a 220K linear pot. which would allow continual variation between 0V. and 250VAC. It should be noted that the minimum hold current for the device is 50mA.

Construction

The circuit was built on a printed circuit board to be incorporated into the power supply and control unit of a linear amplifier. Alternatively it could be mounted on a piece of *Veroboard*. The inductor should be securely fixed and coated in *Araldite* to reduce rattle of the windings at the mains frequency.

The IC must be mounted on a suitable heatsink depending on the power levels that the device will have to handle. Heatsink recommendations from the manufacturers are: 5A, 8 °C/W; 10A, 4 °C/W; 12A, 3.5 °C/W. The copper tab at the rear of the IC may be earthed since it is isolated and capable of withstanding a short-circuit between earth and any tab of 2000VAC for one minute.

When constructing and operating the unit, readers are reminded that mains voltages are present and the normal safety precautions should be taken.

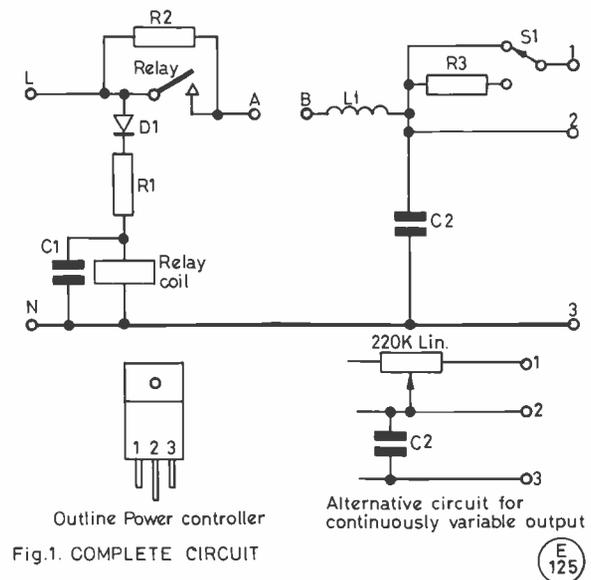


Fig.1. COMPLETE CIRCUIT

Table of Values Fig. 1

R1 = 4K7, see text	D1 = 1N4007
R2 = 33R, 10W wirewound, see text	L1 = 4 turns, 20 swg, e.c.w. on pot core Type 2 (Maplin)
R3 = 82K, see text	Power Controller IC = Maplin PC12A (12A) or RS Components 307-957 (8A), 308-584 (15A).
C1 = 32 μ F, 250V elec., see text	
C2 = 0.1 μ F, 500VAC	

Comments

The simple power control system has proved to be successful in practice and it is currently controlling an EHT power supply of 2000V at 500mA (1000W). The primary mains current is therefore approximately 4A except at switch-on when the current flowing is somewhat higher. With the resistors used the low power position corresponds to a primary voltage of 125VAC and the high power position is 250VAC.

No problems were encountered when switching the inductive load of the transformer.

The IC was obtained from *Maplin Electronic Supplies* and *RS Components* stock similar devices. A low power version of maximum current 1A is also available.

A CW FILTER FOR THE G3RJV "SUPEREX" RECEIVER

AN EASILY-CONSTRUCTED PASSIVE LC
FILTER WHICH GREATLY IMPROVES
CW RECEPTION

E. E. WETHERHOLD, W3NQN

THOSE *Short Wave Magazine* readers who have constructed and used Rev. G. C. Dobbs', G3RJV, 80-metre "Superex" Receiver (Ref. 1) will no doubt discover that an external audio filter will be helpful to improve CW reception. This article will discuss an inexpensive and easily constructed passive LC filter that has a degree of selectivity than can be appreciated by the serious CW operator. The cost of components is minimised by using the surplus 88mH inductors in a unique design that has received only limited exposure in the U.K. (Ref. 2).

Previously published passive LC filter designs used only one or three resonant circuits (Refs. 3, 4, 5, 6 and 7), but this number of resonators was insufficient to provide the selectivity needed by the serious CW communicator. More recently, a 5-resonator circuit comprised of surplus inductors and standard-value capacitors was designed and published (Refs. 8 to 11). For the first time, an inexpensive home-built passive LC filter provides performance comparable to that available from the more expensive commercial active filters. So far, only the U.K. amateurs who are members of the G-QRP Club have had access to design and performance details of this new filter, but others in the U.K. should also have the opportunity to learn about the filter. Because *Short Wave Magazine* provided a most suitable application for the CW filter in the "Superex" Receiver, it is therefore appropriate that an article discussing the CW filter be published in this same magazine.

Background

For the past fifteen years and more, I have been intrigued with the properties of the surplus 88mH toroidal inductor (Ref. 12). At first, I used these inductors individually and removed turns to obtain specific inductances in speech and RTTY filters requiring two or three inductors. Several articles describing these filters were published (Refs. 13, 14 and 15). Because of the high inductor Q (greater than 50 above 1 kHz), the performance of these passive LC filters was quite acceptable; however, the removal of turns and the mounting of the coils was tedious and time consuming when building multi-resonator filters.

In the last few years, I have been able to obtain a large number of surplus 88mH inductors in their original stack form with solder terminals (see Fig. 1). Eventually, I realised that if these surplus inductors were to be used in the most convenient and effective manner, it would be in an application which could use the inductors in their *original stack format*. When used in this manner, all or most of the tedious coil modifications and the individual coil mounting could be eliminated. In addition, the twenty solder lugs on the stack package would provide convenient tie points for the capacitor leads and coil interconnections. During the same period, I learned how to use a digital computer to perform the complex and lengthy calculations associated with the Chebyshev bandpass filter design procedure. By programming the computer to take into consideration the inductor characteristics, it was possible to design a CW filter that was

optimum for using the stacks. The design consists of two 88mH stacks with one single modified inductor stuck on the end of one of the stacks.

Schematic Diagram

Fig. 2 shows the schematic diagram of the CW filter. The filter is comprised of five resonant circuits — three parallel-tuned and two series-tuned. The inductor centre taps of the three parallel tuned circuits are used to obtain an impedance level that is one quarter of the impedance of the parallel-tuned circuits. This permits the inductance of the series circuits to be one quarter of what they would otherwise be if they were connected to the top of the parallel circuits. By using the inductor centre-taps at L1, L3 and L5, the required series inductance (L2 and L4) can be conveniently realised with only four 88mH inductors.

All the inductors are unmodified except for L3 which is about half the inductance of L1. There is no need to explain the mathematics upon which the CW filter design is based, since this was covered in sufficient detail in Refs. 8 and 9. Instead, the ease of construction and installation, and the superior performance of the filter will be discussed.

Table 1 is a listing of twelve computer-calculated designs with component values and design parameters. The construction of the filter has been simplified by using standard-value capacitors wherever feasible. For example, the 2nd, 5th and 11th designs use standard values for C1, C5 and C3, and all other designs use values that are within the normal ten percent tolerance range of the standard values. The filter centre frequencies vary from 641 to 774 Hz, with bandwidths ranging from 200 to 240 Hz. Although the bandwidth is relatively wide, the filter response nevertheless provides adequate selectivity because of the steepness of the attenuation response. The twelve designs provide ample selections so that almost any combination of capacitors can be used that are normally available to the radio amateur.

To use the data in Table 1, select a design having a centre frequency that is comfortable to listen to over a long period. If your receiver has a 750 Hz sidetone, any of the first four designs will be suitable. The wide bandwidth will allow some slight shifting of the beat note, if necessary, to lessen the fatigue of listening to one constant frequency tone. The filter assembly procedure will now be explained.

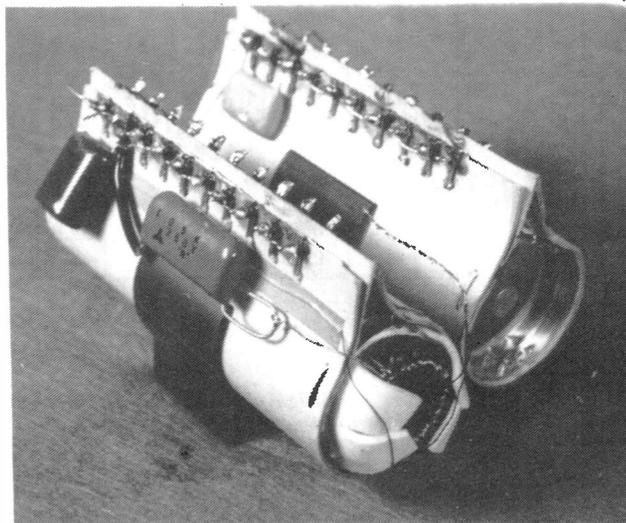


Fig. 1. Two surplus 88mH inductor stacks and one externally-mounted inductor are used in a 5-resonator CW filter. The solder terminals provide convenient tie points for the five capacitors; capacitor C4 has not yet been mounted.

Filter Construction

The unusual ease of filter construction is illustrated by the pictorial diagram in Fig. 3 and the photograph of a partially wired filter in Fig. 1. The pictorial diagram clearly shows the inter-connections so the reader can wire the filter with little chance of error. After completing the wiring, the connections can be checked with an ohmmeter using the node-to-node resistance values listed in Table 2; with this check, any gross errors in wiring can be quickly found and corrected. The modified inductor, L3, is conveniently mounted on the end of one of the inductor stacks with double-sided sticky mounting tape, such as the 3M Scotch[®] mounting tape. (See Appendix 'A' for the inductor L3 modification procedure.) In addition to holding the inductor securely to the stack (see Fig. 1), the tape provides an insulating pad between the stack and the inductor windings. The capacitors should be selected to match the design values in Table 1 within 2 percent.

After completing the wiring in accordance with the pictorial diagram in Fig. 3, and making the node-to-node resistance checks, the assembled filter may be placed in a box. Although an aluminium mini-box is normally used for such an application, there is no reason why a simple cardboard box cannot be used instead; a cardboard box has several advantages over a metal box — a cardboard box is commonly available in the home (an ordinary shoebox cut to size will suffice), holes can be easily cut with a knife or punched with an awl, and there is usually no expense involved. Fig. 4 shows how a DPDT switch, two stack mounting clips and an audio plug and jack can be mounted in the box. If desired, a more finished appearance can be had by spray painting the box before assembly of parts; Fig. 5 shows the box after painting and labelling. There is no need to seal the bottom of the box.

Filter Installation

About the only precaution to observe when installing the filter in your audio circuit is to provide an impedance termination for

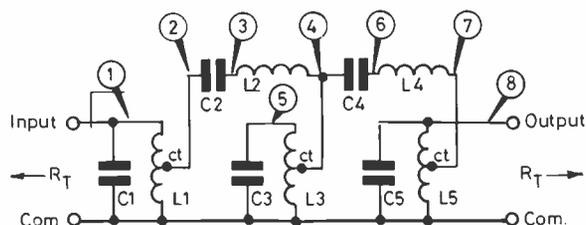


Fig. 2

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Fig. 2. CW filter schematic diagram. Inductors L1 and L5 are centre-tapped 88mH coils. L3 is a centre-tapped coil with turns removed to give the inductance specified in Table 1; L2 and L4 are each four 88mH coils connected in series.

Notes:

1. L1 = L5 = 88mH, L2 = L4 = 4(L1) = 352mH; C1 = C5, C2 = C4, C3 = (C1)/4. See Table 1 for all component values.
2. All tuned circuits resonate at the centre frequency (F_c) selected by the user.
3. The encircled numbers indicate the circuit nodes used for checking the filter circuit resistances. These resistances are listed in Table 2, and are used to determine if the filter is properly wired.

the filter that is preferably within ten percent of the design value. Since the audio output impedance of G3RJV's receiver design is approximately 1000 ohms, the filter can be connected directly to the negative terminal of C13. Or for a precise impedance match, either R13 in the "Superex" can be slightly increased in value identical with that of the R-TERM value in Table 1, or a small resistance can be put in series between the filter input and C13 so the sum of R13 and the added resistance equals the R-TERM value.

F-CNTR Hz	C1, C5 μF	C3 μF	C2, C4 nF	L3 mH	R-TERM ohms	BW-3 Hz	FL-3 Hz	FH-3 Hz	FL30 Hz	FH30 Hz	R.C. %
774	0.48	0.96	120	44.0	1346	254	658	912	588	1019	6.30
759	0.50	1.00	125	44.0	1319	249	644	893	576	999	6.30
744	0.52	1.04	130	44.0	1294	244	632	876	565	979	6.30
730	0.54	1.16	135	41.0	1204	230	624	854	557	957	3.91
717	0.56	1.20	140	41.1	1184	227	613	839	547	940	3.98
704	0.58	1.24	145	41.2	1166	223	602	825	537	924	4.04
693	0.60	1.28	150	41.3	1148	219	592	811	528	909	4.10
681	0.62	1.38	155	39.5	1098	211	584	795	521	892	3.01
671	0.64	1.42	160	39.7	1083	208	575	783	512	878	3.08
660	0.66	1.46	165	39.8	1068	205	566	771	504	865	3.15
651	0.68	1.50	170	39.9	1054	202	557	760	497	852	3.22
641	0.70	1.54	175	40.0	1041	200	549	749	490	840	3.29

Table 1. Bandpass CW filter values, for L1 (mH) = 88.0.

Notes:

1. All designs are based on L1 = L5 = 88mH, and L2 = L4 = 4(L1) = 352mH. Selected designs are listed in which C1, C5 and C3 have standard values, and values slightly greater than and less than the standard values.
2. The capacitance of C2 and C4 is in nanofarads (1 nF = .001 μF), and their values are always one quarter of C1. All other capacitor values are in microfarads (μF).
3. Inductor L3 is obtained by removing the proper number of turns from a 44mH inductor. See Appendix 'A' for modification details.
4. For optimum performance, the filter input and output terminations should be within ten percent of the listed R-TERM value.
5. The FL-3, FH-3, FL-30 and FH-30 frequencies are the theoretical lower and higher 3 and 30dB frequencies of the filter attenuation response.

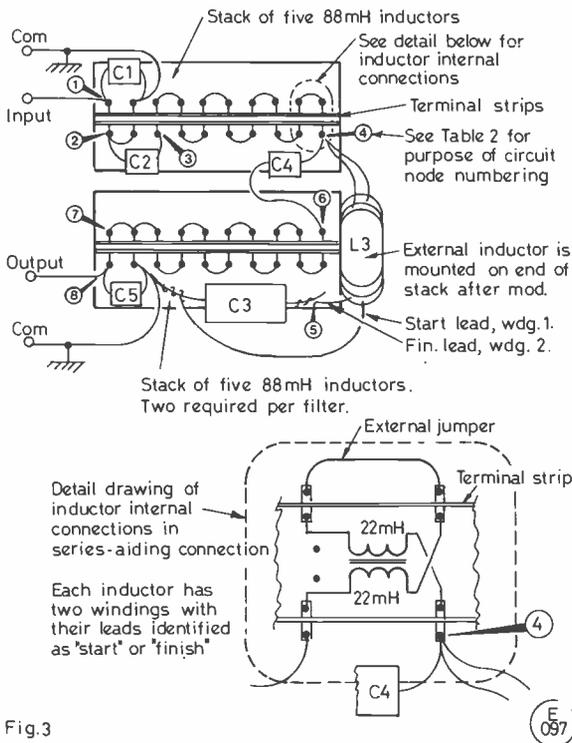


Fig. 3

Fig. 3. Pictorial diagrams of the CW filter assembly showing the inter-connections between the inductor terminals and the capacitors, and the internal connections of one inductor.

Fig. 6 is a schematic diagram of one possible method of installing the filter in the audio output circuit of the G3RJV receiver. A 1000/8 or 1200/8-ohm transformer is used to match the filter output to a low-impedance headset or speaker; if a high-impedance headset is used, the transformer can be omitted. The DPDT switch allows the receiver audio signal to be directed through the filter or to bypass the filter. If the circuit of Fig. 6 is used, the amplifier gain must be slightly increased by about 4dB to compensate for the loss caused by resistor, R_s , or the filter.

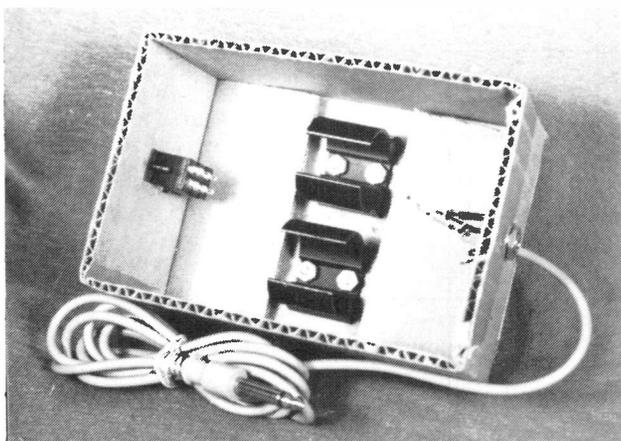


Fig. 4. A common cardboard box, approximately 6 x 4 inches, may be used to house the filter parts. The height may be cut to size if necessary, and the bottom need not be sealed. The placement of the filter parts (mounting clips, DPDT switch, phone jack and cord) are shown in the photograph.

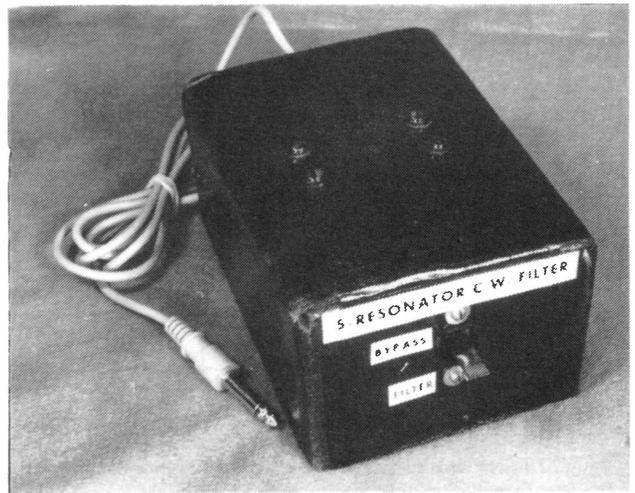


Fig. 5. The appearance of the cardboard box may be improved by painting and labelling as shown in this photograph.

Filter Performance

Fig. 7 shows the measured relative attenuation response of the design for $F-CNTR = 759$ Hz. The frequencies at the 3, 6, 30 and 60dB attenuation levels were accurately measured with a frequency counter so the 30/3dB and the 60/6dB shape factors could be calculated. These factors are about 2 and 3.5, respectively, and they may be used to compare the CW filter selectivity performance with the selectivity of other filters; the better the filter selectivity, the lower the shape factor. Because of the finite 'Q' of the inductors, the measured 3dB bandwidth is about 13% smaller than the calculated 3dB bandwidth. This explains the difference between the 3dB bandwidth in Table 1 and the measured 3dB bandwidth. The measured insertion loss of the filter at 759 Hz is about 3.3dB, which is to be expected with LC filters having an inductor 'Q' of about 50 at 1 kHz.

Although the attenuation response curve gives a good indication of the filter performance, the effectiveness of this filter in providing interference-free signal reception must be experienced to be fully appreciated. More than 500 U.S. amateurs

Nodes		Resistance* (ohms)	Inductors involved
From	To		
1	↑	7.8	L1
2		3.9	1/2 OF L1
3		33.9	L2 + 1/2 OF L3
4		2.7	1/2 OF L3
5	COMMON	5.4	L3
6	↓	35.1	L4 + 1/2 OF L5
7		3.9	1/2 OF L5
8		7.8	L5
3	4	31.2	L2 = 4 X L1
6	7	31.2	L4 = 4 X L5

* Use these approximate resistance values as a check to see if the filter is wired correctly. See Figs. 2 and 3 for the node positions.

Table 2. NODE-TO-NODE RESISTANCES OF 2 STACK CW FILTER

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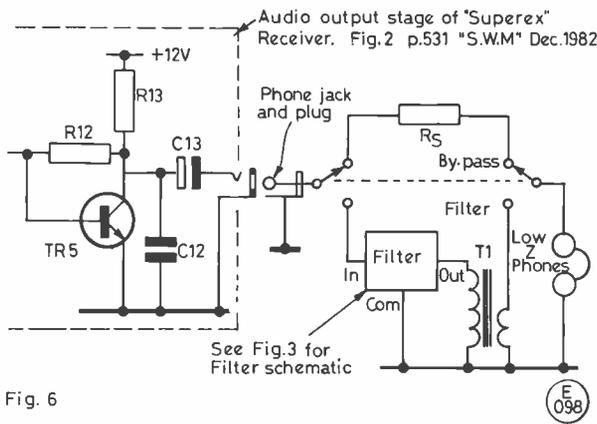


Fig. 6

Fig. 6. This circuit is suggested as a means of conveniently switching the filter in and out of the receiver audio circuit.

Notes:

1. Select R13 and T1 to provide the proper termination impedance required by the selected filter design. For best results, the termination impedance should be within ten percent of the value given in Table 1.
2. Select R₅ by experimentation to give equal headset levels in both "BYPASS" and "FILTER" switch positions.
3. If a high-impedance headset is used (an impedance greater than 600 ohms), the matching transformer is omitted. If necessary, insert a resistor in series or parallel with the high-impedance headset to approximate the required termination impedance.

have built and used this design, and I frequently receive comments about how surprised the user is to find that the passive filter has superior performance to the active filter that was previously used!

Getting the Surplus Inductor Stacks

At this point, I trust the reader will be suitably impressed with the thorough documentation concerning the simplicity of filter construction, the ease with which the filter may be integrated into the G3RJV "Suprex" receiver, and the superior performance of

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the filter design. I further trust that those readers able to recognise the unusually fine qualities of this design will wish to immediately assemble a filter. Both G3RJV and I have anticipated this response, and we have made arrangements whereby British amateurs can conveniently obtain the necessary inductors: I ship the inductors to Rev. Dobbs who has offered to serve as a distributor for the U.K. To receive more details about how the surplus inductors may be obtained, please send a stamped self-addressed envelope to Rev. George Dobbs, G3RJV, 17 Aspen Drive, Chelmsley Wood, Birmingham B37 7QX. His response will contain details on current prices and availability of inductors, capacitor sets, mounting clips and other parts used in the filter construction. Be sure to state your amateur radio call sign and give details of your intended application. Only those having bona-fide amateur radio applications should respond.

Summary and Conclusion

This article discussed the design, construction and application of a CW filter suitable for use with the G3RJV "Suprex" receiver. Five resonators using surplus inductors were used to achieve an attenuation response having a skirt selectivity equal to, or better than, many of the commercial active filters now available. Construction of the filter was considerably simplified by using ten of the surplus inductors in their original stack format. The ten solder lugs on each stack were used for interconnecting the capacitors and coils; an eleventh inductor was modified and then stuck on the rear of one of the stacks. Construction was further simplified by using designs that required mostly standard-value capacitors. Twelve pre-calculated designs were tabulated for the centre frequencies between 641 and 774 Hz. A simple procedure was explained how the filter may be connected directly between the "Suprex" receiver audio output stage and an 8-ohm headset or speaker. Arrangements for distributing the surplus inductors

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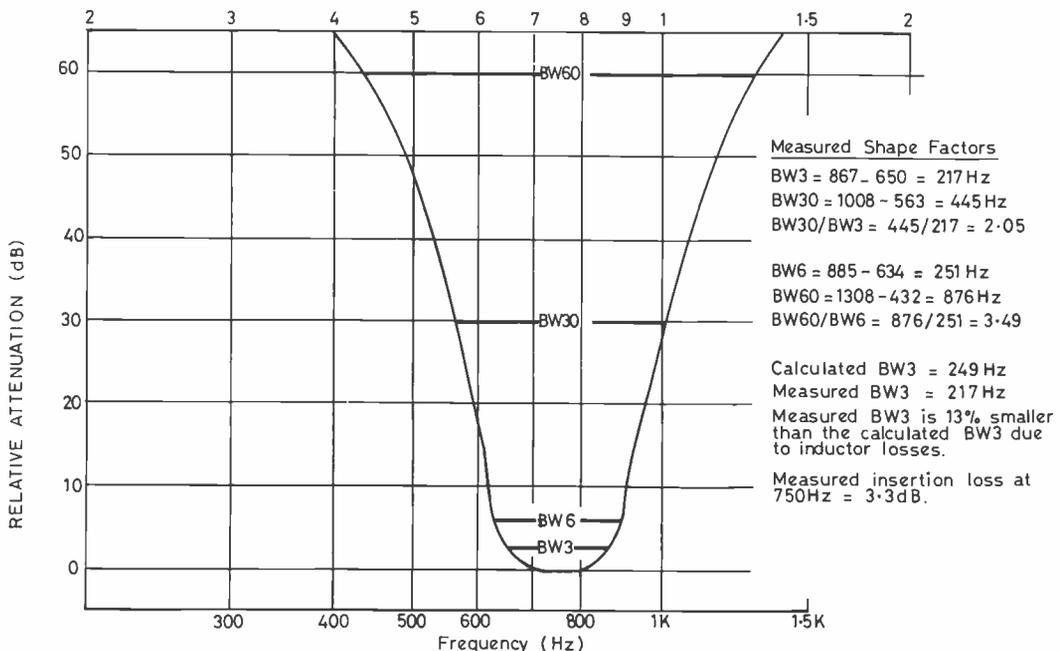


Fig.7 MEASURED RELATIVE ATTENUATION OF THE 5-RESONATOR CW FILTER, F-CENTRE (Design) = 759Hz.

to the British amateur were explained so the filter may be constructed at minimum cost.

The unusual combination of so many good qualities in this unique design will eventually cause it to become a classic against which all future CW filter designs will be compared.

Appendix 'A'

Inductance v. turns to remove from a surplus 44mH inductor to obtain a desired L3 value (with centre tap). Applicable to a 44mH inductor having windings on opposite halves of the core.

To use the graph, Fig. A1, find the desired L3 inductance on the lower or upper horizontal scale. Read the corresponding turns to remove from each winding on the appropriate vertical scale. For the inductance range of 34-44mH, use the lower and left-hand scales; for the range of 26-34mH, use the upper and right-hand scales. For example, to get 39.0mH, remove 15 turns from each of the two windings on the 44mH inductor. The total turns removed is 30.

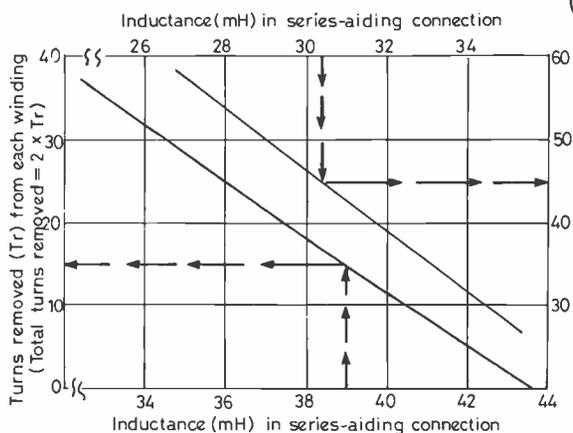


Fig. A1. INDUCTANCE vs TURNS TO REMOVE FOR L3 MODIFICATION.

After the proper number of turns has been removed from each winding, connect the *start* lead (with sleeve) of one winding to the *finish* lead (no sleeve) of the other winding. The junction of these two leads is the inductor centre tap. Connect the other two leads across C3.

Although the actual unmodified inductance at $T_r = \text{zero}$ is only 43.7mH, this value can be used for those designs requiring 44.0mH because the difference is less than 1%. If desired, one turn can be added to each winding to obtain an inductance within 0.5% of 44.0mH.

Note: The polyurethane film insulation can be easily removed with some solder and a hot iron (750°).

References

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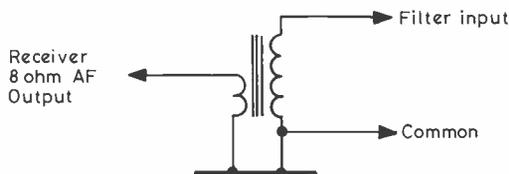
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POSTSCRIPT

Use the Filter with the PCB80, or any Receiver.

By Rev. G. C. Dobbs, G3RJV

The W3NQN Filter does indeed work well with the "Superex" receiver — I have tried it. I use a version of this filter which matches 8 ohms in and out for most of my CW work at G3RJV and believe it to be the best CW filter I have used. Ed's version above, designed for the "Superex", can be slightly modified for use with the PCB80 receiver (*Short Wave Magazine*, October/November 1982) or any station receiver with an 8-ohm audio output.



Using the W3NQN Filter with an 8 ohm output receiver.

Fig. P1

E 102

The circuit for this method of use is shown in Fig. P1: it is simply adding a matching transformer to the input, as well as the output, of the filter. Suitable transformers are easy to obtain. The Eagle LT700 or the Tandy 273-1380, which retails at 69p, would be suitable for both input and output matching on the filter.

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

THERE seems to be quite a thick wad of mail and other material for this piece, so let's cut the cackle and get on . . . after, of course, commenting on the heat-wave of the past few days. Pleasant enough in its way for those with no radio interest — yes there *are* such uncivilised people! — but when one knows that conditions are essentially as good as they should be, or better, and yet you can't decipher enough for a QSO among the static crashes, then a trifle annoying, too. On one such session, your scribe angrily slammed the shack door shut and went out to the garden, to work it off by bringing to heel an elder tree which apparently wanted to enter the place. Have you ever noticed, it takes ten minutes to trim back a tree, and then three hours to clear up the debris — plus of course *no beer in the fridge!*

Conditions

We seem to have got to the stage in the cycle where the difference between high-normal and low-normal seems quite enormous — but in a year or two's time we'll be looking back with pleasure and remarking how *good* the LN days are compared with above-normal at sunspot minimum. So — count our blessings. Likewise the summer static is only there to remind us that the winter symphony of thermostat and heater-pump noises is at its minimum for the year! No, it's not been too bad this month, overall.

Eighty

The report shortage seems to have transferred to this band of late; but here are the few.

G2HKU (Minster) mentions just one contact, the CW one with EJ0WCY, set up by the EI gang in Aran Is. Just for the record, Aran is on the west of Ireland, covering Galway Bay — not to be confused with Arran of the West Coast of Scotland.

G2NJ (Peterborough) remarks that although in the afternoons the band seemed in bad shape, a CQ call would often scare up something interesting. Four interesting CW contacts were enjoyed with G4RIZ, near Sevenoaks, who is just sixteen and runs a home-brew QRP rig. Patrick, we gather also is active when time permits from the school station, G4GUM, on the HF bands.

Your scribe has been playing around on the band; comparing the vertical against the Best Bent Wire we put up for Top Band. Comparison is not easy, but it is hoped in due course to arrange something

which will allow an instant switch-over, with an automatic detuning of the unused aerial — at the moment there seems little to choose between them and we suspect a suck-out is occurring.

Forty

Our first report is from SWL Guy Dean (Ringwood) who agrees very much with our comment on the oddness of only two reports last time. Guy has a point when he suggests that maybe people don't listen at the right time; his own personal preference is from about 0450 until 0700 GMT, and, to a lesser extent from 2130z onwards, but with the emphasis on the small hours after midnight. As evidence, Guy mentions hearing ZL4PO/C, LU, VK2AV, YN2MRJ, and ZL2ANR, all between 0453 and 0510; the ZL4PO/C for the record was on 7084 at 0510z. The receiver in use is the FR-400SDX.

G4LDS (Chelmsford) says the rig is away for an overhaul just to make sure all is well — it'll soon be mended beyond repair! While it has been away Chris has been whiling away the time building the big linear, or at least the PSU part of it, and operating 29 MHz FM with a conversion to a CB rig; not to mention a spot of gardening around the base of the tower. On 7 MHz, the recorded QSOs were with GB2NHF, GB4HBC and GB2LYL.

G2HKU got a surprise when he worked YU3DLF, who turned out to be a YL of twelve, the QSO being logged at 0257z! Other CW contacts were on QRP, with UV3NS and SM3OKC.

G3ROO (Church Whitfield) sent off for his French reciprocal licence in lots of time, but the authorities there managed to lose all the papers. However, when they were chased about it by telephone they were not too unreasonable and the call F0HZZ arrived at the French holiday address four days after Ian himself. Operation was with the Hustler mobile aerial and FT-707, and ran to some 133 QSOs in 41 countries and all continents. A 7 MHz contact that pleased Ian somewhat was the one with YV5EUX on SSB. Looking down the list we see, for Forty CW, G2ACG, YU2CIG, DK7JZ, DK7NB/A, I1EXH, DL2GV, YU3WO, while SSB was used on G2ACG, G4NCL, F2NY.

G2BON (Aldridge) had his activities abruptly cut short on June 21 when the rig started to show heating problems. However, one morning Tom did make his number with PY6AGA. On a different tack, G2BON sent along a selection of the

QSLs he received in answer to his SWL reports in the very early post W.W.II days — some really rare DX among them, particularly the one from Shanghai.

G4MVA (Snainton) was another one who noticed the lack of 7 MHz reports, and so he has returned to the fold, now operating with the TS-830S rig; no CW filter as yet, but coping nicely with things by way of the variable bandwidth control. CW made it to EL7M at 2346, and EE1ONS, both with 5 watts QRP, VP2MM at 2330, UA9FLM a little later, dozens of PYs and LUs, JW0A, 4Z4DX, OH0AM, VE6WG/VE1 (Prince Edward Is.), EK10, CZ1WF, a nice chat with GU3EIG, and various contacts to W1-5, W8 and W9.

"CDXN" deadlines for the next three months:

September issue—August 4th
October issue—September 1st
November issue—October 6th

Please be sure to note these dates

Another new reporter is G4PYR (Shirley) who operates only on Top Band and Forty, using an FT-902DM and, on Forty, a half-wave dipole, bent at the ends and having the middle or useful, bit up at about 25 feet. CW went out to DK4JP, OZ1GHN, FC8RR, YU4EZC, UB5YBS, PY2GSH, UA9ACZ, and UC2LBX, while SSB managed to cope with G4/W4BT, GM4HYR, DL2KBJ/M, GM5QO/A up in Unst, in Shetland, OH0BA, and SM4DHF. A good re-start after some 18 months lay-off.

Top Band

Activity pretty well down, largely one feels because of summer static; however, we have a report from G4AKY (Harlow). Dave made a first contact with the German Democratic Republic for a new country early on July 1, just a few minutes after the band was opened to them, with Y30ABO/P, near Berlin. Dave managed to establish that they have 1810-1900 kHz for CW, 15 watts maximum, and 1900-1950 kHz CW/SSB, and that GDR stations have also got 10 MHz from the same date. By the time Dave had got that little lot, as one may imagine the pile-up was getting a bit restive. Looking at the rest of the log, on CW there was OY7ML,

TF3YH, W2HCW for a cross-mode contact (SSB from NY), VE1BVL, VO1HN, W2AYS who was lost as the band closed, LU9EIE just a moment or two later, OY7ML again, OH0AM, and PY1ARS; SSB gave LZ2CJ, and of course there were lots of small fry in between. Two interesting things appear out of this log; one, the fact that the various goings-on in the way of ZS skeds are all noted 'in the margin' as it were — David always notes the things going-on around his own operating frequency, and indeed records that he heard ZS54PW and ZS5BK. On the other point, it is interesting to see that after the band had closed for W, and W2AYS had been lost, a few moments later the LU station should be audible and workable, before sunrise put a stop to the sport; something rather reminiscent of 28 MHz when the band is open for Stateside, and then as the closure begins to occur the propagation swings round to a more N-S path.

Regulars on Top Band will know G3XAP (Stowmarket), as indeed will those who recall his super series in *Short Wave Magazine* on "Antennas—The Weak Link." They will be sorry to hear that Phil has landed into Ipswich Hospital, and was to stay there while the doctors decided what needed mending before they could give him an MOT pass. Judging by Phil's references to iron, they have a bit of welding to do . . . Get well soon, and CU back on Top Band.

G3OUC (Shaw, Newbury) says his Top Band activity has been somewhat reduced by the decorating business; but a good evening was on May 29, when GM3YXM, GM4ALK, GM3PFQ, GM4MOX, and GM3MXN were all worked around 2000z. The home-station aerial is a 45-foot vertical, which made the GMs sound like RS59+ signals. Turning to the new homebrew rig for the car, covering 160 and 80m., the receiver has been completed and most of the transmitter; the thing only requires the addition of the transmitter PA stage, and the receiver is working very well indeed. On a different tack. Pat notices on Ten that whenever the band opens to Europe, the pirate CB types slide into the band and start calling them, but the EUs seem to have rumbled them because not many seem to get over.

G2HKU reckons the odd conditions have become even odder this month; but that didn't stop him raising LX1PD and PA0PN on SSB, plus CW out to OH2TI, OH0AM, OZ9N, YU3EF, LZ2BE, LA2GV, DA1WA/HB0, UK2PCR, SP1ADM, SP3GVX, LZ1KSN, UP2BFH, GW8WJ, LA40 and a heard ZS5. On a different tack, Ted says this has been the worst year ever for static and lightning damage to TV receivers. He knows of local places where he has had to attend to TV sets that have been popped four times in two years. In the G2HKU home, the boiler fuse, a standard lamp

fuse, and the telephone fuse all went when a nearby house was struck; not to mention one of the rectifiers in the PSU in the rig (unkindest cut of all!). The only solution seems to be where one is fed with overhead mains power, as in most country districts, is to pull the plug out of the mains and disconnect the aerial, earthing the latter down, on the first signs of a storm — the overhead mains lines in themselves act as fine carriers of strike energy which dissipates in one's equipment. And, of course, it isn't the direct strike — a near miss can put out an enormous amount of energy and spread the damage over a wide area. Hard luck if you insist on leaving a TV/video in recording mode while you're out of the house?

News

We hear that there are possibilities of a Malpelo operation by several Colombian amateurs for October-time. The rumoured Mount Athos DX-pedition seems to have turned out to be a busted flush, though — no permissions were granted.

If you are looking for Guantanamo Bay KG4s, you need them to have two-letter suffixes; their QSL bureau address is PO Box 73, FPO New York, NY 09573, U.S.A.

FR0FLO is having bothers with mail being intercepted; therefore do *not* put callsign or words 'Reunion Is.' on the envelope. The full address is Herick Maudit-Larive, Box 200, Tampon 97430, France.

If you worked SN0JP, it was a special call for the visit of Pope John-Paul to his homeland; QSL address is PO Box 150, Poznan 9.

There are mutterings about a Jarvis Is. (KH5) operation in October.

Negotiations are going on for a group of Alaskan types to go to Pribilof Is., and a



The tidy station of Manfred Grimm, Y78XL, of Schwepnitz, East Germany, who operates a T-215C and 500-watt PA into a W3DZZ antenna.

photo: Geoff Watts

new application is being made to obtain this spot DXCC status. It has been turned down once before, but the word we get is that there are changed circumstances which might turn the tables.

If you worked EK9C, EK9D, or EK9E, you managed one of a group who carried out a six-man and fifty-dog expedition around the whole north coast of the USSR, finishing in Murmansk, and activating some very rare oblasts in the process.

Still with the Russians, we hear that the news that they had the new bands was incorrect — there was an error which resulted in a few stations on for a short time, but they have not yet got these segments.

All the above notes, thanks to *TDXB* and *DXNS*.

Now to W1WY, who sends us his regular round-up for the testers. He noted the European DX Contest; the CW leg is over the weekend August 13-14, and the Phone leg September 10-11. Changes to the rules now allow US states to count as multipliers, and duplicate sheets are now called for on any band on which more than 200 contacts are made. The other rules, including the QTC thing all seems to be similar to previous years, and the mailing address for logs this time WAEDC Contest Committee, PO Box 1328, D-895 Kaufbeuren, Fed. Rep. of Germany, to be in the post by September 15 for the CW contest and October 15 for the Phone entries.

Over the weekend August 20-21, the SARTG RTTY contest will be on, in a total of three eight-hour periods; 0001-0800 and 1600-2359 on 20th, plus 0800-1600 on the Sunday. As this one is for the RTTY buffs, doubtless they will have picked up the rules from the BARTG; there is an SWL section, and we believe they are rather keen on check logs as well.

We have an interesting letter from



The station of Bob Owen, G4IJG, a well-known member of Stockport Radio Society. Licenced in 1979, Bob runs a Trio TS-520S into a 3-element beam with an 18-AVQ as backup, and this combination has brought him plenty of DX. A beam rotator indicator can be seen to the lower right of the TS-520S.

photo by G3NUI

it sounds as though the YL operator Jiaio is the smart cooky there, starting her sessions listening slightly high, and gradually going higher, at least on 21 MHz.

G4HZW (Knutsford) still uses his Quad and TS-820 mostly on SSB but with the odd CW QSO thrown in. On the short-skip or Spor-E front, contacts were made with Y22, SM, UA3, OE, I, OK, SP, UQ2, OZ, PA, EA, EA6, HB9, DK, F, YU, LA, OH, and UA2, while the more DX'y stuff was represented by 5Z4CT, YU3K1/5N, KG4FD, LU8ECD, LU1DKH, UA6s, UL7QP, TU2IE, UA9s, PY2AJK, WA2WOO (Florida), VE3MFT, Z21CR, and the VK5WI beacon was heard. Tony's last paragraph indicates that in his area the CB-ers in the band are as much of a nuisance as ever, and he says he feels that when they stray out of their bands everything possible should be thrown at them, RF-wise.

For G2BON, until the rig went away, it was all short-skip contacts, with ON6XN, DL2AAH, LX1DA, HB9CQD, PA3CJT, FC6BYJ, UA2FFC, RA9AKM, UK8MAA, and F6IDV.

Now G4LDS who offers Y62XG, Y22WF, and OK1KPX, on SSB, while the FM rig made it to CT4DX, G3WFF/M, SM0MCM, SM5CS, LA4CW, for whom G4LDS was the first G QSO; gotaways included EA1MO, PY2QT, CT1BQJ, and CN8CC.

G3OSB, Allan Taylor, who now is on from Kiribati as T30AT, to tell us they now have a Kiribati Amateur Radio Society active, with some 8 members holding T30 calls; they are on the look out for club premises on Betio or across the lagoon on Bairiki or Bikenibeu. Details can be obtained from Allan, c/o Post Office, Bikenibeu, Tarawa, Kiribati, Central Pacific.

G4LZD writes to say he was once licensed as MP4BDV and also operated at the club station MP4BBA. He is anxious to trace all those who have ever held a licence in the Persian Gulf area in the past, whatever their nationality, and who is now operational under another call, with a view to setting up a regular net including them all as well as the current stations in the Gulf Areas, such as MP4B, MP4D, MP4T, 9K2, HZ1, A4, A6, A9. G4LZD also says he is a member of ISWL and would like to see more members of that excellent organisation. Changing tack a little, G4LZD mentions that the International Air Traffic Control Net operates on 14.277 MHz Monday-Friday, times not specified. Net Control is W1BFA, and 7X2BK is usually in there with a good signal. A pity Stephen didn't mention the times, but doubtless he would be pleased to give details: S. Reading, G4LZD, 73 Mayflower Close, Townstal, Dartmouth TQ6 9JN.

Results now, for the 1983 BARTG RTTY Contest. The bands were pretty low-spirited, with few contacts on Ten being offset to some degree by more contacts on Forty and Eighty. ON4UN was definitely the top dog this time, but it was good to see some new calls creeping up the list, of 103 single-operator entries, plus 16 multi-op entries and twelve check logs. Some 33 stations made WAC this time,

and 18 qualified for the QCA Award. Some 70 countries are known to have been active in the contest, the weak area being, of course, Africa, where only XT2AU and a brief burst by CN8 represented the continent.

Ten Metres

No shortage of reports, but all bemoaning the lack of DX! G3OUC reckons it was probably Spor-E that found him F6FIO, F6BXQ, F6FCH, TO6CQU, DL9DAO, DF2RG, DL3FBF, Y26DO, Y33VB, Y51SL, CR1AQS, OE5WIL, SM7ITZ, I5MKZ, HA3KNA, and UK5WBG which was being operated by a 14-year old lad called Serge; all were raised with 40 watts of SSB.

At this point G3NOF (Yeovil) takes up the tale, and his researches indicate mainly short-skip European and British Isles stations, plus the odd PY and LU in the early evenings, and one brief opening to W1 and W2 at 1328 on July 3. For G3NOF, contacts were made with C30LAA, I8UDB/ID8, (Dino Is.), JY9CL, and SN0JP.

We come next to G2ADZ (Chessington) who just missed the 'bus last time. Bill found that in May the band was open to DX around early morning until about 0800, and then again in late afternoon. Bill's CW worked out to 8R1J, V2AX, TT8AD, 9X5SL, VP2MIU (all on his own at 2110z!), Z23JO, PT8AVV, CP8FH, CE3ZW, ZP5XDW (another one on his own in the evening), YB5AES, 5Z4DR, several ZS, several JAs, and several PYs. On a different tack Bill is still trying his best to raise one of the BY stations, and wonders how it's done, and what band they're on. 14 and 21 MHz CW as far as we know; reports on other bands have to the best of our knowledge been phoney. And

Fifteen

For many people this is a favourite band. G3NOF found it rather like last month, but with long periods of short-skip to Europe and Scotland. Around 0800 it was on occasion open to the Pacific over the North Pole, while the short path to JA was often open 1000-1600z; Africans were noted 1100-2000, and South Americans around 1100 and again 2100 onwards. East Coast Ws were sometimes delivering the goods from 2200 onwards. SSB contacts were made with AA6J, AD0C, (the special call to celebrate fifty years of *Collins Radio*), AP2AC, AP2JL, AP2P, C30LAB, C53DF, CE3FH, CE4EBL, CP8HD, CU6FSJ, CY1YX, CY3WCY, CY3LRU, EA9KQ, EC8WN, EH3ITU, EK9D, EL2BE, FG7BY, FY0GS, G6ZY/EA6, HC1JB, HH2SD, HH2WL, HL1AJX, HZ1AB, I2DMK/IG9 (Linosa Is.), I8UDB/ID8, J37AH, many JAs, JT1AO, JY9CL, K0CL, KY0S, (Colorado), KH6GK/DU2, N7EDK/5N7, OH2BAW/OH0, OH0AM, P29NSF, PJ8DFS, PYs, SN0JP, S79ARB, SV5FD, T30DB, T77C, TL8CK, TL8ER, TR8CR, TS8WCY, several Russians, V2AN, V3TV, VP2KKB, VU2AUS, VU2GI, VK6AJW, VK9XR/MM (Willy de Roos in the North Atlantic on a trip round the world), several YB/YC stations, YL3M, ZC4CW, ZD7BW, ZD9YL, ZK1CX, ZP5CDD,

ZP0MJO, ZS3TL, 4S7RD, 4Xs, 5N8WCY, 5R8AL, 5V7WI, 5Z4CI, 5Z4DF, 5Z4DA, 5Z4GM, 6U1WCY, 6W8EX, 6W8JI, 7P8CT, 7X2KIN, 8R1J, 3A2LF, 3A3EE, 9J2BH, 9J2MY, 9K2BE, 9L1DR, 9N1MM, 9M2PW, 9V1VP, 9Y4SO, 9Y4VU, VE3MQH/4U on Golan Heights, and VE7CZH/4U in the same place. Quite a haul!

At G2HKU the CW was the preferred mode, and it gave contacts with 6W8JI, JA0UGY, and VU2AJ.

Another report from G6QQ (Hoveton) who seems to have operated Fifteen as his preferred band; CW with LU9CV, W2KXL, 9J2BO, PS8TK, KA2JHP, N3CSL, JA4LXY, KA4WYA, VE1CKB, NP4L, JA1XHE, KA1ML, YB2ARH, W8KVG, W1HRJ, and NP4L; while the SSB mode looked after W4YHB, WB3HIR, PP5DF, HR3JIR, HI3AMF, CE6CFX, 4X6DX, UK9ADT, UK7PAL, 9K2BE, WD4PQF, VP2MDG, FG0DDV, PT7VJS, and A4XGY.

Now G4MVA, who as we already know is a CW addict, and Glyn offers HZ1AB, 5H3YL, and ZC4CW.

G2ADZ says he made just two excursions onto the band, with the first try producing 5W1EJ and the second FO8EW! Just for kicks, Bill also raised UK0FAD (Sakhalin Is.).

Turning to G2BON, Tom has the old problem of the garden to contend with (like G3ROO — Ian had to use a scythe when *both* mowers conked on return from holiday!), but he did take a quick peek at Fifteen, and found PY1MT, 9V1VP, TJ1GH, and 4X4FR.

Fifteen for G3ROO was all from F0HZS, and included G4LJF, G3FBQ, 4N4TN, G4HFO, VP2MDB, G3GLK, F6HLY, DM0JT, and G3UAA on SSB,

while CW looked after the affairs of UL7MG, TO8WL, W2FK and JH3KDZ.

Finally on this band G4LDS offers JA7YAB, WB8IDZ, JA3JN, JW0A, KA2FOX on CW, and WA6FIT.

Twenty

First in on this one G4LDS, who offers DL4WCY, T77J and N1AB.

The SSB from G3ROO/F0HZS included G4PYW, DL8HAR, G3PAT, EI2AW, G4LDD, ZL1BD, YU5FBE, YU5XQA, VS5DD, JH2XZK, N4WJ, W2JF, GM3FUT, OK3TBN, G2ACG, VE3PT, GM4TFS, G4HFO, IT9AAL, LZ1KHY, VS5TA, ON5RG, YU3DBQ, G3LDM, 6W8FZ, UA3DS, EI4DS, GI2DZG, G3EQF, G3EDM, 6W8FZ/M, GI3GAL, while CW accounted for various Europeans plus 9H3CB, UL7RAO, G6HY/LA, SP5SA.

Turning to G2BON and his SSB we find Tom making contact with KL7NX, CY7GBN, FM0VG, PP8AMA, I2DMK/IG9, J37AH, JA2CXK, VP2VD, VP9CP, 5N8HEM, JY9TS, UK0QAA, GJ2LU, W7NP, OH0AM, VK3AH, UK9CAA, UK9ADT, UK9FER, UA9FAT, UK7FAP, 6W8AR, and ZK1CG, on Cook Is.

Now a dose of CW from G4MVA, who offers K8ZBY/J8, PYs, LUs, all W call areas, VKs VP8ANT, 8P6AU, K4DY/SV8, RU5UDG, HH2VP, FG0DDV/FS7, EK9C/0, JX5DW, 5Z4DR, EL7M, XT2AW, TI2DL, and YVs.

Just three contacts are mentioned by G6QQ, all CW, with FM7CW, VE3NPX, and N2EBB; David had been back on since March and is already up to 102 worked.

For G2HKU, the ZL skeds were a busted flush for the first time since years

ago at the bottom of the last sunspot minimum. However, he did manage SSB with ZL3FV, ZL3RS, and 9H4B, while the CW went out to W6RB, VE7DBV, TR8JLD, HK3HY, VK5MD, VE3AX, N4LO, 4K1QAV, UA0WAB, YV5SUJ, I2DMK/IG9, VP2MM, UA0AG, UA9UGI, VE3BNC, VK3MR, HK1AMV, and KU0N/VE7.

G3NOF comments that again he didn't operate the band much, but he did notice that in the mornings there were good openings to W6/W7, VE7, VK and ZL, plus some Pacific stations. SSB contacts were made with HC1JB, I8UDB/ID8, OH0AM, and SN0JP.

Now and again G4AKY turns away from Top Band, and tries Twenty, the pickings in his case being CW to UA0SDD, W0NZQ, J88AH, CO5DM, NS4S, UA0KCJ, W4GTH.

The New Bands

Although we have *some* reports at least in the mail on 10MHz, we'll hold them for next time, so let's *please* have some more to add to them. Suffice it to say that, as mentioned earlier, we hear the East Germans have now got 10 MHz and that the ONs are to get all the WARC bands as well as 160 metres.

QRT

That's it for another month. Deadline for next time is, as usual, in the 'box', and is to arrive, addressed to your scribe, "CDXN" SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts. AL6 9EQ. Let's have lots of reports and lots of news, in particular of the *new bands*. Meanwhile, 73 es gud DX!

The Datong Model SRB2 Automatic Woodpecker Blanker, shown here, is now available and represents a major advance in dealing with this Russian scourge of the HF bands. A review of this interesting and exciting product, together with the 'story' of its introduction delay (involving the Ministry of Defence and the Official Secrets Act!) will appear in an early issue of *Short Wave Magazine*. The Model SRB2 costs £86.25 inc. VAT, and can be obtained direct from Datong Electronics Ltd., Spence Mills, Mill Lane, Bramley, Leeds LS13 3HE, or from Datong dealers.



DISPLAY MODIFICATIONS FOR 10-METRE RIGS

STEPHEN IBBS, G4LBW

MANY readers now have CB rigs which have been modified to work from 29.31 to 29.70 MHz, with or without repeater offset. These include the Icom ICB1050 and the LCL2740 under various guises. Wouldn't it be nice to have the display giving 31-70 rather than 1-40? I got the idea after reading a modification article by G4MKT for the Icom rig, using transistors and diodes; unfortunately this did not have the facility for changing the display when in repeater Tx or Rx mode. A further complication arises because some rigs shift Tx low, others Rx high in repeater mode (the recent Icom modification by the author in the June issue of *S.W.M.* shifts Rx high), so some sort of design to cater for these differences was needed. Of course this by necessity involves more components, but the total cost is still under £2, and a very compact PCB has been designed so that it may be fitted into almost any rig.

Let us consider a repeater with a 29.55 MHz input frequency. Assuming the rig to be a modified Icom in repeater mode, the rig would be set to channel '25'; but we want the display to read 55 for simplex and repeater Tx, and 65 for repeater Rx. However another rig wishing to operate the same repeater, but shifting Tx low, will be set on channel 35, displaying 65 for simplex and repeater Rx, and 55 for repeater Tx.

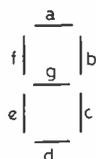
Table 1 shows what switch lines go low when the 'tens' digit is switched. The lines have been labelled T to Z to avoid confusion with the traditional segment labels, and it can be seen that to produce the digit '4', for example, switch lines U, V, Y, Z (corresponding to segments *b, c, f, g*) are earthed by the channel selector switch. These lines are used to control gates to provide a binary coded output. This binary code can then be added to, to give the repeater offset, before being decoded to give a 7-segment display.

Table 2 shows the binary equivalents for figures 2-7 and from here this article splits into two parts: (a) for those with a 'shift Rx high' rig, using a 4077, and (b) for those with a 'shift Tx low' rig, using a 4070. For readers without a repeater offset facility either circuit should work.

Switch line	T	U	V	W	X	Y	Z
Blank							
1		0	0				
2	0	0		0	0		0
3	0	0	0	0			0
4		0	0			0	0

When not at 0V, the lines are floating

TABLE 1



E 115

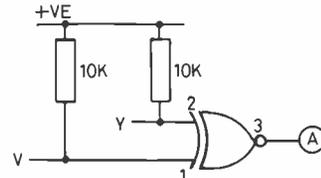


Fig. 1

A	
"Blank"	1
1	0
2	1
3	0
4	1

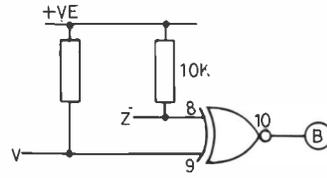


Fig. 2

B	
"Blank"	1
1	0
2	0
3	1
4	1

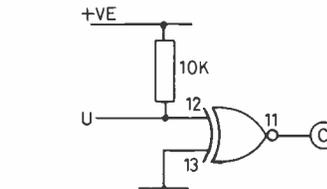


Fig. 3

C	
"Blank"	0
1	1
2	1
3	1
4	1

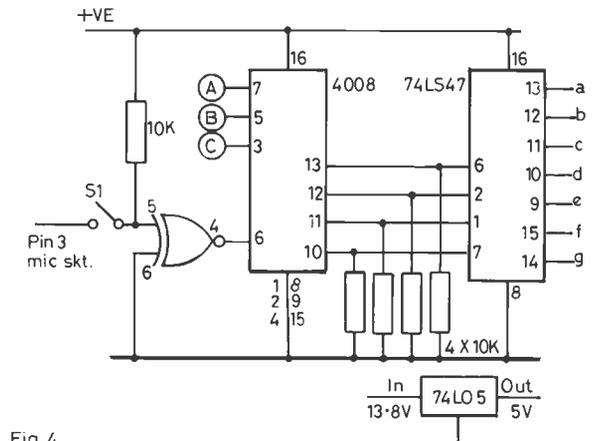


Fig. 4

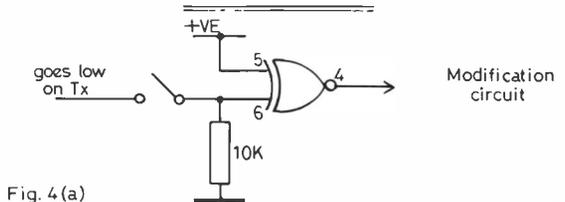


Fig. 4(a)

SHIFT RX HIGH (4077)

E 110

(a) Studying Table 1 again we can combine switch lines V and Y in a 4077 EX NOR gate, the truth table of which is given in Table 3, to generate A 10101 for switch positions: 'Blank', 1, 2, 3, 4 (Fig. 1). Similarly combining V and Z will produce B 10011 (Fig. 2), and U will give C 01111 (Fig. 3). Putting together A, B and C will give the binary equivalents for 3-7. This could now be simply decoded by the 7447, but by feeding it via a 4008 4-bit adder (Fig. 4) we can choose whether to add 0 or 1, using IC1b, controlled by the mic. socket pin 3 which goes low on Rx, to give a reading of 4-8 when in repeater Rx mode. If SW1 is left open, no shift will take place in the display. Readers who have a rig which does not have such a convenient pin, but have one which goes low on Tx should modify the IC1b circuit to that shown in Fig. 4a (SW1 closed for simplex).

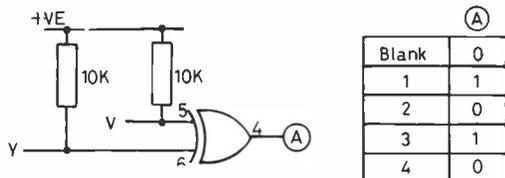


Fig. 5

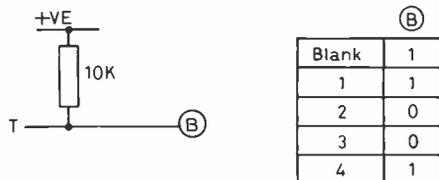


Fig. 6

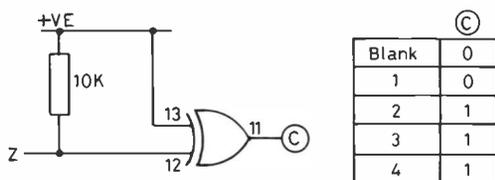


Fig. 7

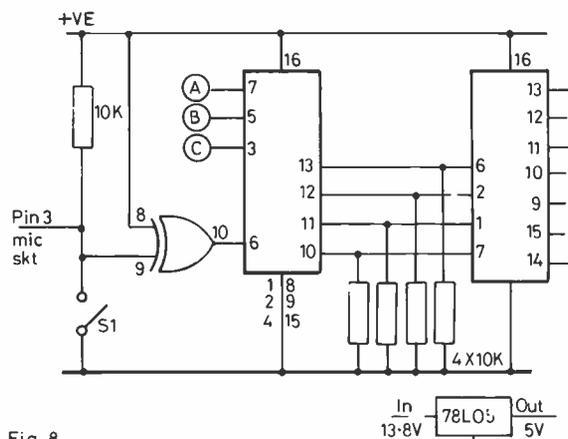


Fig. 8

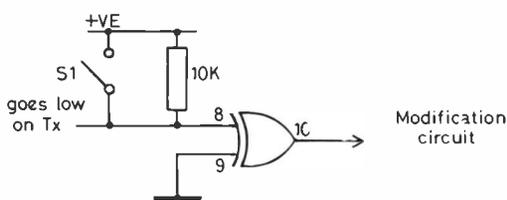


Fig. 8(a)

SHIFT TX LOW (4070)

E 111

Binary line	(C)	(B)	(A)
Number			
2	0	1	0
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1

Binary equivalents for 2-7

TABLE 2

E 116

modification to cater for CC displays. Current limit resistors have been included, but it may well be possible to use the display resistors already installed. Construction details given below are for an Icom rig modified as per the June issue article. A 3-terminal regulator was included on the PCB, because some rigs may not have a 5v. source available. The Icom rig has a 5v. supply (pin 1 of the 145106) but this was not used in the prototype, preferring a separate 5v. supplied from the 13.8v. line via the regulator.

Components List

- Nine 10K resistors
- 4077 or 4070 depending on circuit, see text
- 4008
- 74LS47
- Current limiting resistors, see text
- PCB, two different designs, see text
- 78LO5 if necessary

Construction

Two PCBs have been designed, Figs. 9 and 10, and readers should make sure they build the correct one! Mount all the components, and insert veropins for the various connections. Looking at the display PCB in the rig reveals something like Fig. 11. Remove the resistors shown and insert them onto the new PCB; they should all be 1.5K except for one 680-ohm which goes to pin 13 of the 7447. There is no resistor connected to pin 10. Insert veropins into the holes marked U, V, Y, Z and a to g. Run leads from these points to the new board, and then mount it using sticky pads or brackets; note that there is no connection for the d segment. Icom joined a and d together, and this only has the effect of generating $\bar{3}$ for the fig 7; whilst niggling, it does serve to show that you are on the band-edge and should not be there. Thus pins

(b) A problem arises when modifying rigs that shift Tx low because it is very awkward to subtract one in binary. Thus the answer lies in generating 2-6 rather than 3-7, and adding 'one' using a 4008 and IC1c for simplex and repeater Rx, then removing this '1' in repeater Tx. Once again the switch lines are decoded, this time T, V, Y, Z, by a 4070 EX OR IC to generate the three binary lines (A), (B), (C) (2-6) which are fed into the 4008 (Figs. 5-8). Pin 9 of this IC is connected to pin 3 of the mic. socket, and SW1 should be closed for simplex operation. Readers who have a pin that goes low on Tx should modify this part of the circuit to that shown in Fig. 8a (SW1 closed for simplex).

The 74LS47 in both circuits is used to decode the binary data and control the 'tens' digit. All rigs seen by the author used CA displays, but check yours because otherwise the circuit will need

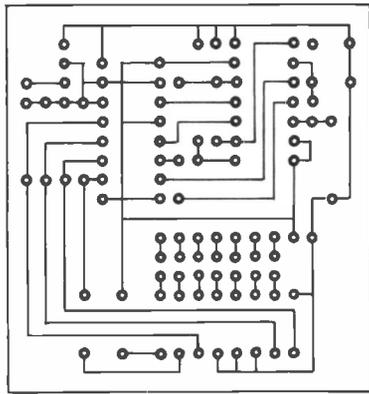
		Ex OR	Ex NOR
IN	IN	4070 OUT	4077 OUT
0	0	0	1
0	1	1	0
1	0	1	0
1	1	0	1

Truth table for Ex OR/Ex NOR

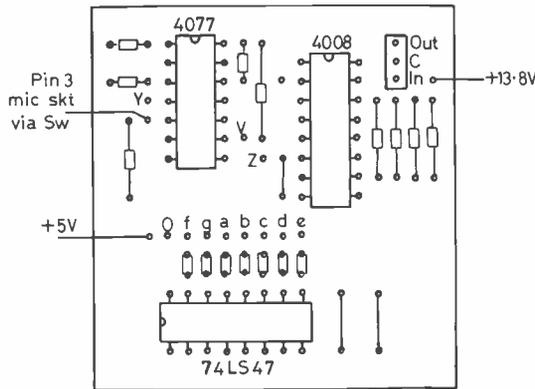
TABLE 3

E 117

E 112



(a) Copper side



(b) Component side.

Fig.9 Rx SHIFT HIGH IN REPEATER MODE

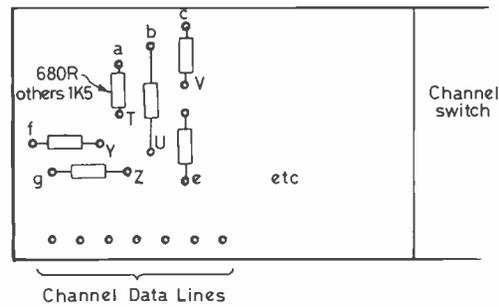


Fig.11 FRONT OF RIG AND DISPLAY

E 114

Fig. 11. View from the component side of the display PCB (the resistors shown should be removed). The labelling shows T, U, V, Y, Z, though only four of these would be used, depending on the circuit; the segment connections go to pins 9 to 15 of the 74LS47. The hole just below 'V' is left vacant.

10 and 13 of the 7447 should be joined together with a small insulated link. However if you are careful it is possible to find the track that joins segments *a* and *d* together, and then sever it. Insert two 1.5K resistors, by the *a* and *d* outputs of the 7447, ignore the 680-ohm resistor and then connect the two segments separately. This was not done on the PCB which was designed to cater for other rigs as well, which have separate *a* and *d* segments. Wire up the switch, which controls the repeater option, and bolt the rig together.

Note on the June Issue ICB1050 Modification

Comments have been received from a few readers who wish that the circuit shifted transmit low, rather than receive high.

Whilst the circuit as published does initially necessitate clicking down ten channels, then operating the repeater switch, it was decided to have it this way round so that the repeater's input frequency could be monitored easily to see if a simplex contact was possible. If however readers wish to have a Tx low shift mod, whilst still retaining all 40 channels, they can obtain one by sending an *s.a.e.* and 50p to S. Ibbs G4LBW, QTHR.

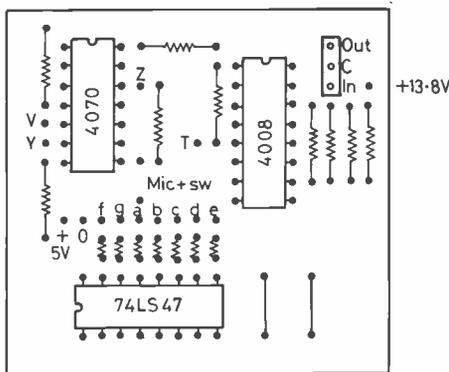
A Word on PA's

There are several re-usable 'burners' ranging from the good to the amazingly bad and ugly on the market. Try to get one with relays, because the ones I've tried with diode switches, attenuate the Rx signal quite badly.

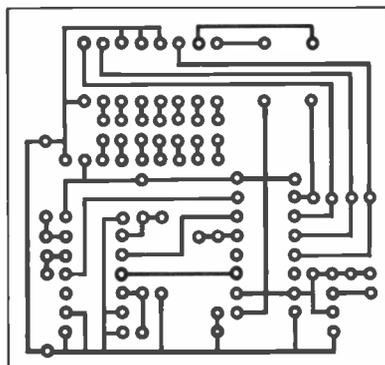
One that did seem reasonable value was the 'Apollo' which has input and output relays, and more importantly, is very easy to work on. Some have the PA transistor mounted in a very awkward place, which requires a complete dismantle to get at. The 'Apollo', along with many others, uses the MRF475 PA transistor and a cursory glance of its data sheet will show that claims of PA's with the device giving 40+ watts are somewhat optimistic; mine runs at about 15-20, and this represents excellent value for money. If trouble is experienced getting hold of this transistor, the sales dept. of *Celdis*, based in Reading, should be able to supply one.

Warning: Some rigs plus PA's reveal a veritable Christmas tree of sproggies, *spurii*, etc., on the spectrum analyser, so get hold of a low pass filter, or be prepared for a visit from your local GPO interference man. One combination I heard of produced a second harmonic only 16dB down!

E 113



(b) COMPONENT SIDE



(a) COPPER SIDE

Fig.10 TX SHIFT LOW REPEATER MODE

BOOK REVIEW

“THE UHF COMPENDIUM, PARTS 1 AND 2”

by Karl Weiner, DJ9HO

IN the May issue, brief reference was made to a new, German UHF publication which appeared in the English language version at the VHF Convention, in Esher, last March. The idea of compiling such a work came to author Karl Weiner, DJ9HO, in 1975, who then set about producing a manual covering both the technical and design information, and practical building instructions for a great variety of equipment. Seventeen German radio amateurs and a typist collaborated with the author to produce the German edition and recently an English version, translated by Paul Schmalenbach, DK7LF, has appeared and is the subject of this review.

The **UHF Compendium, Parts 1 and 2**, consists of five main sections, identified “A” to “E,” the first of which, *UHF Basics*, is sub-divided into five parts. These cover the types of linear circuits, such as strip lines and cavities, the coupling of such circuits, UHF amplification, diode mixers and active mixers. It has 74 pages and 81 diagrams, graphs and photographs.

Section B is devoted to *Test Equipment and its Construction* and includes in its 89 pages designs for attenuators, power splitters, absorption wave meters, dip oscillators, dummy loads, panoramic receivers, swept oscillators, and much more, all copiously illustrated with 120 diagrams, photos, graphs and PCB layouts. Section C covers filters for signal selection and TVI suppression. Its 35 pages include excellent information on bandpass filters for the 2m., 70cm., and 23cm., bands, plus equations, nomograms and actual designs for a range of helical filters. A couple of pages are devoted to the problem of reducing interference from high power radar transmissions close to the 23cm., band.

Section D is by far the longest chapter and its 124 pages are devoted to *Station Sub-assemblies*. It is sub-divided into eight parts, the first of which deals with preamplifiers for the 2m., 70cm. and 23cm. bands. The next part covers converter circuits and is well illustrated with large photographs of actual designs. The next ten pages deal with multiplier stages of both active and passive varieties, for 2m./70cm. and 70cm./23cm. using varactors, and the following parts describes assorted transverters, all profusely illustrated.

The fifth sub-section of this chapter is devoted to power amplifiers and its 43 pages cover practical designs for low power, solid state amplifiers to hefty ones using valves of the 4X- and 4CX- tetrode, and 2C39 triode families. There are quarter and half-wave anode line jobs, and cavity offerings for 70cm. and 23cm. operation. The power supply for DL7YC’s 70cm. tetrode amplifier incorporates three BY225 diodes in series between the anode and screen grid supply rails, the idea being to ensure that, in the event of anode voltage failure, at least the screen voltage will be supplied to the anodes. This is alright in theory under static, non-driven conditions, but it must be appreciated that, under certain driven conditions, the anode voltage will swing below the 380 volts applied to the screen. While output power figures are quoted — e.g. 250 watts on SSB for a signal 4X150A or 4CX250B! — no mention is made of intermodulation distortion performance, or of the expected valve life. It reinforces the reviewer’s contention that some German designers do tend to squeeze a quart from a pint pot when it comes to valve PA designs at UHF.

There is a section on amplifiers using two, paralleled stages wherein the drive power is divided to feed two identical amplifiers, the outputs then being combined using a four-port *hybrid* made from coaxial cable. The attraction of this idea is that if one valve should fail, the amplifier will continue to work satisfactorily at

half power, a point worth considering for contest or DX-pedition work. The next sub-section is a short one describing local oscillator chains for 404, 1,152 and 1,268 MHz, and is followed by ideas for 70cm. and 23cm. stations, generally. A 12 volts mobile power supply providing 150 watts of power for a 2C39 amplifier is described, with rather odd sentence, “There is no point in building this converter . . .!”

Section E comprises 68 pages on *UHF Aerials in Theory and Practice*, commencing with the standard notes on matching, baluns, etc., followed by a section on power splitters for stacked arrays, made from commercial pipe fittings. Next there is a sub-section on the construction of proven aerials which starts off with a 70cm. version of the popular HB9CV two element beam. Many pages are devoted to the “twin-quad” concept, which seems to be very popular in Germany. Basically, this consists of two, square quad loops in diamond configuration, one above the other. When fitted with three reflectors, one above the other, 10dB. gain is claimed though it is not stated what that refers to. An array of four such antennas is described with a claimed gain of 16dB. The overall size of this is 2.65m. wide and 3.14m. high. DL7KM has further developed the theme into a pair of 2m. Yagis with nine parasitic elements each, spaced 1.2m. vertically and with a twin-quad driven element; he claims a 15dBd. gain for this. 70cm. and 23cm. versions are also featured and the idea is suggested for parabolic dish feed.

Relays for UHF operation at decent power levels tend to be very expensive, so it is refreshing to see a sub-section on building your own coaxial relay. The one described carries in excess of 150 watts of RF, with cross-talk attenuation of 43dB. The basic part is a brass block 72mm. long by 25mm. square with an 8mm. diameter hole bored through it. The actuating mechanism is a standard Post Office relay. The final 14 pages of Section E are entitled “Aerial Measurements” by DC9NL, wherein the contributor deals at length with the methods and pitfalls of trying to measure absolute antenna gains. The effects of height above ground on the gains of various antennas are dramatically shown in many graphs. On page 388, the gain/height graphs of ten antennas are combined in utter confusion on one graph to create a rather surrealist illusion.

The volume is completed by appendices covering the characteristics of *Hirschman* coaxial cables, and an assortment of general tables including a rather out-of-date *DUBUS* beacon list from February, 1982. Also the band plans are not quite the current versions. This excellent book is a pleasant departure from the usual, more staid, presentation of such material by the more ‘posh’ publishers. It is more informal, much of the text being in chatty note form from the various contributors. **The UHF Compendium, Parts 1 and 2**, is a big book in 296 x 208mm. format, 25mm. thick with 413 pages and weighing 1.22Kg. It is in stock here at *S.W.M.* and can be obtained from our Publications Department for £12.00, including postage and packing. A German version of *Part 3* has been published and an English version is in preparation.

N.A.S.F.

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“CONFESSIONS OF A NOVICE”

PART II

ACHIEVING THE TRANSFORMATION

JULIAN AYLMEER-KELLY, G4SCZ

YOU may well have read my earlier epistle (*S.W.M.*, March 1983) when I explained how it was I came to get involved in this hobby. Well, now to bring you up to date, as promised. You will recall that the writer left you last time on the first night of ‘owning’ his Amateur Transmitting Licence ‘B’ with a glow of (self) satisfaction. The plot thickens. . . .

Those first few months were spent fitting in work, and the other jobs, around amateur radio; “what’s new?” I hear you say. The XYL who thought that now the studying was over I would be about again, soon got used to losing me through the hole in the boy’s bedroom ceiling. Armed with a borrowed beam, and my faithful ‘black box’ I enjoyed many hours up there, or mobile. However, soon enough one looks toward the next horizon, and in my case it was . . . CW.

One always needs a plan to do anything, so off went an order and, as in all things worthwhile it seems, we wait. Eventually however, I became armed with a manual, a cheap key and an oscillator. The first piece of advice from the experts was to leave the second and third items well alone for the time being.

So I made a start and learnt the alphabet. The only problem was that using the ‘six letters group’ approach, I could learn them within their groups but was unable to distinguish between them when all together.

Still, autumn was upon us, and not only was the local club to run a Morse course but also the chairman of the club, an eminent G2+2 was to run a course at the ‘tech’. Enrol in both you mad fool, and spend another winter away from home — she’ll get used to this.

So we started on Monday nights at college — about twenty five hopefuls — and Tuesdays at the club. My trusty tape recorder worked overtime (in fact, I wore it out); everything was faithfully recorded and then played back during the week until learnt. The best way to do this, I thought, was to spend some time last thing at night, so it was the last information fed into the grey matter before sleep. Several nights I dozed off with the dah-di-dahs floating around me; meanwhile the XYL . . . well we won’t go into that.

The college class was so large it had to be split and soon I was transferred to the Friday shift; not a popular night, but it doesn’t make much difference to us who work eight days a week. In any event on Fridays the college was deserted and one could park right outside the classroom.

Well — all was going OK, on the Morse front anyway. No time for operating now, or anything else much, they said you would need to be single-minded and by goodness they were right. My only opportunity for operating was when driving (that is when the tape recorder wasn’t on board), so much that my call-sign had an automatic /M even when not in that situation.

With the symbols learnt, it was just a case of speed. *Just* a case of speed — sounds simple doesn’t it?

We received some excellent training, but more than that we received great *encouragement* and that really is the key (if you will excuse the well worn pun). Many would have fallen by the wayside without the constant support we were given.

You should have seen some of the phrases that we laboriously copied down — all thoughtfully compiled to include all the letters of the alphabet but making little sense. At the end of each passage up would come di-dah-di-dah-dit and the sigh of relief from the class was a constant source of amusement to our instructors.

At the beginning I had secretly set myself a target time to be ready to take the test. That gave me about four months and already as Christmas approached with all the attendant delays and holidays, two thirds of the time had passed. Twelve words a minute might just as well have been forty-two words a minute for all the sense I could make of it. Would I make it? I was beginning to have my doubts.

I never did hit the wall they all talk about. They said we’d get to about ‘eights’ and find we couldn’t improve. Mind you, our instructors were crafty blighters; most evasive when it came to discussions on speed (to our benefit, I hasten to add) and slowly, almost indiscernably the speed was building up. At this stage I was spending about three nights a week on the CW. Then the session arrived when the instructor said if I had copied what he had just sent I ought to go down and take the test. Was that really it? It didn’t seem fast to me!



“I’ll sign off now as the XYL wants to use the room for lunch”

Unlike some, who are reluctant to take the plunge on these occasions I rush in where angels fear to tread; I feel the right way is to strike whilst the iron is hot — or to put it another way, before it goes cold.

The next evening I got instructor number two in a corner. Instructor number one shouted across the room, he knew what I was going to ask but I told him to buzz off, I wanted a second and unbiased opinion. “Oh! yes”, he said, “you’re ready, go down and have a crack at it.”

On the way out to the car another member of the club asked me if, as I was going down, could he come with me? “Of course”, said I; now there’s no backing out.

So, the following morning, being my day off, I set about ringing for an appointment. The telephone number not being to hand I rang directory enquiries to ask. Now you may or may not know this but the same firm runs the telephone system and the Maritime Radio Service in this country, one of whose coastal stations I had opted to go to take the test. The female on directory enquiries was trying to tell me that there is no entry for this

particular establishment! I know it exists because I've actually been there; surely they must have a telephone on the premises. She said she had an entry for a radio station at such-and-such a place so I took that number and rang off. It seems I'd landed into the great cotton wool ball of 'officialdom' again. When I was connected with the other radio station I asked for the telephone number of the one to which I wanted to go (are you with me so far?). This lady sounded about 124 years old and had great difficulty in reading out a ten digit number without getting lost midstream. Eventually we agreed that I had it correct, I thanked 'granny' and rang off. Now these two radio stations are about forty miles apart as the crow flies (or should I say as the microwaves wave) and I would be prepared to bet it was granny who answered the phone again at the *second* station: these modern communications are marvellous, aren't they? "Please could you arrange for me to take the Morse test?" Hold on, and a long wait (peak rate of course) ensued. Eventually a click and "good morning, can I help you?", said a most efficient voice. The appointment was made — for next week!

Having sealed my fate and made arrangements to meet my friend for the journey down, there was time to reflect upon my folly. Of course you're not ready yet, I thought — why should you think you can pass, don't you know professional standards prevail in an establishment like that? So I spent every available moment practising in the few days left. I don't know what the customers thought as I stood behind the till doing the di-dah-di-dah-dit, di-di-di-dah-di-dah routine, but many were seen backing out through the door.

Tuesday night was club night and the night before "D-Day". I was told after the meeting not to touch any more CW until we got there; my plans for practice on the way down were definitely out.

Off we went, 140 m.p.h. down the motorway, mustn't be late and with the 'heavy gang' (XYL and harmonic) on board we arrived well before time. We waited — now that *is* the worst time — for the clock to tick round to the appointed hour, examining the station's aerial farm, and anything else worth examining, to pass the time. My colleague, full licensee in pipe smoking, kept wandering around the car park having a quick puff; another "fix" as he called it.

Eventually a body was seen heading across the carpark and in we went.

The paperwork dealt with we chose our positions and were shown the equipment, the examiner leaving us for some while to settle down and practice. Then he sent some practice Morse and soon we were into the real thing. It seemed to go OK, first receiving successfully concluded and then sending; in no time at all it was done and he was filling out more paperwork. We'd done it — we'd passed! Now would we like to have a look round the station, he asked. Well, why not!

Our examiner, of course was a practising radio officer and most enthusiastic about his work; not surprisingly, also a licensed amateur. We went through various sections and saw signals arriving from all over the world by CW, Phone, RTTY and such like. Quite a place, I could have been happy there for ages.

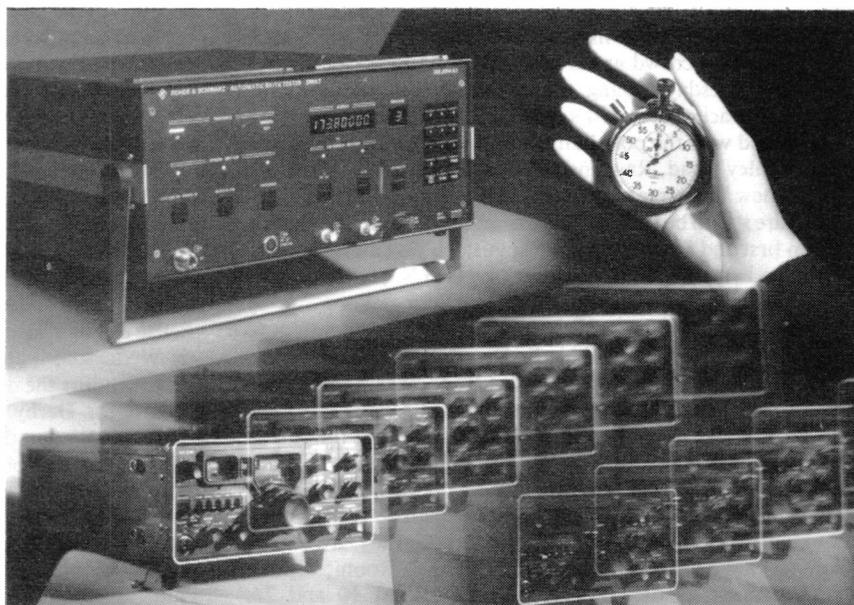
Eventually we bade farewell to our friend and started home. Once mobile we called into the local repeater which extends as far as home. Soon there were stations both known and unknown calling in with congratulations; in the words of my colleague it was like being a rare DX station.

Within a few days the pass slip had arrived from London and was instantly despatched back there with the other necessary documents to apply for the coveted Amateur Radio Licence 'A'. What will the wait be this time whilst the wheels of the machine grind around? At times like these every day counts but my application just beat the 'lump' of applications as a result of the December R.A.E. Within a week a member of the club had his B callsign — his application going off the day after mine.

The new licence arrived within three weeks and I'm grateful there was no great delay this time. I know the situation did deteriorate after that time and it does seem due to a lack of foresight that this should occur so regularly these days.

Perhaps this is an opportune moment to leave the tale so far; in later epistles I'll tell of my experiences launching into the choppy waters of the HF bands. There is, however, just one more tale to tell. The dear old XYL must now be used to my seasonal absence for she's talking about sending me on a computer course next winter!

Within seconds the major performance parameters of AM, FM, and SSB transceivers over the frequency range 0.4 to 520 MHz can be checked with the new Rohde & Schwarz SMAT Automatic Rx/Tx Tester.



CLUBS ROUNDUP

By "Club Secretary"

QUITE a large pile again this month, so let's go straight into action, in alphabetical order as usual.

The Mail

Our first report is from **Acton Brentford & Chiswick**, who must surely rate a prize for the most consistent reporting of the past twenty years. They have the third Tuesday in the month, which is August 16, booked at Chiswick Town Hall, High Road, Chiswick.

Up in **Bishop Auckland** the lads foregather in the "Travellers Rest", Evenwood, Bishop Auckland, on Mondays from 7.30 p.m.

Next come **Bishops Stortford**, and here the routine is to have a main meeting on the third Monday in the month at the British Legion Club at the top of Windhill, plus an informal in the saloon bar of the "Nags Head" on the first Thursday so those who can't make a Monday can keep in touch. This venue is on the A120 going east out of town, next door to the Golf Club.

At **Bournemouth** the newsletter doesn't mention the Hq, but it implies that they are still using Kinson Community Centre, Pelhams, Millhams Road, Kinson, Bournemouth; the date we have is August 5, for a visit by G4FRX of RSGB, and we believe that they are in fact booked in for the third Friday of every month as well.

Both the August dates are left open by the **Brighton** crowd; August 10 and 24, at the YMCA, Marmion Road, and alternate Wednesdays onward.

Turning now to **Bristol**, we find they have a place at the YMCA, Park Road, Kingswood, every Tuesday evening. August 2 is down for a discussion on what the next club construction project will be, and on 9th the gang have a film evening with titles from the RSGB stock. August 16 is the Computer Group evening and a general chat, August 23 is the Business meeting at which the main topic will be a discussion on whether social activities should be part of the programme, and on August 30 they round off with a night-on-the-air.

British Rail have a club name that is pretty well self-explanatory, and anyone interested should get in touch with the Hon. Sec. for the details—his details are in the Secretaries Panel.

While the **Bury** crowd are to be found at Mosses Community Centre every Tuesday evening, the second Tuesday of each month is the main attraction; August 9 is a Fox Hunt starting from Hq at 7.30 p.m. and with the post-hunt gathering in the Bishops Blaize Hotel, Burnley Road, Rawtenstall from 9.15 p.m.

The all-new **Braintree** newsletter has a covering letter to tell us that they are still to be found at the Community Centre in Victoria Street on first and third Mondays. August 1 is down for a talk on "Operating Practice and Procedures" by G3YXJ, while on 15th G3PED will talk about the history of teleprinting.

Not so very far away is **Cambridge**, where the group continue to have their Hq in the Visual Aids Room, Coleridge Community Centre, Radegund Road, off Coleridge Road, where they are to be found every Friday evening in term-time. On August 5 they will be closed, and likewise for the rest of the month; but that won't stop them having a Foxhunt on August 14, and a visit on 19th, plus a social evening on August 26, details of which can be obtained by contacting the Hon. Sec. at the address in the Panel.

Looking at the new **Cheshunt** programme, they are still in session every Wednesday evening at the Church Room, Church Lane, Wormley. Natter-nites appear on August 10 and 24;

August 3 sees them out on Baas Hill Common with VHF gear, there is an Equipment Evening on 17th, and on 31st the month is completed with a junk sale.

The Green Room, Fernleigh Centre, 40 North Street, is home to the **Chichester** group, where they turn to on the first Tuesday and the third Thursday of every month. There are no details of the activities for August 2 and 18 given, so we assume that as for so many other groups August is given over to nattering.

For the **Chiltern** club, we are told, the venue is the William Ramsay School, Hazlemere, near High Wycombe; and they are in session on the last Wednesday of the month.

If you are a civil servant, and you feel an interest in the **Civil Service Radio Society**, then the name and address of the Hon. Sec. are in the Panel; while they have Hq in the Civil Service Recreation Centre, Monck Street, London SW1, they are also nationwide in membership and on the lookout for more members — why not join if you are eligible? Details from the Hon. Sec. — see Panel.

The potential of CB is the theme of the **Cornish** club meeting addressed by John Pover on August 4, at the new venue of St. Stephen's Church Hall, Treleigh, Redruth. This is just off the old Redruth by-pass. If you approach by way of the new Redruth by-pass, then turn off at Avers roundabout eastward along the old by-pass, past the "Treleigh Arms" at which point a near 180-degree turn brings you back to the other side of the "Treleigh Arms" and the venue is on the left behind the school. This place will continue to be used for meetings until the old SWEB venue has been knocked down and rebuilt.

Deadlines for "Clubs" for the next three months —

September issue — July 29th

October issue — August 26th

November issue — September 30th

December issue — October 28th

Please be sure to note these dates!

Crawley have an Informal on August 10; all the details on this and the main meeting (which will doubtless be at Trinity Church Hall, Ifield) from the Hon. Sec. — see Panel for his details.

A look at the **Cray Valley** newsletter doesn't indicate any activities as far ahead as August, so we must refer you to the Hon. Sec. for all the latest details.

No mistake about the **Crystal Palace** doings though; they will be gathering on Saturday, August 20, at All Saints Church Parish Rooms, Beulah Hill, Upper Norwood, for a talk on a large professional communications network — details were still being hammered out at the time they wrote.

The **Dartford Heath D/F** crowd seem to be a busy lot in August; apart from the outside hunts, they have the usual club meetings on August 23 at the "Horse and Groom" near Dartford Heath (NGR 520 726), and a Wednesday evening hunt on August 10; there is also a Sunday hunt on August 28. More details from the Hon. Sec. — see Panel.

The **Denby Dale** crowd foregather at the Pie Hall in Denby Dale on Wednesdays; as we need an update we must refer you to the Hon. Sec. for the details (see Panel).

Now for **Derby** where they foregather at 119 Green Lane, Derby, on Wednesday evenings; August 6 is the junk sale, August 13 has a talk by Bob Eccles entitled "Out of Court" and on 20th there is a talk on radio control. Finally, on August 27, there is a two-metre D/F practice.

Every Monday evening the **Derwentside** club members head for the R.A.F. Association Hq, Sherburn, Consett; details from Hon. Sec. — see Panel.

At **East London RSGB** the group is undergoing a very noticeable revival of fortunes; they will be 'in session' on the third Sunday afternoon each month, at Wanstead House, Wanstead, London E11, which is about 100 yards behind Wanstead tube station.

August 25 is the formal evening for the **Echelford** group, but in view of the holidays — one assumes — it has been left open according to our latest data; there is also an informal on the second Monday. Both at The Hall, St. Martins Court, Kingston Crescent, Ashford, Middlesex.

If you want to join **Edgeware**, second and fourth Thursdays in the month are the ones, at 145 Orange Hill Road, Burnt Oak, Edgeware. August 25 is down as a SSB Field Day briefing.

Turning now to **Farnborough**, we see they have a talk on computers down for August 10, while on August 24 the attention is turned to VHF propagation, with G3LTF doing the turning. The Hq is at the Railway Enthusiasts Club, Access Road, off Hawley Lane, near the M3 bridge, Farnborough.

Over to EI now, and **Fingal**, where the Hq is at the Scout Hall, Ballygall Road East, Dublin 11, and the meetings every Monday evening. They seem to have quite an extensive programme of activities, with a formal meeting at least once a month, classes for the EI equivalent of the RAE and Morse tests, junk sales, QRP construction projects and so forth. Visitors are always welcome.

A tour of the air-traffic control and met. systems at Blackpool Airport is down for the **Fylde** club on August 2, while on August 16 there is an informal at the club room at the Kite Club, Blackpool Airport; start is 7.45 p.m. sharp, and we see that for the visit a late arrival cannot be accommodated.

On to **Gloucester** where the Hq is at St. Barnabas Church Hall, Stroud Road, Gloucester, every Wednesday throughout August. Looking forward, we see that on August 7 at the same place they have the AGM.

Next the **G-QRP** club; if you are interested in low-power operating or home-brew this is the one for you. Get all the details from the Hon. Sec. — see Panel.

The **Greater Peterborough** crowd foregather on the fourth Thursday of every month at the Southfields Junior School, Stanground; however they seem to be skipping the August date, but doubtless the Hon. Sec. — see Panel — would be delighted to enlighten you as to what's what.

The next stop must be **Harrow**, and that means Harrow Arts Centre, High Road, Harrow Weald. Throughout August the weekly Friday sessions will be informals.

The **Hastings** programme takes a little disentangling for a stranger, but this seems to be about right: the third Wednesday in the month is the main meeting and is at West Hill Community Centre, while the other Wednesday evenings are taken at Ashdown Farm Community Centre. On Tuesdays the Morse class runs at Ashdown Farm, and on Friday evenings there is the chat night, again at Ashdown Farm Community Centre. Full details from the Hon. Sec.

August at **Havering** sees three informals, on August 3, 17, 31. G8ZKZ takes on the talking on August 10, with Servos as his topic. That leaves 24th for a pre-contest briefing, followed by a lecture by G8DQJ. All are at Fairkytes Arts Centre, Billet Lane, Hornchurch, Essex.

Anyone thinking of going to a **Hereford** meeting should be aware that for the moment the formal meetings are being held at the Lord Scudamore School in Friar Street, and the informals at the "Antelope Inn", Barton Road. However, since the whole position is under almost continuous review, we strongly recommend a check with the Hon. Sec. — see Panel for his details. The dates we have, by the way, are August 5 for the main meeting and 19th for the informal.

Ipswich are to be found at the "Rose and Crown", at the junction of Norwich Road — the A45 — and Bramford Road. August 10 is planning for the Ipswich Carnival, and on August 24 they are planning for "Wheels '83"; August 31 is down for looking ahead to SSB NFD. On other Wednesday evenings they have a Morse class at the same venue.



This year's Harlow and District A.R.S. (G6UT) NFD entry was wrecked by the premature and complete demise of the hired generator, the piston apparently being unwilling to travel in the same direction as the crankshaft. However, some contacts were made and (above) Keith Haynes, G3WRO, opens with PYSZBU; behind is Cilla Mann, G4KVR, and George Sweet. Below, Mark Cracknell, G6ABB, helps to erect the club's 60-ft mast.



I.R.T.S. is the national society for EI-land, and they are the people to contact if you want to know more about any aspect of amateur radio in Eire; and they have a local club meeting, too. The Hon. Sec's. details are in the Panel.

Every Monday evening the **Isle of Man** crowd foregather at the Keppel Hotel, Creg-ny-Baa, alternating between activity nights and social evenings.

Names and Addresses of Club Secretaries reporting in this issue:

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- SHEFFORD: A. R. Little, G4PSO, 41 St. Michaels Road, Hitchin, Herts. (Hitchin 57946)
- SOUTHDOWN: T. Rawlance, G4MVN, 18 Royal Sussex Crescent, Eastbourne.
- S.E. KENT YMCA: A. Moore, G3VSU, 168 Lewisham Road, River, Dover. (Kearsney (03047) 2738)
- SOUTH ESSEX: D. V. Pritchard, 55 Walker Drive, Leigh-on-Sea, Essex.
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- YEovil: A. Dening, G4BJH, 19 The Park, Yeovil. (0935 23873)
- YORK: K. R. Cass, G3WVO, 4 Heworth Village, York.

The **Itchen Valley** crowd will be operating a station at the Debenhams department store in Southampton on August 20 — which seems to be an easy way of finding them; or you can head for the St. John Ambulance Hq at the corner of Blenheim Road and Desborough Road in Eastleigh, where they get together on alternative Thursday evenings.

The dates for **Kidderminster** are August 2, for a night on the air, and August 16 for an informal. August 30 is set aside for planning their participation in Wyre Forest Mini-Marathon. The Hq is at Aggborough Community Centre, Hoo Road, Kidderminster.

August at **Lincoln** goes something like this: August 10 and 24 are nights-on-the-air, while August 3, 17, and 31 are RAE/CW nights. All are at the City Engineers' Club, Central Depot, Waterside South, Lincoln.

Maltby next, where the booming local group can be found on any Friday evening at the Methodist Church Hall, Blyth Road, Maltby.

An interesting letter from **Marconi S. & D.S.** indicates that the **Mary Rose** award, in connection with the lifting of that pride of King Henry VIII's fleet, has so far raised some £1500 for the Mary Rose Trust. G3FWE would, we feel sure, be pleased to pass on more details of their efforts in this area as well as telling you about the club.

Over now to **Medway**, and it looks as though all the meetings for August are informals; Friday evenings at Number One Hall, St. Luke's Church, King William Road, Gillingham. However, the data we have is a little ambiguous, so we strongly recommend a contact with the Hon. Sec. — his name is in the Panel — for the



On July 2nd the Marconi Radio Society re-launched G2MT (originally 2MT), the callsign of Marconi's Wireless Telegraph Company back in the 1920s. Here club chairman George Benbow, G3HB, watches Cliff Deamer, G3NDC, make the opening contact. The first session on the air yielded over 150 QSO's, worldwide.

details.

While the main meeting of the **Midland** group is on the third Tuesday in the month, it seems as though you could bang on the door at 294A Broad Street, opposite Birmingham Repertory Theatre, on virtually any evening in the week and expect to get a reply. Apart from things like RAE classes and Morse, they still have some work on the Hq, so should take overalls or apron! Details from the Hon. Sec. — see Panel.

August 2 and 16 are the dates for **Mid-Warwickshire**, at 61 Emscote Road, Warwick. The former date is down for a Members Equipment evening, and on the last-mentioned they will be preparing for their stand at the Town & Country Festival at the National Agricultural Centre, Stoneleigh, over August 27-28-29. On top of this, there is also a family day out and picnic at Ragley Hall on August 21, where there will be a station on the air from 1100, signing G3UDN.

Every Thursday evening you can find the **North Wakefield** members at Carr Gate Working Men's Club; August 4 sees a visit from the local *Farnell Components* representative.

Up in GM land, the **Perth** chaps foregather at Perth City Sports and Social Club, Leonards Street, every Tuesday evening; Morse classes are run on Wednesday evenings too. More details from the Hon. Sec. — see Panel.

Another weekly club is at **Pontefract**, where they have every Thursday booked at Carleton Grange Community Centre, Carleton, Pontefract, West Yorkshire. August 11 is down for a joint D/F event with Wakefield, August 18 is a chance to try the club rig, and on August 25 G3VTD will talk about modifying equipment for amateur use.

The net activities of **RAIBC** continue to increase; but of course, quite apart from nets, the help the club gives to its blind and

invalid members is of the utmost importance. Details from the Hon. Sec. — see Panel.

The **Reigate** meeting is on August 16, in the upstairs meeting room at the Constitutional and Conservative Centre, Warwick Road, Redhill.

The **Royal Navy** group's membership hardly needs to be defined, but it does include reserves, retired, and MN personnel as well — details from the Hon. Sec. at the address in the Panel.

We have 'run out of dates' for **St. Neots**; but we can say that they are based on the "Horseshoe Inn", Offord Darcy, near Huntingdon, on alternative Mondays.

On to **Shefford** where the club are QRT for the whole of August, the next meeting being on September 1.

The gatherings of the **Southdown** club are always on the first Monday in the month at the Chaseley Home for Disabled Ex-Servicemen, Southcliff, Eastbourne, which gives August 1. We do not have details of the programme.

The **South Essex** club magazine which we have here says that they foregather at The Paddocks, Long Road, Canvey Island on Wednesday evenings. On August 3, G3VUE will be talking about building Top Band verticals, and on 10th there is a two-metre Fox-Hunt. August 17 is down for a RTTY demonstration, and on 24th G3EUR will be talking about wartime radio.

S.E. Kent YMCA have their base in the Dover YMCA in Godwynehurst, Leyburne Road, Dover. Normally they are 'at home' every Wednesday evening, but we understand that in July and August it will be all outdoor activity; details obtainable from the Hon. Sec. at the address in the Panel.

August 12 at the "White Hart", Market Place, Spalding, is the essential information for **Spalding**; the speaker is to be G3RJV, talking about "Amateur Radio on a Shoe-string".

Stevenage next, and here the first date of interest is August 2, when they go off to Woolmer Green for a demonstration of satellite TV reception. August 9 is a D/F Hunt, and 16th is Constructor's Evening, with the club picnic on Sunday, August 21 at Hampson Park. The club Hq is at *TS Andromeda*, Fairlands Valley Park, Shephall View, Stevenage.

Another club with no meetings in August is **Stourbridge**, where the next time you can meet them is September 5 at "The Garibaldi" in Cross Street.

August 1 and 15 are the dates for **Surrey**, and the venue is *TS Terra Nova*, 34 The Waldrons, South Croydon. August 1 is to be confirmed as a barbecue — so check the latest details with the Hon. Sec. — see Panel.

Surrey Police club is open to all serving members of the Force, or civilians employed by them; details from the Hon. Sec. — see Panel for the needful.

We come next to **Thames Valley**; here the present members will be hearing on August 2 about the past fifty years of the club's life from G8SM and G3JIP, at Thames Ditton Library meeting room, Watts Road, Giggs Hill, Thames Ditton, Surrey.

The **Thanet** crowd will be putting on GB2PF on August 6 for some unspecified event, and also having their normal club nights on August 9 and 23; both are down as operating evenings at Grosvenor Club, Grosvenor Place, Margate.

Turning now to **Torbay**, we see they have their Mobile Rally at the ITT Social Centre, Old Brixham Road, Paignton. As for the normal meetings, these are on Friday evenings for informals, plus the formal business meeting on the last Saturday of the month, at Bath Lane, rear of 94 Belgrave Road, Torquay.

UK FM Group (Southern) have their gathering on August 3 at Chineham House, Shakespeare Road, off Popley Way, Basingstoke, for a talk by the local crime prevention officer.

A change of venue is noted for **Vale of White Horse**; they will be meeting in future at the Canteen and Social Club, Milton Trading Estate, Milton, on the first and third Tuesday evenings of each month. Go to the main entrance to the Trading Estate, turn left inside the main gate, and it is the second building on the left. The gathering will be in the restaurant, or sometimes in one of the smaller rooms.

It looks to be the second and fourth Tuesdays every month for



Not /MM as known to radio amateurs, but nevertheless greatly worthy of publicity in our pages: Mike Spring, crippled in a road accident and paralysed from the waist down, recently set sail in the 21-foot yacht *3M Mariner* on a single-handed 70-day voyage to the Azores and back to publicise a fund-raising campaign by the Pain Relief Foundation. His radio link to the U.K. during this truly daunting test of courage and determination is provided by *Racal-Tacticom* equipment. We wish him calm seas and a steady breeze.

the **Verulam** gang; the venue is the R.A.F. Association Hq, New Kent Road, St. Albans.

For all the details on the **Wakefield** group, we have to refer you the Hon. Sec. — his name and address is in the Panel.

The **West Kent** members have their formal get-together at the Adult Education Centre, Monson Road, on second and fourth Friday evenings each month, and in addition they have informals at the Drill Hall in Victoria Road, on the alternate Tuesday evenings following the formals; both venues are in Tunbridge Wells.

The **Westmorland** club's resurrection seems to have been successful, so if you are within striking distance of Kendal, try looking in at the "Strickland Arms" just south of Kendal on the A6 on the second Tuesday of the month; the upstairs room is the place to look for.

August 1 is **Worcester's** evening at the Oddfellows Club, New Street, Worcester, when G3TQZ will ask the question "Is your Rig up to Spec?" The informal evening will be on August 15, at the "Old Pheasant Inn" in the same street.

On now to **Yeovil**, and it is every Thursday evening at Milford Recreation Centre, Milford Park, Yeovil. On August 4 and 11, G3MYM will present Parts 1 and 2 of his talk "How to Build a Simple Amateur Band Receiver", changing his topic on 18th to cover 80-metre propagation. On August 25 he takes a well-earned rest while they have a natter evening.

If you are in the **York** area, the locals are to be found every Friday evening at the United Services Club, 61 Micklegate, York. In addition, one of their favourite summer pastimes is running special-event stations, with August 13 down for operation as GB2TS at the Tolleton Show.

Finale

That's the bottom of the pile for another month; deadlines for information arrival are given in the 'box', and don't forget that the letter arriving at the end of August should carry October's information — by the time you read this we should already have September's! Above all, *please* check that we have full details of the Hq, the meeting dates, and the Hon. Sec's. name, address and phone number. Till next time, then 73 and happy gardening!

"Six Castles Award"

As part of the club's participation in the "1983 Festival of Castles" scheme, Swansea Radio Amateur Constructors Club is to set up a station at Oystermouth Castle over the weekend August 13/14, operating all bands 3.5 to 28 MHz, plus 2m. on 145.350 MHz FM. Furthermore, on the Sunday only, to promote interest in 2m. working and to raise money for the R.A.I.B.C., Trevor Morgan, GW4OXB, will cycle the Gower Peninsula and operate /P on 145.300 MHz FM from six castles, using one watt only. The castles visited will be Oystermouth, Penmaen, Oxwich, Weobly, Loughor and Swansea. The award will be available to stations who work GW4OXB/P at all six castles and can be claimed by submitting a copy of log entries and a cheque/P.O. for £1 to Trevor Morgan, GW4OXB, 1 Jersey Street, Hafod, Swansea SA1 2HF, from whom full details of the event are obtainable. There will be a controller at the club station who will pass calls to GW4OXB/P, keeping the channel open and allowing as many as possible to work the portable station. There is also to be an HF award for working five club members on at least two bands.

Mobile Rallies

August 7, RSGB National Mobile Rally, Woburn. **August 14**, Derby Mobile Rally, Lower Bemrose School, Derby. Details from G4EYM (Derby 556875). **September 11**, Telford Mobile Rally, Town Centre Malls, Telford, Shropshire, opens 11 a.m. (10.45 a.m. for the disabled), car parks, catering and licensed premises on site, all the usual attractions and even more space, talk-in via GB4TRG on S22 and SU8/20 FM. Further details from G8DIR (Shrewsbury 64273), G8UGL (Telford 584173) or G3UKV (Telford 55416). **September 11**, Vange Mobile Rally, Nicholas School, Basildon, Essex, opens 10 a.m., trade stands, bring-and-buy, refreshments, talk-in on 2m., parking. Further details from G4IFD, QTHR. **September 25**, Harlow Mobile Rally, Sportscentre, Hammarskjold Road, Harlow, opens 10.30 a.m., all the usual stalls, licensed bar and refreshments.

Stolen

A TS-830S transceiver (s/n 1110438) was stolen on June 5th from Verulam Club NFD site at Kings Langley; the owner is G4DJX, QTHR. Also in a recent burglary at Kings Langley, a TR-2500 2m. handheld (s/n 2051908) was stolen. Anyone with information should contact P.C. Dowse at Hemel Hempstead police station (Hemel Hempstead 64881).

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1983

Operating Marathon

To commemorate "World Communications Year 1983", the Midland A.R.S. is to hold a 48-hour operating marathon, with the object of maintaining radio contact with fellow amateurs throughout the world. Using the callsign GB4MAR, the station will operate from 1700 GMT on Friday, **Sept. 23rd**, until 1700 GMT on Sunday, **Sept. 25th**, from the club's Hq at 294a Broad Street, Birmingham. Further details are available from R. Blaikie, G4OGR (021-449 4541), or K. Townsend, G4PZA (021-474 6517).

COURSES FOR THE R.A.E., 1983-84

— a first listing

Abergavenny: Abergavenny and Nevill Hall A.R.C., course commences Sept. 13th. Full details from tutor D. Jones, GW3SSY (0873-2566 day, 0495-791617 evenings).

Blaenavon: Course commences Sept. 12th, all enquiries to tutor D. Jones, GW3SSY (0873-2566 day, 0495-791617 evenings).

Bradford: Bradford & Ilkley Community College, Great Horton Road, Bradford BD7 1AY, commencing in September, enrolment begins Sept. 6th, also Morse course for existing 'B' licencees. Contact tutor P. Nurse at the College for details (0274-734844).

Derby: Derby College of F.E., Wilmorton, Derby DE2 8UG (0332-73012), commences Sept. 28th, enrolment Sept. 12/13th. Full details from F. Whitehead, G4MLL, the course tutor, at the College.

Farnborough (Hants): North East Hants. Adult Education Institute, Oak Farm Centre, Chaucer Road, Farnborough, Hants., begins Sept. 22nd. For enrolment details ring 0252-540084.

Grantham: St. Hugh's C.E. Comprehensive School, The Avenue, Dysart Road, Grantham NG31 7PX (0476-4815), Morse class Mondays 6.30 to 9 p.m., commencing Sept. 12th, enrol at the class. Full details from the School.

Hemel Hempstead: Dacorum College, Marlowes, Hemel Hempstead (0442-63771), Wednesdays 6.30 to 9 p.m. (and Mondays 6.30 to 9 p.m. if sufficient enrolments), starting Sept. 21st, enrolment Sept. 5th, course tutor C. B. Burke, G3VOZ. Further details from the College.

Leamington Spa: Mid-Warks. College of F.E., (Dept. of Eng.), Warwick New Road, Leamington Spa CV23 5JE (0926-311711), Thursdays 7-9 p.m., starting Sept. 22nd, enrolment Sept. 8/9th. Further details from the College.

London (Hackney): De Beauvoir Evening Institute, Tottenham Road, Dalston, London N.1, Wednesdays 7.30 to 9.30 p.m., starting Sept. 28th, enrolment Sept. 19th 7-9 p.m. Course tutor T. C. Clark, G4BZW, QTHR (01-249 1843).

London (Islington): Grafton Radio Society/Islington Institute, Risinghill Street, London N.1, Mondays 7-10 p.m. (for May/June 1984 only), enrolment Sept. 19th. Contact lecturer B. C. Bond, G3ZKE, for full details (QTHR, or 01-485 7065).

Loughborough: Loughborough Technical College (Dept. of Elec. Eng.) Radmoor, Loughborough, Leics. LE11 3BT (0509-215831), Tuesdays 6-7 p.m. (Morse) and 7-9 p.m. (Theory), starting Sept. 13th, course fee £16.50; tutor Doug Doughty, G3FLS.

Manchester (Swinton): Pendlebury High School, Cromwell Road, Swinton, Mondays at 7.30 p.m., commencing Sept. 26th, instructor P. Whatmough, G4HYE; also Morse class, instructor W. Stevenson, G4KKI. Registration early Sept. Full details from G4HYE (061-794 3706), or from Swinton Adult Education Centre (061-794 5798).

Melton Mowbray: Melton Mowbray College of F.E., Asfordby Road, Melton Mowbray LE13 0HJ (0664-67431), enrolment Sept. 6/7th. Further details from the College, or course tutor K. Melton G3WKM (Melton Mowbray 68810).

Newcastle-upon-Tyne: Gosforth Adult Association, Gosforth High School, Gosforth, Newcastle-upon-Tyne, Tuesdays 7-9 p.m. (Theory) and Thursdays 7-9 p.m. (Morse), commencing in September. Enquiries to The Principal at the above address, or contact the course tutor D. R. Loveday, G3FPE, on Newcastle 668439.

Nottingham: Basford Hall, Stockhill Lane, Nottingham, Thursdays 6.30 to 9 p.m., enrolment Sept. 12/13/14, 2-8 p.m., tutor Geoff Tomlinson, G6DJQ. For further information contact Alan Lake, G4DVW (0602-382509), or Basford Hall (0602-637316).

Nottingham (Hucknall): Hucknall College of F.E., Portland Road, Hucknall, Notts., Mondays 6.30 to 9 p.m., enrolment Sept. 12/13/14th 2-8 p.m., tutor Alan Lake, G4DVW. Further information from G4DVW (0602-382509), or Hucknall College (0602-637316).

Nottingham (Mapperley): Arnold & Carlton College of F.E., Digby Avenue, Mapperley, Nottingham NG3 6DR (0602-876503), Wednesdays 7-9 p.m. (for May exam), commencing Sept. 21st, fee £16.40, tutors G4DVW and G4NZU. *Crash courses:* starting Sept. 22nd (for December exam), fee £7.07, tutor G4DVW; starting Jan. 26th (for May exam), Thursdays 7-9 p.m., fee £7.07, tutor G4DVW. The College is also running three new courses, entitled "Construct-A-Rig", "French for Radio Amateurs" and "After the R.A.E.". For details of these courses, plus *all* enrolment information, contact the General Studies Dept. at the College, or ring Alan Lake, G4DVW (0602-382509).

Nottingham (Sandiacre): Sandiacre Adult Education Centre, Friesland School, Nursery Avenue, Sandiacre, Nottingham NG10 5HG, Tuesdays at 7.15 p.m., enrolment Sept. 13th 7.15 p.m., course tutor G3VGW. Full details from The Principal, at the above address.

St. Austell: St. Austell Adult Education Centre, Tuesdays 7-9 p.m., commencing Sept. 27th. For full information contact the course tutor J. S. Kennedy, G4DND, QTHR (tel: St. Columb 880479).

Slough: Langley College of F.E., Station Road, Langley, Slough SL3 8BY (0753-49222), Thursdays 5.30 to 7 p.m. (Operating Techniques), Thursdays 7 to 8.30 p.m. (Morse), Wednesdays 7-9 p.m. (Theory), enrolment Sept. 6/7th 12.30 to 8 p.m. Further information from lecturer E. C. Palmer, G3FVC, at the above address.

Southampton: Southampton Technical College, St. Mary Street, Southampton SO9 4WX (Southampton 35222), Tuesdays 6.45 to 8.45 p.m., commencing Sept. 20th, provisional fee £29.40 (under 18, £14.70), course organiser D. A. Peck, G8RKG. Contact the College for enrolment details.

Stevenage: Stevenage & District A.R.S., Fairlands Community Centre, Thursdays at 7.30 p.m., starting Sept. 15th. Contact Cliff Barber, G4BGP, 13 The Sycamores, Baldock, Herts.

Turnford (Herts): East Herts College, Turnford, starting in September. Details from Mr. J. France at the College (Hoddesdon 66451), or Jim Sleight, G3OJI (Ware 4316).

Walsall: Barr Beacon Comprehensive School, Old Hall Lane, Walsall, Thursdays 6.30 to 8 p.m. (beginners), and 8 to 9.30 p.m. (short course), enrolment Sept. 22nd at 7 p.m. Further details from course tutor Frank Fear, G8CVR, on Aldridge 52706.



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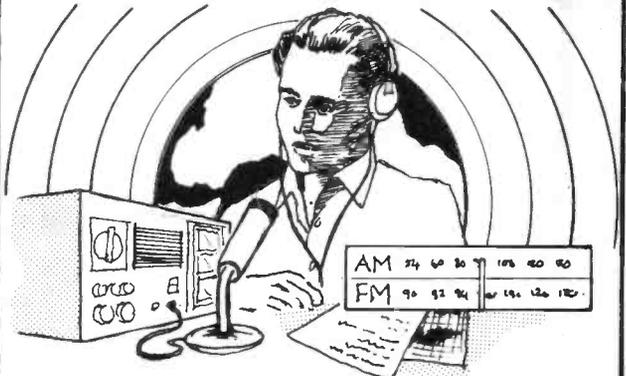
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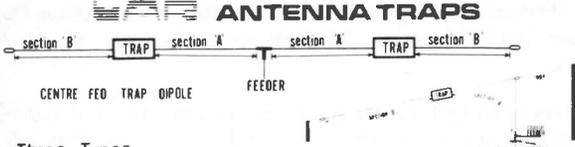
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