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THE
**SHORT
WAVE**
MAGAZINE

**WORLD WIDE
COMMUNICATION**

FOR THE RADIO AMATEUR AND AMATEUR RADIO

LOWE ELECTRONICS



TRIO TS520



The TS520—latest in the new TRIO line of superior amateur radio equipment. Its styling and finish put all other rigs in the shade; and it is not just pretty—the front panel is a die casting giving unheard of strength and stability.

All semiconductor except for driver and PA, the TS520 is at home mobile, portable or fixed station thanks to built-in AC power supply and 12v. inverter. Blower cooled 6146's for long life and exceptional linearity.

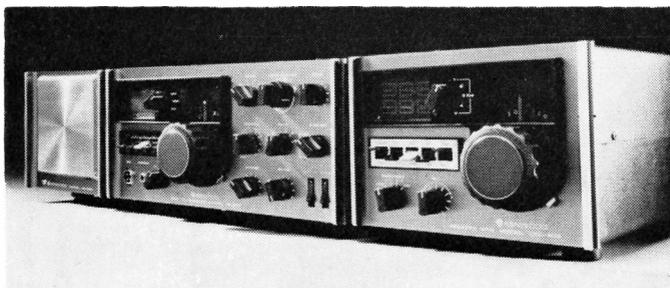
*TRIO exclusive. Built-in speech compression for that extra DX punch—without distortion, due to amplified ALC system.

FEATURES

R.I.T. ★ NOISE BLANKER ★ AMPLIFIED 2 SPEED AGC ★ 25 kHz CALIBRATOR ★ BLOWER COOLED PA ★ FIXED CHANNEL OPERATION ★ 4 FUNCTION METERING ★ AMPLIFIED ALC ★ BUILT-IN SPEECH COMPRESSION ★ LED INDICATORS FOR FIX, VFO, RIT ★ LOW POWER TUNE UP FOR LONG PA LIFE ★ TRANSVERTER OUTPUTS (MATCHING TRANSVERTER IN STOCK) ★ 12v. DC|240v. AC OPERATION ★ MATCHING SPEAKER AND VFO AVAILABLE ★



TRIO TS900



This is probably the finest amateur transceiver ever made. Professional design and construction make the TS900 a joy to own and use.

As QST (July 1973) said "This device has to be the pace-setter for the 1970's."

Full coverage 80-10; superb stability and selectivity; all mode operations including RTTY (crystal controlled RTTY shift built-in); all solid state except driver and PA; DC power supply and external VFO both available.

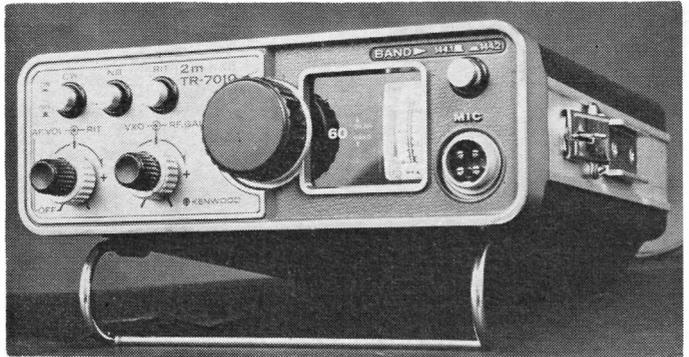
300W pep ★ All Modes ★ Separate USB|LSB Filters ★ 500Hz CW Filter Option ★ Four Function Metering ★ Two speed AGC ★ Noise Blanker ★ 0-1 Micro Volt Sensitivity (ARRL Measurements) ★ Blower cooled pa ★ Crystal controlled RTTY generation ★ VOX ★ Break-in CW ★ AC psu ★ DC psu ★

Write or phone for full specification and the reasons why the TS900 is the ultimate transceiver.

LOWE ELECTRONICS



TRIO TR7010



Following the worldwide success of the TS700, Trio have taken the TS700 basic design and packaged it for 2 metre SSB mobile use. The TR7010 sets new standards in receiver sensitivity and low spurious emission on transmit. Operating CW and SSB from 144.1-144.3 MHz, the TR7010 covers all CW, SSB and beacon activity. 40 5 kHz channels plus VXO and RIT provide continuous coverage. 8 extra channels can be used, without returning, in the range 144-145 MHz by fitting auxiliary crystals.

Single conversion using an IF of 10.7 MHz with a superb crystal filter provides outstanding selectivity. Wide range amplified AGC

and newly developed FET devices in RF amplifier and mixer stages allow maximum sensitivity to be used with freedom from overload due to adjacent signals.

Single conversion transmitter with new fully balanced mixer system generates a beautifully clean signal with crisp audio quality.

The first lucky owners are on two metres right now. Listen to the signal and make up your own mind. Why not send for full details of the all new TR7010 right now.



TRIO TR2200G



This little powerhouse is now the world's fastest selling two metre FM transceiver. Unbeatable at any price, it's combination of rugged reliability and high sensitivity give it universal appeal. Now that more and more repeaters are opening, the TR2200G allows the operator to work over long distances with ease—we can often work GB3PI from Matlock using the whip antenna on the TR2200G.

The rig comes complete with carrying case, shoulder strap, microphone, Nicad charger, two battery carriers and fitted with three channels (S20, S22 and R7 normally but alternatives supplied to your choice). Facilities for 12 channels and incorporating Trio's unique fork repeater access tone generator.

If you hanker after mobile working from your car, the VB2200 amplifier is a marvellous addition. This superb amplifier comes complete with a carrying cradle for the TR2200G and boosts the power output from 1W to 10W. The amplifier is automatically switched by a FR VOX system and also supplies regulated DC for the TR2200G.

Together, the TR2200G and VB2200 give you portable and mobile operation but the real bonus comes when you add together the prices and come out with a total which is cheaper than a normal mobile rig, unbelievable value for money in the TR2200G.

SPECIFICATION

TRANSMITTER

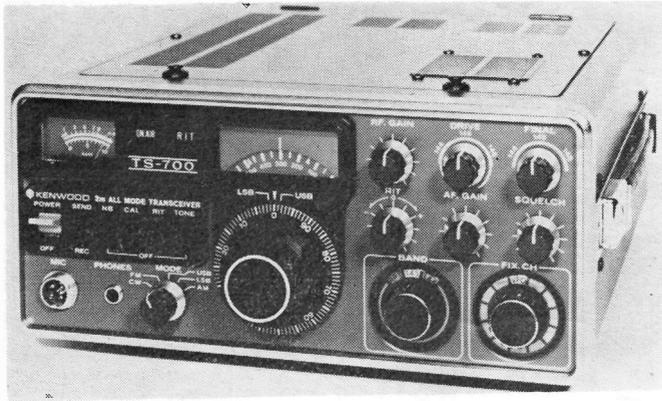
Frequency range 144-146 MHz
Emission F3
Output power 1W
Freq. mult. X12
Antenna impedance 50Ω

RECEIVER

Sensitivity Less than 1μV for 20dB S/N
Intermediate frequencies 10.7 MHz and 455 kHz
AF output 0.5W
Power source 10.4-15.2v. DC negative earth (8 x UM3 batteries or optional NICad pack)
Power consumption 450mA TX 55mA RX

Supplied complete with 3 channels, charger for NICads, external DC lead, carrying case, shoulder strap, microphone, two battery carriers.

LOWE ELECTRONICS



TRIO TS700

SPECIFICATION

Frequency Range	144-146 MHz	Repeater Shift	Standard 600 kHz transmit downshift provided
Modes	USB, LSB, CW, AM, FM	Calibrator	Built-in 1 MHz Calibration points
VFO Coverage	144-145 and 145-146 MHz	Dial Readout	To better than 1 kHz all modes
Crystal Control	22 Channel capability	R.I.T.	4 kHz shift of receiver with respect to transmit frequency
Power Output	10W minimum	Noise Blanker	Advanced circuitry noise blanker for noise free mobile or fixed operation
Antenna Impedance	50 ohms	ACL Input	Socket provided for ALC input from linear
Carrier Suppression	50dB	AUX Relay	Socket provided for switching external linear
Sideband Suppression	Greater than 40dB	Power Requirements	120 240v. 50 60Hz AC
Spurious Radiation	Better than — 60dB down in all modes	Consumption	12-16v. DC negative earth
Deviation	± 10 kHz or ± 3 kHz		Receive 45 watts AC
Repeater Tone	1750 kHz Tuning Fork Oscillator		800 MA DC
IF	10.7 MHz for SSB, AM, CW, Single Conversion 10.7 MHz and 455 kHz for FM Double Conversion	Dimensions (mm)	Transmit 95 watts AC
Sensitivity	0.5µV for 10dB S/N	Weight	4A DC
Image Rejection	Greater than 60dB		278 wide x 124 high x 320 deep
IF Rejection	Greater than 60dB		11kg 24.2 lb
IF Shape Factor	Better than 2:1 all modes		
AF Output	Greater than 2W into 8 ohms		
Stability	Better than 200Hz in any 30 min. period after warm-up		

From the specification, it is obvious that the TS700 is an entirely new concept in two metre equipment. What is not obvious is the attention to detail which makes the TS700 such an outstanding performer. Take the fact that the driver and Pa transistors run from a 20v. supply to give very linear operation and low intermod products. This supply comes from a patented TRIO inverter which runs seven when on a 12v. DC supply. Take the fact that you can peak all the 144 MHz receive and transmit tuned circuits by a single knob on the front panel thus giving optimum gain on receive and very low spurious outputs on transmit; no broadband compromises in TRIO equipment.

There is so much more to say about the TS700. Why not call or send for details to find out why you must not consider any other two metre equipment until you have seen the TRIO TS700.

SAD NEWS

You can all guess what's coming—that's right, a price increase. Since we were appointed Trio distributors in July, 1974, we have maintained our prices at the same level ever since. This must be something of a record over a period of fourteen months but in the meantime, inflation and a weakening of sterling, have both taken their toll.

Those of you who follow the currency exchange rates of the past year will have seen the pound slide from 760 yen to 620 and from 2.42 US dollars to 2.01. Since we pay our bills in dollars and yen, this means an effective price increase to us of around 20%. Regrettably, therefore, the price of all imported items will rise by something close to this amount.

Take heart—all current stocks will be sold at existing prices (whilst they last).

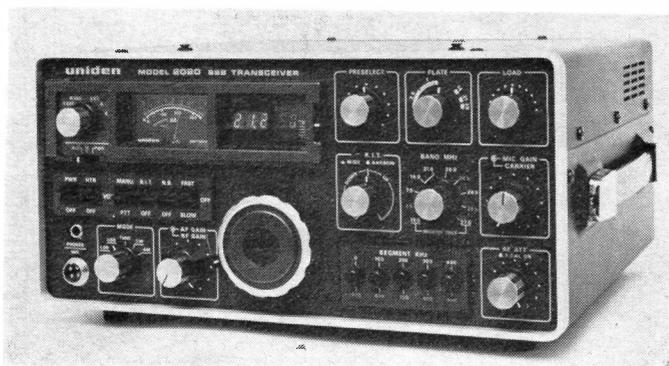
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BRANCH OFFICES	39 Pound Street, Carshalton, Surrey. Tel. 01-669 6822 Soho House, 362-4 Soho Road, Handsworth, Birmingham. Tel. 021-554 0708
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73 from BILL G3UBO/VE8DP, ALAN G3MME, JOHN G3PCY/5N2AAC, IAN G3ZYC

RUTLAND COMMUNICATION FACTORS LIMITED

uniden 2020



We are proud to introduce the very newest in all band, all mode transceivers—the UNIDEN Model 2020. This is an all new rig with a refreshing new approach to amateur radio activity. Fully self contained for operation on AC mains or 12v. DC mobile the 2020 uses the very latest design techniques to give superlative performance. Plug-in modules for reliability, optimum circuit isolation and easy servicing.

- * **FULLY SELF CONTAINED** The 2020 has built-in AC/DC power supplies, CW filter, noise blanker, marker oscillator and PA blower.
- * **NEW DIAL READOUT** An original combination of digital and analogue displays giving direct readout without counter noise problems.
- * **RUGGED PA** Uses a pair of 6146B tubes with stabilised screen supply and amplified ALC system.
- * **SUPERB CROSS MODULATION AND IMAGE REJECTION** Receiver is pre-mixed single conversion using a phase locked loop oscillator circuit. It has excellent signal handling characteristics and uses three filters for USB, LSB and CW.
- * **INDEPENDENT RF CIRCUITS** Transmitter and receiver RF circuits are electrically separate providing no-compromise performance.
- * **DUAL RIT CONTROL** Giving two tuning rates for quick scanning or very precise fine tuning—a UNIDEN exclusive feature.

See the UNIDEN 2020 at the Leicester show and at your local amateur radio stockists. You will have to admire the thought that went into its design.

OTHER PRODUCTS

As well as the exciting new UNIDEN range of equipment, we offer the complete NIHON DENGYO line of SSB and FM, amateur and marine transceivers and receivers; HALLICRAFTERS products; TONO linears; valves; crystals, filters; station accessories; Hy-Gain antennas; RAK antennas; plugs, sockets and cable; in fact everything that a radio amateur may require.

2 RUTLAND STREET, MATLOCK, DERBYS.



THE NAME IS YAESU



FT-221

● Solid State Ultimate 2 Metre Transceiver with Versatile SSB/FM/CW/AM Operation

Here is a compact, versatile transceiver designed for the active 2 metre enthusiast. The FT-221 features all mode operation—SSB/FM/CW/AM—with repeater offset capability. Advanced phase lock loop circuitry offers unsurpassed stability and clean spurious free signals. Modular, computer type construction offers reliability and ease of service.

Features

- * Complete 144-148 MHz coverage in 8 band segments
- * Dual rate, concentric VFO dial drive with better than 1 kHz readout
- * Built-in AC and DC power supplies
- * SSB/CW/FM/AM operation
- * Selectable ± 600 kHz repeater offset
- * Built-in VOX and break-in CW
- * External tone input connector
- * Built-in 100 kHz calibrator

Preset pass band tuning provides the optimum selectivity and performance needed on today's active 2 metre band. Join the fun on FM, DX, or OSCAR, with the FT-221 transceiver. Another winner from the world's leader in amateur communications equipment.

- * Built-in effective noise blanker
- * Three way metering: S meter, power output, and FM discriminator
- * 11 crystal channels per band segment = Total 88 channel
- * SSB output 12 watts PEP
- * FM/CW output 14 watts
- * AM output 2.5 watts
- * Built-in speaker

THESE ARE THE LATEST CHAPTERS

MUSEN—THE REPUTATION IS UNPARALLELED!

FT-101E/EE

● Solid State 160 thru 10 Metre Transceiver

The world's number one transceiver now offers even more value and performance in one, compact, thirty pound package. An effective, RF Speech Processor is a built-in integral part of this exciting transceiver. Now you can realize that extra talk power to cut through the pile ups—without the addition of a linear amplifier. Except for the final and driver stages, the FT-101E/EE features the latest in solid state technology, incorporating time proven,

plug-in "computer type" modules for unparalleled reliability and serviceability. New lever type switches offer easier operation. Here is a complete radio station designed to go anywhere—ideal for today's active amateur. Just add an antenna and 12v. DC or 100-234v. AC for instant operation on 160 thru 10 metres. The FT-101E/EE is another step forward in amateur communications from the world's leader in communications equipment. YAESU—The Radio Company.



E MODEL WITH R.F. PROCESSOR
EE MODEL LESS R.F. PROCESSOR

Features

- * Built-in AC and DC power supplies
- * Built-in RF-speech Processor for increased talk power (E model only)
- * 260 Watts PEP SSB, 180 Watts CW, and 80 Watts AM.
- * Factory sealed, solid state VFO for optimum stability and accurate 1 kHz readout
- * Effective Noise Blanker, threshold adjustable, for elimination of noise spikes
- * Built-in, fully adjustable VOX
- * Automatic break-in CW operation with sidetone
- * Selectable 25 kHz and 100 kHz calibrator
- * ± 5 kHz receiver clarifier w/separate ON/OFF switch
- * Built-in WWV/JJY reception
- * Heater switch to shut off final tubes for conservation of current drain
- * Reliable easy to operate lever switch
- * Adjustable carrier level for tune-up and novice operation
- * Built-in speaker
- * High-Q, permeability tuned, RF stages to provide the performance required even in base station operation
- * Includes dynamic, hand-held type microphone.
- * Indicator lights for interval VFO and clarifier operation
- * Eight pole SSB filter for unparalleled selectivity on today's crowded bands
- * All mode operation—SSB, CW and AM
- * Built-in internal crystal control provision and Dual VFO adaptor
- * Complete line of compatible accessories for flexible station design

IN THE YAESU MUSEN SUCCESS STORY

READ ON FOR THE MAIN THEME 



**REMEMBER! WHEN YOU CHOOSE YAESU
YOU ARE DEALING WITH THE WORLD'S
★ LARGEST MANUFACTURER OF ★
AMATEUR RADIO EQUIPMENT**

The Ultimate Base Station Combination

JUST TWO MORE
RECENT EXAMPLES
OF YAESU'S LEAD
IN THE AMATEUR
FIELD



FL-101 Transmitter



FR-101 Receiver

Four models now available

FRI0IS	STANDARD
FRI0ID	DE LUXE
FRI0ISD	STANDARD WITH DIGITAL DISPLAY
FRI0IDD	DE LUXE WITH DIGITAL DISPLAY

- Solid State Receiver with Total Spectrum Coverage 160 thru 2 Meter plus provision for Major Short Wave Broadcast Bands

**ON THESE PAGES WE HAVE DEPICTED ONLY
A SMALL PART OF THE TOTAL YAESU
RANGE, SUCH NOW IS IT'S SCOPE — PROOF
ENOUGH THAT AMATEURS THE WORLD
OVER PREFER YAESU MUSEN — THE TRUE
SPECIALISTS IN AMATEUR RADIO
EQUIPMENT.**



Alignment Lines in Fukushima Factory

YAESU MUSEN AUTHORISED UK AGENTS

AMATEUR ELECTRONICS UK

SOUTH MIDLANDS COMMUNICATIONS LTD.

Western Electronics (UK) Ltd

Radio Shack Ltd ★

London's Amateur Radio Stockists

Just around the corner from West Hampstead Underground Station

NEW DRAKE SSR-1 RECEIVER



- Synthesized ● General Coverage ● Low Cost
- All Solid State ● Built-in AC Power Supply
- Selectable Sidebands ● Excellent Performance

UK PRICE £225, EXPORT PRICE £185 INC. SURFACE POSTAGE

SPECIFICATIONS

Frequency Coverage : 0.5 to 30 MHz in 30 ranges each tunable over 1 MHz range with a dial having 10 kHz graduations.
 Reception Modes : CW, USB, LSB, AM.

Sensitivity : At least 10 dB S + N/N under the following conditions :

MODE	FREQUENCY	INPUT LEVEL*
SSB	0.5-2 MHz	1.0 μ V
	2-30 MHz	0.3 μ V
AM	0.5-2 MHz	3.0 μ V
	2-30 MHz	1.0 μ V

(AM : 1000 Hz at 30% modulation)

* These voltages are 1/2 the open circuit signal generator voltage, i.e., the voltage read on the meter of a HP Model 606 Generator.
 Output : Capable of 200 mW output on SSB at 2 MHz with input signal of 0.5 μ V and 2 Watts output with 5 μ V input.

Audio Distortion : Less than 5% at 2 Watts.

Calibration Accuracy : Within 5 kHz at all frequencies.

Selectivity : BANDWIDTH

MODE	BANDWIDTH
SSB	3 kHz \pm 25%
AM	5.5 kHz \pm 25%

Image Rejection : Greater than 50 dB.

IF Rejection : Greater than 50 dB at f_d below 20 MHz.

Greater than 40 dB at f_d above 20 MHz.

Antenna : Self-contained telescopic whip antenna. External connection to terminal strip. (75 ohm input impedance—unbalanced.)

Audio Output Provisions : Internal 8 Ohm speaker and phone jack on front panel that disables speaker when plugged in.

Muting Provisions : External mute jack (RCA type) that provides normal reception with closed circuit and mute with open circuit connections.

Power Supply : 8 type "D" (1.5v) dry cell batteries. Tapped transformer to provide operation from 117v. \pm 15% or 240v. \pm 10%-20%, 50-60 Hz source with automatic switch over to batteries when AC line is disconnected.

Current Consumption : Less than 100 mA quiescent at 12v. DC.

Dial Lights : Momentary push button to light when on battery operation. Always on for AC operation.

Clarifier : Tunes minimum of \pm 2 kHz and maximum of \pm 5 kHz.

Size : 13in. (33 cm.) wide, 11in. (28 cm.) deep, 5.5in. (14 cm.) high.

Weight : 14 lb. (6.4 kg.).

SECURICOR ★ DRAKE ★ SALES ★ SERVICE
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RADIO SHACK LTD. 188 BROADHURST GARDENS LONDON, NW6 3AY

OPEN 5 DAYS 9 until 5 p.m. Sat. 9 until 1 p.m.

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Cables : Radio Shack, London, N.W.6

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BIRMINGHAM 8**

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**THE FANTASTIC 700CX
TRANSCIVER**



PLANET 808 £35 post paid
SUPERB NEW SPEECH PROCESSOR!



**FULL
YAESU
RANGE**



New 'X' models from **ATLAS RADIO - 210X, 215X**

AMATEUR ELECTRONICS UK ARE DIRECT IMPORTERS OF **YAESU, SWAN** and **ATLAS** EQUIPMENT AND MANUFACTURERS OF **PLANET** PRODUCTS

A COUPLE OF STAMPS (WE'LL PROVIDE THE ENVELOPE) WILL BRING YOU OUR LATEST USED EQUIPMENT LIST OR INDIVIDUAL INFORMATION ON SPECIFIC ITEMS—25 PENCE BRINGS THE LATEST GLOSSY SWAN OR YAESU CATALOGUE (FULLY REFUNDABLE AGAINST EVENTUAL PURCHASE)

NEW BRANCH! WE ARE PLEASED TO ANNOUNCE THAT OUR NEW BRANCH★ AMATEUR ELECTRONICS UK-COASTAL★ 316-318 NORTHDOWN ROAD, CLIFTONVILLE, KENT, IS NOW FULLY OPERATIONAL UNDER THE DIRECTION OF KEN McINNIS G3FTE AND WILL CATER FOR LOCAL CUSTOMERS AND VISITORS TO THIS PART OF THE ENGLISH COAST.

TELEPHONE : THANET (0843) 22060

AGENTS : SCOTTISH—RON TURNER GM8HXQ WISHAW 72172
WALES AND WEST—ROSS CLARE GW3NWS CAERLEON 422232

AMATEUR ELECTRONICS UK

PAUL
G3VJF

THANET



IC-22A

THE HIGH QUALITY MOBILE WITH
PLENTY OF CHANNELS FITTED
AS STANDARD

£125 + VAT

(Fitted with £43 of Crystals)

The IC-22A offers you the high quality and reliability found in all ICOM products in a compact, robust and attractive mobile rig at a price to suit your pocket. This FM transceiver employs up to date techniques to provide the ideal system for mobile use. Consider these points which all contribute to providing optimum contacts either direct or through the ever growing number of repeaters in the U.K.:-

- * Low noise dual-gate mosfet in the front end of the receiver.
- * 5 section helical filter after the front end to provide high rejection of unwanted out of band signals.
- * A trimmer for each crystal for accurate tuning which is necessary to keep ignition noise to a minimum.
- * Dual conversion with IFs of 10.7 MHz and 455 kHz for excellent image rejection and selectivity, with filters at each IF frequency.
- * Narrow filter giving high rejection of adjacent channel signals 25 kHz away.
- * Hard IF limiting using an IC.
- * A sensitive, temperature compensated, adjustable squelch circuit with front panel indicator to show when the squelch is open should the gain control be turned back to please the XYL.
- * 1.5 Watts of audio from its built-in 3 1/2" speaker giving ample volume for copy on the move.
- * Line voltages are filtered and regulated for reduction of interference from the dynamo or alternator.
- * Excellent clipping and speech tailoring to suit FM requirements.
- * A full 10W output from a sturdy PA transistor—switchable to about 1/2W for local working.
- * A fully automatic tone burst giving an access tone, for operating repeaters, at the beginning of transmissions WHEN SWITCHED TO A REPEATER CHANNEL ONLY. Thus there are no extra buttons to press when driving. Simply switch to the repeater channel you want and the rig does the rest.
- * An additional call button which can be wired as a manual tone switch for providing the very long (≥ 5 secs.) tones required to initially open some continental repeaters.

The accessories include a microphone, DC Power cord, spare fuses and the popular ICOM versatile quick release mobile mounting bracket. This makes it a simple job to remove the rig from the car for base station use.

After deciding that this is THE choice in mobile rigs the problem arises as to which channels to fit to give you optimum use, bearing in mind that crystals cost over £4 per channel with VAT at 25%. We put some thought into this, stirred in a little generosity, took a look at the UK bandplan and the frequencies used for FM mobile around the country and decided that with the following channels FITTED you will be unlikely to have to buy more crystals other than for private natter channels and local nets. You will note that we have included ALL the UK repeater channels—it would be silly not to as a mobile is intended to be moved about!

Channel	IC-22A Dial No.	USE
R3	3	Repeaters in SUFFOLK and YORKSHIRE
R4	4	Repeaters in Central Scotland, Derbyshire, Cornwall and Kent.
R5	5	Repeaters in HAMPSHIRE and Birmingham.
R6	6	Repeaters in CAMBRIDGE and S. WALES
R7	7	Repeaters in LONDON, WORCS., Aberdeen, Lancashire and West Wales.
SO (145 MHz)	9	A widely used mobile calling channel still used by many mobiles in the UK who only have this frequency.
S20	10	THE OFFICIAL mobile CALLING channel.
S21	11	A simplex channel to QSY to when others are full.
S22	12	A widely used simplex channel.
S23	13	Another alternative simplex channel often used.

NOTE: Repeaters shown in capitals are in operation NOW, others hope to be on the air before too long. Be ready now and avoid having to wait for crystals when they come into operation.

Thus your IC-22A will arrive nearly half full of crystals when you get it—but there are still spaces for a further 12 channels. All this for £125 + VAT—with free delivery by Securicor and the full backing of THANET warranty and service.

Subject to availability we intend to stock crystals for the following frequencies:—S10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and R1, 2, 3, 4, 5, 6, 7, 8 and 9 together with reverse repeater crystals for the UK channels. Other frequencies will be obtained to order PROVIDING THEY ARE IN PORTIONS OF THE BAND DESIGNATED TO FM. Price £3.50 per channel + VAT. Single crystals £2.00 + VAT.

NOTE: THE CRYSTALS WE SUPPLY ARE OF THE CORRECT LOADING CAPACITANCE FOR ICOM EQUIPMENT. OTHER TYPES MAY NOT BE AND MAY RESULT IN YOU BEING A FEW kHz OFF CHANNEL. THIS RESULTS IN IGNITION NOISE PROBLEMS.

PHONE US REGARDING SECONDHAND EQUIPMENT



THANET ELECTRONICS

34 CLIFF AVENUE, HERNE BAY
KENT (02273) 63846



ELECTRONICS

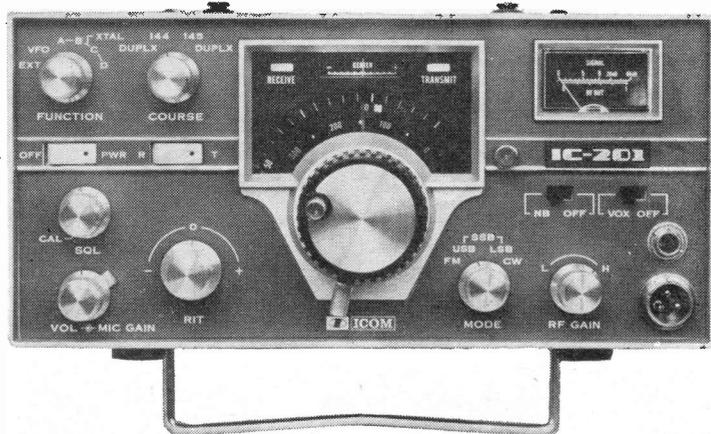
DAVE
G4ELP



IC-201

THE MULTIPLE RIG THAT
SETS THE PACE IN LUXURY
AND QUALITY

£300 + VAT



REVERSE OR NORMAL REPEATER OPERATION AVAILABLE AT THE
FLICK OF A SWITCH **WITHOUT RETUNING**

ICOM products are renowned for their sheer quality and reliability and the long awaited for IC-201 is no exception. It is difficult to point out all the advantages and qualities in such a well engineered piece of electronics by just writing about it. It needs to be seen and handled to be fully appreciated. Those of you who saw it at Leicester will have had the opportunity already, but for those who haven't been so lucky then we invite you to visit us or one of our agents for a demonstration. If you are thinking of a multi-mode then make sure to consider the IC-201 before you choose. If you have any questions please phone us for a chat.

Compare these features with other multi-mode rigs:

Centre-Zero meter on FM
Narrow filter on FM for 25 kHz channel spacing.
Good, well-limited FM.
600 kHz shift of either Tx. or Rx. on the 145 MHz range for Repeater and Reverse Repeater operation.

Automatic tone-burst introduced on Duplex.

4 Crystal positions for net and repeater frequencies.

Two-speed gearbox giving easy rapid tuning.

Crystal Calibrator

Vox. Fully adjustable (works on FM if you really want it).

CW side-tone

Full break-in on CW (separate VOX delay controls for CW and SSB)

RF gain control by adjusting the coupling of two helical filters.

Noise blanker.

R.I.T.

Mic. gain control on front panel.

Dial-readout to 1 kHz—accurate to 2 kHz or better.

ACCESSORIES: microphone, DC power cord with plug, spare fuses, plug for CW key.

SPECIFICATION

Transistors 53
FET 16
IC 10
Diodes 66
Frequency Range 144-146 MHz
Weight 5.4kg.

Transmitter
Power Output A3J 10W pep
A1, F3 10W

Carrier Suppression (SSB) >40dB
Unwanted sideband suppn. >40dB
Spurious radiation -60dB
Deviation FM set to 4.5 kHz
Mic. Impedance ... 500 ohm
Operation ... PTT or VOX
Dial accuracy (-10°C to 60°C) + 2 kHz
Modes SSB (usb or lsb), CW and FM
Ant. Impedance 50 ohms

Operating Voltage DC 13.8 ± 15%
AC 230v.
Size 111mm. x 230mm. x 260mm.
deep

Receiver
I.F. Frequencies A3J, A1 10.7 MHz
F3 10.7 MHz and 455 kHz
Sensitivity A3J, A1 0.5µV for 10dB
5 + N/N
FM 0.4 µV for 20dB quieting
Squelch sensitivity (FM)
-8dB (µV) or less

Bandwidth
SSB, CW ±1.2 kHz - 6dB points
±2.4 kHz -60dB points
FM ±8 kHz -6dB
±16 kHz -60 dB

Audio output 2W
Speaker 8 ohms

These details are accurate to the best of our knowledge at the time of going to press, but there could be variations.

Other items :-

IC-210 (few available) £200 + VAT
IC-3PA Power Supply £35 + VAT

DV-21 Digital VFO for IC-22A, etc. ... £172 + VAT
IC-225—THE 80 Channel Mobile rig ... £195 + VAT

AGENTS. THANET Agents are placed in strategic parts of the country to give you an easier chance of examining the excellent range of ICOM products. We are pleased to introduce a new one to you. He is TONY BLACKMORE who lives on the Penarth peninsula overlooking CARDIFF bay. As with other agents Tony is available evenings and weekends BY TELEPHONED APPOINTMENT ONLY—This should be handy for our many GW customers as well as those who live in the South West.

THANET AGENTS

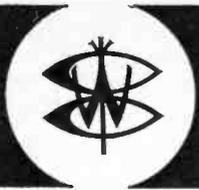
(by telephoned appointment evenings and weekends only)

NORTH
PETER AVILL, G3TPX,
7 Moorland Crescent,
Mapplewell, BARNSELEY, Yorks.
Tel.: DARTON (022 678) 2517

CRAYFORD
CRAYFORD ELECTRONICS
32 Iron Mill Lane,
CRAYFORD, Kent.
Tel.: (03225) 24625

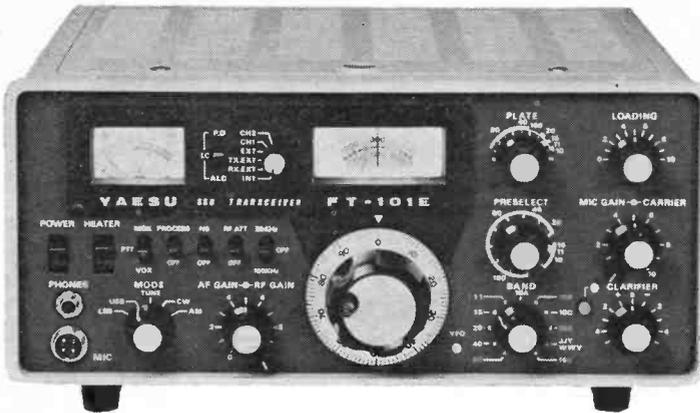
WALES
TONY BLACKMORE, GW3FKO,
2 Joseph Parry Close,
Llandovery, Penarth, CARDIFF,
Tel.: (0222) 702982

LONDON
TERRY BARNETT, G8BAM,
7 Cochrane Court,
Leyton Grange,
LONDON E10,
Tel.: 01-556 9366



Western

NOW, MORE RADIO FROM THE RADIO COMPANY



Now, the best is even better! The finest all-round transceiver in the world is even better. The new FT-101E includes a potent R.F. speech processor plus improved, easy-to-use lever switches. A more refined clarifier control for push button, independent clarifier operation. All the other features that have made the FT-101 series of transceivers the world's most popular, are still here: 260w. SSB. Globe circling power on CW and AM. 160 to 10m. range. 0.3 μ V receiving sensitivity.

If you are a serious amateur, you are always looking for more radio. At £525 that is exactly what the FT-101E is. Also available is the FT-101EE at £493.75. (This is the "101E," but less the R.F. Processor).

DELIVERY OF 101E, IS EX-STOCK.

NEW YAESU FT-221 2m. AM/SSB/FM Transceiver ex-stock. Price £425.

YAESU PRICES (Carriage free by Securicor) including VAT

HF TRANSCEIVERS
 FT-75B 10-80m. 120w. ... £222.50
 DC-75B DC PSU for FT-75B ... £62.50
 FP-75B AC PSU for FT-75B ... £62.50
 FT-101B 10-160m. 260w. ... £437.50
 FT-101EE latest model ... £439.75
 FT-101E "101EE" + Rf processor ... £525.00
 FT/FP-200 10-80m. AC only ... £331.25
 FT-201 10-80m. AC/DC ... £412.50
 FT-401B 10-80m. 500w. ... £431.25
 FT/FP-501 10-80m. Digital ... £550.00

LINEAR AMPLIFIERS
 FL-2000B 1200w. 10-80w. £293.75
 FL-2100B 1200w. for 101B/E £293.75

HF RECEIVERS
 FR-1015 10-160m. ... £343.75
 FR-1015 Dig. 10-160m. Digital ... £450.00
 FR-101D 2m. 160m. + SW Bands ... £450.00
 FR-101D Dig. Digital "101D" ... £550.00

VHF TRANSCEIVERS
 FT-2A AUTO 8CH. FM Scanning ... £287.50
 FT-221 2m. SSB/AM/FM ... £425.00
 FT-224 24 Ch. FM ... £187.50
 SIG-80R 80ch. FM ... £300.00
 FT-620B 6m. AM/SSB/CW ... £300.00
 FP-2AC AC PSU for FT-224 ... £55.00

FP-2AC + B as above + batteries ... £97.50

HF TRANSMITTER
 FL-101 10-160m. ... £368.75
 FL-101RF 10-160m. + Rf processor ... £400.00

SPEAKERS
 SP-101B for FR/FT-101B/E ... £18.75
 SP-101PB Phone patch/Spr. ... £58.75
 SP-401 for FT-401B ... £18.75

TEST EQUIPMENT
 YC-355 35 MHz AC only ... £81.00
 YC-355D 200 MHz AC/DC ... £156.60
 YC-601 Dig. unit for FT-101/401 ... £113.40

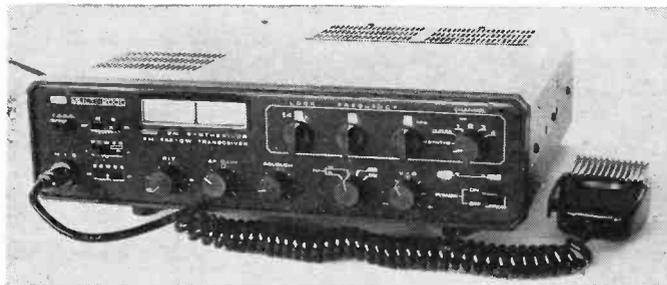
YO-100 Monitor Scope ... £124.20
 YP-150 50w. 200 MHz Power Meter ... £49.68

REMOTE VFO's
 FV-50C for FT-75B ... £50.00
 FV-101B for FT-101B ... £65.00
 FV-200 for FT-200 ... £65.00
 FV-401 for FT-401B ... £65.00

ACCESSORIES
 YD-844 Table Microphone ... £22.50
 YD-846 Hand Microphone ... £8.75
 FF-50DX Low Pass Filter ... £18.75
 Mobile Mounts, Crystals, Filters, Log Books ...

YAESU AND WESTERN — SYNONYMOUS FOR SERVICE

NOW AVAILABLE EX-STOCK! THE FDK MULTI-2000



2m. SSB/FM, CW 200 Ch. SYNTHESISED AC/DC TRANSCIVER

- * Full cover 144-6 MHz.
- * VXO gives full coverage between 10 kHz spacing.
- * Rapid change of frequency and mode is possible.
- * RIT (Receiver Incremental Tuning) allows receiver to be tuned without moving the transmit frequency.
- * 600 kHz Repeater shift works on all frequencies.
- * Tone access built-in.
- * Fitted narrow FM Filter.

SUPERB VALUE AT £362.50 inc. carriage (Securicor) and VAT

Electronics (UK) Ltd

WESTERN FOR TEST EQUIPMENT

GRID DIP METER, TE-15



*Operates as a Grid Dip Oscillator, Absorption Wave-meter and Oscillating Detector.
 *Versatile Portable Applications
Specification: Freq. range: 440 kHz-280 MHz in 6 coils.
 Coil MHz Coil MHz
 A 0.44-1.3 D 14-40
 B 1.3-4.3 E 40-120
 C 4-14 F 120-280

RF SIGNAL GENERATOR, TE-20D



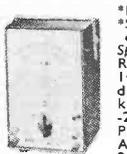
*Factory calibrated and tested
 *Dual output RF terminals
 Separate Variable Audio Output
Specification: Freq. range: 120 kHz-500 MHz (7 bands). Freq. accuracy: $\pm 2\%$. Audio output: to 8 volt. Internal modulation: 400Hz approx. Tube: 12BH7A, 6AR5. Power source: 105-125v., 220-240v. AC, 50/60 Hz. 12 watts. Employs a Xtal socket and can be used as below: (a) Self-calibration. (b) Marker generator.

AF SIGNAL GENERATOR, TE22D



Specification: Freq. range: Sine: 20Hz-200 kHz; Square: 20Hz-25 kHz. Output voltage: Sine: 7 volt; Square: 7V p-p. Output impedances: 1000 ohm. Freq. accuracy: $\pm 5\%$. Distortion: Less than 2%. Tube complement: 6BM8, 6AQ8, 6X4. Power source: 105-125, 220-240v. AV, 50/60 Hz. 19W.
 *Low Distortion
 (1) Employs 2 dual knobs for ease of operation. (2) With attenuator.

AC MILLIVOLTMETER, TE-40



*High sensitivity V.T.V.M.
 *Suitable to measuring audio circuits. Low level AC collapse.
Specification: AC V: 1mV-300v. RMS (10 ranges). Accuracy: 5Hz-1.2 MHz $\pm 2dB$ (dB scale ± 2 -25 dB) 10Hz-1 MHz $\pm 1dB$, 20Hz-250 kHz $\pm 0.2dB$, dB scale: -40, -30, -20, -10, 0, 10, 20, 30, 40, 50 dBm. Power source: 105-125, 220-240v. AC, 50/60Hz. Dimensions: 140 x 215 x 170mm. Weight: 2.5kg.

VALVE VOLTMETER, TE-65



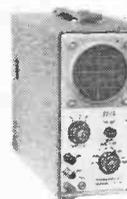
*With new 6" full-view meter
 *Compare it to any peak-to-peak V.T.V.M. made by any other manufacturer at any price.
Specification: DC V: 0-1-5-5-15-50-150-500-1500v. (using HV Probe, up to 3kV). AC V: 0-1-5-5-15-50-150-500-1500v. RMS. 0-1-4-4-14-40-140-400-1400-4000P-P. Resistance: Rx 10-100-1K-10K-100K-1M-10M (0-2-10000 Ω). Decibel: -10dB to +65dB. Power source: 105-125, 220-240v. AC, 50/60 Hz. Tube Complement: 12AU7, 6AL5.

INSULATION TESTER, TE-68



Insulation range: 1000v 500 M Ω , 500v, 250M Ω , 250v, 125M Ω , 100v, 50M Ω . Centre scale: Approx. 1/100 F μ M Ω . Voltage proof: AC 1,200v. Accuracy: Approx. $\pm 5\%$ at centre scale. Power source: 105-125, 220-240v. AV, 50/60 Hz. Dimensions: 140(W) x 215(H) x 170(D). Weight: Approx. 2.5kg.

75 mm OSCILLOSCOPE, TO-3



*Portable type, high quality
Specification:
 Deflection Sensitivity 0-1Vp-p/cm (At 1 kHz)
 Freq. Characteristics 1-5 Hz-1-2 MHz 1-5 Hz-1-2 MHz
 Input Impedance 2M Ω 25pF
 Calibration Voltage 1Vp-p/cm
 Sweep Oscillator: 5 ranges:
 (3) 1-10 kHz (1) 10-100 Hz (2) 100-1 kHz
 (4) 10-80 Hz (5) 50-300 Hz
 Synchronization Devices: Internal (Positive and Negative) External Power source (\pm Line)
 Cathode Ray Tube: 75AJB1
 Dimensions: 140 x 215 x 330 mm.
 Power Source: 105-125v., 220-240v. AC, 50/60 Hz.

Vertical Axis
 1Vp-p/cm
Horizontal Axis
 1.5 Hz-350 kHz
 2M 20pF

SIGNAL INJECTOR, SE-250B



Usable for checking of TV, radio amplifier, tape recorder, intercom communication equipment and many other electrical and electronic devices. Features: Rugged construction, simple operation, excellent appearance, small and light weight, yet low-priced! Specifications Transistor: 25C183 x 2 pcs. Oscillator: Free running type multi-vibrator. Freq. range: 700 to 1,000 Hz.

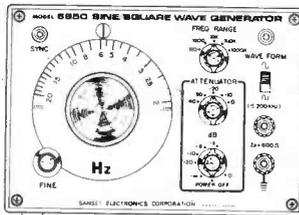
SIGNAL TRACER, SE-350A. TRACER/INJECTOR, SE-360



Models SE-350A and SE-360, designed to receive audio frequency and indicate existence or non-existence of a signal through speaker or meter, are compact, light weight and ruggedly constructed and offer high stability in performance due to an IC-applied circuit. The built-in amplifier having a high gain of 60 dB enables the units to trace minute signals accurately. Any optional level of signals can be obtained by switching the attenuator and adjusting the potentiometer. Other features include easy-to-operate, self-contained power source, output terminals of 600 ohm impedance and extension-speaker terminals. Both units can be used in field servicing.



SINE/SQUARE WAVE GENERATOR, 6850



*Covers 20 Hz to 2 MHz in 5 bands.
 *Provides Sync. Input.
 *10 dB-Step attenuator plus continuously variable output control.
 *Excellent calibration accuracy.

TEST EQUIPMENT PRICES (including P. & P. and VAT)

SE-250B Injector ...	£3-24	TE-20D R.F. Generator ...	£27-00	TO-3 Oscilloscope ...	£91-80	TC-530F 470 MHz Freq. Counter ...	£270-00
SE-250A Tracer ...	£16-96	TE-22D A.F. Generator ...	£35-64	YC-355 35 MHz Freq. Counter ...	£81-00	SWR-200 Osker Power Meter ...	£24-84
SE-360 Tracer/Injector ...	£19-17	TE-40 AC Millivoltmeter ...	£37-80	YC-355D 200 MHz Freq. Counter ...	£156-60	YP-150 150w. 200 MHz Power Meter ...	£48-60
SE-6850 Generator ...	£46-44	TE-65 V.T.V.M. ...	£37-80				
TE-15 G.D.O. ...	£27-00	TE-68 Insul. Tester ...	£48-60				

USED EQUIPMENT

Drake R4B/T4XB. Superb pair ...	£370-00	Drake TR4 plus AC/DC ...	£250-00	Heathkit 5B303, very good	£168-50	Heathkit 5B-630, console private sale (no VAT)	£40-00
Eddystone EA-12A, like new	£175-00	Heathkit 5B-401, very good	£128-50				

CATALOGUE. We will be pleased to send you a copy of our COMMUNICATIONS EQUIPMENT catalogue (30p) or TOWERS, ANTENNAS and ROTORS catalogue (30p). No SAE required.

Western Electronics (UK) Ltd

Agents: IAN PARTRIDGE, G3PRR, CHESHAM, BUCKS. (02405) 4143
 ALAN CAMERON, GM3OGJ, ALLOA (02592) 4653
 DAVID LACEY, GB1YF, SOLIHULL, WARKS., 021-744 4438

Hours of business: 9.15 - 5.15, 9 - 12.30 (Saturday)

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TELEPHONE: SOUTHAMPTON 27464

CABLES: WESTRONICS, SOUTHAMPTON

TELEX: 47388 WESTRONICS



MICROWAVE MODULES LIMITED

144MHz Mosfet Converters

UPDATED SPECIFICATION

The overwhelming response to the introduction of our 144 MHz SSB receiver converter has indicated the requirement for a tightly specified converter for use with modern highly accurate 28-30 MHz receivers. To this end we have now standardised the design of our 28-30 MHz Converter using a zener-stabilised 116 MHz crystal oscillator, giving a typical read-out error of better than 1 kHz. The converter is now available in the two versions, with and without the local oscillator output facility.

MMC144/28 Price **£18.90** inc. VAT

MMC144/28 LO (with 116 MHz output) Price **£19.90** inc. VAT

SPECIFICATION

Noise figure : 2.8 dB max. Gain : 27 dB typ.
 Image rejection : 65 dB typ.
 Crystal oscillator : 116 MHz (zenered)
 Frequency error at 144 MHz : 3 kHz max.
 Power supply : 35mA at 12 volts.
 116 MHz o/p power : 5mW min. (LO o/p version)

We have extended our popular range of single conversion converters to include the following I.F.s :

9-11, 12-14, 14-16, 18-20, 24-26, 27-29.7, 28-30 MHz
 Price **£18.90** inc. VAT

144 MHz DOUBLE CONVERSION MOSFET CONVERTER

I.F.s available ex-stock : 2-4, 4-6 MHz Price inc. VAT **£18.90**

This unit was developed to meet the heavy demand for a converter suitable for use with receivers having better performance at lower frequencies. It uses two dual-gate mosfets mixers, both led from the output of a 70 or 71 MHz crystal oscillator. Selectivity is obtained at the first I.F. in the 74 MHz range, thereby overcoming the usual problems associated with low-I.F. single conversion converters.

144 MHz DUAL OUTPUT PREAMPLIFIER

This two-stage mosfet preamplifier has two separate isolated outputs, for feeding two receivers, for example. The gain is 18 dB, and the noise figure is 2.8 dB. The noise figure is individually optimised on each unit using our new automatic noise measuring equipment. Price inc. VAT **£11.30**

70 MHz MOSFET CONVERTER

I.F.s available : 4.47, 14-14.7, 18-18.7, 28-28.7 MHz
 Price **£18.90** incl VAT

70 MHz CONVERTER FOR SSB

I.F. 28-28.7 with 42 MHz osc. output (similar to 144 MHz version above)
 Price **£19.90** inc. VAT

SOCKETS

All our equipment (apart from 1296 MHz) is fitted with Belling-Lee sockets. Optionally all equipment can be supplied from stock fitted with BNC sockets (50 or 75 ohms). Extra charge. **£1.00** inc. VAT

STOP PRESS

We have just been appointed as exclusive UK representative for KLM Electronics of California. See their exciting range of VHF/UHF Power Amplifiers at the Leicester Exhibition, October 30 and 31 and November 1.

432 MHz POWER SOURCE

A simple and efficient method of producing power is provided by the use of our MMV432 varactor tripler. This unit, when driven by a 144 MHz transmitter (AM, FM, or CW), converts this power with high efficiency to 432 MHz. A pi-network in cascade with an L-network matches the input impedance to the low impedance of the diode. A similar circuit is used as the output network to provide optimum filtering of harmonics. Spectrum analysis of other varactor tripler designs leave us in no doubt that our unique design concept alone achieves the necessary high degree of unwanted harmonic rejection as specified below.

MMV432

Price **£21.90** incl VAT

MMV432 SPECIFICATION

Output Power at 432 MHz : 14 watts typical (for 20 watts drive at 144 MHz)
 Bandwidth : 430-440 MHz at — 1 dB
 Typical Harmonic Performance :

Fundamental	— 30 dB
288 MHz	— 50 dB
576 MHz	— 40 dB
Others	— 60 dB

432 MHz MOSFET CONVERTER

I.F.s available ex-stock : 14-16, 18-20, 24-26, 28-30, 144-146 MHz
 Price inc. VAT **£22.60**

This unit uses a dual-gate mosfet mixer for excellent strong-signal performance preceded by two BFY90 transistor RF stages for high sensitivity. All UHF tuned circuits are printed using Microstrip technology, and a crystal in the 100 MHz region is used in the oscillator chain to overcome unwanted beats in the tuning range.

1296 MHz CONVERTER

This converter has been developed using an extension of the microstrip techniques that have been well proven in our 70 cm. converter design. Two versions of the design are available using either a 96 MHz or 105.666 MHz crystal to produce I.F.'s of 144-146 MHz or 28-30 MHz respectively, corresponding to the 1296-1298 MHz band. We are using crystals of a very tight tolerance to minimise the offset that would otherwise be very noticeable when using a high-performance 28-30 MHz tunable receiver. The multiplier chain uses three BFY 90 transistors and the mixer is fabricated using a pair of MA 4882 Schottky diodes in a balanced hybrid ring configuration. The I.F. head amplifier uses a selected low noise dual-gate mosfet to give an overall noise figure which is typically better than 8.5 dB, and a gain of 25 dB. Microstrip UHF circuitry ensures repeatability of this high performance design. The unit is housed in the same die-cast box as the rest of our range of converters and is fitted with 50 ohm BNC connectors of optimum UHF performance. The converter operates from a nominal 12v. supply and is available in negative earth version only. Price inc. VAT **£29.90**

1296 MHz VARACTOR TRIPLER

Maximum input power at 432 MHz : 24 watts. Typical output power (at maximum input) : 14 watts. Price inc. VAT **£31.30**

**BROOKFIELD DRIVE, AINTREE, LIVERPOOL
 L9 7AN
 TEL.: 051-523 4011**



YAESU MUSEN FROM

THE LEADING UK DISTRIBUTOR



To complement our Yaesu range we offer from:—

AUSTRALIA, CANADA, GERMANY, HOLLAND, JAPAN, SPAIN, U.S.A. and the U.K.

ANTENNAS

— Hy Gain, Gem Quad, Mosley, Bantex, G Whip, J Beam.

MASTS

— Versatowers, Ham Towers, Telomasts, Alimasts, Teletowers.

ACCESSORIES

— Ken, Vibratrol, AEC, Katsumi, Shure, KW, etc.

ROTATORS

— CDE, Stolle, **FITTINGS**, Wire, Cables, Insulators.

24 HOUR DELIVERY FREE by Securicor on all Yaesu items over £55 (post free on items over £5). (Remote parts 48 hours service.)

AFTER SALES

Warranty work collected and delivered free by Securicor to minimise your "off the air" time.

CALLERS

Welcome. Visit our new showroom for friendly advice on Yaesu and accessories and air test your next rig.

ORDERS

Cash with order, Access, Barclaycard by phone, or HP agreements speedily and efficiently arranged.



FT101(SD)

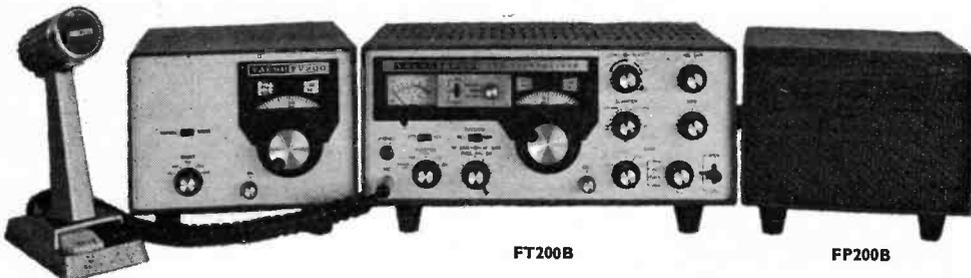


FT221



FT101(E)

For further information on the above equipment, all held EX STOCK in TOTTON, see the YAESU MUSEN advertisement. A phone call or letter will yield our stock price list, second-hand list and specifications of any Yaesu items.



FT200B

FP200B

YD844
FV200
FT200B
FP200B

The FT200B is one of today's "best buys". Its features compare favourably with markedly more expensive units. 260W PIP (SSB/CW), 75W (AM), 1kHz read out on all bands, 3.5-4 to 28.5-29 MHz (3 optional 10m. crystals available), sensitivity 0.5 μ V for 10dB s/(s + n), selectivity 2.3 kHz (6dB), 4 kHz (60dB), 1.75 : 1 shape factor, solid state gear driven

FET VFO with excellent linearity, 100 kHz calibrator VOX/PTT, clarifier (± 5 kHz) break in CW keying and sidetone monitor. The pre-mix oscillator gives superb signal handling and low noise capability of a single superhet whilst at the same time retaining a 9 MHz IF, with high image rejection and single range VFO stability.

SOUTH MIDLANDS COMMUNICATIONS LTD.

SMC — A MEMBER OF THE ARRA
OSBORNE ROAD, TOTTON,
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Hours of Business: 9-5.30, 9-12.30 Saturday
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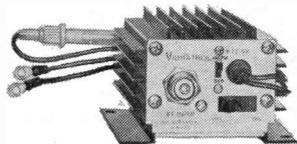
Agents (evenings) (ALL QTHR)
Brian Kennedy G3ZUL Droitwich (09057) 4510
Peter Avill G3TPX, Darton (022 678) 2517
Ian McKechnie GM8DOX, Bridge of Allan (078683) 3223
Howarth Jones GW3TMP, Pontybodkin (035 287) 846



South Midlands

ESTABLISHED 1958

OVER



144 MHz LINEAR (RFL)

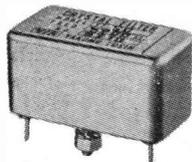
RF sensing, switchable drop out time 55B, AM, FM, CW, 12v. DC. 10W drive, 80-100W output. RFA-100-100-HBX (801)
Ex Stock in Totton £85 (+25% VAT)



RF SPEECH PROCESSOR KP12A

Audio to audio, via 10.7 MHz, mains powered, illuminated meter, FT-101, FT2 plugs suitable all phone modes superb on FM. Ex Stock in Totton £44 (+25% VAT) P. & P. Extra

LOW PRICE CRYSTALS AND CRYSTAL FILTERS (VAT Rate 25% & Post Extra)



All "YF" filters individually supplied with ± 6 dB (25dB), 60dB bandwidths, ripple factor and insertion loss

3.18 MHz		9 MHz		10.7 MHz	
XF30C 600Hz ...	£16.00	YF90M600 600Hz ...	£13.00	YF107M600 600 Hz ...	£13.00
XF30A 6 kHz ...	£16.00	YF90F 2.4 2.4 kHz ...	£11.00	YF107M2.4 2.4 kHz ...	£12.00
YF30F12 12 kHz ...	£13.50	YF90F12 12 kHz ...	£13.00	YF107M12 12 kHz ...	£12.00
XF30D 20 kHz ...	£16.00	Carrier Crystal HC18/U	£1.50	Carrier crystal HC18/U	£1.50

FT2F, FT2FB (Auto.), TR2200, C146A, 826MB, FT224, etc. Still only £3.50 pair (or £2.00 Single)

FT2FB (14 MHz Rx, 18 MHz Tx)
144 (15, 30, 36, 40, 50R, 60, 70)
145 (09, .32, .44T, .90)
Simplex
S (0, 12, 16, 20, 21, 22, 23, 24)
Duplex (Normal repeater)
R (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
Inverse Repeater
IR (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) Rx
IR (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) Tx

TR2200 (44MHz Rx, 12 MHz Tx)
Simplex
S (20, 21, 22, 23, 24)
Duplex
R (3, 5) R6† T.O.S.1!
C146A and C826MB
Simplex
S (20, 21, 22, 23, 24)
Duplex
R (5, 6, 7)

FT2F (52 MHz Rx, 7 MHz Tx)
144 (-15, -.25, .36R, .48, .60R, .70, .80)
145 (-08, .09, .68, .84, .90)
Simplex
S (0, 12, 16, 20, 21, 22, 23, 24)
Duplex (Normal Repeater)
R (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
Inverse Repeater
IR (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) Rx
IR (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) Tx

FT200 at £2.00 each
10A, 10C, 10D
Converter Crystals £2
38-66 (2m), 42 (4m), 50-5.70cm.)
Pye Pocket Phones
433-2, £4.50 pair
KP202 £3.50 pair
-48, -60, -521, R3, etc.
Spare Yaesu Crystals £2-20 each
2m. FM Crystals to order,
most at £3.50 pair.
(6/8 weeks delivery)

SWR50



New, Low Price range of AEC SWR/Power Meters (P.&P 40) 8% VAT

SWR10. SWR Bridge (50 ohm/75 ohm) 1 to 3 : 1 at $\pm 10\%$ accuracy over 1.5 to 160 MHz ... TBA

SWR20. SWR field strength and Power Meter 1 to 3 : 1 at $\pm 10\%$ accuracy over 1.5 to 160 MHz (50 ohm). Power 10 and 100W F.S.D. ... £9.20

SWR40. SWR and field strength (50 ohm/75 ohm) 1 to 3 : 1 at $\pm 10\%$ over 1.5 to 160 MHz ... £7.80

SWR50. SWR and Power Meter (50 ohm/75 ohm) 1 to 3 : 1 at $\pm 5\%$ Power up to 1kW at $\pm 20\%$ F.S.D. 3.5 to 1.50 MHz in S2 ohm 75 ohm line. SWR50A(300µA) £9.60 SWR50(100µA) £11.20

THE KP202 THE HANDHELD

Two watts of RF output and $\frac{1}{2}$ watt of audio makes this with its immunity to image problems, I.F. breakthrough, undoubtedly one of the "Best Buys" today. Its performance rivals many a mobile or bass installation (at half the price). Supplied complete with six channels S0, S20, S22, R5, R6, R7. Only £85.00. Spare battery hods, etc.

With the KP202 comes a telescopic whip, leather carrying handle/whip case, "F" type connector, and two dummy batteries. Accessories include : internal tone burst unit £5.50. Flexible helical stubby antenna (£4.60), leather case (£3.90) spare "F" connectors (25p) spare telescopic whip (£1.70) F to UHF adaptors (1-05), set of Ni Cads (£8.50, 8% VAT only), battery charger and base master (illustrated, £9.20). Spare battery hods, etc.

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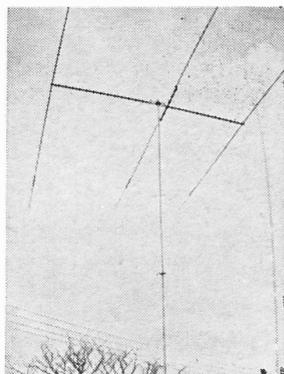
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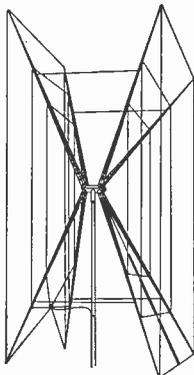
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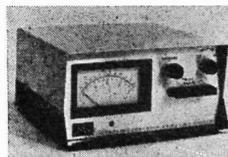
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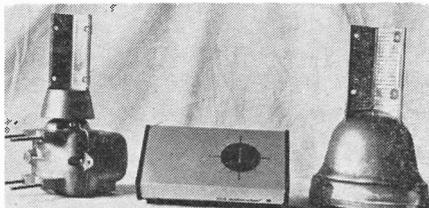
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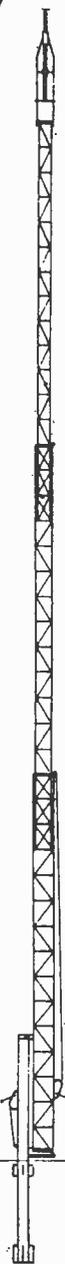
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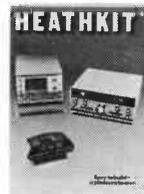
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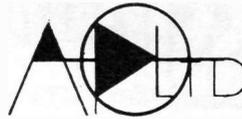
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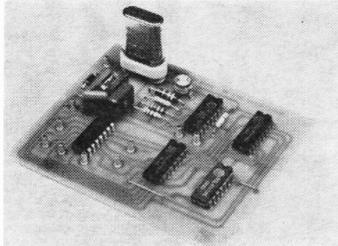
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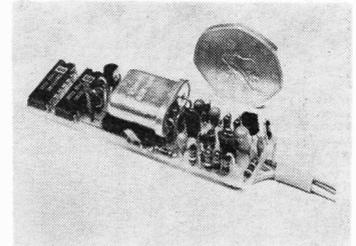


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(GB3SWM)

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NOVEMBER, 1975

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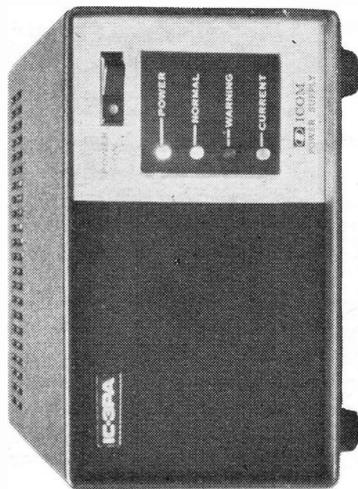
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The SHORT-WAVE Magazine

EDITORIAL

SOME LICENCE DATA

There are now about 21,000 U.K. amateur licences in issue, of which some 25% are in the Class-B (VHF only) category. Exact data are only obtainable about two months in arrears, so the "now" figure we give is necessarily an estimate—but always fairly accurate, as it turns out. Further research indicates that of the 21,000-total of the U.K. transmitters licensed, only about 55% are members of the RSGB, the Society's own total being made up of overseas, "associate" and BRS (or SWL) members, accounting in all for about 7,000 members. Recent RSGB statements suggest that the Society expects to show a large deficit (which we estimate may be as much as £12,000) in its forthcoming summary of accounts, attributed to the effects of the inflation from which we all suffer. If these estimates are only approximately correct, it would seem that the RSGB faces a very difficult situation, financially and otherwise.

* * *

CORRECTION CORRECTED!

On p.259 of the July issue of SHORT WAVE MAGAZINE it was stated that we had been informed by the Home Office that DSB transmission is not permitted on the amateur bands. It now transpires that this was an error on the part of the authorities and that, in fact, DSB *can* be used by amateurs. We have no particular comment to make—except perhaps that we would not recommend widespread use of DSB above Top Band, though it is in commercial usage on marine HF bands.

* * *

AMATEUR RADIO ON LAKE EYRE

A remarkable story is told in the August '75 issue of the Australian *Amateur Radio*. Lake Eyre is normally a dried-up salt-pan in Central South Australia, thousands of square kilometres in area, on which in 1964 the late Donald Campbell made his world motor speed record in "Bluebird," on a specially prepared solid salt track. In February 1973, there was torrential rain in Queensland,

flooding the rivers draining into Lake Eyre, so that for only the second time in 133 years of recorded history, the Lake itself began to fill, to a greater depth than ever known before.

An enterprising group of VK3's had built for them an 18ft. shallow-draught fibre-glass catamaran, the "Red Baron," drawing only about 12in. of water and in May of this year launched her on Lake Eyre. She had an 18ft. aluminium mast on an insulated mounting, forming a vertical aerial which could be fed as an all-band antenna . . . !

In the end, using QRP gear on 20/80m., 102 stations in five countries were worked from "Red Baron," the intrepid explorers being VK3ABP, VK3YBP and VK3YFF. They sailed 75 nautical miles in the largest vessel yet seen on the Lake, and trailer'd "Red Baron" nearly 400 miles to get her water-borne.

During the next year or two, Lake Eyre will have dried out once more, and it is a reasonable probability that never again in the life-span of anyone now living will it be possible to sail upon Lake Eyre. A remarkable Amateur Radio "First" indeed!

* * *

WHAT CAN BE DONE WITH £100

Only 25 years ago, Ray Brown and Calder Cunningham put together their total assets (£100) and started a firm called Racal, operating as consultants and purchasing agents in the field of radio communication. This was so successful that 18 months later they were able to start a manufacturing operation. This in time developed into the Racal Group of Companies, with Hq. at Bracknell, Berks., now employing over 6,000 people in 12 countries. The Group turn-over is nearly £75 million, specialising in radio communication, data method and instrumentation, and avionics. In 1974, over 70% of the sales went for export. All this achieved in 25 years, by a couple of knowledgeable and hard-working enthusiasts risking their £100—it shows what can be done in this country, even in these times.

Austin Forsyth
G6FO

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

SUMMER is definitely gone, and a slight compensation has been afforded by the somewhat above-normal state of the bands for part of the period under review; indeed your conductor found it a hard task to convince one SWL locally that his newly purchased receiver was OK even though it failed to hear anything on Twenty at 0100z.

However, while radio conditions have not been so good, letter-writing is becoming more popular—so let's get on with the news, and views. Incidentally, it has been said that old 'KFE never indicates what he himself has done on the air, indicating he is never around. Not true, sir! This old scribe sees his task as just that—recorder of the scene as seen by the readers through their letters, together with giving details on forthcoming events which may come to his notice. And, anyway, with junior-op now progressed to the stage of actively studying for R.A.E., plans are having to be made for electronic warfare to avoid a shack take-over!

Top Band

Seems nowadays to be given over largely to the, relatively, DX-minded types. The old local Top-Band nets of yore, fifteen stations netted within twenty kHz of each other, with a range of a couple of miles or so, all on AM and with almost BC quality of modulation (at least, sometimes!) seemingly having all but disappeared. However, there is CW activity to be found in the inter-G and near-European context, there is some SSB activity, and there is of course, as always, the real intercontinental DX to be chased. If it is this last your heart yearns for and you only have a pint-sized garden, all is not lost, by any means—a vertical can do a good job, provided it is correctly loaded at the transmit frequency, and works into a good ground; but your scribe is coming round to the view that the vertical should be folded, to get the feed impedance up a bit on the one hand, and to make the loading element capacitive instead of inductive on the other—and provided with at least one quarter-wave counterpoise "lost" around the garden walls and hedges to help the DC earth along. With such an arrangement there is, unless the thing is nearly a full quarter-wave high, a very narrow-bandwidth, and so on the receive side it is no bad thing so to arrange things as to alter the loading when one goes to "receive," by remotely switching a capacitor at the base.

W1BB is our first reporter this time, and naturally enough he is giving the dates and details of the 1975-6 Transatlantic Tests. The dates first: *November 16, December 21, January 11, and February 8*; the times, 0500 to 0730z on the Sunday mornings. W and VE stations will be transmitting on 1800-1807 kHz, and the rest (which means us) on 1825-30 kHz. The routine to be adopted is that for the first three minutes, the W's will call "CQ FT DX" or "FT DX" starting on the hour. For the next twelve minutes they will listen to calls from this side, work stations, or listen for CQ FT DX calls from Europe. This will repeat for each fifteen-minute period. Those who have already got over, on either side, are asked to help the First-Timers as far as possible. And, for Pete's sake, if you hear a DX station, *don't* call him at the bottom of the band on his "transmit" frequency, 'cos you *won't* work him—he'll be listening around 1825-30 kHz. The procedure is strictly cross-frequency.

In addition we should mention the Trans-Pacific tests, although they do not appear realistic for U.K. stations. The dates are November 15, December 20, January 10, and February 7; times 1330 to 1600z. W/VE on their usual spot, ZL's on 1875, VK on 1800-1805, JA's over 1907.5 to 1912.5, and KH6 between 1996 and the HF band-edge, all these being in kHz of course. The others will be either at the bottom of the band with the W's, or in our transmitting area 1825-1830 kHz—the bit the W's try to keep as the "DX-window." Timings work out the same as for the Transatlantics, W/VE for the first three minutes, the rest for the next twelve minutes, and so on. And, don't forget, the sunspot count suggests this may well be a Vintage Year for Top Band DX!

GM3YOR (Kirkcaldy) has been tied to his shift working which has meant he has not been able to be around when 160 metres has been worth while, but on the counties front he has added a few to his final score, as indicated in the Table.

G4AKY (Croydon) regrets the end of the Top Band Ladder—but see later on this point—and regrets even more that after a letter back in March which laid it on the line that he would be going hell-for-leather after the leaders he was promptly posted to Watford where he will be until January 1976, and where his activity is virtually nil. However, regardless of that, G4AKY wants to see more activity on the band lest we find it being taken from us at the next conference.

EI2BB (Blackrock) features in the log of many a Top-Bander;

Jim uses a half-wave inverted-Vee with the apex at 65 feet and the ends by courtesy of the neighbours(!), coupled to a Hammarlund HX-50 and a Yaesu FR-DX400 receiver. Perhaps the most interesting one was with G3SFT in West Midlands at 1255z on September 28, since when incidentally, Jim reports that he has found the static level to be on the wane—and we at Bishops Stortford have listened to several nearby thunderstorms!

From Bury, G4BOH wrote an amusing little note with his final Table entry, in which he "promises not to run out of steam next summer" if we run another ladder!

On to G2HKU (Sheppey) who has been rather busy in the evenings with work but still managed to find the odd moment for a QSO; on the key he raised DK5PD, GM3PFQ and OK1ICJ, plus his usual SSB to PA0PN and PA0INA.

Another reason for not beating G2BJY's score is advanced by G4CBQ (Southampton), namely his social life—like working the locals at 1800 and arranging for a pint (or two) in town at 2030, which in effect knocks out all the interesting stuff between those hours. Perhaps a more interesting reason is that Phil is an avid home-constructor and is for ever tinkering with the gear for one reason or another. On a different tack, since the aerial mast was hoisted up to fifty-eight feet and a quarter-wave Marconi hung on it, Phil has been very pleased to hear "dark rumours of a pair of 813's in the loft and a Post Office search!"—as he says, it at least is a far better proof than a signal-strength report that he is really getting out. And of course these tiny-minds who are forever sniping at any owner of a big signal are really only admitting that (1) They haven't the right site and (2). Even if they had they probably wouldn't know how to get the RF into the aerial. After all, like many more, the G4CBQ garden is a nice, easy-to-cultivate one-eighth-wave long, and the PA an under-run 6146. And, anyway, this old scribe has been in the communications field for half a lifetime and he has never heard of a station transmitter circuit that can "do things" for the receiver.

G4BWP (Henlow) also wrote in to bring his listing up to date. Derick had exams to cope with in July, then a holiday, and for the rest of the "holiday" he was working on his father's farm full-time—at the height of the harvest that can be up to 14 hours a day, and it seems to sap the DX-muscle a little! However, a little progress has been made with an SSB transverter for Top Band, and now it is a case of back to school for the A-level year, and more studying than ever!

Eighty Metres

What an odd mixture it all is! There is the phone DX at the top end and the DX at the CW end on the one hand, plus in the CW allocation a goodly amount of flea-power CW being worked, with in the middle an enormous conglomeration of assorted QSO's, ranging from the sublime to the gorbliney, and an outstanding level of QRM to contend with.

G2NJ (Peterborough) reports on his day-time QRP activities, mentioning a contact with G3ILL who had a couple of watts, and immediately afterwards a QSO with G3CEL in Hyde, Cheshire, on the same channel; the latter was using two watts with a makeshift aerial as his mast was down and the far end was tied to a fence at three feet. To round off the day, he finished at 2235 with a QSO with G2HKU who had one watt going for him. Another interesting QSO was to work G2CAS/M on CW when the latter was at Coldstream.

GM3YOR (Kirkcaldy) was needed by your conductor's comment in the August issue (about wild horses) into actually operating Eighty from home. The result proved the trap dipole to be still operational, producing CW QSO's with VE1ZZ and K4JD before the FT-101 developed a fault which put paid to any more activity and which had not been sorted out up to the time of writing.

As we have already hinted, G2HKU used his QRP at one watt to make CW QSO's with PA0KN, G2NJ and G2VZ.

The extensive alterations he has been making are to enable him to get the rig on to Eighty, says G4CBQ—and they are extensive, including chassis changes, complete rebuilding of the receiver to allow a second half-lattice filter to be embodied, and to the Tx, a balanced mixer and the ganging of the three "preselect" functions which were previously separate, namely Tx Mix, Tx Drive, and Rx RF; making the lot track between Top Band and Eighty must have been a fair old task with home test-gear.

Sad to say, George, G3CED/G3VFA, has been suffering somewhat from a "bug" which has laid him low in more ways than one; but he continues to pound the brass as much as possible with his very low

IM0CBM (I2CBM and his friend I2XRG, when at home in Milan), had a lovely time on the air in the sunshine of Maddalena Is., Sardinia, during their recent holiday there. In 70 operating hours, they made over 3,000 QSO's with 86 countries—then they got back to the daunting chore of coping with the QSL's!



power set-up. He has had several 599 reports during the period but wonders, being a practical sort of chap whether this is not largely a matter of the ease of sending 5NN particularly in a contest! Not much of the watt-hour ration was expended on Eighty, but a little went a long way—all over Europe in fact. The SAC contest is referred to in the log as "sausage-machine QRM and 599 reports!" Perhaps a more interesting indication of the communications ability of 600 milliwatts and the Joystick is that so many entries in the log are marked as ragchews and were clearly so from the times entered.

Forty Metres

Sometimes said to be a good band gone to ruin, but if you have a receiver that can cope with the cross-modulation problem or an attenuator in front of the receiver, it's nae sae bad, at that.

Nice to hear again after a very long lapse from 9VIRS; last time we heard he was running an EL call /MM, and he is maybe better-known as GM3OOK. John has been based on Singapore for three years now, working on the drill-ship *Discoverer III* (HORG). However, the radio activity is only for one week in three as there is no reciprocal-licensing agreement with Panama, the ship being Panamanian registered. 9VIRS had an inverted-Vee folded dipole arrangement up for Forty and Eighty but found the cross-modulation characteristics of his FT-101 very poor and gave up the battle—and anyway the aerial obeyed the universal force of gravity (no exemptions in 9V1-land!); but it is intended to be on again this "winter" season for Europe.

Although he is beginning to run out of new candidates for the QRP countries list and is, as it were, re-using old stock, GM3RFR (Baltasound, Shetland) still hasn't hitched a GM on Forty! Regarding the level of activity on the Island of Unst, Sam says that out of a population of 1000 souls, there are GM3KLA, GM3SKX, GM3SJA, GM3TSG, GM3TST, GM3RFR himself and the Club station GM3STU! Up to now, 19 countries have been worked on Forty, the latest additions being UC, UB5, HB, LA, ON, GI, GW and SF, out of a total of 32 contacts since May.

G3CED only recorded one forty-metre QSO in his log for the period, namely with GM4DKO, but this one seems to have been pretty fair, lasting for all of thirty minutes.

A letter came in which puzzled the Editor somewhat, it having originated from Paignton but having "lost its tail" in that the last page wasn't included in the envelope! However, this old scribe for once was saved by his memory and was able to attribute it to G4CXM. As far as Forty went, it was an all-CW business, and a list as long as your arm, including EA9FD, EP2OD, FG7AM, HC1XG, JX2HK, K6OU, K6QW, K6VYJ/5 (Texas), K6SEN, K6RGO/7, KH6AKX twice, KL7AI, KP4WL, KP4EAJ, PJ2JW, T12WX, UL7OAM, UA9MBT, UV9WF, VE3GPT, VE7UZ, VE7DBV/W6, VK2QL, VK3MR, VK3XB, VK1VJ, VK3CP, VK3XU, VK5FG, VK6HD, VK7CH, VP9HM, W5UKZ, W6NKR, W6LIL, W6IDY, W6YQ, W6YBL, W7ZMD, W7ZMD (Arizona), W72FP (Washington), W0OTL, W0LAF (Nebraska), XE1FE, XE1FR, XE1ENF,

XJ1ASJ, XJ2TH, YV1AOT, YV5AW, ZL2MT, ZL2AMP, ZL1AMM, ZL2CH, ZL3PT, ZL4AW, ZL4IB, and 5B4YK. The proof of the pudding, as far as any band is concerned, is undoubtedly in the eating! And this was on Forty!

Not only did he use the QRO on Forty CW, but G2HKU, fired by the example of G3CED, also tried QRP in the QRM. The latter mode raised UK2GAN, while the Big Rig hooked up with PY1RO, UJ8AE, VK2OI, VK2QL, ZL2UW and ZL3AW.

Between late night and early morning was the time for GM3YOR, after getting home from a shift in the evening; again Drew, like the others, stuck to CW to raise PY1RO, PY5UG, UA9NN, PY1LA, VE2QV, XJ3EJK, WA1KID, WA4EWX, W4ZSH, WB9BWU and ZD8TM.

Twenty Metres

The autumnal lift in conditions *plus* the improvement generally seen in combination to have brought things along quite well, the band sometimes being open and "giving" at most unexpected hours.

9VIRS says he finds the band good for Europe for about five or six hours every evening, staying open till 0200 local, which is about 1800z; in other words U.K. stations have been getting over from lunch time till almost dinner time—fine for the workers! John managed to make CW contacts with FG7AN, FB8YC, W1-4, DL7PV/MM, and LA9UH/MM plus SSB with TI2RT; the aerial is about 5/8 wavelength high and fed against a lot of buried wires mostly 33 feet long, which all help.

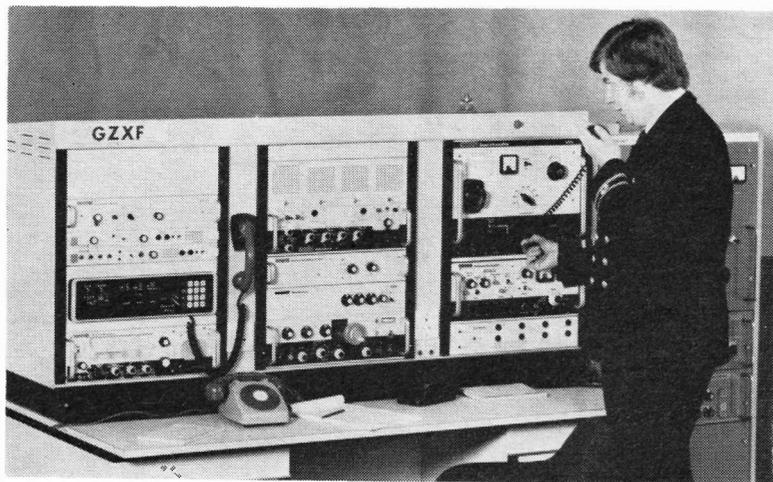
G4DMN seems to have been away to Ireland and then to have gone back to Shrewsbury from where he wrote. However, he and Father G4DHC have been working on Mum and *she* is now bashing away at the R.A.E. course in Birkenhead and quite enjoying it all. Also, Richard is advertising for a beam, and hoping that with it he will be able to get above the 134 country-mark he at present sits on—though only 65 of them have yet stumped up with QSL's. He stuck to SSB and heard several Pacific stations but they didn't seem to hear him! Otherwise, it was DL7PV/HBO, LG1LG and MID.

A new call but not a new operator is behind EI3CP, Colum having returned to the scene after eight years' absence. While he is building up a major five-band transceiver project, he has a little Heathkit HW-7, which is the sole source of RF, running a couple of watts or so into a three-band vertical. With this, all W call areas save for W5 and W6 have been worked, KV4AA, VE1-3, VO, CH1, XJ, XN prefixes, EP2SN, UJ8JCA, UL7CAR, many Europeans including FC9UC, SV1DB and SV1DO, and VK3YK, who gave him a 559 report at 1704z. This last was in a way a lucky one as VK3YK was unable to sleep and turned out at 3 a.m. local time to try a QSO as a "sleeping pill!" In fact, only Africa is wanted for a WAC with the little box.

Now to GM3YOR who attended to Twenty when he was at home to find CW contacts with UA9CES and W4QQN plus SSB to DK7PV/HBO.

At G2HKU the tale was of CW with UK8AAC and ZL1VN,

Not strictly germane to our theme, though it does look like an expensive modern amateur station—in fact, the call sign shows it is a ship's installation. The new Redifon console comprises the latest marine communications equipment, including their R.554 frequency-synthesised SSB main receiver and all HF/VHF units for ship-shore, ship-ship working. The main Tx is immediately behind the operator.



while the SSB accounted for EA6BO, M1D, VK3AKC (the moonbounce man) and ZL3RS. Ted has been trying hard to keep his skeds with ZL1VN on 14270 kHz at 0700z but conditions have been very poor indeed from that point of view.

G4CXM found conditions on Twenty satisfying to all corners of the globe at sociable hours, the short-path VK's being especially good. There is again a very long SSB list from which we have taken A6XN, AP2KR, C5AF, C5AL, DU7DP, EP2OD, FB8ZG (Amsterdam Is.), FL8HM, HK3COC, JA7CL, JY5MB, KA6RV (Okinawa), KL7GGL, P29PN, PY, OX4AN, UM8FM, UI8AY, UA9's, UK0AAB, VE1XU/SU, VE5, VE7, VE8MTC, VT2, VK3, VK4, VK6, VQ9DF, VU2RAK, W6, XJ5TM, ZL's, 7X2BK, 7X5AB, 8P6AH, 9G1AJ, 9G1JG, 9M2AP, 9M2EF, 9M2GL 9Y4RM and VR4DX. Nor was the key neglected, the trusty Vibroplex dealing firmly with DU1DL, EP2EA, JX2HK, JA3HZT, KV4AA, OH0PA, UL7FP, UA0AU, W5PF (Texas), W7RO (Utah) and W7AYO (Washington).

The low-power operations from G3CED/G3VFA included, naturally, most of Europe, plus W2DB, ragchewing for 20 minutes with I7BNX, TF3AW, JX2HK in Jan Mayen, W4DHZ, and a gotaway ZL, who kept coming back with half the call but couldn't seem to get the rest. Recall that this is with six hundred milliwatts to a Joystick, all you faint-hearts! But, of course, this sort of power needs CW operation, and *practice*; on the other hand, if you hook anything at a goodly distance or of DX interest, you are far more certain to get a QSL, because the other guy is so surprised at even hearing you!

TOP BAND COUNTRIES

Final placings

Call sign	AM	CW	SSB	Total
GD4BEG	97	142	99	338
G2BJY	73	138	66	277
GM3YOR	39	132	56	227
G4CBQ (home)	79	52	79	210
G4BWP	58	112	1	171
G4AKY	3	108	33	144
G4CBQ	105	8	22	135
G4BOH	9	74	34	117
E12BB	—	94	14	108
G4AYS (& QRP)	—	82	—	82
G5BHR	9	60	—	69

New Table for 1975/6 to commence November 1, scoring as before, but this time include a fourth figure, to indicate the Number of Countries worked in the period of the Table. See text for further details.

W1BB Again

Since writing the paragraphs on Top Band, a letter has come in from W1BB, this time carrying his full *Bulletin* on the last year's events, and prognostications for the future. Perhaps the most interesting point in this is to note that since KV4FZ came on to Top Band he has achieved the second Top Band DXCC to W1BB's own first one; the 100th country to be notched up was TI9DX on April 22. The Transequatorial tests this year have seen generally poorer conditions than previously with a high level of QRN. A sad loss on Top Band will be that of DL1FF, Armin, who died back in March from a heart attack while in hospital, after working many JA's in his last few weeks. A newcomer to the band is W1CER, perhaps better known for his technical stuff in *QST*, who returned last year after 22 years off 160 metres, using a 55-foot tower loaded by the beam plus a 95-foot wire, against 11 radials each of 120 feet on swampy ground, and all-homebrew, all solid-state gear. On an entirely different tack, EP2BQ has adopted PY1RO's idea of a bottle of champagne for each new one, and this it would seem has reconciled XYL Maureen to the idea of Top Band DX-chasing! As a final on this, we note that ST2AY, in addition to making WAC and giving lots of people another country, gave W1BB himself country number 122 on Top Band—the old *maestro* is still well out in front of them all!

Ten Metres

Just as this was being readied for post, in came Geoff Watts' DX News Sheet, No. 698; in this, he often summarises in a table data as to what has been around. This time 28 MHz appears, with such as A6XB at 1324z; FR7ZL at 1049; FK8CD at 0758; HZ1KE at 0929; TR8BJ at 1715; UG6GAF at 0901; UL7PBY at 0724; VK9XK at 0943; VQ9DF at 1201; ZD8RD at 1715; ZS6AUQ at 1503; 5X5NK at 1253; and 6W8FP at 1341. All, barring UH8HBF, were between 28.5 and 28.8 MHz.

G4BWP noticed the odd opening to South America, but unfortunately his dipole for Ten was u/s so no QSO's resulted.

9V1RS also checks Ten pretty frequently but John hasn't had much luck; mainly JA's and a few Africans.

Even less joy was obtained by GM3YOR who made a *nil* report, apart from the occasional Oscar pass. And that is pretty well the same as the report from G4CXM, who admittedly didn't look all that often; he noticed the odd opening but didn't make any contacts.

Perhaps the proper answer is a sweeper connected to a receiver and an alarm—or even a good panoramic adaptor would be a help—so that whenever signs of activity are there, one can take a closer look. It shouldn't be too difficult, really; a spare receiver with all Ten covered in one sweep of the dial, like for instance an 888, while the sweeper arrangement is a natural for a couple of Signetics NE566 IC's to generate the sweep signal, a separate oscillator to heterodyne up to the band and a mixer, the result being used as the local oscillator in the 888. The alarm could be triggered by a change in the AVC output, while for panoramic reception all one would need is a 'scope hung on the detector and a sync. pulse from the oscillator NE566.

Fifteen Metres

At this stage of the game, rather like the curate's egg. Neverthe-

equipment and aerals, and there is reckoned to be at least an even chance of some activity.

CR9AJ has been reported as being on 21 MHz and being persuaded to give 14 MHz a whirl, but at the time of writing this old sport has to say he knows of no-one who actually claims a real live down-in-the-log type QSO.

Glorioso will be represented, for real, by FR7ZL, Guy, for a couple of months from November 20, and also VK5XK will be on Niue using (probably) the call ZK2AP. Europa is quite active at the time of writing, FR7AI/J being the call to look out for.

The Ladder

As will be seen, we have taken all the entries and scores in to date; this therefore will be the final showing of the present Ladder. But because of the popularity of the Table, it is proposed to run it again for 1975-76. The starting date is set as November 1, 1975, closing on

October 31, 1976. However, this time, to please a few more people we propose to add another column, in which will be shown the *Countries Total*, each country scoring one point when first worked, in addition to the QSO points claim, so that the countries total shown will be a true reflection of the number of countries worked whatever the mode, while the "total" column will now contain the sum of the points made in the three present columns *plus* the number of countries worked. The bell will have rung for the first round as this drops through the letterbox—now get in there and fight it out!

AR CL

Which is where we have to say that the space has pressed in on your conductor's garrulity at least for this month. For next time, the deadline will be its usual 17 days before the issue date, which makes it November 11, with the address as ever being "CDXN," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ.

BOOKS FOR CHRISTMAS

A Suggested List

It is often said—and certainly we have said it before—that for the keen radio amateur and SWL, there is no better present than books on the subject.

Below, we suggest some titles selected from our current list—all at present in stock, with despatch assured within a day or two of order. All prices quoted are inclusive of post and packing.

In most cases, titles are self-explanatory and are a "mix" from British and American publishers who for years have specialised in the radio amateur field.

World Radio and TV Handbook, reviewed in detail on pp. 149-150, May 1975 issue of the *Magazine*. £3-95

Guide to Amateur Radio, a standard work covering what is involved in getting on the air, now in its 16th edition. £1-15

Radio Amateur Examination Manual, on taking the City & Guilds Subject No. 765, to pass which is obligatory for the obtaining of a U.K. amateur licence. £1-15

Test Equipment for the Radio Amateur, a well-written treatise on what the amateur needs for his own bench or workshop. Mainly of a constructional nature, in 12 chapters, hard back. £2-30

Advanced Communication Systems. A 276-page tome specifically for the professional telecommunications engineer and advanced amateur. Of particular interest are the chapters on pulse-code modulation, digital networks, microwave systems, satellite communication and the use of lasers for line-of-sight working. £8-97

Sun, Earth & Radio. Explains the propagation of radio waves and the influence of the sun on the ionosphere, and hence on long-distance communication. A standard text for those seriously interested in the *pratique* of DX work. A hard cover book at £2-60

Working with The Oscilloscope. A new book of over 100 pages, in large format, dealing with the subject in practical terms, with a series of exercises in the form of projects for bench work. £1-85

Principles of Transistor Circuits, the fifth edition of this useful reference book. £3-43

The ARRL VHF Manual. One of the range of specialised practical handbooks covering the VHF/UHF/SHF

fields for radio amateur work, full of circuitry and design data. £2-65

The 1975 U.K. Call Book. Not the 1976 Edn., yet to be published, but the latest available in print, offered to clear at £1-00, inclusive post and packing, at which price it is still good value. The G4/3's go to G4DIF; the G8/3's to G8IXL; the G6/3/T's (amateur TV transmitting licence) to G6TDG/T; and the G5/3's (reciprocal licence) to G5BIU. The new U.K. (G) *Call Book* will be available before long but will be significantly dearer. *1975 "G" Call Book*. £1-00

Also offered to clear are a few copies (only) of the 1975 *International Radio Amateur Call Book*, U.S. Listings, at £5-20 and the *DX Listings* (the world outside U.S.A.) at £5-56. With the new issues of these publications due about year-end, and at inevitably increased prices (due to the pound devaluation against the dollar since our last bulk purchases) these reductions for the *International RACB* also represent good value. The *Radio Amateur Call Book*, in its two thick volumes, constitutes the world directory giving between them the callsign, name and address of about 512,000 radio amateurs throughout the world, alphabetically by prefix and country.

MAPS

We also have an interesting selection of maps designed for the radio amateur. Our own *DX Zone Map* has gone into more new editions, and reprints of those revisions, than we care to remember, thousands having been sold over the years. A four-colour map for wall mounting, on a great-circle projection centred on the U.K., it gives a wealth of detailed information relating to callsign areas, time, distance and beam heading for any part of the world. £1-50

Amateur Radio Map of the World. Paper, for wall mounting, on Merator protection, in colour, showing callsign areas. £1-00

We also stock many other titles, all books selected as being of direct and practical interest to licensed amateurs and SWL's. These are regularly listed, and some briefly described, in our advertising pages.

All orders, with remittance, to: Publications Dept., Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE. (Book tokens can *not* be accepted).

MODIFICATIONS FOR THE KW-2000 TRANSCEIVER SERIES

PSU IMPROVEMENTS FOR BETTER FREQUENCY STABILITY

S. SCANNELL (G3ZSU) and P. PERKINS (G3OUV)

THE KW-2000 transceiver and its successors the '2000A and the '2000B have been very popular in the U.K. since their introduction in the mid 1960's. The main reasons for their popularity are compact appearance, the availability of both AC and DC power supplies and, of course, the inclusion of 160-metre coverage (a bonus most other transceivers of that period lacked).

However, as with most budget-priced amateur equipment it has some drawbacks. Some of these would involve a considerable amount of work to overcome, but others may be reduced to a couple of evenings' effort and a very satisfactory improvement can be obtained. One criticism that is often levelled at the KW range is its inability to maintain good frequency stability over long periods. This was noticed on the '2000A at G3ZSU, and enquiries were made of other owners in order to find a cure for the problem. Several ideas were accumulated, but perhaps the most effective was put forward by G3OUV, to whom all credit for the main part of these notes must go.

Tests made at both stations showed that the drift at the VFO was due to fairly small changes in mains supply voltage, and the following descriptions give details of a cheap, simple but effective solution. Although the basis of the article refers to the KW-2000A in particular, there are notes at the end regarding the earlier '2000 and the later '2000B.

The modifications are in two steps: The first part is relevant to the heater chain to the VFO and HF oscillator which in itself gives much improved stability under most conditions, and may well suffice for home-station use. The second part gives details of stabilisation to the 245-volt HF rail which in turn feeds 150 volts to the VFO and HFO. This provides almost complete stability of supply to frequency-controlling components within the transceiver.

TABLE OF VALUES (Fig. 1)

OLD COMPONENT	VALUE	NEW COMPONENT	VALUE
R9	9 ohm	R9A	22 ohm
		R9B	100 ohm
C7	100 μ F	C7(a)	6400 μ F 16 v.w.
C8	100 μ F	C8(a)	0.01 μ F
		VR	LM309K

Procedure

It is best if the modifications to the heater line are described in step-by-step form.

(1) Take the PSU from its cabinet by removing the cabinet feet retaining screws and sliding the chassis from the rear of the cabinet. Note that the speaker leads are still connected and should be unsoldered prior to walking the PSU away from the cabinet.

(2) With the aid of the circuit diagram identify the following components:

(a) 9-ohm resistor R9; (b) 100 μ F capacitors C7/C8, mounted near centre of chassis directly under T1; (c) D13/14 rectifier diode type 1K2 mounted to tag board between HT and E.H.T. rectifiers.

(3) Remove C7 and C8.

(4) Cut grey wire on R9 and leave *in situ*.

(5) Cut yellow wire at R9 and remove from cable form.

(6) Remove D13/14 and the pink wire which goes to it and pull it from cable form.

(7) Disconnect blue/white wire from D13/14 and extract from cable form.

(8) Remove R9, 9-ohm resistor, and its mounting screw.

(9) Drill a 6 BA clearance hole between T1 and T2

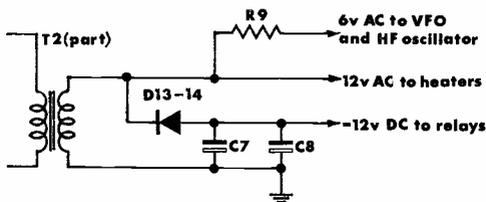


Fig 1(A)

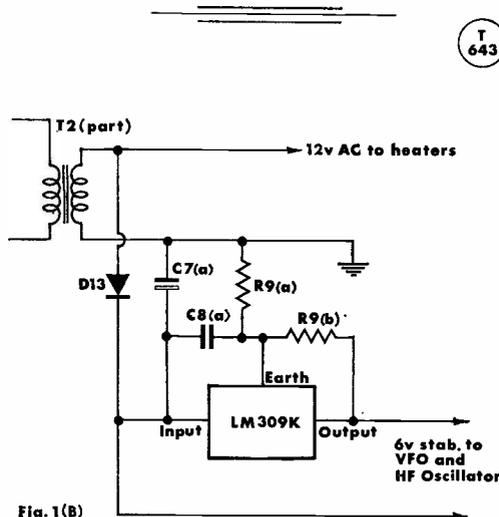


Fig. 1(B)

Fig. 1(A). Simplified diagram of existing KW-2000A PSU showing the low-voltage outputs. Fig. 1(B). Showing modifications to the low-voltage outputs.

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and mount the capacitor clip for C7A.

(10) Using the original hole for R9 as a starting point, mark out and mount the monolithic stabiliser LM309. It is necessary to insulate this from the chassis, and two "top hat" nylon insulating bushes are required for this together with a TO3 type mica washer. Also prior to mounting the LM309 coat the mica washer with a liberal amount of MS4 silicone grease; this aids heat conduction. Ensure that all parts of the LM309 are insulated from chassis.

(11) Connect BYX42/300 anode to the outgoing 12 volt AC lead from T2.

(12) Take BYX42/300 cathode to the positive terminal of C7A.

(13) Connect the short pink wire which was originally on the old C7/C8 to the positive terminal of C7A. This feeds the relay supply.

(14) Feed the long pink wire which was on D13/14 round the chassis to the LM309.

(15) Connect this wire to the input terminal of the LM309 and connect a 0.1 μ F disc ceramic capacitor with short leads between the input and negative terminals of the LM309.

(16) Between output and negative of LM309 connect a 100-ohm resistor.

(17) Between LM309 negative and chassis connect a 22-ohm resistor.

(18) Earth the negative terminal of C7A.

(19) Connect grey wire to output of LM309.

This completes the first part of the modifications. The circuits both before and after are shown in Figs. 1(A) and 1(B) respectively. The connections to the LM309 are as in Fig. 2 and the method of mounting is shown in Fig. 2(B). It will be noted that there lay supply has been changed from negative to positive supply. This does not entail any changes to the transceiver, and further no apparent reasons could be found for the supply being negative.

The LM309

This is an integrated circuit monolithic voltage regulator. Designed for logic power supply units (5 volt) it can supply an output current of 1.2 amps. It is overload, short circuit and thermally protected and is available from major component suppliers including R. S. Components. Other integrated circuit voltage regulators are available which will directly deliver 6 volts, but these tend to be rather more expensive than the 5-volt types. (7806KC—LM340k-6).

One problem which is sometimes encountered with this type of regulator is oscillation. Two types may occur, one is low frequency oscillation often at audio or sub audio frequencies, in much the same way as neon relaxation oscillators function; the other is a very high frequency oscillation (which for some reason often appears to be in the order of 50 to 60 MHz). However, both types can be eliminated by adjustment of decoupling components.

Appraisalment

The preceding notes give details of the first part of the power supply regulation procedure. Following the installation of the first part, objective tests were made and the results were very surprising. First of all stability

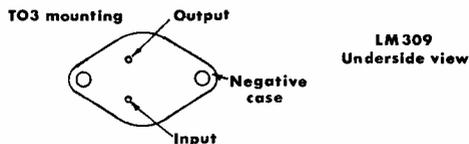


Fig. 2 (A) LM309 identification diagram

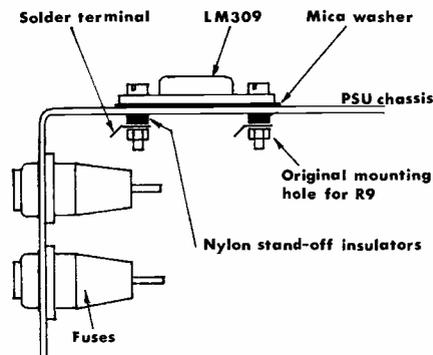


Fig. 2 (B) LM309 Mounting diagram

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was checked using ship-to-shore Coast Stations as a stability reference. Initial checks over several hours showed that the VFO would stay within audible zero beat. This was taken to be satisfactory as QSO's from G3ZSU seldom last much more than 30 minutes at any one time. Of course the transceiver must be allowed to reach its normal operating temperature before any checks can be carried out.

However, further checks were made under heavy mains load and unload. This was achieved by switching some 15 kW on and off (night-storage heaters) and some frequency change was still present. As it is intended to use the transceiver for portable work, and is likely to be run from a generator not renowned for its constant output, the next step was to regulate the 245-volt HT line.

Stabilising the 245-Volt Rail

Once the heater line modifications have been completed the 245-volt rail can be stabilised if required (and if the transceiver is to be used portable, this is recommended). The circuit is shown in Fig. 3. It is fairly usual type of series-regulator circuit. The circuit is referred back to the newly regulated heater supply. Most of the components are mounted on an etched circuit board, a recommended layout being shown in Fig. 4. The only component not mounted on this board is the series regulator transistor 2N3739. This is fitted on a matt black, finned, heat sink, which is cut to the same length as the existing HT choke L1.

The choke is removed and the two HT smoothing capacitors C5 and C6 are connected in parallel. The heat sink can be drilled and tapped to take the original holes that the HT choke was mounted through, or alternatively two small aluminium brackets could be

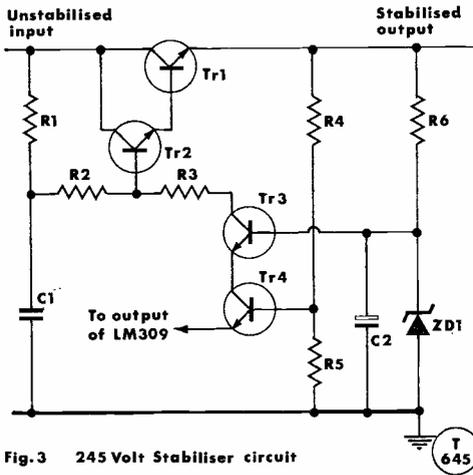


Fig. 3 245 Volt Stabiliser circuit

Fig. 3. Circuit for stabilising the 245v. line in the KW-2000A PSU.

Table of Values

Fig. 3. Stabilising the 245v. Line

C1 = 1 μ F, 300v.	Tr1 = 2N3739, or
C2 = 500 μ F, 15v.	2N3584,
R1 = 1,000 ohms, $\frac{1}{2}$ w.	HEP240
R2 = 22,000 ohms, $\frac{1}{2}$ w.	Tr2,
R3 = 220,000 ohms, $\frac{1}{2}$ w.	Tr3 = 2N3440, or 40327,
R4 = 6,800 ohms, $\frac{1}{2}$ w.	40321, BF258,
R5 = 68,000 ohms, 1w.	BF259
R6 = 12v. 400 mW	Tr4 = BC107, BC182
ZD1 = zener diode	

used for it. The ECB may be mounted on stand-off's attached to the heat sink. This leaves only four wires to pass back under the chassis (through the existing grommet hole). These are the input and output leads to the regulator, the 6 volts from the low voltage stabilised supply, and earth.

The orange/brown and orange wires from the HT choke can be disconnected at the tag strip almost directly beneath the choke. The brown/orange lead from the output capacitor should be transferred to the same tag as the orange lead from the first capacitor. The 150K bleed resistor can now be transferred to the two capacitors, and the collector lead to the new stabiliser taken to this point. The emitter lead (output) of the regulator is connected to the orange/brown lead on the tag strip which then feeds the output to the transceiver. The earth lead goes to any convenient grounding point on the tag strip. The 6-volt reference can be connected directly on the output of the LM309.

Setting Up

On switch-on the output voltage should be checked; this will probably not be exactly 245 volts. Before proceeding further, check the output voltage of the LM309. At G3ZSU 6.2 volts gave 220 volts. However, increasing the output to 6.3 volts (change R9A from 22 to 27 ohms) gave an output from the stabiliser of 235 volts. This was considered to be adequate and has proved to be very successful in service. Should the output be less than 235 volts it can be adjusted by varying

R4 and R5 (potential divider network) by small amounts until a satisfactory voltage is achieved.

Should parasitic oscillation occur with this unit, adequate roll-off at high frequency can be achieved by connecting a 100-ohm resistor and 0.33 μ F capacitor in series between the junction of R2 and R3 and earth. A .01 μ F capacitor (disc ceramic) across the output is also advisable as a precaution against HF oscillation.

Be sure to adjust the PA standing current after initial setting up has been completed.

Results

With this part of the circuit *in situ* the ripple on the HT rail was measured at less than 100 mV pk-pk, which before modification was at nearly 1 volt pk-pk. The voltage was also checked under full-load conditions. On "transmit" from key-up to key-down the voltage only dropped about two volts. There is also the added advantage that the PA screen voltage is stabilised under these conditions. This is normal practise with SSB transmitters if the standard text books are to be believed!

The KW-2000B

The modifications are equally applicable to the '2000B, but the method of achieving them is slightly different. First of all, the rectifiers are mounted on a printed circuit board above the chassis. There is also only one mains transformer in the '2000B. The relay supply is already positive with respect to the chassis although even in the '2000A this is no problem. The components are designated differently in the '2000B AC/PSU and the table gives details of the main differences.

The mechanical layout of the two chassis is also different and as there is far more room in the '2000B PSU individuals will of course have more freedom in deciding on the position of the new components. Using existing wiring where possible will help in making the

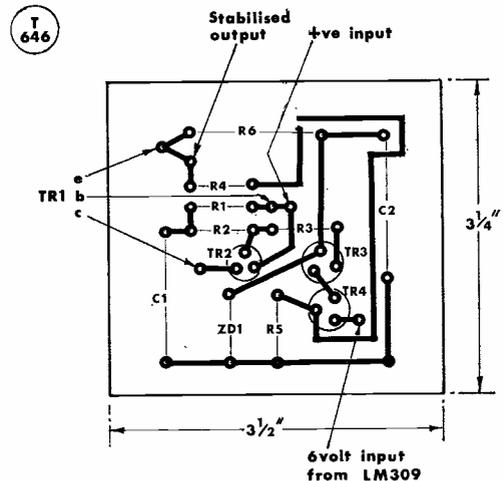


Fig. 4

Fig. 4. Layout for etched circuit board, copper side up. This is a recommended arrangement, to scale size.

completed job look neat. The circuits are basically similar but reference to Fig. 1 and the table should help clarify matters.

TVI From the KW-2000 Series

At G3ZSU some TVI has been caused on BBC-1 Ch. 1 when operating on 14 MHz. Running the Tx into a dummy load, with a receiver in the shack tuned to the third harmonic of the transmission, showed that a high level of the third harmonic was present. Tests indicated that much of this was coming from the cabinet direct and also on the power cable back to the PSU. In the first place additional bonding from the chassis to the cabinet was attained by making up a brass contact spring, as shown in Fig. 5A. This ensures an improved bond between chassis and cabinet. Further, the lid of the cabinet was drilled and tapped over the front lid so that there is additional bonding of the lid. This was found to be particularly helpful (Fig. 5B).

The circuit diagram shows that there is a distinct lack of decoupling of the power leads to the PSU. This was tackled by removing each lead in turn from the male plug on the rear drop of the transceiver and placing a *Mullard* FX.1115 ferrite bead over each lead, close to the socket and a $.01\mu\text{F}$ disc ceramic capacitor from each lead to earth. This resulted in about 80% reduction of the level of the third harmonic! The PA HT lead is de-coupled in this manner as standard. Be sure that the capacitors are capable of handling the applied voltage and that the ferrite beads cannot come into contact with each other. A piece of p.t.f.e. sleeving slipped over each bead will help to insulate them.

These notes are not intended to be "followed blindly" but it is hoped to stimulate the generation of other ideas for additional improvements to the excellent KW range of transceivers.

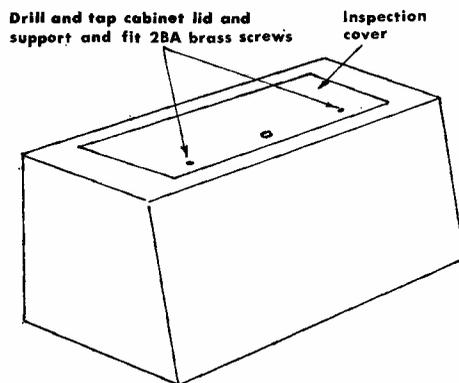


Fig. 5 (B) Improvement of cabinet lid earthing

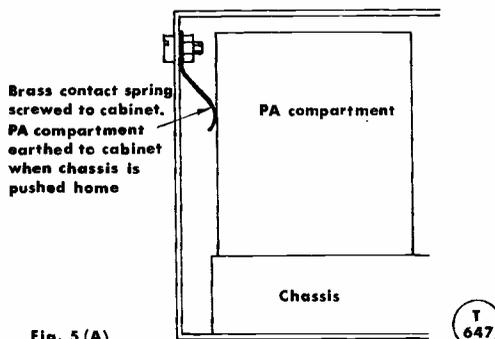


Fig. 5 (A)

ACTIVE AERIAL UNIT

FOR BOOSTING RECEIVER INPUT

G. C. DOBBS (G3RJV)

RECENTLY *Eddystone Radio* have marketed an active aerial unit, which consists basically of a small die cast case with a short whip aerial. The unit is designed for reception when limitations of space or other circumstances do not allow even a modest aerial to be erected. At least one American company also manufacture a similar unit.

Essentially the device is a high-gain broad-band RF amplifier accepting signals from a short whip aerial to feed into the receiver. Whilst such an "active aerial" is not of course suitable for transmitting, it allows listening over a wide range of frequencies without the need for a conventional aerial. As such, the device allows the SWL or licensed operator the opportunity to monitor the bands in a temporary QTH, for example a holiday hotel, or whilst the station antenna is out of action.

For some time the author has been using the *Amtron*

range of module kits for a variety of amateur applications. (see the article Going QRP on Eighty, in *Short Wave Magazine* for August 1975). This range of small in-

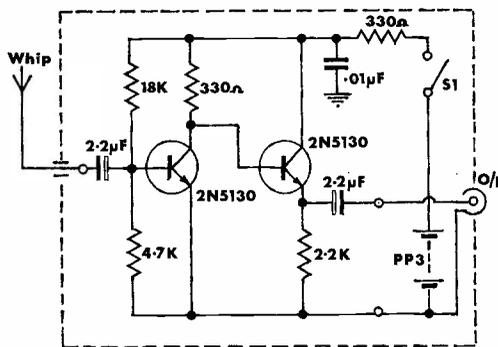


Fig. 1

Fig. 1. Circuit of the Active Aerial unit, using the Amtron UK-935 broad-band amplifier module, obtainable from Birkett of Lincoln, and shown opposite.

expensive module kits, originally manufactured by International Crystals of U.S.A. are now commonly available on the British market.

Amongst the kits is a small broad-band amplifier module, model number UK-935. This kit had been purchased with the intention of using it as the basis of an amateur band preselector. Before this idea could bear fruit, a change of QTH took place. It became obvious that "moving house QRM" would delay the provision of an aerial even to listen to the amateur bands. So it was decided to use the UK-935 as the basis of a simple active aerial. As a pipe smoker with an extensive collection of "useful" empty tobacco tins, it also seemed a good opportunity to make the collection one less!

The Module

The UK-935 is a two-transistor module with a frequency range of 20 Hz to 150 MHz and a quoted gain at 1 MHz of 30 dB for a one microvolt input. The operating impedance is 50 to 500 ohms. The module is built on a compact 1½in. square printed circuit board, and draws

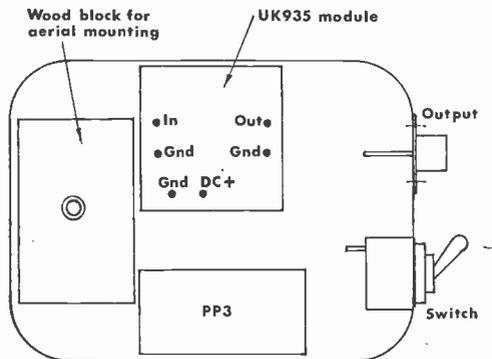
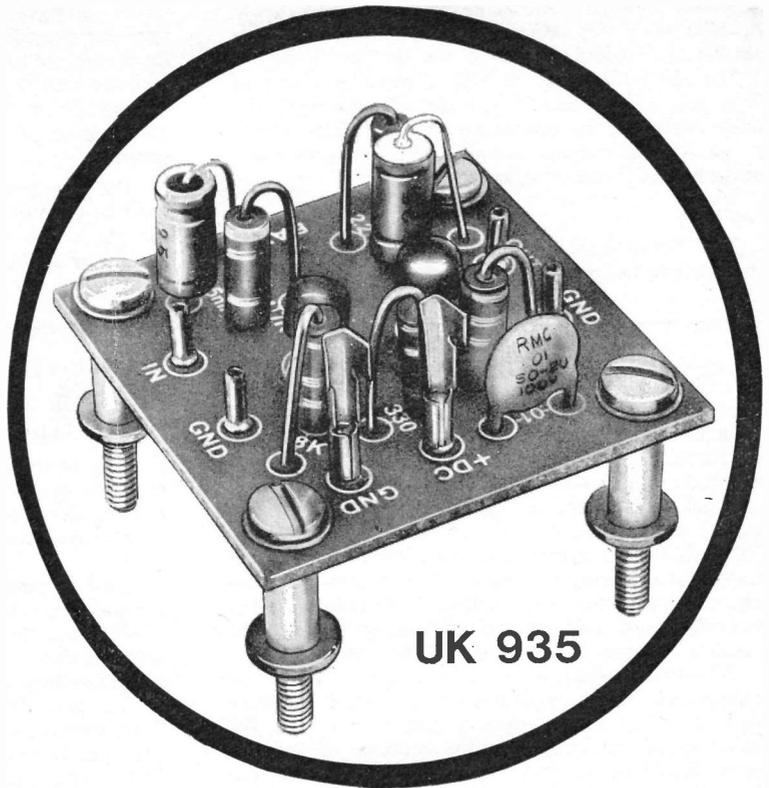
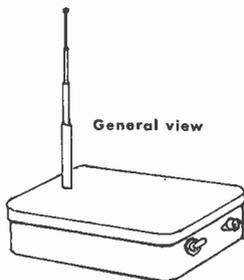


Fig. 2 Active Aerial layout



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Fig. 2. Layout diagrams for the UK-935 RF amplifier.

about 10 mA from a 9-volt supply.

The kit comes complete with all the components, even a roll of solder, together with a comprehensive leaflet. It could be built up in half-an-hour by even the less experienced "home brewer." The circuit diagram is shown in Fig. 1. All that is required to complete the Active Aerial is a whip aerial, a switch and a PP3 battery. The whip itself was salvaged from an old AM/FM broadcast receiver. It is 4in. long when retracted and just under 2ft. when fully extended.

The layout of the Active Aerial is shown in Fig. 2. The case is a flat "square type" 2oz. tobacco tin. The mounting of the components and the PCB are self-evident from the drawing, but a few points require extra consideration.

The stand-offs provided with the module kit are too tall. If they were used the lid of the tin would touch the top of the components. Two 6BA nuts were used as standoffs for the mounting holes in each corner of the printed-circuit board. The 6BA bolts were inserted from the underside of the tin, two nuts screwed on each as standoffs, and the board was screwed down to these with a third nut at each corner.

The Aerial

The mounting of the whip aerial is probably the trickiest part of the construction. Stray capacity between the whip and the case has to be kept to a minimum. In the prototype the base of the whip was mounted into a recess hole cut into a small block of ¾in. thick soft wood,

and passed through a rubber grommet in the lid of the tin. The wood was held in place by a couple of half-inch No. 6 woodscrews through the bottom of the tin.

The PP3 battery may be held in place by a strip of p.v.c. tape. It is essential to use screened lead between the Active Aerial and the receiver, so a coax or phono socket can provide the output. A switch and four plastic feet for the base of the tin complete the unit.

Operation

The Active Aerial is very simple in use. Merely connect it to the receiver input with screened lead, pull

out the whip, switch on, and off you go! No gain control has been provided. In practice it was found that overloading of the receiver could be reduced by lowering the whip an inch or two. The tin may be placed on top of the receiver or close to the aerial input socket. It is not advisable to use a long lead between the unit and the receiver.

The prototype worked well on all bands, and a fair amount of SWL'ing was done between the rigours of moving in the new QTH. Having proved it's worth, the Active Aerial is being kept in reserve, just in case.

PSU REMOTE SENSING

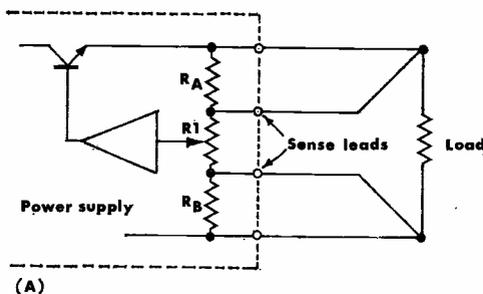
A. B. Plant (G3NXC)

In his article in the June '75 issue of *SHORT WAVE MAGAZINE*, G4CZP makes some suggestions for methods of remote sensing with his stabilised power supply.

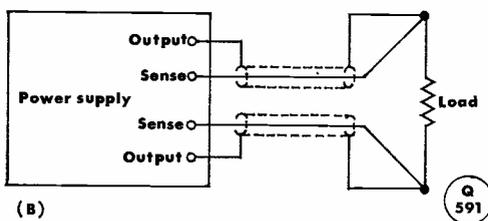
What he recommends, that of locating the variable resistor at the load end of the output cables, suffers from two disadvantages: First, the wiper of the variable resistor is connected to a point of high gain and, consequently, this connection suffers from noise pick-up. Secondly, with this method of remote sensing, the transient response of the circuit will be degraded.

If remote sensing is required, then circuit (A) herewith is suggested. The values of R_A and R_B should be chosen such that they are appreciably greater than the DC resistance of the leads—a value between 10 and 100 ohms should be adequate. With this arrangement (A) the sensing leads are at low impedance and are much less likely to suffer from noise pick-up.

The connections could be made using coax, or screened, cable as shown in sketch (B). This provides both screening and guarding for the sense leads.



(A)



(B)

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The circuit arrangement discussed in the text.

BOOK REVIEW

"THE ARRL ANTENNA HANDBOOK"

Thirteenth Edn., Second Printing

This is the latest of one of the ARRL series of excellent practical handbooks for the radio amateur, dealing in detail with the subject of Aerials—their design, construction and operation for the amateur bands.

Like all publications by the American Radio Relay League—the U.S. radio amateur organisation—publishers of literature for Amateur Radio since the 1920's, it is authoritative, reliable, accurate, up-to-date and written in straightforward English.

The first chapters, of about 130 pages, discuss the fundamentals, including transmission lines in theory and practice. Later pages go on to directive arrays and multi-band types, leading to special single-band arrangements and antennae for restricted spaces, e.g. ground-plane, loaded dipoles, the DDDR (directional discontinuity ring radiator, not much used in this country, but interesting), shortened beams for Yagi types on the lower frequencies, and helically-wound radiators.

In Chapter XI, VHF and UHF systems are covered in adequate detail, followed by an interesting treatment of Antennas for Space Communication, showing several designs for amateur construction. The last 66 pages deal generally with building methods, aerials for mobile operation, various specialised types, with about 30 pages of miscellaneous data, including the important chapter on aerial metering and measurement.

The book is copiously illustrated throughout, with good drawings and photographs and is fully indexed (five pages)

The *ARRL Antenna Handbook*, 13th Edition, of 336 pages in 18 chapters, costs £2.60 post free, from stock, of the Publications Dept., Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

"Short Wave Magazine" covers the whole field of Amateur Radio and should be obtainable to order through any newsagent.

VHF BANDS

NORMAN FITCH (G3FPK)

WRITING my first piece for this feature, it is interesting to compare VHF/UHF activity today with that in March 1968 when Mike Dormer became your conductor. Then there were no such things as repeaters, Liner-2's, TS-700's or Europa transverters. On two metres, SSB was becoming established slowly but most amateurs still used crystal-controlled AM and CW, respecting the old, zonal band plan. The current scene was very adequately covered last month by G3DAH in his final contribution and it is a matter of conjecture what will transpire over the next seven years. One event that should remain uppermost in our minds is that the World Administrative Radio Conference will be held in 1979, during which the future of our VHF/UHF/SHF bands will be decided. Only by demonstrating continuous and increasing use of the higher frequencies will amateurs be able to make a case for their retention of some, or perhaps any, of the present allocations.

Very many amateurs are keen operators but lack the necessary spare time, and perhaps facilities, to build equipment for 70 cm. and Gigahertz bands. Surely this is where manufacturers should step in for they ought hardly to need reminding of the success of 2m. sets, such as the FT-2F and Liner-2, if contemplating similar sets for 70 cm. and 23 cm. Wouldn't it be marvellous if a British firm took the plunge and developed and produced a 432 MHz version of a Liner-2, bearing in mind the export potential to Europe? The writer hastens to add, in mentioning the Liner-2 he has in mind merely the *idea* of a 70 cm. SSB/CW transceiver and not a copy, warts and all.

Mention the word "development" to a manufacturer and he will naturally start thinking in thousands of pounds when considering the sort of equipment we are discussing. But there is another way that good designs can be put on the market with a minimum of R. and D. expense, and that is by manufacturing a sound design already proven. Some of the Amateur Radio Clubs who report to our "Month with the Clubs" feature are very go-ahead. It occurs to us that one or two of these might attempt to develop a 70 cm. "Liner-2 type" set as a Club project. (Here one has in mind the successful Dutch 144 MHz transceiver project undertaken by the Leyden radio amateurs as described in the November, 1974 edition of *Electron*.) A satisfactory design could be offered to various manufacturers for a lump sum, a share of the action, or failing that, a group of enthusiasts might set up their own firm to produce it. The point of all this is that the present high level of activity on 2m. is very largely attributable to the abundance

of commercial equipment available and there seems no reason why a great deal more activity should not be created on other VHF/UHF bands by similar developments.

Technical Ideas

Whilst no revolutionary changes are planned for this feature it is suggested that some technical items would be welcomed. Mostly, these will comprise ideas and tips and readers are invited to send in anything they feel others might find useful. No doubt some of what is published may be old hat to many but newcomers may find the experiences of others helpful.

This month we make no apologies for bringing up the topic of some of the poor quality signals to be heard on SSB on the VHF's. Very often, one finds an S9 signal with a residual carrier of S4. Usually, it transpires that the operator is driving a transverter from a low-power output socket on a commercial, HF-band transceiver but finds that too much drive is available. Consequently, he turns down the microphone gain control. Unfortunately this leaves any residual carrier unattenuated, thus severely degrading the carrier suppression relative to peak output. The remedy is simple and cheap and has been used with complete success by many operators. All that is required is one of the attenuators mass produced for the TV market for insertion into TV antenna downleads when the TV signal is too strong. These are usually of the *Belling-Lee* plug and socket, in-line variety and come in 6 dB, 12 dB and 18 dB sizes. The aim should be to set the microphone gain control at the level suggested in the manual for HF band operation, then to select an attenuator for the coax lead from the prime mover to the transverter that enables the correct drive level to be delivered. This will attenuate the residual carrier considerably thus restoring the HF band performance.

Contests

Thanks to the excellent, extended tropospheric propagation noted throughout the period, the long awaited results of the Jubilee Open VHF/UHF Contest on July 5/6 reveal the predicted high scores. The winner was G3PMH/A and runner up G3XDY/P, amassing 13,976 and 13,797 points respectively, way ahead of the rest of the field. An analysis of the scores of the 80 entrants shows that 78 (97.5%) operated on 2m. and 29 (36.3%) used 4m. and 70 cm. In the corresponding, 1974, Contest the figures were, 4m. 44.1%, 2m. 87% and 70 cm. 40.3% from which it seems that 2m. usage is approaching the 100% mark. It is hoped that the drop in 4m. activity is not indicative of a declining trend. Highest score on 4m. was achieved by G3FDW/P in Co. Durham with 1,250 points, whilst G8BQX/P in Hastings made overall 4th place with a 2m. only entry of 8,061 points. By far the biggest 70 cm. score was turned in by runner-up G3XDY/P in Lincolnshire with 8,175 points.

The Northern Heights A.R.S. has produced some interesting facts and figures on their Jubilee Contest operation presented in a recent *Newsletter* in the form of a histogram. This is a plot of points claimed on 2m. and 70 cm. for each half-hour period of the contest and shows peak 70 cm. activity occurring between 2230 and 2300z. After 1100z on the Sunday, there was no scoring as they had worked everyone they were then hearing. By contrast, the 2m. scoring pattern

was more even with a peak around midday, Sunday, "... presumably as the non-contest bods got up . . ." followed by the final frenzy of activity after 1430z.

No reports received concerning the UHF Open contest so probably the entrants are still busy working out the QRB of each QSO.

The results of the July 27, 144 MHz QRP contest are just to hand and GW3FEC/P (Gwynedd), operated by the Swindon and District A.R.C. and Plessey Contest Group, were the winners with 1,871 points from 223 QSO's, with G3UCA/P (Cumbria), the Fylde VHF Group station, runners up with 1,834 points from 210 contacts.

The forthcoming contests are on November 1/2, the 144 MHz CW; November 16 the 432 MHz Open and on December 7 the 144 MHz Fixed.

Activity Group

G8BXJ writes to advise of the formation of The Bristol VHF Activity Group, the aim of which is to promote VHF/UHF and microwave activity in the Bristol area. At the time of writing the group had no regular meeting place or time. Interested readers are invited to contact: A. J. Pullen, G8BXJ, the secretary of the group, at 96 Windermere Road, Patchway, Bristol, BS12 5PR, telephone Bristol 695839.

A Canadian Viewpoint

VE3FVN wrote whilst on a visit to the U.K. to say he is very interested in VHF operation. He brought his portable FM rig crystallised up for 145.0 MHz but nobody seemed to have worked G4DFT. He buys *SHORT WAVE MAGAZINE* in Ottawa and is an avid reader of this column as well

TWENTY-THREE CENTIMETRE

ALL-TIME TABLE

Station	Counties	Countries	Total
G4BEL	38	10	48
G3NHE	24	5	29
G3DAH	23	4	27
G3JVL	21	4	25
G4BYV	17	7	24
G3OBD	20	3	23
G3ARM	20	2	22
G4ALN	19	3	22
G3JXN	19	1	20
G3COJ	15	3	18
G8AOD	11	2	13
G8FMK	12	1	13
G5DF	11	1	12
G8FJG	7	1	8
G8ABH	7	1	8
G8AII	5	2	7
G8GNZ	4	2	6
G8EOP	2	1	3
GD2HDZ	2	1	3

as of the advertisements. VE3FVN has followed the comments on high-power operation and admits to supporting those who run large amplifiers and big antennae during portable contests. Quite rightly, he points out that such well equipped stations enable many others to work a new state, county, country or whatever, which might not otherwise be possible. He helped to operate the Club station, VE3ONT, in the June ARRL VHF Contest. The Club ran kilowatt stations on 6m., 2m. FM/SSB/CW, and 70 cm. as well as on 220 MHz. On each band, ambitious antenna arrays were used. On 23 cm. they ran a mere 100 watts output to a 12 foot dish, the entire station being mounted atop of 50 foot tower, "... to reduce loss in 7/8 in. Heliax line."

High Power on VHF

The problems caused by stations running *effective radiated powers* of ten kilowatts and more have been mentioned in this feature. Your scribe has discussed this topic with a number of operators and feels it is time to put the case for and against as impartially as possible and to seek readers' opinions.

The proponents of high power maintain that running the full, legal power into high gain antenna arrays is necessary on the VHF's if one wishes to work long distances under flat band conditions. It cannot be denied that this is indeed effective. There must be many readers who have been able to work some good DX thanks to a portable DX-pedition to a favourable spot. Considerable effort and planning is required to

assemble, transport, erect and operate such stations. If stations are operated simultaneously on two or more bands from one site, there are very real problems of mutual interference to be solved.

Those who oppose this apparent race to higher and higher power, at each contest in particular, complain that QRO stations make it difficult, sometimes impossible, for them to participate seriously because their receivers are so desensitized when the strong signals are on that they cannot copy anything. They suggest that contest organisers should consider limiting the allowed *effective radiated power* although admitting the difficulty of enforcing such a rule. A common complaint about QRO stations is that they spread over a large part of the band and are often distorted. They do not confine their opposition to high power to portable occasions since those who receive a fixed QRO station's signal very strongly maintain that their enjoyment of Amateur Radio is virtually ruined.

Your considered comments would be welcomed on this problem, together with constructive suggestions on coping with very strong signals, which could be featured in our proposed technical spot.

Twenty-Three

Only one report on 23 cm. this month, from G8FMK who adds Surrey to his list of counties, bringing his all-time score to 12, from Thame, Oxon. More reports on 23 cm. activity—either actual or proposed—would be welcomed. Has any reader experimented with mobile operation on this band?

Seventy Centimetres

During September, GD2HDZ added counties Antrim, Durham and Avon to his score in the table. A move of QTH is likely soon to another location in Laxey which might not be quite such a good one for VHF. G4AEZ (Enfield, Middx.) has been busy constructing 70 cm. gear which was finished just hours before VHF NFD. The SSB set up gives 10 watts p.e.p. output using a BLX94, the prime mover being an FT-101B on 10m.

GM4CXP (Roxburghshire) would like to hear more CW activity on VHF/UHF and so promises to try to operate from 1900-1930z, at least, on 432.31 MHz, tuning 432.0 to 432.5 MHz on Mondays through Thursdays with Fridays through Sundays a possibility too. Derrick suggests that anyone seeking a Roxburghshire contact before that county disappears might like to write for a sked, sending an s.a.e., stating times and QRG's. This applies to 2m. and 4m. too.

G3BW (Whitehaven, Cumbria), in a long letter, reports having devoted a great deal of time to 70 cm. lately. Bill feels that the "use or lose" message rings out loud and clear at the meetings and conventions now. G3BW keeps a sked with G3AUS (Devon) daily, Saturdays excepted, at 2300 clock time, whilst G3BW, G3KMS (Lancs.) and GD2HDZ are on 432.2 MHz SSB each evening, except Saturdays, and would welcome callers.

Two Metres

Conditions on 2m. have varied from mediocre to decidedly above average. During September, plus the first three days of October, 13 countries have been worked from G3FPK, the one that got away being LX1DB, who made a brief appearance around 2100z on October 8. After a contact

THREE BAND ANNUAL VHF TABLE

January to December 1975

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL Points
	Counties	Countries	Counties	Countries	Counties	Countries	
GD2HDZ	56	5	71	11	39	7	189
G3DAH	47	5	49	9	39	11	160
G3ZMD	34	3	64	16	32	9	158
G4BYP	56	5	66	12	—	—	139
G2AXI	32	3	49	11	29	8	132
G4BWG	38	3	58	16	13	3	131
GM4CXP	28	5	71	15	8	3	130
G3BW	—	—	73	11	40	5	129
GM8FFX	—	—	93	14	11	6	124
G3FIJ	45	4	50	10	6	3	118
G3BHW	—	—	55	16	30	9	110
G4AEZ	17	3	45	13	18	7	103
G4CIK	19	2	65	15	—	—	101
G4CZP	—	—	84	15	—	—	99
G5DF	48	6	—	—	33	10	97
G8IAT	—	—	77	13	—	—	90
G8BKR	—	—	64	14	8	2	88
G18HXY	—	—	70	9	5	3	87
G3FPK	—	—	68	17	—	—	85
G4AJE	—	—	50	13	17	5	85
G13JLA	13	5	44	11	3	3	79
G8ABH	—	—	40	11	21	5	77
G8EOP	—	—	40	12	20	4	76
GD3YEO	—	—	61	12	—	—	73
G8INL	—	—	60	12	—	—	72
G8FMK	—	—	31	3	29	4	67
G8GLS	—	—	54	10	—	—	64
G8GHZ	—	—	50	9	3	1	63
GW8HVP	—	—	54	9	—	—	63
G8FWB	—	—	47	8	—	—	55
G8GII/P	—	—	47	7	—	—	54
G4DNJ	—	—	45	8	—	—	53
G8JKA	—	—	42	6	—	—	48
G3EKP	10	3	24	5	1	1	44
G4AIR	29	4	7	2	—	—	42
G8KSP	—	—	34	7	—	—	41
G4AGE	—	—	23	9	6	1	39
G8JAJ	—	—	29	6	—	—	35
GW8GLG	—	—	30	3	—	—	33
GW8FKB	—	—	—	—	18	6	24
G4BKY	—	—	8	2	—	—	10

The Table shows claims to date from January 1, 1975, and will close on December 31, 1975. All claims should be sent to: "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ as soon as possible. Final table for the year 1975 to appear February 1976 issue.

with G3VZV, Bedlam erupted, reminiscent of a Don Miller type pile-up on 20m., such that it was quite impossible to hear who, if anyone, Willy was trying to work. Maybe he gave up in disgust. EA1KC in XD32d was a welcome addition to the list, worked on CW on September 22 when conditions to the South were very good. The remarkable thing about this QSO was that Valentin was using just *one watt* to a 9-ele. Yagi, his Gijon QTH being at sea level. The QSL came back in six days. EA1KC reached Humber-side with his QRP rig, by the way. As the anticyclone at the beginning of October began to decline, there occurred the predicted opening to the South-East enabling many to contact HBAEN/P in DG13b, including your scribe.

G4AEZ admits to having fallen behind in the 2m. stakes this year due to the aforementioned constructional activity. Yes, Brian, the Isle of Wight does count for a county now as do Jersey and Guernsey, the two latter being countries as well. GM4CXP is on 144.05 MHz CW daily from 2100-2130z using his Magnum 2 transverter. (QLF/transceiver). Derrick is on SSB on 2m. as well, of course.

G4CIK (Leics.) found September a fairly poor month for conditions. The five new counties were due to the three DX-peditions, GM3XDY/P worked from Peebles and Stirling, G8IAT/P in Northumberland and GW8IZS/P in West Glamorgan and Dyfed. Nigel, now back at University, reports having worked all the G and GW counties this year excepting the Scilly Isles and inquires if there has been any VHF operation from there since it became a new county? GD2HDZ confesses to being somewhat disillusioned with the band, spending more time now on 4m. and 70 cm. He added Northumberland, Peebles and Gwent to the score.

G8KSP (Abbey Wood, London) is a welcome newcomer to 2m. and this feature. In the short space of six weeks the FT-220 and 5-ele. Yagi have notched up 34 counties and 7 countries. G4BYP (Liverpool) finds it difficult now to ferret out new ones for the Table. Alan is another who praises the three Glamorgans, Dyfed and Gwent operation by G3ONP and G8IZS.

G4BAH, now back at Cambridge, has sent in a resumé of his summer, 2m. activity from the Forest Hill, London QTH, from which 615 different, Continental stations have been worked. These comprise 200 DL, three DM, 140 F, one HB9, two LX, 40 ON, 130 PA and 99 Scandinavians. Some 74 QTH Locator squares were worked with another 12 heard and there is no doubt that Bob's home location is superb for the East and South directions. He confirms that September conditions were generally poor except for an opening to SM at the beginning of the month and one to South-West France at the end.

G8HNF/A (Nottingham) reports that on September 29, he was monitoring 145.0 MHz and listening to a local QSO, between 1100 and 1200z, when the QSO was blotted out by a strong, *Spanish* station! On spinning down to the low end of the band, Dave heard the Gibraltar beacon, ZB2VHF, at S9. The note was not quite T9 and had a hiss on it. After about a minute, all was normal again. It would seem that this could have been a random meteor burst. Perhaps some clever scientists among the readers might like to say if it would be possible for a bit of space hardware, re-entering the atmosphere, to cause an ionization trail,



The three-centimetre rig operated by GW8FGP/P, running 10 mW with a Gunn oscillator and using a horn antenna giving about 22 dB of gain. See notes on p.397, September issue, and the narrative.

sufficiently dense to cause this kind of effect. After all, there must be tons of rubbish up there which re-enters from time to time.

G8JZD (London N.3) has been having great fun with his Liner-2 and 5-ele. beam, with 14 countries worked on SSB. Jon's best DX so far is LZ2RA in Varna 0D51g, on the Black Sea coast, worked at 2217z on August 27. He suggests this QSO and others in the same period with HG5BN (Budapest) and YU2DDV (Ploce) were via Sporadic-E. The Royal Meteorological Society's Air Resources and Sounding expert has confirmed that Sporadic-E propagation to Eastern Europe was observed on that night but G8JZD did not state in his letter that it extended as high as the 2m. band. The QSL is eagerly awaited for this 2229 km. contact. During the same evening, there was a definite extended tropospheric opening to Scandinavia, with F's as well, for good measure.

G3POI (Downe, Kent) has now worked 22 countries this year *via tropo.* and meteor scatter. At least 5 MS QSO's with SM3BIU in HX19h have been successful. Clive has MS skeds lined up with I4, OE3, SM2, UK3 and UT5 in the near future and with EA4, HG5, OH2, SM3 and UT5 later in the year. The recently erected 40-ele. array came down in a recent big blow but without too much damage. G3POI is now firing his 300 watts p.e.p. into just 2/10 ele. Yagis. He has worked 90 QTH locator squares but points out he is a long way behind SM7AED with 196!

We must mention the QRPP exploits of G3SCP in Luton. During recent weeks, the writer has had many perfect QSO's over the 67 km to Riddlesdown. Admittedly, both stations are superbly sited but even so, isn't 100 *micro-watts* to an *indoor* dipole quite an achievement? The output device was a 40673 transistor which was later driven

Another interesting picture, of G8BDJ/P out with 3-centimetre gear. On the mike, seated, G8BDJ and on the tripod the horn and dish antennae. Standing is G3ZZX. They also have a car-mounted back-up station on two metres. Basically, 10 GHz gear is quite simple!



"QRO" to a calculated 150 micro-watts.

Four Metres

G4AEZ has completed a solid-state exciter driving a QQVO6-40 to 60 watts p.e.p. from the FT-101B on this band. G4BYP cleaned up on some Welsh counties, thanks to GW3ONP/P from Dyfed and the three Glamorgans, with I.o.W., Devon, Antrim, Kirkudbright and Roxburgh accounting for the eight additions to the Table score. Alan feels that activity is disappointing in view of the large number of stations that appear on 4m. during contests.

G4CIK made it with GM4CVI/P from Peebles for a new 1975 country and county, plus Cheshire, Stafford and also S. Yorkshire. Amateur activity at G4CIK has now come to a halt with the new University term underway. GD2HDZ managed 8 more counties in the first week of September, best day being the 7th when Fife, Cambridge, W. Sussex and Dyfed were added. A pretty rare one was GM4AOS/P in Bute.

GM4CXP offers Roxburgh on CW from 2000-2030z each evening, plus Sunday mornings, rockbound on 70.26 MHz or 70.32 MHz.

Competitive Stuff

Whilst the Three-Band Annual VHF Table continues to be well supported, a number of us have been toying with the idea of a table for the more DX-minded operators. A natural basis for this would be the QTH Locator squares. It is suggested that 2m., 70 cm. and 23 cm. be the three bands selected the latter in an attempt to stimulate more activity. However, if there is strong feeling that 4m. ought to be substituted for 23 cm., so be it, but there are relatively few squares workable on 4m. Only normal modes,

i.e., tropo., aurora, MS and Sporadic-E would count and no Oscar or repeater QSO's would be valid. In fairness to those who have sought VHF/UHF DX in the past, it is proposed to "back date" the start, say to January 1, 1975, or maybe a year earlier. The table would be an on-going, all-time affair and newcomers would have a chance to catch up during favourable conditions. The table could be made more interesting by presenting it in rotation as first, the total squares worked on all bands, secondly highlighting 2m., thirdly 70 cm., etc. Your comments are sought on this proposal together with what other information, apart from band/call/squares worked, should be included, bearing in mind space limitations. It is suggested you go ahead right away working out your QRA squares, and send them in, so that we can set about compiling a Table. It is *not* proposed to scrap the present Annual Table, unless you are all tired of it?

Scottish VHF Convention

More than 300 people attended the Scottish VHF Convention on September 13 in Aberdeen and over 160 stayed for the dinner. Speakers included G3FZL, G3DAH, GM3ZBE, who spoke on 70 cm. DX, with GM30XX and GM3DXJ talking on microwave activity. GM8FFX reports that the trade stands were very busy with many folk buying 70 cm. converters and 2C39, 70 cm. PA units. Graham writes that the trend seemed to be towards 70 cm. at the Convention, probably heightened by GM3ZBE's tapes of S9-plus signals from SK6AB. The event was attended by amateurs from GD and GI as well as a large G and GM contingent. A free raffle (in Aberdeen!) saw two rotators, donated

by South Midlands Communications, won by G8DVD and GM4BIP.

Final Miscellany

Mike Foster's (G8AMG) booklet, *GB3LO: What You Hear and Why* has now been published and a very neat production it is. (See p.457 of the October issue). G8CKN, one of the leading lights in the UK FM Group Southern, advises of the imminent appearance of a similar booklet on GB3SN, entitled *A Date With Susan*. Roy says that the most common problem with the Four Marks repeater is that users overdeviate their access tone, even though their subsequent speech is correctly deviated. He calculates that if every user of GB3SN contributed just 10p a year it would cover the running costs. More news on the repeater situation on 2m. and 70 cm. will be included next month following the meeting at Brunel University.

Further to the brief mention of *Oracle* last month, G8FYO, Hon. Sec. of the LWE TV Radio Club, has forwarded a print-out of *Oracle's Oscar* information. Alex advises that these transmissions are supplied to all ITV contractors when they take a programme routed through London, so are available most all the time in UHF 625 lines homes.

G8FYO also mentioned that he has received a letter from DARC asking if U.K. amateurs would discontinue using S24—145.60 MHz—which is the R0 output channel, since under lift conditions, interference can result.

Deadline

Ring November 7 on your calendar for the next issue. All your news, opinions, claims, criticisms, etc., to: "VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ. 73 de G3FPK.

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for December issue: November 7)

BEFORE we tackle our proper function of reporting on the Club scene for November, we must mention an event in which not one, but many, groups will be pleasurably involved—MCC, the Top Band Magazine Club Contest, over the weekend November 15-16 and the 30th in this series of annual events. The rules in full were given on p.458, in the October issue; and doubtless many a gallon of midnight oil is being burned and many a plot hatched, with a view to a win, by the regular contestants up and down the country. However, it is not too late for *your* group to nominate a member who has Top Band gear, send a bunch of flowers from the members to pacify his XYL, invade his shack over the weekend November 15-16 (maybe hang him up a better Top Band aerial as a favour?) and get stuck in there to all that CW. Who knows—you might well be the overall winner, but even if you aren't you can *still* show that lot down the road a thing or two about operating!

Reports—S.E. England

Which may be loosely described as that segment of the Amateur Radio world which looks upon much north of Watford as Injun territory!

And, oddly enough, our very first report comes in from the frontier-post at Verulam, and their Hq. is in the Market Hall of St. Albans. However, on November 3, you can find them in the St. Albans R.A.F.A. Club, informally but with CW runs for those who are interested. November 12 is the "proper" date, at the Market Hall, and the subject is, at the time of writing, yet to be announced.

For Dunstable Downs the Secretary has sent us a long-term programme, something which in the past we have always refused to accept. However, with the iniquitous postage rates now ruling, your Club Secretary is looking at a method of accepting such entries in order to help the Club budget. Anyway, the group have Hq. at Chews House, 77 High Street South, Dunstable, every Friday evening. November 7 is for a Rag Chew, and for the 14th a Film Show with MPT films; the Constructors' Contest is down for November 21, and the programme on November 28 is based on "a Natter and a Pepsi."

Dartford Heath put out their *Compass Points* newsletter at fairly regular intervals, from which we note they have their place at the Scout Hut, Broomhill Road, Dartford, where they will be on November 7 and 21. Both nights were, at the time of printing the sheet, still to be finalised—but no doubt there will be something doing; last-minute news may be picked up by tuning around 1930 kHz on Sunday mornings, at 1100 clock.

Next we have another newsletter, this time from Harrow who advise that on any Friday evening they are represented at Harrow Sea Cadets Hq., Woodlands Road. In November, 14th and 28th are Practical, on the 7th G3RPE is to talk on Microwaves, and there is a Slide Show down for the 21st, subject not stated.

Unfortunately, our news of Surrey is a bit out of date, covering nothing later than September. However, we deduce that the evening to be reserved is the third Tuesday each month, at the Ship Inn, Croydon. For more details, Secretary G3FWR (see Panel) will doubtless be pleased to assist.

There is usually no problem sorting out the "what's what" from the Mid-Sussex newsletter, which, though it has a similar format, has been reduced in size and has an improved print to counterbalance—very nice indeed. The shack, and all normal meetings of the lads and lasses, are at the Further Education Centre, Marie Place, Leylands Road, Burgess Hill. For November, there is a Junk Sale on November 6 and a talk on Pulse Code Modulation by G3VQN on the 20th.

The hunt is still on for a new Hq. at Sutton & Cheam which makes things generally a bit tentative, though a Junk Sale is definitely likely. The best thing to do is to get in touch with G4BOX for the latest news—he can be reached at the relevant address in the Secretaries' Panel.

It looks like the first Thursday in November at Cray Valley, where the venue is Eltham United Reformed Church Hall, 1 Court Road, London, S.E.9.; in addition there is a Buffet/Dance, set for November 15, and not restricted to members—bring friends along, they say. More details can doubtless be obtained from secretary G3YWO.

Regulars Acton, Brentford & Chiswick come next, and are to be found at 66 High Road, Chiswick, London W.4, on November 18; they will be discussing the report on their showing in MCC the weekend before.

If you want a Club meeting on Mondays, Wednesdays and Thursdays, try Barking, at Westbury Recreation Centre, Westbury School, Ripple Road, Barking, Essex. The general form seems to be to have Construction on Mondays, CCTV and radio operation on Wednesdays, and an informal get-together on Thursdays, with a special item set in on occasion. For example, in November there is a Film Show on the 20th. Oh, yes, we forgot to mention Tuesdays—that is the evening for Morse practice.

North Kent have their place at St. Mary's Institute, 2 North Cray Road, Bexley, on the second and fourth Thursday of each month; at the time of writing we cannot tell you what has been set up for the November dates; hence we refer you to the Secretary—see Panel.

From North Kent we turn to West Kent, and the Adult Education Centre, Monson Road, Tunbridge Wells. Here the lads look forward to a Junk Sale on November 14, and a talk on Modern TV Power Supplies. In addition they have November 4 and 18th booked at the Drill Hall, Victoria Road, Tunbridge Wells, these dates being for nattering, projects, and some Morse practice.

It is quite unusual for a Club to have a YL member; how much more rare must it be for a newsletter to have *two* articles by YL members. This is the case at Echelford where G4CQO's description of the setting-up of her own station is quite hilarious. Elsewhere in the same newsletter we find that the club Hq. is at St. Martins Court, Kingston Crescent, Ashford, Middx., on the second Monday and the last Thursday—note the rather unusual selection of dates. As to programme, we have no definite information at the time of writing, but no doubt something will be fixed up by the time the doors open!

Maidenhead have a methodical Secretary who keeps carbons of his letters—but the one he sent with the November dope didn't produce the copy but did give us the opportunity of choosing whether to read his letter straight or in mirror image! Carbon-paper *definitely* works better the other way up. But either way, we see November 6 and 27th (Thursdays) and November 18 (Tuesday). The first of these is the Junk Sale, and both the second are rounds of the inter-club quiz; the 18th is "home" and 27th is "away" to Echelford, which answers one question in the previous paragraph.

At Crawley, that hard-working character, G3MXJ, is to talk on November 26 about IARU—he has certainly been a Godsend to hard-pressed programme secretaries, quite apart from the significance of his theme. He will be doing this at Hq., United Reformed Church Hall, Ifield, where also, on November 29, they have a booking for their Annual Social Evening.

For many groups the newsletter is a major item of expenditure, between paper and postage rises; and while there is generally reluctance to cut a newsletter right out many are either not being posted where a member can pick it up at a meeting, or alternatively, it is being reduced in frequency to, say, a quarterly or bi-monthly issue. Either way, the useful "reminder of meeting date" function is unfortunately lost. Reigate are having their newsletter distributed as far as can be at meetings, these being on November 4, the Natter Night at the Marquis of Cranby, Hooley Lane, Redhill, and November 18, when they are at St. Mark's Church Hall, Alma Road, Reigate; the speaker is yet to be announced.

What is believed to be a first report comes in from Shelburne (North London), where the programme is to get together on Mondays and Thursday evenings; Mondays for R.A.E. under G3SLF, with space for the rest to "do their own thing," with Thursdays as Activity Night, when the first 30 minutes is set aside for Morse and the rest of the evening to various other activities, including running-up of the Club station. By the time this comes to be written they will have moved to a new Hq. at the Youth Centre, White Lion Street, London N.1, where there will soon be a purpose-built shack on the roof.

Southgate indicate that their activity for November's second Thursday evening is the battle for the G6QM Trophy; this is a home-construction contest, at the Scout Hut, Wilson Street, Winchmore Hill, London N.21, the Hq. for all meetings. [over]

MAGAZINE CLUB CONTEST

Top Band CW only. Starts 1700z on Sat., November 15. Rules and all details on p. 458, October issue. As usual, this Contest will be closely invigilated, so watch Rules 8 & 9, and time all QSO's accurately.

It is nice to know that a Club has definitely made gains as a result of publicity in this space—it makes the task worthwhile. A note by Geoff Stone, G3FZL, on the bottom of the Crystal Palace report gives us just this little bit of feedback for which thanks! The Hq. for this group is at Emmanuel Church Hall, Barry Road, London S.E.22—the third Saturday in each month—starting at 8.0 p.m. For this month the topic is "Amateur Radio Construction Techniques," and the speaker G3IIR, Eric Yeomanson.

Although they get together every Wednesday evening, Cheshunt have a standing arrangement that on the first session each month they try to have a guest speaker, and on the third a speaker from amongst the membership; this leaves two evenings for informals and Morse practice. November 5 is down for G2BCX to talk about Vertical Aerials for VHF, and November 29 is the important Annual General Meeting, which this month replaces one of the informals.

The Victoria Hotel, Latimer Road, Eastbourne is the home of Southdown; on November 3 there is to be a talk by G3XUS and G3ZFE on Colour TV, and on December 1 they have the AGM.

The Horndean & District Amateur Radio Club has been formed to fill the vacuum in the Hampshire area caused by the demise of a number of small clubs over recent years. They hope to find a successful formula to keep going where others appear to have failed—or so we are told. Meetings are on the second Thursday each month at the Community Association, Merchistoun Hall (on the A.3 just south of Horndean) at 7.30 p.m. For November 13 there will be a tape-and-slide show on "Radio in Antarctica," with a full programme

planned into 1976. We wish them well, and look forward to hearing more.

Also inaugurated recently was the Racial Marine Radio Club, Margate, with already a membership of twenty, six of whom hold tickets. They are hoping to get six or eight members through the next R.A.E. and aim to build up a positive interest in Amateur Radio among their younger members—good luck to them, too, and we hope they will keep us posted.

Midlands

Greater Peterborough report they now have a regular Hq., at Southfields Infant School, Stanground, on the last Thursday in each month. More details may be obtained from the address given in the Secretaries' Panel.

The Secretary at Stamford wrote to mention a recent meeting at which the celebrated organist, Jennifer Bate, gave a talk on her world travels and became Patron of the group (unfortunately he omitted the photographs mentioned in his covering letter). This group appear to foregather in each other's homes, so if you are thinking of becoming a member or of visiting, you should first contact G3MFG, as in Panel.

Coventry Technical College is a relatively new formation, not much above a year old, but is firmly established with about 30 members. There are no formal activities, but they gather in the Winfrey Annexe every Monday evening, where they can make use of the extensive facilities or operate in the shack—there is also an Amateur

Names and addresses of Club Secretaries reporting in this issue:

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London W3 8LB.

BARKING: J. Wiles, G8JEQ, Barking Radio Society, Westbury School, Ripple Road, Barking, Essex, IG11 7PT.

BURY & ROSSENDALE: M. Howarth, G4ECM, 11 Worthington Avenue, Heywood (65911), Lancs.

CHESHUNT: R. E. Chastell, 4 Fairley Way, Cheshunt, Herts. CORNISH: H. Webster, G3XTF, Crandale, Gillyfields, Redruth (6905), Cornwall.

COVENTRY TECHNICAL COLLEGE: J. Witt, G6ASO/T, G8ISJ, Coventry Tech. College (Department of Electrical Engineering), Butts, Coventry, West Midlands, CV1 3GD.

CRAWLEY: A. V. H. Davis, G3MGL, 41 Gainsborough Road, Tilgate, Crawley (20986), Sussex.

CRAY VALLEY: M. Tripp, G3YWF, 57 Cathcart Drive, Orpington (38199), Kent.

CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, SE23 3BN. (01-699 6940.)

DARTFORD HEATH D/F: J. Everist, G4CZC, 15 Westharold, Swanley, Kent.

DERBY (Nunfields House): I. Cage, G4CTZ, 25 Petersham Drive, Alvaston, Derby, DE2 0JU.

DUNSTABLE DOWNS: C. W. Stedman, G3XWS, 10 Wychwood Avenue, Luton, Beds.

ECHELFORD: J. H. Ellis, G2FNK, 18 Georgian Close, Leacroft, Staines (54828), Middx., TW18 4NR.

GLENROTHES: A. Givens, GM3YOR, 41 Veronica Crescent, Kirkcaldy, Fife, KY1 2LH.

GREATER PETERBOROUGH: R. Smith, G4DXW, 251 Coneycree Road, Stanground, Peterborough, Cambs., PE2 8LR.

HARROW: L. Light, G3KDL, 22 Chippenham Avenue, Wembley, Middlesex. (01-902 2570.)

HEREFORD: S. Jesson, G4CNY, 181 Kings Acre Road, Hereford (3237), Herefordshire.

HORNDEAN: S. Jenkins, G4CHO, 31 Briar Close, Horndean, Hants.

MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead (20107), Berks., SL6 5LA.

MELTON MOWBRAY: R. Winters, G3NVK, 22 Redwood Avenue, Melton Mowbray (3369), Leics.

MID-CHESHIRE: P. Fox, G8HAV, 15 Llandoverly Close, Winsford, Cheshire.

MIDLAND: A. Walton, G3ZKQ, 243 Barnes Hill, Birmingham, B29 5UJ. (021-427 3088.)

MID-SUSSEX: J. Brooker, G3JMB, 20 Farnham Avenue, Hassocks, Sussex.

NEWPORT (Gwent): M. Biddiscombe, GW3YKZ, 10 Davy Close, Newport (58314), Gwent.

NORTH DEVON: H. G. Hughes, G4CG, Crinnis, High Wall, Sticklepath, Barnstaple, Devon.

NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogdan, Halifax (44329), West Yorkshire.

NORTH KENT: R. Wells, G4ARQ, 12 Bullbank Road, Belvedere, Kent.

PIONEER: A. Sinclair, GM4BWT, 32 Burdiehouse Street, Edinburgh, EH17 8HB. (031-664 6570.)

QRP CLUB: Rev. G. C. Dobbs, G3RJV, 8 Redgates Court, Main Street, Calverton, Notts.

R.A.F.: The Admin. Officer, R.A.F. Amateur Radio Society, R.A.F. Locking, Weston-super-Mare, Avon.

RACAL (Margate): W. J. Wilson, 29 The Courts, Westbrook, Margate, Kent. (Thanet 31663.)

R.A.I.B.C.: Mrs. R. Shepherd, G3NOB, 59 Pantain Road, Loughborough, LE11 3LZ, Leics.

REIGATE: R. Wells, G3RIN, 5 Cronks Hill Road, Redhill, Surrey.

ROYAL NAVY: Lt. P. Gadsden, G3MTP, c/o Royal Navy A.R.S., HMS Mercury, Leydene, Hants.

ROYAL SIGNALS: Capt. J. Cooper, G3DPS, Royal Signals, Blandford Camp, Blandford Forum, Dorset.

SHEFFIELD (Amateur Radio Clubs Association): P. Day, G3PHO, 39 St. Albans Road, Sheffield 10 (306956), South Yorkshire.

SHELBURNE: Miss Freda M. Young, 5 Old Well House, The Grove, London, N6 6LD. (01-348 6669.)

SOUTHDOWN: A. Seabrook, G3ZQB, 6 Harebeating Gardens, Hailsham, Sussex.

SOUTHGATE: B. Oughton, G4AEZ, 48 Morley Hill, Enfield, SOUTH MANCHESTER: C. Scholefield, G8GDM, Silverdale, 57 St. Werburgh's Road, Chorlton-cum-Hardy, Manchester, M21 1UN.

SPALDING: R. Harrison, G3VPR, 38 Park Avenue, Spalding, Lincs.

STAMFORD: D. Close, G3MFG, High Street, Collyweston, Stamford, Lincs.

SURREY: S. A. Morley, G3FWR, 22 Old Farleigh Road, Selsdon, South Croaydon, CR2 8PB. (01-457 3258.)

SUTTON & CHEAM: A. Keech, G4BOX, 26 Albans Road, Cheam, Sutton, Surrey.

VERULAM: H. Young, G3YHY, 93 Leaford Crescent, Watford (25633), Herts, WD2 5JQ.

WAMRAC: L. Colley, G3AGX, Micasa, 13 Ferry Road, Wavne, Near Hull, Humberstone, HU7 5XU.

WASHINGTON: P. Fay, G3AKG, 5 Harland Way, The Glebe, Washington, Tyne-Wear.

WEST KENT: M. Stanton, G4CCQ, Sweetbourne Cottage, Hastings Road, Lamberhurst (393), Kent.

WHITE ROSE: K. Robson, G3VTY, Flat 7, 34 St. James Drive, Horsforth, Leeds.

WIRRAL: H. I. Crofts, G3DLF, 3 Barmouth Road, Wallasey, Merseyside. (051-638 2515.)

WOLVERHAMPTON: J. Nicholls, G8GCV, 28 Denham Gardens, Finchfield, Wolverhampton, West Midlands, WV3 8LW.

YEovil: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.

YORK: K. R. Cass, G3WVO, 4 Heworth Village, York, North Yorkshire.

Two lady members of the Derby & District Amateur Radio Society, both holding tickets and both XYL's. At left, Ann Buckley, G8KMB, wife of G3VGV, and Jenny Shardlow, G8KMC, the XYL of G3SZJ. They both work hard for the Club, and were operators on the talk-in station for the recent highly successful Derby Mobile Rally. Their own station activity is SSB on two metres—one wonders if the gossip goes on far into the night!



TV set-up which is being equipped for 3 cm. and Seventycem work.

On to Spalding, who missed the deadline last time, which results in their information being for the wrong month. No problem though, just get in touch with G3VPR—see Panel—for all the latest data. However, we can say that this group, relatively out in the sticks, seems to be one that has the radio-club equivalent of the film-star's "it," attracting lots of members from a very wide area and having one of the best *Newsletters* we have ever come across.

"Once a month" is the routine at Melton Mowbray, who are in session on November 21, to hear a talk about Integrated Circuits; the report does not mention the Hq. address, which used to be the St. John Ambulance Hq.

At Wirral the newsletter postal cost is being held down by pushing the issue out every other month—and some kind soul along the route removed the section referring to the November doings! However, we know they are to be found at the Sports Centre, Grange Road West, Birkenhead, on the first and third Wednesday in every month, and also that it is very rare not to have something of interest fixed up. If you want more detail, either turn up—they'll make you welcome—or contact secretary G3DLF first.

November for Nunsfield House seems to be pretty full. The first Friday (November 7) is the AGM and all members are asked to be there. November 14 is down for Ken Parker's lecture-demonstration on Welding; the 21st for a talk on Skin Diving by Peter Ford; and on the 28th there is an exhibition of Vintage Car Carbide Lamps. Then—back to radio! Meantime, activities like the redecoration and fixing-up of the room allocated for the Shack, purchase of new gear, of a tri-band aerial to put atop the Versatower, and some fund-raising ventures have kept interest on the radio side of things. The Hq. is Nunsfield House Community Centre, Boulton Lane, Alvaston, Derby.

A new secretary takes over for Mid-Cheshire, as the Panel shows. He reports that the group have their place at the Technical Activities Centre at the rear of Verdin Buildings, Verdin Comprehensive School, Winsford. For November 5, they have G3IAK on Propagation, and on the 12th there is an Open Night. A Pye representative is coming along to talk about Commercial Communications on November 19, and the month is rounded off on the 26th by an evening of Films.

South Manchester have, in effect, two homes, namely the main one, Sale Moor Community Centre, Norris Road, Sale, and the club shack, Greeba, Shady Lane, Manchester 23, where the VHF and D/F types can be found. The main Hq. is in use on Friday evenings, and the Shack sessions are on Mondays. Looking at the Community Centre set-up, for November 7 there is the Annual Dinner, and on the 14th a Night on the Air. The Fire Service people are coming along on November 21 to talk about "Safety in the Home," and on the 28th there is a Club Quiz.

Wolverhampton operate from Neachells Cottage, Danescourt

Road, Stockwell End, where they foregather on Monday evenings. The dates for these are November 3, when members of the Coventry Astronomical Society will be visiting and telling them about some aspects of Aurora; November 10, for a Natter Night; November 17 for a Junk Sale; and November 24, for a committee meeting at Hq., open to members. In addition to this, there is a programme of Thursday lectures aimed primarily at the beginners. Here we see November 6, for a talk on Operating Techniques and Practice; November 13, the Use of Meters and other Test Equipment; November 20, a conducted tour of the FT-DX560 transceiver; and finally on the 27th a talk on VHF converters.

The well-known and old-established Midland Amateur Radio Society function from the Midland Institute, Margaret Street, Birmingham—the centre of many activities—and have two meetings fixed: On November 8, for the popular Surplus Sale, and on December 9, they have their Christmas Party.

North & Scotland

Our first stop here must be to Pioneer where they have a small room—but their own place nonetheless!—which they are turning into a fine shack. Broadly, the group have one evening a month set aside for a formal talk, the rest of the time being spent on activities such as construction, Morse, station operation, and such. As a new Club, they are looking for members.

A note from Washington (Tyne & Wear) indicates that if sufficient interest is there, and interest *shown*, it may be possible to run a crash-course for R.A.E. and Morse in the locality. Interested people please write, as soon as possible, to G3AKG at the address in the Panel.

The formal at Bury & Rossendale is on the second Tuesday in the month, but they are also to be found having an informal get-together every other Tuesday of the month in the Mosses Community Centre, Cecil Street, Bury. There is considerable sadness in the club over the recent death in a car accident of G3VVQ and his XYL—Alan had for long been a driving force in the Club and will be sorely missed. Were that not alone bad enough, member Eric Norfield died, just after passing R.A.E. and with the Morse test all but in the bag—what a sad bit of luck, and again, a person who will be missed. Our sympathies to all concerned.

At Northern Heights they have been producing their own newsletter, which has resulted fewer reports from G3MDW. However, he is still the secretary—he must be one of the oldest in the business!—and looks to be still in there for another ten years! They have their Hq. at the Peat Pitts Inn, Ogden, Halifax, which is about four miles north of Halifax centre. For November 5 they have a lecture, and the very next evening sees them out to the Black Car Museum. November 12 is a committee meeting, and on the 19th they have a Rag Chew. That leaves Thursday 27th, when they are having a Quiz with the Spen Club, at Spen. (How is it we never hear from Spen these days? Some years ago we carried their regular reports).

The Association of Sheffield Amateur Radio Clubs takes in all the local Clubs and gives us a one-stop source of news. The Association itself has the star meeting, on November 3, in Room 3106 at Sheffield Polytechnic, when they have G3USB, on the subject of "Latest Developments at VHF, including Repeaters." Sheffield Club itself have Monday November 17 for a Home-Brew Competition, at the Sheaf House Hotel.

Still in the area we have Sheffield Poly and Sheffield University societies, who have a problem with their contest site and so will not, for the moment at least, be active in that way; however, they can be found at the Shack, top floor of the Phoenix, Charles Street, Sheffield S1. Then we have Worksop who have a place at North Notts College of Further Education, Blyth Road, on Thursdays. For all of these doubtless the Association Secretary, G3PHO, will be pleased to give you details.

Now to York who were proud indeed to be inspected at their GB3NRM site by the Duke of Edinburgh on the opening of the National Radio Museum, as well as by other VIP's and radio amateurs of both sexes. This group assemble in the British Legion Club, 61 Micklegate, York, every Thursday.

Back to Scotland now to Glenrothes where GM3YOR reports unemotionally on the fact that he has been re-elected hon. secretary yet again. The Club meetings are on the first Sunday in each month at 7.30 p.m. in the clubroom which is located at Old Nursery School Building, Provosts Land, Douglas Road, Leslie. The programme on November 2 was still open at the time he wrote; but there will be the Annual "DO" in the Laural Bank Hotel in Markinchat on November 12, to which all are welcomed. On a different tack we have a copy of the report of the past year given to the AGM, which in effect says this is one of the liveliest and most competitive in the country, with 20 A-licences, three B-licences and Seven SWL's.

Now to White Rose who have a special issue of their *Clippings* to hand this time, which contains a full list of November doings as well as some neat cartoons of members and their mishaps on the air. On November 4, the Battle Plan for MCC is unfolded for general approval by G3VTY. November 12 is given over to the G3FCW lecture—wonder what that'll be?—and then on the 19th a panel sits to solve your problems.

West

Here our first call is to Yeovil at their Hq. at the Youth Centre, 31 The Park, where they can be tracked down on any Thursday evening. A special evening is the one on November 6, when they welcome G3GKA, the RSGB Regional Rep; and on the 13th there is a tape-and-slide lecture "Some Further Thoughts on Propagation" by G3IOR. Then on November 27 we have G3XFW, talking about the QRA Locator.

It's quite a time since last we heard from North Devon but they are, we are assured, still going strong. However, they want to start an R.A.E. class for which they have six takers and some more needed—will anyone interested please get in touch with G4CG at the address in the Panel, *pronto*. Incidentally, it is at G4CG's place that the gang foregather, so if you are thinking of paying a visit, it would be courtesy to drop him a line first, if you visit on the second Wednesday; if the fourth Wednesday is your aim, then you should head—with the same reservation as to a first contact—towards G2FKO at 38 Clovelly Road, Bideford.

November 6 at Cornish is a case of back home again, at the SWEB Clubroom, Pool, Camborne, when there will be a Surplus Equipment Sale.

A new formation is notified for Newport, Gwent, where the crowd foregather every Monday evening at Brynglas Community Centre, Newport; interests in the group vary from Top Band to 10 GHz—quite a range! It is worth just mentioning that the old Monmouthshire Radio Society used to meet in Newport—but that was many years ago, in the late 1920's and early thirties, with membership from all over Gwent.

An Extra-Ordinary General Meeting of the Hereford gang is down for November 7 to discuss a subscription increase. Of course, the problem is inflation; and the newsletter this time gives a careful breakdown of the expenditures, and particularly that on the Newsletter itself, as food for thought meantime. The other November date is the 21st, both meetings at Civil Defence Hq.

Others

First on the clip this time is the G-QRP Club, who will, all being well, have their first get-together on Saturday, November 1 at the Leicester Show, 1600 clock in the refreshment area. Otherwise, there is another issue of *Sprat* together with a sample of the new G QRP Club Award, which is a very nice job and well worth the working for. Details from G3RJV at his new address—incidentally, George recently visited G2NJ to collect the G2NJ Trophy, and in his letter comments on how nice that Trophy is.

The R.A.F. group are next, with Number 1 of a newsletter which appears to be intended to update the members in between the regular issues of *QRV*. Anyone who is in, or was in, the R.A.F. should think seriously about joining—all the details from the hon. Secretary, as Panel.

Then there is the Royal Navy with their *Newsletter*, which is about a half-inch thick this time! All the news and views and much besides. Again, if you were ever in this Service you should definitely be a member; and there are some other activities, like the QRQ runs, which are very useful even to the non-members.

Our third Service club is the Royal Signals, with this time a fine issue of their *Mercury*, on which the editor is to be congratulated. Again, like the other service groups, this one is a "must" for anyone who is eligible.

Then we have the WAMRAC organisation, which, after some lean years while G3NGF was battling with ill-health, is now once again very much to the fore. It caters for all radio amateurs and SWL's, anywhere in the world, who subscribe to the Methodist faith. Details can be obtained from G3AGX, as Panel. However, as he mentions he will be out of the country for the latter part of October and the early part of November, don't get agitated if there is a slight delay in the reply; do remember that he will probably have to climb in over a great wad of letters all of which have to be answered!

Finally, in this group, is the RAIBC, still very active in their work for the blind and disabled of our fraternity, and producing their regular bulletin *Radial*, which keeps their far-flung membership in touch. The jobs of secretary and treasurer have now been taken on by the Shepherds, Rita and Tom, G3NOB and G3HJP respectively.

Conclusion

That, friends, is the end of the pile for another month—and quite a pile at that! For next time, let us have all the details of your *December* doings, to arrive first delivery on November 7, addressed to "Club Secretary," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ.



"... and of course we have the Viceroy as a stand-by ..."

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SHORT WAVE LISTENER
FEATURE

By Justin Cooper

READERS' NOTES AND NEWS — INTERESTING TECHNICAL
POINTS — MORE ABOUT AERIALS — THE LADDER
POSITIONS

OUR first point of interest this month is to mention *J. Harvey*, 198 Garbett House, Doddington Grove, Walworth, London, S.E.17, who wrote regarding the question of selecting a receiver to replace his old AR88 which he felt was getting a bit past it. It seemed from his letter that he was living alone and was more or less housebound. A reply was sent, suggesting joining RAIBC and maybe a local Club, etc., and later another letter came to us on his behalf which mentioned that Mr. Harvey is also blind, so would greatly appreciate any contact with other amateurs and SWL's. That brings us to the other point. If anyone has a receiver to dispose of cheaply, why not drop SWL Harvey a line.

Turning now to our main subject of SWL'ing, many people will have noticed a general lifting in conditions over the last couple of weeks in September, with one or two extremely good days considering how low on the sunspot curves we are. This is not just the "autumn lift" which indeed was only just beginning to show, but rather was a manifestation of sun activity. W4UMF, who makes those uncanny predictions as to which days are worth the trouble of switching on the rig, indicates that this has been a bit of bonus for which we should all be thankful, but that we are still not at the upturn of the cycle.

Last time round we had a query about Clubs in the Middlesbrough area, and as we expected there was a response. G8CDP is Secretary of the Post Office Radio Club there and also mentions Hartlepool, who meet on Mondays, the contact being G3NWU; Billingham where the contact would be G4ABM; and Redcar who are believed to have Hq. at the RAFA Club. We suggest the originators of the query, and also *D. N. Johnstone* (Guisborough), get in touch with G8CDP, *Graham Gaunt*, 8 North Drive, Ormesby, Middlesbrough (0642 38237). And our thanks to G8CDP for taking the trouble to get so much information for us. His own Post Office Radio Club is largely VHF orientated, though there are plenty of HF types. They are "loaded" when it comes to gear; on the VHF side they have equipment for 144 and 432 MHz, for HF an HW32A and a 14AVQ aerial, not to mention the extra stuff the members bring along on occasion to operate.

To return to SWL Johnstone, he wrote in to say he was having trouble with an excess of hum in his 9R-59DS; he would greatly like to correspond with other 9R-59DS owners. Drop him a line direct, please, at *Longcroft, Hutton Gate, Guisborough, Cleveland*.

T. Heslop (Brandon, Durham) has an R.1155 which has started to play him up; the problem sounds very much as though it is in the PSU/AF stage section—the part that is usually in a separate case.

M. Kelly (Lisburn, N.I.) sent in his list for HPX, and finding C5AL on the band, wondered as to his authenticity—quite OK.

Whilst taking his legal training, *P. Rooney* (Liverpool) has to do something job-wise in the vacations—in his case a complete change, to auditing. On the radio front, not only has the job cut into listening time, but the "collapsing-aerial effect" also—definitely bad for DX reports! However, an improvisation has resulted in a wire running from a Jymatch ATU up the side of the house for about twenty feet and then around the loft for another forty feet. The result, aided doubtless by the relatively good conditions lately, has been a revelation! However, it is largely a question of skills; and the presence of something to resonate the bit of wire with cannot but help.

R. C. Woolley (Ashbourne) was one of the unlucky ones in the May R.A.E., sad to say; he passed in Part II, to his surprise, and boomed in Part I which he had thought he had absolutely taped! So . . . there is a bet with the XYL that the next time he will pass in Part I and come unstuck in Part II! We hope not—Richard is taking a lot of trouble, as do most entrants. Perhaps we could suggest a certain selectiveness in revision—examination of past papers indicates quite a marked pattern and indicates that certain parts of the syllabus should receive more care than others.

M. Eccles (Lancaster) has completely re-written his HPX List and submitted it for rechecking; and we must note that he has made a special effort to make it very easy to read, he having like so many of us a somewhat spider-in-the-ink sort of normal handwriting. A little

thing, but what a great help it is at this end, particularly when there are some odd ones about—Murphy's Law making it *always* these which are hard to read!

P. L. King (R.A.F., Akrotiri) is one of many who have commented on the good conditions during the period just before deadline time, Pat himself having picked up quite a crop of new ones on Ten and Fifteen.

CW/Phone Attitudes

Last time out the score of *H. A. Londesborough* (Swanland) didn't get taken in, for some reason—guess we must be slipping! However, we have the signal and the error is being put right before the current crop of prefixes is added. Incidentally, as these were on CW, perhaps now is the time to explode the myth that there are old fogeys out to support by any means the "outmoded CW sections" of the bands. Let it be said here and now that this "just ain't so"—some are CW men, some Phone ops, and most both. But we suggest that if one of these CW-is-outdated types were to slide down for a while to the low end of, say, Twenty, and compare the proportion of QSO's lost through QRM (as against natural causes such as fading or the band dropping out) then he would soon become a regular user of the key. The plain truth of this is that for some reason there is a maniac minority in Amateur Radio who seem to prefer to get their QSO's as far as possible by wiping other folks' contacts out of existence, deliberately or by the misoperation of their rigs. These types just don't seem to use CW—hence you generally get a relatively peaceful QSO. In addition, input powers on CW are usually lower, demonstrating the economy and advanced success-rate of the mode. But as for being CW-only—not on your life! Both modes are fun—and if we could only get rid of the selfish ones on Phone (either by tuition or the action of the authorities) then there would be nothing in it. As for CW being outdated—the argument is just not on, technically or otherwise,

HPX LADDER

(All-Time Post War)

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
W. Bingham	(Carrickfergus) 1575	G. F. Gullis	(Ogbourne St. George) 761
S. Foster (Lincoln)	1519	L. Craven (Alvechurch)	737
R. Shilvock (Kingswinford)	1483	J. Dougherty	(Sunderland) 733
K. Kyezor (Irechester)	1431	W. H. Smyth (Hartlepool)	724
R. Carter (Blackburn)	1293	M. Rodgers (Harwood)	693
J. Fitzgerald	(Gt. Missenden) 1285	A. C. Roberts (Shepshed)	683
M. J. Quintin	(Wotton-u-Edge) 1217	P. Rooney (Liverpool)	662
B. Hughes (Worcester)	1192	M. Pein (Liverpool)	662
P. C. Jane (East Looe)	1199	M. Eccles (Lancaster)	649
K. A. Whiteley (Castleford)	1069	G. Lucas (Kennoway)	628
M. Cuckoo (Herne Bay)	1044	J. Bell (Hampstead)	622
R. H. McVey	(Weston-super-Mare) 1043	M. C. P. Bennett (Datchet)	566
G. W. Raven	(London, S.E.13) 1030	M. Rivers (Leyton)	550
J. H. Sparkes (Trowbridge)	1025	R. C. Woolley (Ashbourne)	544
H. A. Londesborough	(Swanland, Yorks.) 1000	L. Gibson	(Barrow-in-Furness) 542
Mrs. J. B. Jane (East Looe)	958	N. N. Graham (Gosforth)	541
N. Henbrey (Northiam)	931	B. J. Mackness (Dagenham)	516
E. W. Robinson	(Bury St. Edmunds) 893	CW ONLY	
A. R. Holland (Malvern)	887	A. Glass (Plymouth)	1141
H. M. Graham (Harefield)	872	N. A. Phelps (Devizes)	926
E. Parker (Hove)	817	H. A. Londesborough	(Swanland) 815
P. Barker (Sunderland)	809	G. Richards (Aberdeen)	524
C. K. Verstage (Old Basing)	800	A. F. Roberts	(Kidderminster) 412
		A. W. McNeill (Newbury)	353
		J. D. Porter (Basbow)	247

Starting score 500 for Phone, 200 for CW. Listings include only recent claims.

unless one is to equate "outdated" with the word "fashionable" which doesn't agree with the dictionaries very well.

Are VQ9/D and VQ9/R different? Thus G. Clegg (*Deeping St. James*), trying to evaluate his HPX claim. Well now, says J. C., thinking hard, remember the Rules. For HPX purposes they are both VQ9; but of course for DXCC and similar purposes they are two different countries, which of course accounts for the fact that two different lists of Country Prefixes could list them differently.

E. W. Robinson (*Bury St. Edmunds*) seems to have tangled with many of the "specials" around during the period we review; DA15VF for a German-American Volkfest, or get-together; LC1J for the Scout Jamboree; 7SL4BP was specially set up to commemorate the 350th anniversary of the founding of a Swedish Army Regiment(!); 4K2AB, a Russian special from UP-land; and SV4IFT from Thessalonika for an International Trade Fair.

Back in 1966 there was a T. Pinch on the HPX ladder, which eventually disappeared as marriage, a house, the job, and all the other attractions came along; but recently the interest has been revived, from Iybridge, and by the end of the year it is hoped to put the village on to Top Band CW, other bands and modes following in due course.

M. Barton (*Market Deeping*) is attacking R.A.E. this winter, which will no doubt reduce the listening time. On the other hand, colour TV timebases force him to the conclusion that evening listening is unprofitable, and Mark now rises for a session on the receiver starting at 0430, which has been quite interesting, particularly on Eighty.

Congratulations to S. Lawrence (*Market Harborough*) on achieving the R.A.E. pass. As a result the 9R-59DS has been put aside in favour of an HW-101 and a home-brew PSU, ready for the great day, and an R.299 wavemeter for the Post Office man to admire when he inspects the station. Stephen is working hard on the Morse, and reckons he may yet get an entry into the CW list ere he leaves us for CDXN.

It's a year since last we heard from R. Mackean (*Liverpool*), thanks to first a sort-out of the receiver (by G3MCN), secondly a period of sharing a room with a brother who didn't like the noise, preparatory to, thirdly, moving house. In between there have been the sound of it been other problems as well; but on the credit side at least Robert has found an R.A.E. course within a couple of miles.

R. Carter (*Blackburn*) has found the best bits to be on Eighty from 0430 to 0630, and Twenty from 2130 to 2230, not to mention the odd moment during the day. (Ben offers a novel method for getting up—train the dog to wake you!).

More Reader Letters

A very good reason for a low score is the one offered by P. Barker (*Sunderland*) who spent time cruising the Broads without a receiver. However, he did find a couple of new ones for HPX plus a brace of new countries heard on the Slow-Scan TV mode.

"How do they get 1000 upwards?" enquires D. Taylor (*Harborne, Birmingham*). A Good Question to which the answer is that initially it is tough going, but becomes a bit easier as your skill improves, and then becomes hard again at the top; but J. C. never ceases to be amazed at the commonplace prefixes which continue to add to the scores of the top-dogs. Most of these, one can only assume were disregarded as too lowly to be worth bothering with in the early stages, but are noted as "shortages" when one is near the top. The other interesting thing is that you can be reasonably sure that one lively weekend will be more than enough for an experienced listener to net a starter in the Annual Table, while the complete newcomer with the same gear would need far longer.

B. T. Mackness (*Dagenham*) has erected a 12-AVQ aerial and is quite pleased with its performance; one radial each for Ten and Twenty, and two for Fifteen, and the aerial proper mounted on a six-foot ground stake. Holiday time was well-used, to take SWL Mackness into the All-Time lists—this will make up for the slow scoring when the sixth-form school work hits him.

G. Ridgeway (*Kettering*) will have moved by the time this comes to print, to a new job and home (*New Hall Lodge, Station Road, Ardeigh, Colchester*) and he asks whether S. Lawrence would drop him a line at the new place.

P. C. White (*Bristol*) is a relative newcomer to the SWL game, and he queries the meaning of HPX—Hearing Prefixes. SWL White is going to the top end of the Rx scale and by the time this is in print will have obtained and, hopefully, mastered an FR-101D, coupled to 115 feet of wire.

Lots of lovely continental YL's have kept J. Bell (*Hampstead*) from his receiver—but he fears the financial strain will drive him back to it ere long! Another problem was the hot weather—he wished J. C. "shade and fans," and here we are typing away with the radiator going full blast to keep tolerably warm!

The ill-mannered Italians often are taken to task by M. C. P. Bennett (*Datchet*) for tune-up or calling CQ on top of other QSO's.

True enough, and very irritating when the rare one you are after is buried underneath. But, of course, this is very largely a matter of the pressure on band-space, accentuated by the relative uselessness of Ten and Fifteen due to the low sunspot count. And, of course, it is often the case that you can listen on a channel, hear nothing, call CQ and start a QSO, only to have someone underneath complaining quite bitterly about "people without receivers!" The reason is that, as so often you notice when listening, you can hear one end of the QSO but not the other—and the rest falls to the account of Murphy

HPX RULES

- (1) The object is to hear and log as many *prefixes* as possible; a prefix can only count once for any list, whatever band it is heard on.
- (2) The /M and /MM suffixes create a new series; thus G3SWM, G3SWM/M and G3SWM/MM all count as prefixes, and where it is known to be legal, /AM also.
- (3) Where a suffix determines a *location* the suffix shall be the deciding factor, thus W1ZZZ/W4 counts as W4. Where the suffix has no number attached, e.g. VE1AED/P/SU, VE2UJ/P/SU, they are arbitrarily counted as SU1 and SU2 respectively, and the same holds good for similar callsigns.
- (4) When the prefix is changed both the old and the new may be counted; thus VQ4 and 5Z4 both count.
- (5) The object is to hear *prefixes* not countries, thus there is no discrimination between say MP4B and MP4K which count as one prefix.
- (6) Only calls issued for Amateur Radio operation may be included. Undercover and pirate callsigns will not be credited, nor may any MARS stations be claimed.
- (7) G2, G3, G4, etc., all count separately, as do GW2, GW3, GW4, etc., and in the same way K2, W2, WA2, WB2, WC2, WN2, all count separately, even though they may be in the same street.
- (8) Send your HPX list, in alphabetical and numerical order showing the total claimed score. With subsequent lists, it is sufficient to quote the last claimed score, the new list of prefixes, and the new total. Give your name and address on each sheet, and send to "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM, if possible to arrive before the SWL deadline for that particular month.
- (9) Failure to report for two consecutive listings, i.e. four months, will result in deletion from the Table, although there is no objection to a "Nil" report to hold your place.
- (10) Starting score 200. Phone Table is mixed AM/SSB, with a separate CW Table. No mixed Phone/CW Table, nor will AM-only or SSB-only entries be accepted.
- (11) Lists will be based on those shown in the current SHORT WAVE MAGAZINE list of Countries and Prefixes, dated September 1973, and with the current edition of the *DX Zone Map*.

Cost of the "DX Zone Map," with the latest Prefix List as a loose supplement, is £1.50 post free. The Map is for wall mounting, 35 x 25 ins., in four colours. Prefix List alone is 25p. Orders to Publications Dept., Short Wave Magazine Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

On p.443 of the October issue, we had a picture and note about Daniel Wolverson, Hornsea, who passed his R.A.E. at the age of twelve—thinking that, just possibly, there might be a challenger. Here she is! Evelyn Robinson, 26 Frascatt Park, Blackrock, Co. Dublin, Eire (where they have licensing rules on the same lines as ours), who passed her Morse Test at the age of eleven. Her father is EI4CL so, as well as her own Mohican Rx, she also has his KW-2000E with which to listen. Now working for the R.A.E., Evelyn hopes to be on the air by the time she's 16—and we'll bet she makes it!



and his Law. And if you argue that you should listen until you are sure there is no-one already on the channel then J. C. would reply that in that case all the world's amateurs would be listening and none transmitting! But all that doesn't excuse the deliberate QRMing of other stations.

SWL Bennett was a "new entry" to the Table, as keen eyes will have noted; and our next one is another new chum, R. Rennard (Redditch), who at the time of writing was on a borrowed Drake R4B which, he laments, is going to make going back to his own receiver pretty awful! In July, a first-ever session on an active ten-metre band was a revelation.

The letter from J. Dougherty (Ryton) looked to be afflicted with blood-blisters; John claims this was because his typewriter couldn't spell and the pen was obtained in the Balkans! John also coined a neat phrase when he commented on listening to Europeans on their Citizens Band—Dimwits DX! And, of course, who should be leading the Citizens but the Italians again, with Dutch and Germans coming back to them. However, to more important things—after fifteen years when studies and things prevented it, the ambition for a "ticket" is now actually in sight. R.A.E. is done, Morse is underway, and John hopes to make this his last letter to SWL—save for the one that tells us of his new call!

Technical Matters

R. Andrews (Barry) writes to mention he heard GB3LO on two metres while on September 22, at around S2, until, shortly after 2200 it rose to S7 for a few minutes only. The receiving gear in use was the Trio 9R-59DS plus a Sentinel converter into a vertical dipole. This particular evening saw a quite noticeable "lift"—largely North-South as far as this location was concerned but of course there is no reason why lifts into GW-land should not occur. Indeed, they often do, and result in people having QSO's through far-distant repeaters and indeed on occasion through two repeaters in series.

J. Fitzgerald (Gt. Missenden) uses a Hamgear preselector, which developed an annoying fault whereby the tuning capacitor drive became uncertain; he reports that the washer on the drive shaft had worn, and its replacement brought the tuning back to health again. On a different tack, John has been changing aerials and now has a loop—not quite the true Delta Loop as it is fed at the top, but nonetheless a potent enough performer on 7 and 14 MHz.

Talking of Aerials, W. Briggs (Blackburn) has, to go with his FR-DX400 receiver, a Joystick, with which he has been disappointed. One of the things one has to realise is that short aerials, such as the loaded whip and the Joystick, have limited bandwidth and must therefore be tuned correctly at all times. The whole secret of success with a Joystick is to use it exactly in accordance with Partridge's instructions, and indeed with their ATU for preference; and to be most meticulous and careful in the tuning-up process before the start of a listening session. Having disposed of that question, the next one SWL Briggs brings up is the question of the MFJ filter. This is an

audio filter, either for CW or Phone use. The CW one is the most useful, and provides a sharp peak at about 800 cycles, giving a simple, or for that matter an SSB receiver, much of the apparent selectivity so beloved of the super-CW fraternity. However, to get the best out of selectivity so late in the receive chain one has to be very careful to avoid overloading. That being said, the CW MFJ filter is a marvellous asset to a station.

As for confirmation of reception, you just make a report—and the more useful to the recipient the more likely it is to be confirmed—and either send it through the QSL Bureau or direct; if the latter, one should use an s.a.e. or IRC's as may be appropriate. QSL Bureaux are run by societies for the benefit of members in general, and certainly so on the outgoing side; however some do allow for envelopes to be left, stamped and self-addressed, to trap any cards for you that may come in that way.

A letter from P. Williams (Wolverton) indicates he is thinking of pensioning off his HRO, and he wants to know what is the best receiver to use, particularly as a major interest is the tropical bands at 60 and 90 metres. One would say that in general at those frequencies, sensitivity is pretty well irrelevant as all that is needed is to be able to get to the noise-level coming in from the aerial! After all, you can't expect (saving for the odd super CW operator) to hear any phone signal below the noise level. Stability and selectivity are far more important. Frankly, one would think that, provided the old HRO is in good nick, with all those paper capacitors renewed, a stable HT line (and stabilised heaters as well if possible), and given an RF attenuator between it and its ATU, then there isn't much point in changing it. And for wide band, general coverage work, there most definitely should be an ATU between the receiver and the ATU.

Has anyone any idea where such a valve as the 12Y4G can be obtained? M. Cornwall (Harefield) has a 52 Set, which uses this in the Det/AVC position and it appears that the present valve has given up the ghost. Any hints on tracking one down could go direct to Matt at 15 Adrian Close, Harefield, Middx. On a different tack, the local Council are after him for his aerial, which is basically an inverted-Vee, fed at one end. One of the advantages of the very thin aerial wires is that they aren't that obvious unless you know exactly where they are—indeed, J. C. has to look hard for his own Top Band wire to assure himself it is still there—and it is, despite gales which brought local trees down! We can but hope there is a sensible reaction on the part of the authorities.

Notes on Alignment

L. Raven (Alvechurch) has passed his R.A.E. at the second try (the first was only intended as a "dummy run" anyway), thanks, he emphasises, to the late G8ALF and G3PYR, who operated a class in Selly Park, Birmingham. Now comes the big question—Explain alignment in a receiver, what equipment is required, and what causes it to need to be done, and do transmitters also need alignment? Help! (over

First of all, "alignment" is no more than the setting-up of the various tuned circuits and signal levels in a receiver or transceiver—in the older type of transmitter, the alignment was done by rotating each stage's tuning C until the right things happened on a front-panel meter, and then dipping and "drawing" the PA. Actually, the writer is of the opinion that in general the modern type of amateur-bands-only superhet having a crystal-controlled front-end and tunable IF is a bit easier than the classical general-coverage single-super such as, for instance, the HRO or AR88. Alignment is done at the factory against a test instruction document and a specification which the receiver must meet, and slowly the receiver will drift out of line over the years, as very few components remain constant in value. Thus, the first move is to decide whether the receiver *needs* to be done at all. A good test for any receiver up to 30 MHz is to terminate the aerial input with a carbon resistor of the correct impedance (usually 50 ohms these days) and then to set it up on each band in turn. When one turns the "Antenna Tri.n" control (sometimes called Preselector or Preselection), a marked peak in the noise will appear as the receiver front-end comes into line on the lower bands, and a less marked one on the higher bands. However, that peak of "sharsh" should always be there even though you may have to listen carefully for it. Secondly, go to the tunable IF strip, and tune the receiver across the band noting where the "pips" from the calibrator appear; they should be capable of being adjusted to the proper places by whatever control is provided on the panel for this purpose. Finally, there is the second IF; this is usually a crystal or mechanical filter and for this section one needs to plot the response by taking signals every 200 Hz across the pass-band against, say, a calibrator pip on the tunable IF. Such a measurement will at least tell you if the second IF has a symmetrically shaped response, and if you can resolve stations on either sideband without trouble you can more or less conclude the lining up is OK. Finally (or first if there is a fault on the receiver) check that the voltages on each pin of each valve are as given by the maker's figures and note them for future reference. If this shows repair and realignment to be necessary (a valve change usually indicates the need for at least a tweak), you need to get the "book of words" out and see what the manufacturer calls for. Usually, he will specify for a "standard" signal generator, an output meter, a valve voltmeter and some form of frequency measuring gear, preferably a counter. Follow the maker's instructions implicitly and at each step check that you are correct—remember there are images and harmonics! But never, ever, dive in unless you are quite sure your lack of results is not a function of conditions or aerial systems, by checking first as indicated above. Incidentally, these brief notes also indicate why professional receiver servicing can be expensive—few amateurs can have all that test gear on the bench.

M. Rivershas has now moved to a ground-floor flat in Leyton where the only aerial is a bit of wire round the picture-rail. What a problem it is! There are various ways out, however—G3JFI used to poke a 21 MHz vertical up the chimney in winter and join on the radials whenever he wanted to go on the air, running them through the flat as necessary. Then there is the "invisible wire" ploy so often mentioned, and of course for HF you could do a sight worse than to use a 12-AVQ or 14-AVQ mounted on the chimney with a complete set of radials of "invisible" wire, the neighbours then imagining it is a special sort of TV aerial! In the States a favourite trick is to use a whip aerial, poked out of the window at as near a vertical angle as may be, against an ATU just inside the window and an earth to a water-pipe. However, this is greatly helped if you can "jose" a counterpoise for the favourite band or bands into the garden scenery (inside hedges, for example!) What is certain is that the situation is *not* all that desperate so long as one is prepared to work carefully and to record results against ground-wave stations in the area as a means of seeing whether an improvement in reception has resulted rather than just a coincidental lift in conditions. Indeed, J. C. finds it all great fun!

That seems to be all the letters, saving for those who submitted scores only, and to notice a couple of fascinating battles brewing up on the Tables: Will *XYL James*, *East Looe*, soon overtake the OM on the Ladder, and on the CW listings, will *N. Phelps* at his present rate of progress soon make *Bert Glass* of Plymouth look to his laurels—the latter is having a lean patch at the moment which is giving time for SWL *Phelps* to catch him up; and both of them have the two best scores on the CW list that old J. C. can recall since first he took over this piece years ago.

Safety

This is an unpleasant subject, but one on which we must spare some time occasionally. For Pete's sake, take care in the shack. For example, if you have a 13-amp fuse in your mains lead, Ohm's Law says your earth resistance must be below 18 ohms in order to draw 13 amps to earth, let alone the 9 ohms which is needful to ensure a

ANNUAL HPX LADDER

(Starting date January 1, 1975)

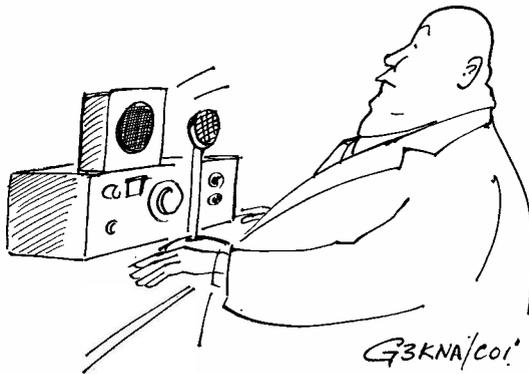
SWL	PREFIXES	SWL	PREFIXES
J. Aspinall (Leeds)	498	R. Staples (Lymm)	382
G. Ridgeway (Kettering)	489	P. L. King	
D. Taylor (Harborne)	477	(R. A. F., Akrotiri)	373
M. Law (Chersterfield)	447	G. Clegg	
A. C. H. Darragh		(Deeping St. James)	348
	(Wetherby)	S. Lawrence	
M. Barton		(Market Harborough)	306
(Market Deeping)	393	M. Kelly (Lisburn)	268
R. A. Elliott (Brentwood)	386	R. Rennard (Redditch)	252

Starting score 200, in accordance with the HPX Rules. All Prefixes in this list to have been heard in 1975. When a score of 500 is reached, transfer to the All-Time Table will follow, at which time prefixes heard outside the period of this table may be added to the score. For HPX Rules, see p.

reliable fuse-blow. It is doubtful whether many amateurs have as good a signal earth as that, and so they should be very wary indeed of disconnecting the safety earth on the mains lead. Again if you are used to playing with transistors and IC's, it is a bit startling to try to pick up a valve receiver to turn it over and have it "bite" you. At least one amateur has been known to be killed by pulling the gear and the workbench over on top of himself as a result of electric shock. Always make sure the house end of the aerial is *disconnected* before you go outside to work on it; and regularly check that it is not alive to mains. Again, an amateur has died through not heeding this. Don't try climbing poles or masts; there has been an accident through a pole breaking quite recently while being climbed, though this time the victim had the presence of mind to plan where he landed, and so got away with a sprained ankle. If you go to a tower, then take care, particularly if it is a crank-up one; these have a tendency to break the wire ropes, letting the top section down with a rush and removing any fingers which may happen to be in its path, as several W's can attest. If you go to the top of a tower to work "in the eye of the beam" make and use a safety belt—for a start it helps you to be able to use both hands for the work, and for a second if your feet slip (and they often do!) the belt will hold you fast even if you lose all hand-grip and give you a life at the cost of a few scratches and bruises. *Be Careful!*

Sign-off

Once again we come to the end of our space. Thanks for all your letters (even the disagreeable ones as long as they are signed—they help to formulate the shape for the future), and it remains for us to mention that the deadline for next time will be November 20 certain, with all your news and views, and your HPX Scores. And, meantime, enjoy yourself, whether on the bands accumulating prefixes, or building gear, studying for R.A.E., learning Morse or whatever. *73 de J. C. QTH: SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.*



"... could you get a bit nearer the mike, OM..."



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14.0-14.5 MHz (20m.)
21.0-21.5 MHz (15m.)
27.0-27.5 MHz (11m.)
28.0-28.5 MHz (10m.) A
28.5-29.0 MHz (10m.) B
29.0-30.0 MHz (10m.) C

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S and J Ltd. Equipment

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These are just two of the many items we shall be introducing onto the market in the new few months. We hope to keep prices as stable as possible, whilst imported goods are climbing.

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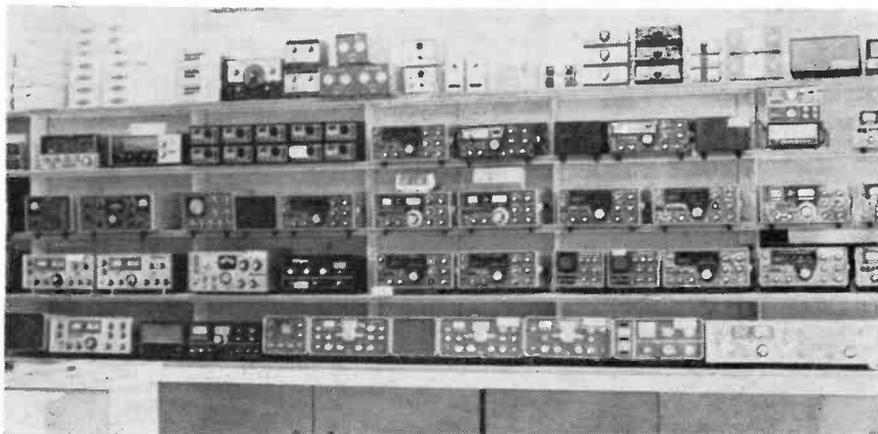
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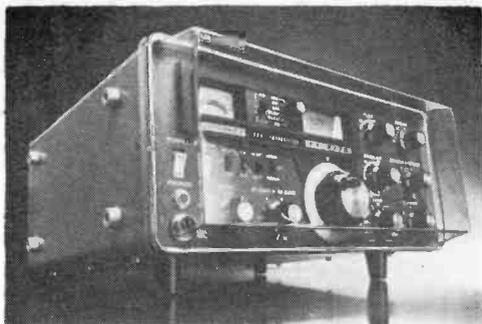
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144-030 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
144-4/433-2 ...	a	a	b	b	b	b	b	b	b	b	b	b	b	b
144-480 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
144-0 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
144-700 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
145-000 ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-050/R2T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-075/R3T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-100/R4T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-125/R5T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-150/R6T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-175/R7T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-200/R8T ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-300 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
145-350 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
145-400 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b
145-500/S20 ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-525/S21 ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-550/S22 ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-575/S23 ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-600/S24 ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-650/R3R ...	b	b	b	b	b	b	b	b	b	b	b	b	b	b
145-675/R3R ...	b	b	b	b	b	b	b	b	b	b	b	b	b	b
145-700/R4R ...	b	b	b	b	b	b	b	b	b	b	b	b	b	b
145-725/R5R ...	b	b	b	b	b	b	b	b	b	b	b	b	b	b
145-750/R6R ...	b	b	b	b	b	b	b	b	b	b	b	b	b	b
145-775/R7R ...	b	b	b	b	b	b	b	b	b	b	b	b	b	b
145-800/R8R ...	a	a	a	a	a	a	a	a	a	a	a	a	a	a
145-950 ...	a	b	b	b	b	b	b	b	b	b	b	b	b	b

N.B. Frequencies as listed above but in alternative holders are available as per code (b).

ORDERING. All we require to know is (1) Output frequency, (2) Crystal frequency range, (3) The Holder and, (4) Either the Load Capacitance (pfs) or equipment. The exact crystal frequency is not essential, though it would be of assistance to quote it if known.

4m. CRYSTALS FOR 70.26 MHz — HC6/U

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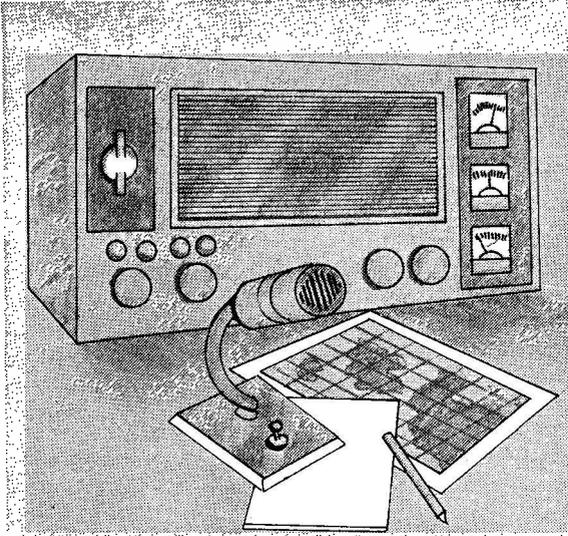
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For sale: Trio JR-310 amateur bands communication receiver, in perfect condition and unmodified, hardly used, in original packing with instructions, also Trio SP-5DS speaker to match, at £65 or near offer, demonstrated. — Mitchell, 686 Newmarket Road, Cambridge, or ring Teversham 3083, after 5.30 p.m.

Wanted: Eddystone 888A receiver in good condition, preferably with matching S-meter. Also late-model FR-50B receiver, with xtal calibrator and Top Band coverage.—Box No. 5464, Short Wave Magazine. Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

Wanted: Marine transceiver, AM operation, 100w. or over and crystal-controlled.—Freeman, P.O. Box 1551, Athens, Greece.

QSY Sale: Drake R4-C/MS-4, pristine condition, £275. SB-400, £75. SB-300 with CW filter, working but needs attention, £45 (or Tx/Rx £100). KW-107, £37.50. MSK5 keyer, £17.50. EK-108 keyer, £15. Omega bridge, £12.50. Cossor Type 1052 oscilloscope, £20. MFJ CWF2 filter, £5—and much more.—Batham, G3LNC, QTHR, or ring 0582 65114.

Wanted: Liner-2, with mains PSU. Also aerial rotator, two-metre converter with IF 4-6 MHz.—Grainger, G8KTN, 50 John Street, Brierley Hill, West Midlands.

Selling: Class-D wavemeter, £7. Type 7B teleprinter, £12. Pair 10-metre walkie-talkies, £8. Eddystone 898 liad, £8. Unused 6HF5, £2, and 5FP7 CRT, £4. Would take TA-31 Antenna, or similar, in exchange with cash adjustment.—Clarke, G3TIS, QTHR, or ring Ashford (Kent) 20497.

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Wanted: Yaesu FL-50B transmitter, in as-new condition.—Heritage, 25 Manor Road, Lydd, Kent, or ring Lydd 20387, evenings.

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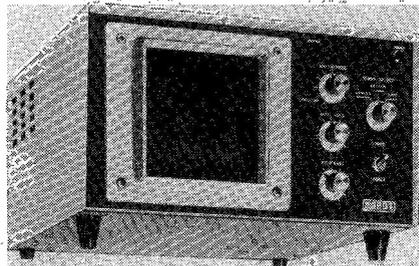
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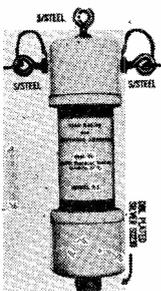
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