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Have you heard about our super conversion for the Yaesu FRG 9600 MkII Scanning receiver? We have now modified over 250 units. STILL AVAILABLE FOR ONLY £469.00 inc Post.

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YAESU

Full Range Stocked

Model	Description	RWC Price
FAS14R	Remote ant switch (FC757AT)	79.50
FBA5	Empty battery pack	7.80
FC700	ATU/power meter/dummy l'd	129.00
FC757AT	Auto ATU inc WARC bands	299.00
FIF65	Comp. Iface for Apple II	54.50
FL2100Z	HF 1.2KW linear 1.8-30 MHz	749.00
FNB2	10.8V nicad pk for FT208/708	24.50
FNB3	Nicad for FT2039/703/9R/9RH	36.50
FNB4	Nicad pack for FT209RH etc.	43.50
FP700	20A power supply	169.00
FP757GX	Switched mode power supply	159.00
FP757HD	Heavy duty power unit	185.00
FRA7700	Active ant. for FRG7700/8800	44.50
	All band RX	569.00
FRG8800		
FRG9600	60-950 All-mode scanning RX	469.00
MK2-RW		
FRT7700	Receiver ATU for FRG7700/8800	49.50
FRV7700A/B/C/D	VHF conv. for FRG7700/8800	49.00
FRV8800	VHF converter	85.00
FT203R-FBA5	2mtr H/H 1.5W	192.50
FT203R-FNB3	2mtr H/H 2.5W	219.00
FT203R-FNB4	2mtr H/H 3.5W	225.00
FT209R-FBA5	2mtr H/H C/W empty b/case	239.00
FT209R-FNB3	2mtr hand held 3.7W	269.00
FT209R-FNB4	2mtr hand held 3.7W	265.00
FT2700RH	V-UHF 25W transceiver	P.O.A.
FT2700R	VHF 25W transceiver	339.00
FT270RH	45W 2mtr transceiver	P.O.A.
FT290R	2mtr multimode	349.00
FT690R	6mtr multimode transceiver	249.00
FT703R-FBA5	70cm H/H 1.5W	219.00
FT703R-FNB3	70cm H/H 2.5W	235.00
FT703R-FNB4	70cm H/H 3.5W	245.00
FT709R-FNB3	70cm H/H 1.8W	235.00
FT709R-FNB3	70cm H/H 3W	269.00
FT709R-FNB4	70cm H/H 4W	270.00
FT726R	2mtr base station	869.00
FT757GX MK2-RWC	All band all mode 100W TXR	869.00
FT790R	70cm multimode transceiver	P.O.A.
	2W	
FT980	Gen coverage + Ham band transceiver	1739.00
LOG1	Voice synthesizer for FT270/2700	2.00
LOG BOOK	YAESU amateur radio log bk.	2.00
MD18B	Base station desk m'phone	69.95
MH12A2B	Speaker MIC for FT203-9 etc	18.95
MH18B	Fist/mobile MIC for FT757 etc	16.50
MMB11	Mobile bktm for FT208, 209 etc	29.50
PA3	18.50	
PA4C	AC power unit for FRG9600	13.50
QTR24D	World zone clock	37.50
SAT726	Oscar/Sat unit for FT726	112.50
SB1	Switch unit	17.50
SB2	Switch unit for YH1	15.00
SB3	Switch unit	15.25
SP55	External loudspeaker	15.50
YH1	H'set/boom MIC for SB1/2/3	16.50
YH2	H'set/MIC for FT203/209 etc	16.50
YH55	Mono headphones	16.95
YH77	Lightweight mono h'phones	16.50
YHA15	Helical antenna for FT290R	6.99
YM24A	Speaker MIC for FT208/708	25.50
YM49	Speaker MIC for FT290R	18.50

Model	Description	RWC Price
IC-UT 16	Voice synth. for IC27 series	26.00
IC02E	2 mtr LCD k'board 2W t'ceiver	289.00
IC120	1W 1296 MHz mobile (40MHz cov)	533.00
IC271E	2 mtr all mode 25W b/stn	759.00
IC271H	High power 100W version of IC271E	959.00
IC27E	25W 2 mtr FM mobile 9 memories	379.00
IC27H	45W version of IC27E	419.00
IC28E	New 25W Super 138-174 MHz	325.00
IC290D	25W version of IC290E	499.00
IC290E	10W multimode 2 mtr mobile	479.00
IC2E	2 mtr H/H thumbwheel 2W	185.00
IC2XL	1KW PEP linear auto band switching	1250.00
IC3200E	Dual band 25W t'ceiver	499.00
IC471E	UHF m/mode b/stn 32 mem	879.00
IC471H	75W version of IC471E	999.00
IC4E	70cm thumbwheel H/H 2W	279.00
IC505	3.10W 50MHz SSB(FM) transceiver	459.00
IC735	New all mode all band t'ceiver	879.00
IC745E	All band SSB/AM/CW gen cov TX-RX 16 mem	975.00
IC751E	All band all mode t'ceiver 32 mem	1350.00
IC04E	70cm LCD keyboard entry hand held 2W	285.00
ICR7000	New all mode 25-26HZ	879.00
ICR71	All band short wave t'ceiver 32 mem	775.00
LC11/14	Leatherette case Assy for IC02H/E	7.77
LC12/23	Leatherette case for IC24/E	6.50
PS15	External power supply 20A	139.00

SAE FOR LATEST ICOM LEAFLETS, NEW MODELS EXPECTED

RWC TOP 100

ADONIS	AM303G	Base stn FM/SSB m'phone	39.95
ADONIS	AM503G	Base stn FM/SSB comp. mic	52.50
AKD	WA1	120-450MHz wavemeter c/w ant.	24.95
ALINCO	ALM-203R	c/w 30W amp	249.00
ALINCO	ALM-203E	2 mtr H/H transceiver 3.5W	239.00
ALINCO	EDH-25	DC/DC 12V converter	13.50
ALINCO	EMS-20	Speaker MIC for ALM203	18.50
ALINCO	ESC-3	Leatherette case and strap	14.50
AOI-MIC	DM300	600 OHM replacement microphone	6.50
AOI-MIC	DM301N	600 OHM replacement noise can. MIC	7.50
ARM-ANT	TRAV-JIM	Travelling Jim portable 2 mtr ANT	7.99
BREMI	BRS35	10A 13.8 volt power supply unit	59.50
CRITON	LS98B	6 OHM replacement ext. loudspeaker	6.60
DAIWA	SA450M	2 way 2.5KW coax switch 0-900MHz	17.50
FDK	FDK 725X	2 mtr 25W FM mobile transceiver	269.00
FDK	FDK	2 mtr multimode transceiver 750XX	499.00
GAMMA	2MTR S-JIM	Gamma twin slim Jim type ant.	9.50
GAMMA	3-5A PSU	3-5 AMP power supply unit	19.50
Hi-mound	HK703	Straight key	29.25
Hi-mound	HK704	Straight key	19.25
Hi-mound	HK706	Straight key	16.65
Hi-mound	HK707	Straight key	15.50
Hi-mound	HK808	Deluxe straight key	49.95
Hi-mound	MK703	Squeeze key c/w base	28.95
Hi-mound	MK705	Squeeze key	25.65
Hi-mound	MK706	Squeeze key	23.50
Hi-Q	Hi-Q coil	2X coil formers/insulators (pat-pend)	7.50
HGXIN	70N2DX	Dual band 6/8 + 3X 5/8 mobile	25.90
HGXIN	70N2M	144/432 dual band 1/2W + 2 x 5/8 mobile	22.85
HGXIN	70N2V	Dual b/base ant. 3'6" long	39.00
HGXIN	HS-358	430MHz tripple 5/8 6.3dB	33.78
HGXIN	HS-770	144/432 duplexer 50W 30dB	19.55
HGXIN	HS-78F	2 mtr 7/8 fold over 4.5dB	16.95
HGXIN	HS-88F	2 mtr 8/8 fold over 5.2dB	16.95
HGXIN	SMC15SE	15 mtr 130W PEP mobile ant.	21.50
ICS	AMT-2	1.72M long AMTOR/RTTY/CW/ASCII terminal unit	245.00
ICS	RM-1	L-coil AMTOR/RTTY/CW/ASCII modem	69.00
Jaybeam	8XY-2M	2 mtr 8E crossed ant.	41.50
Jaybeam	LR1-2M	2 mtr omni-directional colinear	39.00
Jaybeam	LW10-2M	2mtr 10 element YAGI	27.25
Jaybeam	MBM48	70cm 48E antenna	40.75
Jaybeam	Q4-2M	2 mtr 4 element quad	33.95

Full Jaybeam range in stock.

Model	Description	RWC Price	
MuTek	BBBA	20-500MHz low noise wide band preamp	34.90
MuTek	SLNA	2 mtr low noise RF switched preamp	33.95
MuTek	SLNA	Optimised preamplifier for FT290R	39.00
MuTek	145sb	High performance 2M-6M transverter	189.90
MuTek	TVVF50c	12A PSU	49.00
RAYCOM	Series II	7.1 MHz traps c/w instructions	8.95
RAYCOM	TRAP	PA valve	12.85
RCA	6146B	Nest of dipoles w/band ant	69.00
REVC0	2044/5	26-500 MHz	
REVCO	Revcone	Wide band discone ant	29.95
SUN-ANT	KG208	30-500MHz	12.50
SUN-ANT	SE10	10 mtr loaded 1/4W tilt-over	
SUN-ANT	KG309	5/8 mtr tilt-over ant	13.50
SUN-ANT	SE2		
SUN-ANT	SO239	Cast/chrome SO239/gutter mount Assy.	4.75

RAYCOM MOD KITS

Raycom	757	FT757GX fast tuning mod kit improves VFO tuning	29.50
Raycom	FBX-RWC	LC7136-7 10 mtr FM mod kit kit c/w ins. (Built & Tested)	23.50
Raycom	MOD	As above but kit of parts only	17.50
Raycom	LCL/DNT	LCL/DNT 10M mod kit (post)	14.95
NEW STORNO	CGM 713 55 Channel Mod Kit to 2M inc. RPTer Shift		29.00

RAYCOM ANTENNAS

Raycom	1/1 G5RV	Full size G5RV m/band ant.	14.95
Raycom	1/2 G5RV	1/2 size G5RV m/band ant.	13.95
Raycom	1/4 wave	145MHz 1/4 wave PL259 fitting	2.99
Raycom	GP900	3db 800-1000MHz colinear c/w BNC	19.50
Raycom	HBD	Highband dipole assembly	8.50
Raycom	2M HB9CV	Inc. Post	9.98
Raycom	70cm HB9CV	Inc. Post	7.98
Raycom	5/8 whip	145MHz 5/8 spring type s/steel whip	3.75
Raycom	SO239-MAG	Magnetic mount SO239 c/w cable PL259	9.50
Raycom	Swivel-mag	Swivel base mag-base c/w cable PL259	9.25
Raycom	Trap-dipole	7.1MHz trap dipole com. kit	29.95

RAYCOM RF POWER AMPS

Raycom	V15L-145	2mtr 15W linear amp. 1-3W input	49.50
Raycom	V25F-145	2mtr 15W linear amp. 1-3W w/pt	48.50
Raycom	V35L-145	2mtr 35W linear amp. 1-3W input	59.50
Raycom	V45F-145	2mtr 45W FM amp. 1-3W input	62.50

SPECIAL OFFERS

ARM-ANT	Multi P-6	Multi-polarization P/ant	36.00
Kopek	AR1002	140-800MHz complete 500 loading 3-core auto-rotator	38.50
Raycom	discone	60-600MHz	27.50
DNT	M40FM	modified 10FM	49.50
DNT	M40FM	unmodified CB27/B1	29.50
ALINCO	ALR206E	25W mobile	249.00
ICS	AMT2	AMTOR/RTTY CW Terminal	169.00

SCANNING RECEIVERS

YAESU FRG-9600 MKII your latest mod. gives improved 'S' METEOR on RX and extended coverage up to 950MHz. FRG9600/MK2-RW 60-950 All mode scanning RX 469.00
BEARGAT 100 VHF/UHF Handheld 259.00
REGENCY MX8000/AOR2002 429.00
REGENCY HX2000 VHF/UHF Handheld 259.00
NEW BEARCAT DXX100 10KHz-30MHz SW RECEIVER. 10 MEMORIES, ALL MODE INC FM. ALSO SCANNING £329.00

TONNA — Full Range in Stock

TONNA	20089N	144MHz 9 element port. antenna 'N'	27.95
TONNA	20199	144/435 9+ 19 element Oscar ant.	36.50
TONNA	20419	432MHz 19 element	36.50
TONNA	20422	435MHz 21 element ATV	31.25
TONNA	20624	1296 23 element ant.	27.95
TONNA	20809N	144MHz 9 ele. fixed ant. 'N'	25.65
TONNA	20813N	144MHz 13 ele. port. ant.	39.50
TONNA	20817N	144MHz 17 ele. fixed ant. 'N'	47.83
TONNA	20818N	144MHz 9 ele. crossed antenna 'N'	41.50



Full Range Stocked

AH7000	25-1300 MHz TX, RX antenna	79.00
AT150	Matching automatic ATU for IC735	
BC35E	Desk-top charger for all nicads	65.95
BP3	Standard Nicad pack	27.95
BP4	Empty battery box for cells 6X	8.95
BP5	High capacity q/charge 10.8V Nicad	57.50
DC1	12V mobile regulator pk (2E)	16.95
EX243	Curlic keyer unit for IC735/745	53.00
EX257	FM unit for IC735	38.50
EX310	Speech synth. unit for 271 etc	41.95
HP1	Mono headphones	32.50
IC-AH1	3.5-30 MHz mobile ant.	189.00
IC-AT10	100W auto ATU	329.00
IC-AT15	Matching automatic ATU for IC735	289.00
IC-AT50	500W automatic ATU	455.00
IC-CPI	Mobile ch'ng lead c/lighter	6.50
IC-HM9	Speaker MIC Assy.	19.95
IC-PS30	Power supply unit 25A cont.	339.00

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AUTHOR'S MSS

Articles submitted for Editorial consideration must be typed double-spaced with wide margins on one side only of A4 sheets. Photographs should be lightly identified in pencil on the back with details on a separate sheet. All drawings and diagrams should also be shown separately, and tables of values prepared in accordance with our normal setting convention — see any issue. Payment is made at a competitive rate for all material used, and it is a condition of acceptance that full copyright passes to the Short Wave Magazine, Ltd., on publication.

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HAM RADIO DOES NOT HAVE TO BE EXPENSIVE!

HOWES QRP equipment offers you the chance to enjoy amateur radio without the need to spend a fortune! Take our DcRx DIRECT CONVERSION COMMUNICATIONS RECEIVER for example: This is an easy to build, single band receiver for CW and SSB reception. It will work from a 12 to 14V DC supply and gives up to 1W of audio output to drive a loudspeaker or headphones. For a simple receiver, the performance is quite amazing. Compare one against an expensive radio, you will be surprised! Versions are available for 160, 80, 40, 30 or 20M bands. The DcRx kit costs £14.80, or as an assembled PCB module, £19.90. With ready wound coils, and little alignment, this makes an excellent project for both the newcomer and the experienced operator building a QRP station. A case and a couple of tuning capacitors are the only major items to add to finish your receiver. We have suitable capacitors for all but the 160M version at £1.50 each. You can read a review of this super little kit in the July 1986 issue of Practical Wireless.

HOWES QRP TRANSMITTERS. We have three QRP transmitters in our range at the moment. The CTX transmitters are available for 40 or 80M bands, and the MTX20 is for 20M. All three feature adjustable output power, up to about 5W on 80, 3W on 40 and 10W on 20M. The heatsinking for the output stage is onboard, and one crystal is included. There is space for two more crystals on the PCB, and provision is made for connecting a VFO. The CVF VFOs are available for 40 and 80M at the moment, the 20M version is under development. The VFOs have dual buffered outputs, so that not only will they drive the transmitter, they can also drive the DcRx receiver as well, for full transceive operation. Voltage regulation, and IRT (clarifier) facilities are included.

CTX80 80M transmitter kit £12.95 Assembled PCB Module £18.95
 CTX40M transmitter kit £12.95 Assembled PCB Module £18.95
 MTX20 20M transmitter kit £19.90 Assembled PCB Module £26.95
 CVF40 or CVF80 VFOs: kit £9.30 Assembled PCB Module £14.90

HOWES 2M to HF TRANSVERTERS

If you have a 2M SSB/CW transceiver (an FT290 for example) you can get on to 20 or 80M without having to spend a fortune on an HF transceiver. These transverters also make HF Mobile operation much more practical, as a small 2M rig is all that has to be mounted within reach of the operator. These units deliver about 10W output from mismatch proof transistors, and do not require any fancy test equipment to set them up. A high proportion of fixed value filter components keeps alignment simple, and the output spectrum clean.

HC220 20M kit £48.90 Assembled PCB Module £79.90
 HC280 80M Kit £48.90 Assembled PCB Module £79.90

HOWES CTU30 ANTENNA MATCHING UNIT

The CTU30 is a "T" match type ATU for use with receivers and transmitters of up to 30W output on all bands from 1.8 to 30MHz. It uses two air-spaced capacitors, and 12 switched inductance settings. An unusual feature in a small ATU is the provision of a balun for feeding balanced antennas in addition to the more common unbalanced types. All the parts are PCB mounted in this novel design. Simply add a case and connectors to fit in with your station, even the knobs are included in this kit!

HOWES CTU30 Kit £24.90 Assembled PCB Module £29.90

HOWES TRF3 SHORTWAVE BROADCAST RECEIVER

The TRF principle was developed 80 years ago. Here it is brought up to date with modern silicon devices. The receiver tunes from about 5.7 to 12.8MHz in three bands, if you wind the coil as suggested in the instructions, although you can easily experiment with the coverage if you wish. The TRF3 has switchable input impedance and attenuator, so it can be used with large or small antennas. This is an excellent educational project for the "junior op", as well as providing a bit of fun for the old timer as well! You should be able to read all about building it in the September issue of Ham Radio Today. A suitable tuning capacitor is available at £1.50.

HOWES TRF3 Kit £13.90 Assembled PCB Module £18.90

All HOWES kits come with a good quality PCB which has the parts locations screen printed on it for easy, accurate assembly. Full, clear instructions are provided, as are all board mounted components. We think you will like the quality of our products.

If you would like further information on any item simply drop us a line, enclosing an SAE. We have a free information sheet on each product and a general catalogue.

PLEASE ADD 80p P&P to your total order value. Export prices are the same as above, but add £2.00 per kit for airmail delivery outside Europe.

UK delivery is normally within 7 days.

73 from DAVE G4KQH



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TS930S HF Transceiver.....	£1395.00
TS440S HF Transceiver.....	£950
TS430S HF Transceiver.....	£750.00
TS830S HF Transceiver.....	£898.00
TS530SP HF Transceiver.....	£779.00
AT230 Antenna tuning unit.....	£170.65
AT940 Auto Antenna tuning unit.....	£210.20
AT930 Auto Antenna tuning unit.....	£176.87
TL922 HF Linear Amplifier.....	£1265.00
TH21E 2m Hand held FM.....	£189.30
TS780 2m/70cm All mode Transcvr.....	£1081.00
TR9130 2m All mode Transceiver.....	£544.73
TR751E 2m Multimode.....	£525.00
TR2500 2m FM Portable.....	£245.00
TR2800E 2m FM Portable.....	£299.00
TM201A Mobile 2m Transceiver.....	£296.00
TS711 2m All mode base station.....	£770.74

Full range of accessories available.

Full size G5RV antenna.....	£16.85
Half size G5RV antenna.....	£14.25
80-10 Dipole Kit.....	£24.95
Pair 7.1 MHz Traps.....	£9.75
HS508 1-1 balun.....	£18.74
Large dipole centre piece.....	£3.50

Now in Stock the JRC NRD525 Receiver... £1098.00

We are also stockists for: G-Whips — Welz — Kenpro — Diawa Rotators and SWR meters, power supplies. Microwave Modules, Global, Tonna antennas, ARRL and RSGB Publications, Pocom Auto RTTY readers. Full range of clamps, aluminium tubes, vertical antennas, dipoles.

Send large SAE for full details. Our secondhand equipment is one of the largest in the country, send S.A.E. for our up dated list.

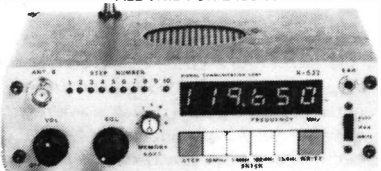
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TRIO TS940S TRANSCEIVER
 Top of the range for all serious DX and competition users. Designed for SSB-CW-AM-FM-and FSK operation. All Amateur bands from 160 to 10 metres. The Transceiver also incorporates a 150KHz to 30MHz general coverage receiver having an excellent dynamic range. 40 memory channels. The latest feature is a green back-lit matrix LCD which shows graphical VBT and OF slope tuning positions, can also be used to review the frequencies stored in the memory and the other VFO. Variable power output control. Break in keying on CW. Split frequency working.

NEW MODEL
 AOR2002 Scanning receiver. Replacing the AR2001 receiver which has proved to be the best scanning receiver available. Now with frequency coverage 25 to 550MHz plus 800 to 1300MHz. Improved keyboard. Front panel knob for frequency stepping in addition to the up/down buttons. Front panel LED strip "S" meter. Front panel headphone jack. Socket for RS232 interface board on rear panel.

ALL THIS FOR £435.00



THE R532 AIRCRAFT BAND RECEIVER £209.00 inc. VAT

Specification: Frequency range: 110 to 136MHz, i.e. all NAV/COM channels. Number of channels: 1040 (25KHz steps). Sensitivity: Better than 0.75 microvolts 10dB/SN. Memory channels: 100 (10 banks of 10 Memories can be scanned automatically or selected manually. Power required: 12V dc negative earth 300 mA typical. (Display can be switched off to reduce consumption when operating portable). Size: 160x45x130mm. Weight: approx. 1kg. (including memory backup batteries).

STATION ACCESSORIES

DL600 600 watt Dummy Load.....	£43.70
Heavy Duty 2-way Antenna Switch.....	£15.75
DL60 60 Watt Dummy Load.....	8.73
LF30A Low Pass Filter.....	£27.70
SWR50 SWR/Power Meter.....	£20.75

WELZ SWR/POWER METERS

SP122 1.8-60MHz.....	£85.00
SP220 1.8-200MHz.....	£69.00
SP420 144-525MHz.....	£71.00

TONNA

4 Element 2m Yagi.....	£14.95
9 Element 2m Yagi.....	£17.71
17 Element 2m Yagi.....	£37.66
19 Element 432MHz Yagi.....	£20.70
21 Element 432MHz Yagi.....	£29.70
G-Whip New all band Base Station Antenna	£85.50
Welz Diamond DCP5 10-80 trapped vertical with radial kit.....	£149.00

JAYBEAM

LW5 5EI 2m Yagi.....	£16.68
LW8 8EI 2m Yagi.....	£21.05
LW10 10EI 2m Yagi.....	£27.20
PBM 1010EI Parabeam.....	£65.49
C5/2m 2m Co-Linear.....	£86.25
D5/2m Double 5 Element Slot Yagi.....	£29.67
Q4/2m 4 Element 2m Quad.....	£33.98
Q6/2m 6 Element 2m Quad.....	£44.51
Q8/2m 8 Element 2m Quad.....	£55.60
D8/70cm Double 8 Slot Yagi.....	£28.18
PBM 18/70cm 18EI Parabeam.....	£37.08
MBM28 28EI multibeam.....	£24.72
MBM48 48EI multibeam.....	£40.82
MBM88 88EI multibeam.....	£55.77
8XV/70 Crossed 8 Yagi.....	£48.24
12XV/70 12EI Crossed Yagi.....	£69.28
5XV/2m Crossed 8EI Yagi.....	£32.14
8XV/2m Crossed 8EI Yagi.....	£41.40
10XV/2m Crossed 10EI Yagi.....	£51.92
TB1 Rotary Dipole.....	£83.37
TB2 2 Element Tribander.....	£155.25
TB3 3 Element Tribander.....	£230.00

FOR THE RADIO AMATEUR AND AMATEUR RADIO



EDITORIAL

Various Points

Firstly, we feel the RSGB has been rather unfairly panned by many people over the business of Morse testing. Until they knew they had the task for sure they certainly had no mandate to throw members' money about on setting up a facility that might not have been needed. However, in the event they *did* get the job and they then went ahead promptly to get things moving. No doubt the Society would have been severely criticised if no contingency preparations had been made.

But on a second point we feel somewhat sad that the Morse test has become a 'pass in perpetuity' like the RAE. Our own feeling is that anyone dropping the licence for more than, say, two years should have to take both the RAE and Morse test again before reclaiming the licence, with the usual safeguards for those who are abroad and hold other countries' calls. It is getting to be too darned simple to get, and keep, a licence.

A DTI press notice on licence fees gives some small cause for pleasure: amateur radio, CB, and TV licences are not changed.

From the ITU we have a couple of press notices. The first one indicates a little — not much — progress in the way of a standard for High-Definition TV. Having been at work since 1974, the ITU conference in Dubrovnik has proudly announced that "a step to attain this goal is to define the characteristics of a single high-definition TV standard to be adopted world wide". Good thinking! They also consider that "prompt action is required to avoid the establishment of several *de facto* standards" — not bad for 12 years work!

Another press notice from the same source indicates that approval for Digital TV has now received final endorsement. One hopes that doesn't mean transmission of digital TV signals, as the QRM would be alarming; already there have been problems with UHF TV transmitter harmonics wiping up secondary radar and the thought of digital is quite terrifying . . . or does it just mean this is where the assembly has its corporate finger?

*John
K3KFE.*

WORLD-WIDE COMMUNICATION

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

WHEN one comes to talk about the definition of DX, it is probably different for each and every one of us. To the neophyte having his first QSO that station is the height of DX; to the guy with 250 countries a new one is DX; and to the chap with all but one of the current DXCC counters booked in and QSLs received, nothing but word of a DX-pedition to his remaining location is of much interest. At the other end of the scale, there is the poor bloke like G3KFE who reckons that sight of the inside of the shack is DX!

Here & There

The last few days of warm sunshine have brought along with them the inevitable rumpus of static on the one hand and mower QRM on the other. At the moment when this is being penned, the rig is listening to S9 static, and big DL signals are just about copiable through the murk. But of course that is what it's all about.

Looking at the converse of that picture, the recent spells of 'good' conditions, while they have been in part due to better sunspots, are always to a considerable degree related to absence of disturbing elements. Incidentally, so far as the writer is aware there have been no indications as yet of the presence of sunspots of the new cycle; these are the ones nearer the pole, whereas spots from the old cycle are near the solar equator.

Our invaluable contributor of *Contest Calendar* galleys, W1WY writes in chirpily enough that he had a slight mishap a couple of months ago in health but is now back on line. Frank also notes that Top Band addicts will be saddened to hear that W1BB, Stew Perry is now in a nursing home and having voice problems. His address at the Nursing Home is c/o Normandy Nursing Home, 17 Green Street, Melrose, MA 02176, U.S.A., and W1WY says he reckons that Stew would welcome letters, even though we doubt he would be in a position to reply to them all. So — Top Band addicts and others, out with pens, paper, envelopes and send him a line, worded not to require a return letter.

An interesting bit was the overlapping of C30, Andorra, by a couple of PAs with the 3C0 operation from Pagalu, once known as Annobon.

These foreigners . . . *TDXB* notes the appearance of the Sir Walter Raleigh expedition signals from Henderson Island (VR6), VR6HIJL (yes!), and VR6NP, and calls this adventure training "a Pacific cruise of a British Navy ship"! We understand that when the operation is complete

at Henderson they go on to Pitcairn and other stops, though no operation was likely from Pitcairn. The Henderson operation, if duly covered by documentation, will be a new one for IOTA.

Looking forward, OTs might be startled to hear a 6K8 — 6K86AG. No it's not a valve with a gremlin inside, or a bottle imp, but the Asian Games from South Korea.

TDXB carried an interesting special feature on McQuarie Island, VK0; we gather that the annual visit in November (Antarctic spring) means a 20,000 dollars a day charge for the hire of an icebreaker, as the Australian Government doesn't have one of its own. Once anchored, barges and helicopters get the year's supplies to land. The island is about half-way between ZL and the shores of Antarctica, so they have aerials pointing essentially north. Six 450-foot wires in a fan formation, from which operator VK0GC was able to select any two as a vee-beam to a balun and ATU. The reason for this skywire was simply that it was reckoned to be the only thing that would stay up in face of the high winds and salt spray; it is noted that this arrangement works well on Top Band. There has been a problem with QSLs, mainly due to the one visit a year of the ship, but we understand that has now been overcome. QSLs via K7RM.

August 16/17 is the date for the RTTY buffs, when the SARTG World-wide RTTY Contest comes up. Times are: 0001 to 0800z, August 16; 1600 — 2359z, August 16; and 0800 — 1600z on the Sunday; usual bands, 80 — 10, in Single-op, Multi-op and SWL (the multi operation is single transmitter, note) and the exchange is RST and QSO number. Score 5 points for a QSO with one's own country, ten for a different country in the same continent, and fifteen for a country in another country. Multiplier to be DXCC countries worked and W, VE, and VK call areas. Same station may be worked once on each band for QSO and multiplier credit. Multiplier credit will be given if the station giving multiplier credit either submits a log, or appears in at least five submitted logs. Score, QSO points times multiplier. SWLs score similarly. Logs to be received by October 10, and to contain: band, date, time GMT, callsign, message sent and received, points claimed and multiplier. Use a separate sheet for each band, plus a summary sheet showing scoring, class, callsign, name and address, and send to OZ1CRL, Egebjergvej 90, 4500 Nykobing Sj, Denmark. In the covering letter OZ1CRL indicates disappointment with

the 1985 entry, and we can't help wondering if the reason is that odd rule about multipliers. Talking of 1985, the results of that contest show that the only G in the results list was G4SKA who made fifth place in the single-operator class, not far off the top in QSOs but well down in terms of multipliers.

Another contest in August is the CW leg of the EDXC, over the weekend August 9 — 10. Europeans use the DXCC countries list for multiplier credit purposes, others use the WAE list of EU countries. New provisions call up U.S. States to count for multiplier credit, and QSO dupe sheets are required if more than 200 contacts are made on a band. In any case, three points are lost for each duplicate contact struck out by the contest committee. Logs all-same DARC standard of 40 contacts per page, and a separate sheet for each band. Mailing deadline September 15 for the CW, and October 15 for Phone, which latter contest is September 13 — 14, addressed to: WAEDC Contest Committee, PO Box 1328, D — 8950 Kaufbeuren, West Germany.

The Bands

Like the curate's egg, whatever band you've been trying, seems to be about the general feeling. However, there have been lively moments, to be sure; so let's see who's done what, and why, on which band.

Top Band

Always the one where the summer static hits the hardest!

We have already mentioned W1BB, and W1WY; the latter goes on to comment that the 'DX Window' on Top Band is by way of a lost cause, and remarks that although contest rules provided for disqualification for operation in the Window, the contest committee concerned felt unable to enforce the rule, much to W1WY's disgust. We agree; there is no way that the loss of the DX Window concept is of benefit in a general sense, save to those few who happen by good luck to have good sites in terms of aerials. While they are benefiting to some degree, the vast majority of operators with borderline sites are being pushed to the wrong side of the border by QRM from the Big Signals. Thus we have got to the stage where the chap who used to operate Top Band and worked the odd W at 339, to his great delight, now doesn't even bother to try. Result — a Top Band now only inhabited

by Big Guns and fish-fone stations, and turned thereby into a sitting target for those who would like to pinch our allocations. Heaven knows, we have seen this trend going on for long enough now — the bottom end of the band used to be at 1715 kHz until 1953 when it was cut to 1.8 – 2.0 MHz, and again more recently we have lost the bottom 10 kHz. The pressure on Top Band is probably as great as that on Ten, if not more so, and to let it become a desert when we could be filling it with activity is plain daft!

G4OBK (Chorley) reckons he has been severely put off by the static levels, and in addition Phil was knocked of his bicycle when heading for work, which put him in the local hospital's casualty department and caused much mickey-taking in the clubroom. In the RSGB Summer Contest, Phil used the club call and reckons he lost 20 contacts in the static, even though the propagation was there: those netted included VE1ZZ, UD6KAW, YU3FA, and G3WVG/A who was putting the Isles of Scilly on the air for the IOTA fans. It is the second expedition to Scilly this year, and we are pleased to find that activity from there is increasing — we have always felt it worth the trip, and the two or three active amateurs on the islands are pleasant people with whom to make the initial contacts. Even though your scribe has been there many times, he has to admit to never taking a rig, save for once when a hand-held VHF rig was slipped in the bag, but nothing was heard on it. Back when G3UUZ was on the Bishop Rock, there was a plot afoot to try to activate the WAB squares which intersect near the Star Castle, but it fell through when G3UUZ was posted, and G5AIU went back to the States.

G2HKU (Sheppey) has a problem. Seems the vertical lift bridge giving access to the mainland is going to be, as it were, QRT for six months from September, leading to serious traffic jams. BR were thinking along the lines of a Bailey Bridge alongside as a temporary measure, but the Swale gives priority to ships of any sort, as required by an Act of Parliament. Suggestions, sharpish, to BR — or an airlift of food and PA spares!

G3BDQ (Hastings) spent about one hour on Top Band, and raised, during the contest, UA1DZ, UP2BW, UA4RS, RT4UA, UB4IYU, SP1PEA, and other European stations.

Eighty

Our first reporter is G6CSY (Orpington) who is a fugitive from the VHF bands, and who in fact started as an active HF SWL and entrant in our HPX Ladder. Graeme says the weather has put the mockers on his VHF/UHF portable activity, so he has gone back to listening on HF, with a TS-130V, plus a selection of aerials from a half-sized G5RV, a 45-foot end-fed sloping wire slung over the roof of the



G4XLM, chairman of the Wimbledon and D.A.R.S. operating GB2AC, the special event station associated with the successful Atlantic crossing by *Virgin Atlantic Challenger II*. Other Society members involved were G4SBK, G8NCT, and G1SHV who was communications project manager for the record attempt.

photo: G3ESH

house, a 2-ele. ZL Special, to a two-element Quad, all home-brew. On Eighty, Graeme noted the presence of T12CCC, LU1FTU, LU2FFD, and AZ1ARU who was signing /19 for some reason.

G2NJ (Peterborough) continues to monitor the band during the day, for QRP and other interesting signals. On June 7, G4LHK/M was putting in a good signal on CW, from around 17 miles north of Stoke. Another CW /M op on this band used to be G5NX; Leslie has now left the Lakeside Hotel in Windermere and gone to live with his son in the Bay of Islands, New Zealand. Another signal was G13OLJ, who said he had just recently returned from Seattle, and would be returning there in November. G3HIS appeared with QRP in the TOPS CW Club net on 3508 kHz on June 25, and after the exchange of reports Nick was so impressed with the G3HIS signal that he taped the QSO; and, talking of TOPS CW Club, it is noted that this year is the 40th birthday of the club, and it is hoped to mark the occasion with a special call in August.

Just twice was enough for G4OBK on CW, but he managed to work PY1QP, RD6DM, LZ2AX, plus a night-time contact with EJ2CL/P (QSL via EI2CL) for another IOTA island — Sattée Is.

The QRP CW from G2HKU managed to find its way to DF6VP, GM3TMK, and GJ4ZFM.

Forty

This is a much under-rated band, where one can normally expect to find something of interest, given only that one is prepared to apply some skill to receiver operating on the one hand and to pin one's ears back on the other. G2HKU's CW QRP reached out to JW0A, and the Big Rig made it to 4N01ARU, C30BBC, N1AKX, UA9MBX, K4YF, 4U11TU, HK1HHX,

W3UCU, KD8TX, W3LQ, OA8AAQ, OA4JR, W1WA, and JW0A.

The G4OBK ears were indeed pinned back, and CW made the grade with VP2MIX, AZ1ARU/26 (QSL via LU3DY), CX7BY, LU2YE, and lots of UA0 and UA9 in the SSB contest.

It proved to be devoid of QRM on occasions, says G6CSY, with some unexpected results, including the logging of HK6OR, YV5AGD, CU2DG (Azores), and a queried V44KQ — Graeme at first thought the chap was a D44 but he came across with the 'V' phonetics.

Ten Metres

It is interesting to notice how much more activity there has been on this band, as compared with previous minima your scribe can recall and check from his logs. Last evening your scribe was down at the local club, and listening to the ten-metre band on the club station; a quick spin across the dial showed a DL working an LU, the LU bobbling around in the noise; but the noise went away when we turned-off the fluorescent lighting! Otherwise, the band was dead.

G3NOF (Yeovil) found conditions rather as the previous month with Sporadic-E openings occurring from 0700z to as late as 2300z, but fewer DX openings; sometimes the band stayed dead until 1600z. SSB contacts were made with CE3DQO, CE3HFI, OD5SM, SJ9WL, and plenty of EUs.

G4VDX (Leyland) has a complaint to state against Diego Maradona and the World Cup, in that signals disappeared when this character was playing — or should that read 'working'? G4VDX also states that he *does* have a microphone and used it for his CX4HS SSB contact, plus others to SP, OK, HA, YU, EA, IS0, and East Germans, not to mention finding RS7 alive a working with F, I, and G stations on

June 3, around 1635z.

G4VFG says he has bought a push-bike to "potter about on" but he did still find time for some radio, and on Ten his contacts included GM4VHU, IK3HMB, CT1QF, 9H1EL, EA9IE, FE2SJ, UP2BKU, RC2AQ, 4X6DK, G0DKN/PA, EA7FZY, UW6HZ, UA6XEC, EA3AXY, all on Phone; plus CW to SM7PRF, ISOLDT/QRP at five watts of home-brew and a chirp, SP9JPA, Y39UO, HA5KKC, and YU2QO, to make the countries total on the band for this year up to 27. However it has been noticed that when conditions are good the bottom end of the band, and 28.305MHz have been infested with European pirate activity — the award for cheek goes to a Yugoslav in the beacon area who announced he was looking for pirates and calling CQ. When challenged and told to QSY he replied that he couldn't — he had gear for 80, 40, 20, 10, and nothing for 11 metres. A DL commented that the guy must be crazy, and with that all and sundry dropped on him. Pest!

G6CSY says he hasn't heard much in the way of DX; OK1AJN, GM4VZY, RB5WAM, and HA8XX were the strongest ones logged.

G4OBK reckons this years has been a very good one for Es openings. In particular the evening of June 25, between 2145 and 2230, gave T16TOB on SSB, and 9Y4NW on CW. Phil missed a YV6, but this one was snapped up by G3FPQ and G0CGL. Overall, CW yielded F6REF, EA8IR, SJ9WL, 4U1ITU, G6ZY/EA6, PY2OU, LU3DSI and 9Y4NW, with SSB to CN2AQ, CX4HS, LU7HJM, 4U1ITU, and T16TOB. The QSO with G6ZY/EA6 was of interest, insofar as the latter had just received permission to operate on 18 and 24MHz; they did a contact on each band and the results were: 28 Mhz, RST579; 24 Mhz 579; and 18 Mhz, 599. GD4BEG came in straight after for what was believed to be the first EA6-GD QSO on 18 Mhz. Again on a different line, 9M8GH told Phil that he was hopeful of permission to operate Eighty from Sarawak in the near future.

New Bands

Some of the 'New Bands' news has spilled over into other places, as readers will already have noted.

We are left with just two reports, of which the first is the one from G4VFG. Peter who left 28 Mhz for a bit of CW practice and on 10 Mhz raised IK6GTF and EA2JJ.

G4VDX in Leyland lost OA4IU on 10 Mhz, because the blighter went QRT to watch the football between Argentina and Belgium, making it the fifth time this particular station has gone QRT before G4VDX could grab him! Mostly the contacts on the band are with the same stations — PZ1DV, 7X2AX, OY2I all being worked several times; but three new

"CDXN" deadlines for the next three months:

September issue — August 6th
October issue — September 3rd
November issue — October 8th

please be sure to note these dates

ones included J73D, TA1D, and FY4EE, plus on the same evening a half-QSO with HK4CZE. In addition there were lots of East Coast Ws, VEs, a new station in KP4BJ. On a different tack it is noticeable that QRP stations are appearing on the band, notably G4PQM (Chorley) who has a nice-sounding half-watt of RF.

Fifteen

G3NOF noted some Sporadic-E but not much DX. Some South Americans were heard around 2100z and SSB contacts made with CE3BUC, CE3IBQ, CE5CQD, HK6GBJ, HK7FUE, and 8R1PN.

Fifteen CW was tried by G4VFG, and Peter worked PY2OU and FM5WH.

G6CSY found things pretty quiet, but some evening listening scared up YC6LD plus a multitude of HAs.

A disappointing month on the band reckons G4OBK, who made SSB contacts with UZ0AXX and 3C0A only.

Odds & Ends

A short note with his sub. renewal came in from VK5BS, who says that VK5 stations will be allowed to use the VI prefix from July 1 to the end of this year, to celebrate the sesquicentenary of the foundation of South Australia.

A little bit of wry humour from G3KPO of the Wireless Museum in the Isle of Wight. Douglas notes they recently saw operation (by the Marconi, Portsmouth, group) of GB0IOW at Alum Bay, and GB4OH at Osborne House, home of Queen Victoria, and from where Marconi sent messages from the Queen to her son in the Royal Yacht in the Solent. All went well with the Alum Bay set-up, but the Osborne house station rang all the telephone bells in the mansion much to the consternation of the security guards . . . so much for the all-singing all-dancing digital telephone exchanges! The problem was resolved by changing to a centre-fed dipole arrangement sited further away from the building.

Twenty

Just lately, this has been a good place to get earache from the static and noises!

G3NOF notes the absence of the long-path openings to VK/ZL in the mornings, although a few Pacific signals were noted. On the mid-afternoon short path, there were openings to VK, JA, YB, and SE Asia; a few West Coast Ws were heard

around 1600z and East Coast Ws were sometimes very strong at 2300z, mingled with South America. Don made SSB contacts with HL1IE, HL1PW, HS0A, HV1CN, JA3YBF, JA3YKC, JA4CUU, JA6YCU, JA8IXM, JJ1TBB, JT1BG, KH6IJ, KL7CUS, KP2AH, OA4BCZ, OE5HTL/YK, RL8PYL, SU1FN, TA2G, TF3SV, TI2LCR, TI2TEB, TI2UD, TU2JT, TZ6FIC, UA0ADO, UA0SAU, UA0QF (Zone 19), UA0WW, UJ8SC, UZ9CWB, UZ0AWA, VK3DQD, VK6WC, VP2MDG, VP2MO, VQ9RN, VQ9ZZ, VS6TW, W6EUF/OH0, XT2BR, YC5NOF, ZF1LE, ZP5JCY, 3C0A, 5B4MF, 5H3BH, 5H3HM (who goes QRT this month), 5N8KBM, 6T2MG, 8P9GI, and 9M2FZ.

Twenty CW for G4VFG was a short foray which gave him logbook entries for I3DSI, UM8ML, and OH6JZ.

G6CSY notes that his loggings are up on this time last year; late nights yielded YV1LM, YV5JUX, CE1JQE, A71BX, XE3RT, and KP2AH on St. Croix on the Virgin Islands (QSL via WA2YMX).

GW0ESS makes the validity of our point about DX being a personal thing; he was understandably chuffed to work W1EFJ for a first QSO and to receive the QSL by air-mail to prove it, despite an indoor dipole.

G4OBK tried CW with success to 7S0FRO, I2DMK/IP1 for IOTA (QSLs via I2MQP), LG5LG, FF6KSG/VER on Verte Is, lots of JAs, LX/DJ0BC, FY5YE, XL7CNE, I5TC/551A (what does *that* stand for, for Pete's sake?), 4U1ITU, IK2DMZ/IL3 on Albarella Is, 3C0A (after a long wait on SSB he was hooked second try on CW!), OH0AM, K2BMI/KP2, HK3NR, C30BBC, and KH6AI, while SSB did the job with 9VIWR, 3C0A, TP2CE (Council of Europe), 9M8GH, C30BBX/P, CX1TE, 8P9G, UG7GWL, RL8PYL, 4X1HQ, JAs. The 3C0A SSB contact was obtained after the turmoil of the first couple of days had eased a little.

G3BDQ stuck to CW, and rang the bell with UW9EK, UA9ALU, TV6JUN, KV4AM, JA5IU, 9J2WS, EK1AO (an expedition, this), LU1HD, YV5KHX, 5H3CE (QSL via IK6BOB), and a new prefix in CU2QN of Ponta Delgada in the Azores.

G2HKU seems to have been trying to wear his key out, with contacts noted to HK3NR, VE6DZ, JA8JTB/MM off the Canaries, FM5WD, HS3CE, JW0A, HK3NR again, TE4T(=TI), XT2BR, 4X4JU, and LU9CV.

The End

That's it for another month; deadlines are in the box and we would appreciate as many reports as we can get as the summer holiday spell always attenuates the input level. The address, as always is "CDXN" SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts. AL6 9EQ. *Good Hunting!*

KW Ten-Tec Argosy II Transceiver

a description and use

E. H. TROWELL, G2HKU

AN improved version of the KW Ten-Tec Argosy Model 525 is the Argosy II Model 525D available from KW Ten-Tec Ltd., of Chatham Kent. It is an all solid-state six band (in nine segments) CW/SSB transceiver, and being a broad band RF design has instant band change without any adjustments being required. The earlier model had analogue readout, the current production being a digital version with the same overall dimensions of 4" high, 9½" wide and 12" deep, weighing approximately 8lbs. Construction is similar to the Century 22, the two part black/bronze case and rear panel being aluminium with a moulded front panel and a stainless steel tilt-up bail. The internal panels are mounted on a rigid steel chassis and fitted with inter-connecting cables using identified plugs and sockets. As is normal with KW Ten-Tec equipment, the transceiver is obviously designed with ease of operation and accessibility for servicing in mind, with colour coded wiring where possible.

The frequencies covered are the same as the CW-only Century 22, namely 3.5-4.0, 7.0-7.5, 10.0-10.5, 14.0-14.5, 21.0-21.5 MHz, apart from the ten metre band which is covered completely in four switched positions of 500 kHz each, making 9 actual switch positions. The VFO overrun was found to be approximately 38 kHz at the band edges.

The front panel controls are well placed and although the transceiver is relatively small, there is no feeling of overcrowding. In the top left corner is the four-position mode switch; below this are three push button switches, namely FWD/REV power, NB on-off, DISPLAY on-off. The bottom left corner has the MIC socket and PHONES socket, both ¼" standard fittings, the MIC socket being a stereo type. As in the Century 22 there is an ALC indicator LED adjacent to the main tuning dial knob. The dial skirt reading may be adjusted (as in other KW Ten-Tec Models) by holding the tuning knob in one hand and rotating the skirt with the other. Next to the latter is the band change switch and above this is the clearly marked illuminated meter with three ranges. The S-meter on the top scale is electronically switched when transmitting to read SWR on the middle scale or forward peak power on the bottom one, depending upon the reading selected by the FWD/REV switch.

To the right of the meter is the OFFSET control which varies the receive tuning by approximately 3 kHz plus or minus of the centre frequency. Next to this is the NOTCH filter tuning from 200 Hz to 3.5 kHz. Below the OFFSET knob is the DRIVE control which operates smoothly when the transceiver is in either

high or low power modes, and to its right is the combined AF-POWER control. Below these two controls are the three push buttons for controlling the insertion of the optional crystal and audio filters.

Most of the rear panel is occupied with the output stage heatsink which after prolonged operation was just warm. The HI-LO power switch is placed in the top left hand corner of the panel looking at the rear, and is easily reached from the front during normal operating. This brings the maximum RF output power down from 50 to 5 watts. Below this is the S0239 aerial socket while on the other side of the panel, clear of the heatsink, are six phono type sockets, the top three being two auxiliary 12 VDC outputs and KEY. The lower three sockets are spare, below which are the GROUND terminal and non-reversible POWER input sockets.

The sidetone can be adjusted for pitch and volume by inserting a small screwdriver into the respective holes clearly marked on the right hand side of the cabinet. As with the Century 22 the volume, once set, remains constant, irrespective of the band in use.

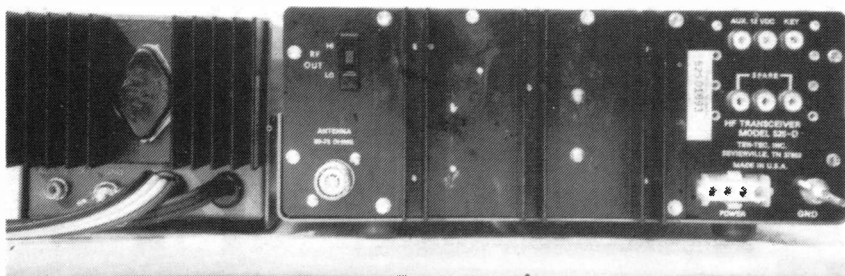
The main difference noticed in a first look at the Argosy and Argosy II is that the former had analogue readout whereas the latter is digital. The readout itself comprises four large red 7 segment LEDs, the band switch being used to indicate the first two figures in MHz. The writer would have preferred the full readout of six LEDs but in use the readout was no problem and since KW Ten-Tec are offering this transceiver for use in the field, either portable or mobile, in addition to normal fixed station use, the consequent saving in current drain is a consideration.

The original Argosy had an optional crystal calibrator controlled by a push button switch. In the Argosy II there is no provision for a calibrator and the switch is used to switch on or off the illuminated digital display in order to conserve battery power when operating portable. As one would expect there are more semiconductors in the current production Argosy II, mainly due to the digital display assembly. There are some 9 transistors, 8 IC's, 3 diodes, a PIN diode and a 10 amp reverse polarity fuse extra.

The appearance, ratings and performance are identical, with one exception. The ALC system of the original Argosy only functioned in the high power position. In the current model the ALC threshold has been changed to operate in both high and low positions. This is a considerable improvement since, when in the QRP mode, the drive adjustment is not so critical as would be the

The KW Ten-Tec Argosy II and power supply





Rear view of the Argosy II transceiver and power supply

case without ALC being in operation. In either the CW or SSB mode, the purpose of ALC (automatic level control) is to ensure maximum output power from the transmitter without critical drive adjustment, whether in high or low power modes. The ALC circuit prevents the amplifier being overdriven, and thus producing distortion on SSB and very poor keying characteristics using CW. It also helps, in the form of a power limiting arrangement, to partially protect the output transistors. By virtue of the system sensing the power output and adjusting drive to suit, it cannot sense the power input to the final stage. It follows then that the ALC may be unable, under certain load conditions, to limit the dissipation of the output transistors. Where such a case exists the circuit breaker in the power supply will trip even though the ALC indicator lamp has not illuminated. In such cases a check on the load presented by the aerial or aerial tuning unit is required.

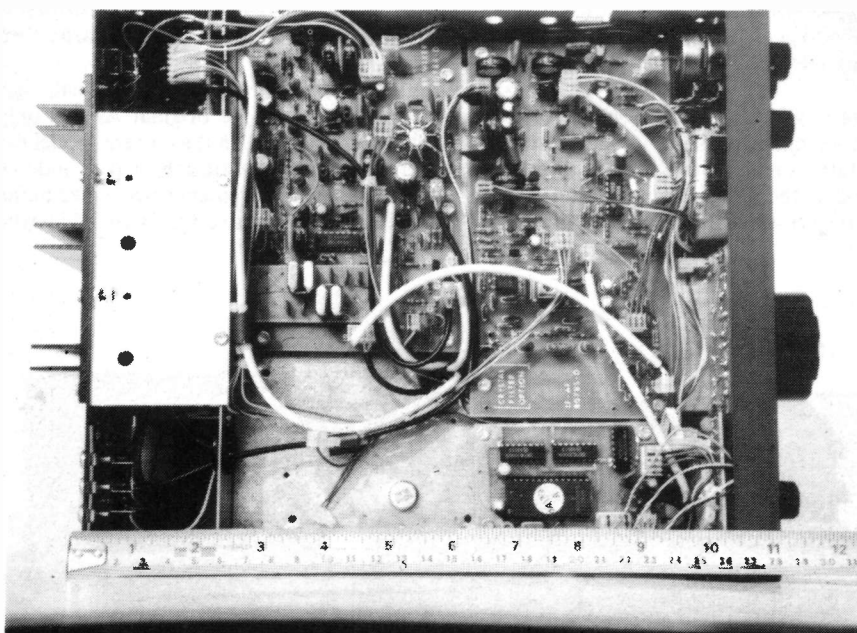
The writer had the opportunity to use the Argosy II both as a standard model and also fitted with the optional audio filter, 250 Hertz crystal filter and the 8-hole 9 MHz crystal ladder filter. Unfortunately the optional noise blanker (Model 223) was not available at the time.

The Model 224 Audio CW Filter is easily fitted by following the instructions provided which also contain a parts list, voltage reading chart, circuit diagram and a photograph of the unit identifying the component locations. A word of warning is perhaps in order here for when the writer switched on after fitting the unit, the audio response was very poor indeed on position 2 and non-existent on position 1. A check revealed that pin 7 of the IC (RC4136N) was not properly to ground. Examination of the printed circuit board revealed that this connection to chassis is in fact made when the mounting screw nearest to the lettering "Filter" is tightened. The mounting instructions do actually state

"tighten the three screws securely". Very nearly a case of "if all else fails, read the instructions"!

After cleaning the board in the area of the mounting screw and spacer and tightening (properly!) the unit functioned perfectly. As indicated by the front panel switches, there are two selectivity positions centred on 750 Hz when the AF IN/OUT switch is pushed in. Position 1 brings all four filters sections in line for high selectivity CW operation with a bandwidth of 150 Hz, whereas position 2 is wide enough (450 Hz) to be used on either CW or SSB, or to reduce high frequency noise. In a number of filters, especially those fitted after the output stage, it is possible for the AGC system of a transceiver to be pumped by adjacent strong signals. In the Argosy II KW Ten-Tec have avoided this problem by inserting the filter into the audio path of the transceiver prior to the AGC take-off point. Therefore with the filter in use, the AGC system will respond only to the signals actually passing through the filter and not the unwanted adjacent signals.

Two CW crystals are available, either Model 219 or 217 which are 250 and 500 Hertz respectively, and make copying CW in crowded band conditions so much easier. The acid test in any sharp filter of this type is to tune through the signal and note whether there is a tendency to "ringing" as the peak is reached. Some transceivers when fitted with a 250 Hertz filter will "ring" as the peak is reached but with the Argosy II no sign of this condition was found. For serious CW operators the 250 Hertz model is to be preferred but even the 500 Hertz filter provides a very worthwhile increase in selectivity and either model is recommended. There are no problems in fitting the filter as its position is clearly marked on the IF/AF board and fitting instructions are provided. The filter can be mounted either way round as there is no "in and out" position, and is brought into



Above-chassis view of the standard model without optional filters.

operation by the front panel switch marked XTAL IN/OUT.

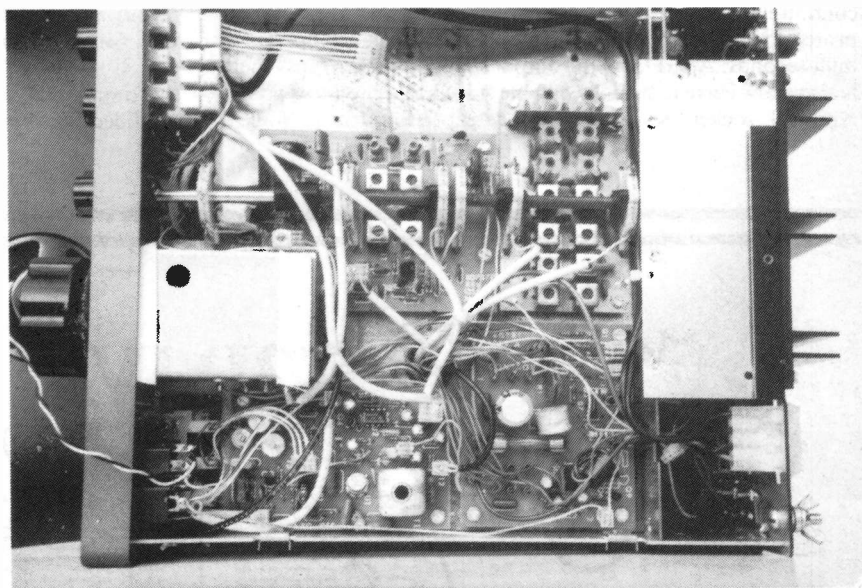
As supplied by the factory the first IF crystal filter is a 4-pole lattice type. Available as an option is the Model 220 8-pole crystal filter which provides extra IF selectivity and therefore greater rejection of adjacent channel signals. This filter is the same model as fitted in the Corsair and, unlike the Japanese types, is of "open" construction, easily serviced if required. It really does make an appreciable difference in operation and is well worth the cost. Fitting could not be easier as the 4-pole type already mounted on the RF/MIXER board is gently prised out and the new 8-pole model fitted in its place. If only this filter is being replaced the 4-pole filter can be fitted on the IF/AF board as an additional SSB filter operated by the front panel switch XTAL IN/OUT. It should be noted that the 4 or 8-pole filter fitted on the RF/MIXER board is in circuit at all times whether in the transmit or receive mode. Any filter operated by the XTAL IN/OUT switch is placed in series with the transceiver filters and provides additional filtering, *i.e.* not alternative filtering.

The built-in NOTCH filter provides a very sharp null and some care is required to obtain full benefit from this worthwhile control which inserts the null between 200 Hz and 3.5 kHz as it is rotated

only adverse comment was during a thrice weekly sked with ZL3FV who said, "You sound as if you have a cold". The writer was able to tell Bill that in fact he had a "stinker" which he would gladly export to ZL! This at least showed the response of the microphone was okay!

For CW operation any type of key may be used but the Argosy does require a very low resistance path to chassis. This of course means that straight keys and other mechanical types are suitable but some care must be exercised in using electronic keyers. Those with relay output will work fine, but others with switching transistors output must be of the NPN type to key the Argosy satisfactorily. In any case shielded cable should be used to connect the key to the key jack. Two types of electronic keyers are available from KW Ten-Tec as accessories for the transceiver and both use transistor switching and are powered by the transceiver. Model 645 is a dual paddle keyer and Model 670 uses a single paddle. As in other KW Ten-Tec transceivers the full break-in using CW is really outstanding and this has been a feature of all the models that the company produce. This is hardly surprising as both Al Kahn, K4FW, the head of Ten-Tec in U.S.A. and Rowley Shears, G8KW, head of KW Electronics in Chatham, Kent, are

Under-chassis view of the standard model without audio filter, which may be fitted in the space shown at the top of the picture.



in a clockwise direction. It is useful in removing interfering carriers or CW stations and to some degree SSB interference. Used in conjunction with the crystal CW filter and the AUDIO filter it may enable a CW QSO to be carried out in otherwise impossible conditions.

Using the above filters really does show whether the VFO is stable or not. On some transceivers the writer has used it has been necessary to use the IRT or OFFSET control in order to keep the required station within the passband. This is not the case with the Argosy and it shows the results of KW Ten-Tec's attention to VFO stability. The VFO itself is a permeability-tuned oscillator tuning from 5.0 to 5.5 MHz and each one is individually computer compensated. The output is mixed with signals from a crystal oscillator, the frequencies of which are selected by the band change switch. As in the Corsair the VFO signal is used directly on the 14 MHz band. The outcome of this method is very good stability and complete absence of phase lock loop noise which is so noticeable and annoying in imports costing much more.

Any high impedance crystal, dynamic or ceramic microphone may be used. The writer used the KW Ten-Tec Model 700 hand-held microphone which contains its own PTT switch, has a strong non-slip case and functions nicely. During SSB contacts with both home and overseas stations there was no apparent difference between this microphone and another costing much more. The

both very keen and proficient CW operators of many years experience.

The OFFSET control operates on receive only, varying the received frequency some three kHz plus or minus of the digital readout. The manual refers to a "detented centre position" but on the review model the control was not of this type, being a normal rotary version. This appears to be an odd one as others checked at KW Ten-Tec all had the detent position. This control comes into its own when operating in nets when stations using separate transmitters and receivers are not exactly zero beat with the control station.

When in the CW or lock position the digital counter display will be 750 Hz off frequency as no provision is made to offset the counter for BFO shift. This also means, of course, that if the MODE switch is in the SB-R position, the display will be 3 kHz off frequency.

The PHONES jack: as well as being the headphone position this socket also supplies any external speaker, the internal speaker being automatically disconnected when the jack plug is inserted. As the power required to drive a speaker of between 4 and 16 ohms from this position is much more than that required for similar impedance headphones, KW Ten-Tec suggest either high impedance headphones or an attenuator should be used. A simple form of attenuator which could be contained within the low

impedance headphone plug may consist of a resistor of 15 ohms in series with leads shunted by one 2.7 or 3.3 ohms (1/4-watt) across the leads. This has the effect of reducing any residual noise as well as enabling the audio amplifier to operate at a more favourable signal to noise position of the audio gain control; useful when operating QSK on CW. In fact the receiver is remarkably free of internally generated noise even when the audio control is well advanced.

There is no separate MIC gain control. The microphone gain and CW drive are controlled by the DRIVE control which should be adjusted so that the ALC indicator just lights on CW or voice peaks on SSB. Advancing the control beyond this point will not really increase output but will probably result in distortion. No problems were encountered with this operation using either high or low power, ample drive being available on any band. Band changing should not be carried out while actually transmitting as this can damage the output transistors. The bias for the output stage is temperature compensated in a similar manner to that employed in the Corsair by mounting the bias diode directly on the heat sink of the output stage.

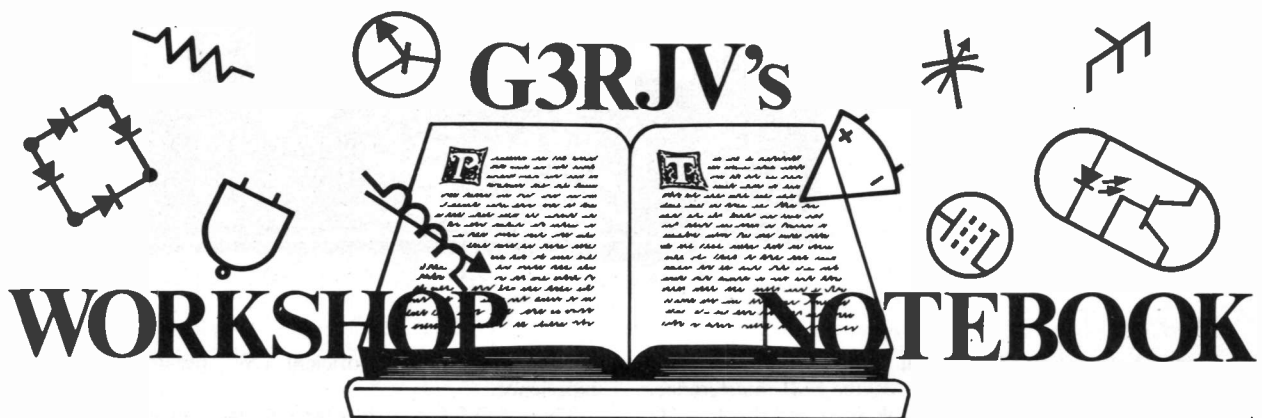
The power supply used was the KW Ten-Tec Model 225 which has a dual primary input, weighs 9 lbs and is 4" high, 4 3/8" wide and 10 1/2" deep, styled to match the Argosy. It is rated at 9 amps continuous load and is both over-voltage and over-current protected with an electronic circuit breaker which will operate in milli-seconds. Apart from the output supply for the Argosy there is also a low current output available from a rear mounted phono type jack socket. No problems were experienced in prolonged

operation, the case being only just warm and no hum induced into the transceiver with the power supply alongside it. Should the Argosy be used with a battery supply or a power supply other than the one made for it, then the use of the Ten-Tec Model 1125 circuit breaker is very strongly advised. This, in the case of battery operation, should be used as the on/off switch as the switch in the Argosy is not rated to carry high current DC and is normally used to switch the AC power supply on/off.

Various aerials were used during the review period and were tuned *via* the KW Ten-Tec Model 228 aerial tuning unit on each of the Argosy's bands without any difficulties being experienced. The power supply, transceiver and aerial tuning unit should all be 'strapped' together with braid or heavy current leads and, of course, earthed. (Good practice in any station both from the point of view of safety and the reduction of possible RF fields.) Checks for TVI were made on each band with a normal production colour TV receiver, without any additional filtering, standing alongside the transceiver. No TVI was found using SSB or CW in the reviewer's fringe reception area.

The Owner's Manual is well up to the normal KW Ten-Tec standard and in addition to the usual operating instructions and parts lists, contains detailed servicing and alignment instructions together with suggested fault finding notes. Photographs of the layout and individual boards are numerous and well documented with voltage readings.

To sum up, this transceiver was a pleasure to use and it can be confidently recommended to either the SSB or CW operator.



THE TRF REVISITED

I HAVE always thought that amateur radio is a perverse hobby: trying to achieve world-wide radio communication from an average household is not exactly the simplest of pursuits. But in recent years the perversity has grown. Take a stranger into some amateur radio shacks and show them the equipment and they might as well be introduced to a row of microwave ovens. The equipment all looks pretty much the same; complex and dull. Now take an average radio amateur into the same shack and if there is one item of home built equipment, his eyes, and interest will be drawn to it, however scruffy it is, or sophisticated the other equipment. Perhaps there is hope for the hobby yet when enterprise, however simple, is still a source of interest and the simplest of home made equipment can attract more attention than a brace of expensive robot's vomit.

In *Short Wave Magazine* for December 1985 and January 1986 I described a simple Tuned Radio Frequency (TRF) receiver. From the letters I received, it seems to have attracted quite a lot of interest to say nothing of jogging quite a few memories. The receiver offered a simple approach to receiving signals on three amateur bands. For those who are not familiar with the principles of the TRF receiver, the first part of the article (Dec. 1985) outlined the method of reception using the TRF approach. That receiver was somewhat different from the TRF receivers in common usage in the earlier days of amateur radio: it uses toroid cores for the tuned circuits and the audio stages were contained within an integrated circuit.

TRF receivers were often designated according to the stage line up. For example a valve TRF receiver with no RF stage, a detector

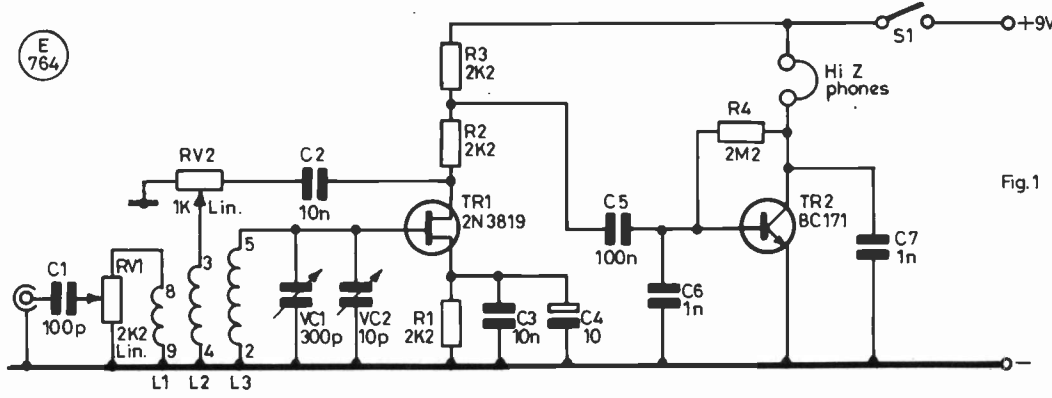


Fig. 1 SIMPLE TRF RECEIVER CIRCUIT DIAGRAM.

Table of Values
Fig. 1

R1, R2, R3 = 2K2, ¼ W	VR2 = 1K lin.
R4 = 2M2, ¼ W	VC1 = 350pF variable airspaced
C1 = 100pF	VC2 = 10pF variable airspaced
C2, C3 = 10 nF	TR1 = 2N3819
C4 = 10µF	TR2 = BC171
C5 = 100 nF	L1, L2, L3 = Denco dual-purpose
C6, C7 = 1 nF	plug-in coils (green) Ranges 3
VR1 = 2K2 lin.	and 4 (or as required)

stage and one audio stage was often called an O-V-1, the same receiver with and RF stage a I-V-1 and so on. The input tuned circuits were often wound onto plug-in coil formers. Band changing was a matter of unplugging a coil and replacing it with the correct coil for the required frequency.

Another feature of TRF receivers was *electrical bandspreading*. These days we are familiar with slow-motion drives on tuning capacitors to allow a reasonable rate of tuning to aid selection of the signals. TRF receivers often had two tuning controls; and *bandset* and *bandspread* control. The bandset control gave access to a large value variable capacitor for large frequency coverage, with the bandspread control being a low value variable capacitor in parallel with the larger capacitor to give incremental tuning. It was common for the receivers to be general coverage. The bandset control allowed the selection of the frequency required in terms of a section of a wide total range. The actual tuning in of stations could then be done using the bandspread control.

The amount of fun I had building the 'Kowloon' TRF receiver was so great in relation to the simplicity and cost, that I decided to have another go at the circuit, this time using an approach closer to the older generation of TRF receivers. This little article describes a very basic two transistor (O-T-1?) receiver with plug-in coils and electrical bandspread. The detector is an FET transistor, so perhaps it is an O-T-1 receiver?

The Circuit

The circuit of this receiver owes much to that avid receiver builder, Martyn Lindars. Martyn and I have exchanged letters for many years on simple approaches to building short wave receivers. I was not surprised to find after the TRF article, that Martyn is a doyen of TRF reception. The circuit of the receiver is shown in Fig. 1 modest isn't it? TR1 (2N3819) is a detector with positive feedback and TR2 (BC171) is a single audio output stage driving high impedance headphones. The incoming signals from the antenna are coupled *via* C1 to a linear potentiometer (VR1) which provides a crude form of RF gain control. This is a useful facility in a TRF receiver because the smooth operation of the feedback control can be completely swamped by strong signals at the input of the detector. A small winding (L1) on the input coil allows a 50 ohms (or thereabouts) input. The main tuned winding is tuned by two variable capacitors: VC1 and VC2. VC1 is the bandset control and VC2 is the bandspread control. The small

value for VC2 allows comfortable tuning, even on amateur bands. The feedback is from the drain of TR1 and coupled *via* C2 to a winding on the input tuning coil. The amount of feedback is controlled by another linear potentiometer (VR2)

The resistive load for TR1 is divided into two sections by R2 and R3. It is helpful to isolate the RF feedback from the second stage (thank you, Martyn) and R2 does just this. TR2 is a simple audio amplifier, high gain but tied down a little by C6 and C7, feeding a pair of high impedance headphones. The whole receiver runs very economically from a 9 volt battery.

The components are all common and easy to obtain. What about the coils? . . . Well in the '50s many of us used Denco coils in our construction and they are still available. Even the range of plug-in coils designed for use in TRF receivers can be bought now. They are no longer as cheap as they were, but 80-odd pence is not too bad. The other items that could be expensive are VC1 and VC2. In the prototype receiver I used two surplus variable capacitors offered at a reasonable price by J. Birkett of Lincoln. These are a single-gang 10pF capacitor and a two-gang (100pF + 200pF) variable capacitor, the latter being wired in parallel. The other components were certainly not of the TRF era. The resistors are quarter-watt types and the capacitors are miniature ceramic types. The input coil does require a B9A valve base as a socket for the plug-in coils.

Construction

One reminder of the TRF era is that the circuit interconnections are built on a group-board. The one in the prototype is an 18-way group-board, but a much smaller board could be used as only 10 of the tags are used in the circuit. The 18-way board was the only one I had and this is not a project for spending money on extra bits and pieces. The housing of the receiver uses open chassis construction with a front and base panel but without sides and top to form a box. The front panel is double; a common practice in TRF receivers. This provides extra screening to reduce the effects of hand capacitance, one of the problems of TRF receivers.

The panels are made from offcuts of double-sided blank printed circuit board. They could be made from aluminium but

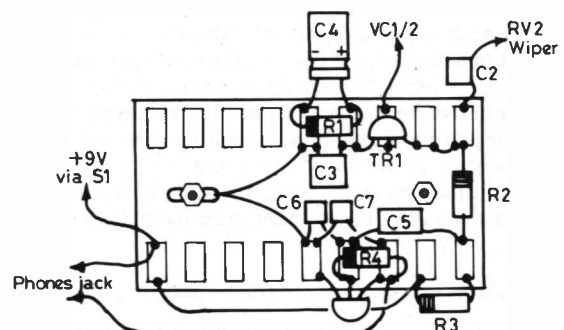


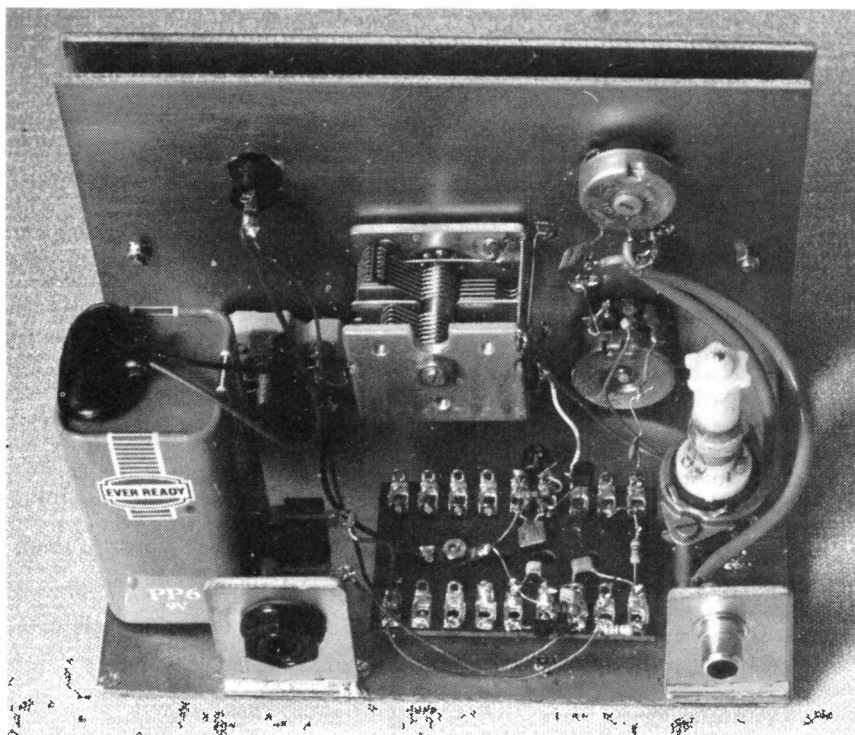
Fig. 2 SIMPLE TRF BOARD LAYOUT

PCB material is easy to cut and work and offcuts can often be found cheaply at radio rallies. The photograph shows the general approach and Fig. 3 gives the dimensions of the panels and the relative placing of the components. The two interconnection sockets, 'Antenna In' and 'Headphones', are mounted on small stand-up panels of PCB material butt-soldered onto the back edge of the base panel.

The layout of the group-board is shown in Fig. 2. The chosen components have to be fairly small to fit this layout but if the only available components are larger types, alternate tags could be used if an 18-way board is available. All the components except the controls and C1 and C2 are mounted on the group-board; C1 is wired directly onto the back of VR1 and C2 to one side of the group-board as shown. The leads between the antenna input and C1 and VR1 and L2 are screened leads. Miniature 50-ohm coaxial cable is ideal but I used thin cheap microphone screen cable. The B9A valve base is held above the base with two 1" high standoffs.

receiver made from a few feet of wire placed near to side of the TRF receiver which holds the coil. Tune the TRF and use the calibration on the second receiver to provide points for dial markings. The prototype receiver had a cheap 6:1 epicyclic in-line slow-motion drive but this is not completely essential: it was common practice on TRF receivers with electrical bandspread to have direct drive on both tuning controls. It helps to have a large knob for the bandset control.

The principle of operation is to advance the feedback control (VR2) until oscillation (the rushing sound) just occurs. At this point the gain of the stage and the selectivity are at optimum. The fine tuning is done with VC2. The RF gain control should be used to reduce the signal feeding to the detector stage. This should be set to the lowest level required to read the required signals. Because of the simple nature of this receiver, there is interaction between the controls and some adjustment of all or most of the controls is required to optimise reception of a required signal.



The Denco coils allow a range between 1.3 MHz and 30 MHz, although I used only two coils to give coverage from 160m. to 20m.

Using the Receiver

The best thing about TRF receivers is that the user has to *operate* them. Its a *hands-on* receiver, every control interacts on another . . . great fun. Calibration is normally reserved for the bandset control. In effect the calibration is only relative, the easiest approach is to calibrate the bandset control with the bandspread control placed at mid-travel to give tuning either side of the settings. A calibrated signal generator is the easiest way to calibrate the dial of the bandset control. If such a generator is not available, the dial may be calibrated using another receiver. If the feedback control is advanced until the detector stage just oscillates (a rushing sound) the resultant oscillations can be picked up on another receiver. Try a simple antenna on the calibration

Have a go at building this little receiver, you might be surprised. The sensitivity is amazing for what is in the circuit and the selectivity is not bad either if VR2 is used with care. Mine seemed to find American stations on the CW end of 80m. without much bother..

SOURCES:

VC1 and VC2 from J. BIRKETT, 13 The Strait, Lincoln, LN2 1JF. (Phone: 20767).

Denco coils from ELECTROVALUE LTD. 28 St. Judes Road, Englefield Green, Egham, Surrey. TW20 0HB. (Phone: 0784-33603).

Dual-purpose coils (green type) ranges 3 and 4 used in prototype, £1.80 ea. (+ 50p). A free catalogue is available.



OBLAST CORNER



NIGEL CAWTHORNE, G3TXF

CQ-M Contest Reports

THE once-a-year USSR-run major DX contest, called the CQ-M, was held in May (10–11th). SWL Philip Davies managed 8 hours listening, during which time he heard some 56 oblasts of which 9 were new for 1986 and 3 new for 'all-time'.

Richard, G4ZFE, had a go in CQ-M for the first time and made 180 QSOs on 14 MHz and picked up new ones: UA0QA (098), UA3YCJ (118), UA1PAO (114), UL8AWA (179), UC2SLE (010), UL8IWL (017) and UT4JWB (187).

CQ-M brought two all-time new ones for Alex, G4UNH: EK9AD and UL7MWW. Ted, G0BZV, found eight new oblasts in the 42 stations worked during CQ-M. Ted had hoped for a few more UA0's, but did manage UA0AXX and UZ0AWB both in oblast 103. Ted queries the oblast for UA9MA and RL7AB. Likely numbers for these two are 146 and 179 respectively.

Paul, G4PWA, reports a significant boost to 'in-year' scores through activity during CQ-M. Paul found UI9GWA (054) on 14 CW for an all-time new one. But a gotaway was UI8DAA (173) heard on SSB, who would have been another all-time new one. Paul's CQ-M log also includes UH9AWE (191), UL7ASS (179), UL7DA (029), UL8QWG (018) as well as some non-oblast DX in the form of BY8AC, JT5AA, OK1XC/JT, EK1P and UV100. These last two are both on FJL. Paul keeps his oblasts record on a 'modes' basis. His 'mixed mode' all-time total of 173 is made up of 160 on CW and 145 on SSB.

During CQ-M, G3TXF concentrated mostly on 14 MHz CW and ended up with 105 different oblasts worked on that band.

Mailbag Notes

Angela BRS 88639 provides a list of queries all of which look okay: RR2RR-083, EO4AHK-133, EU1Q-037 and EO5BIM-073.

SWL Neil Melville found Geoff Watt's *Oblast List* very useful (everybody does!) and Neil has been able to add a few to his all-time total.

Best oblast catch for John, G4WSX, was UA0JGE (112). As John puts it, the QSO was "on CW of course, no other mode at G4WSX".

In contrast to 100%-CW, G4WSX, Mike G4OII does very well on 100%-SSB for oblast chasing. Mike's recent DX-oblast QSOs include UL7MWW (022), UI8GAM (054), UJ8XD (183), UA0ZCQ (100), UJ8SBI (041), UI8QAZ (185), RH8AJ (191), UH9YWA (046) and UD7KWB (003).

Phil, G4OBK, received a sudden influx on USSR QSLs which has brought his confirmed oblast total up to 103. Phil will soon be making his R-100-O claim. Remember you don't have to send the actual cards in to Box 88, only a certified list.

Several readers report a bunch of EK activity, including Mike, G4AYO, who worked EK1AO (113), EK1P (FJL), EK9AD, EK9AE. On 14 CW Mike also logged UI8GE (054), UA9ZAA (100), UA0BEO (Cape Chelyukin, QSL via UA3LAR), RL7QA (018) and two more FJL'ers: UV100 and RZ1OWA.

New table entrant Steve, GW4BKG, says it's useful being a GW on 80m. where sometimes lists get run in order to give USSR stations a new country! Steve points out that on 80 SSB, the USSR DX window is 3,640-3,650 kHz.

Another new table entrant is SWL Mrs G. Cooke who wonders if a list is needed to put an entry into the table. No, no list needed, just your total figures. If you want to send in a list too, then do so, but all we need to keep your table entry up-to-date are the 'In-year' and 'All-time' figures.

Eddie, 9H1-15357, is still QRX his Victory-40 award which he applied for last October. Eddie wonders whether he should have enclosed any IRCs for the award, No, none were asked for and the awards have been coming through okay. Best to check with the 9H1 radio society — that is where it'll probably be sent to.

Several readers have queried whether 'All-time' includes 1986, i.e. the current year. Yes, it does. 'All-time' means all time, including the current year!

Luciano, BRS 86766, has again sent in a number of entries. Luciano has now received QSLs from 25 oblasts and has sent a few photocopies of QSLs received. Getting replies to SWL cards from the USSR is not too difficult, it just takes time.

OBLASTS 'WORKED' TABLE

Station	1986	All-Time
	(max 184)	(max 184)
G4AYO	146	173
G4OII	140	158
G3TXF	131	172
G4WSX	116	138
G0BZV	110	110
G4PWA	109	173
G3PMR	109	121
G4ZFE	100	114
G3YRW	99	133
G4UNH	94	140
G4OBK	89	152
G4DJX	87	115
GW4BKG	71	138
G4TWX	65	120
GM0CBX	63	73
G4ZZG	48	66
G4VFG	44	77
G4XRV	38	38
G4YIR	18	43
G4LZZ	6	76

OBLASTS 'HEARD' TABLE

Station	1986	All-Time
	(max 184)	(max 184)
Brad BRS-1066	152	176
Frank BRS-88557	142	174
Eddie 9H1-15357	112	141
SWL Philip Davies	100	119
Norman BRS-28198	94	109
Ken BRS-88465	71	71
SWL Mrs G. Cooke	60	112
Maurice BRS-32601	59	148
Tony BRS-87156	52	119
Graeme BRS-44984	48	105
Luciano BRS-86766	40	87
SWL Angela Sittou	30	30
SWL Neil Melville	—	157

Table 1. Send your entries for the '1986 in-year' and 'All-time' tables to reach G3TXF by August 29th for the October issue. The 'All-time' table is based on current oblasts only (max 184).

Callsign	Oblast	QSL via
EK1P	FJL	UP2BBM
EK9AD	—	UZ9CWW
EK0DR	Polar	RW3DR
EK0GZ	Polar	RW3DR
EM2C	UC-A 188	UC1AWB
EM4AAW	UA4A 156	UZ4AXM
EM6AAK	UA6A 101	—
EM7BF1	UB-F 070	UB4FWD
EM7BRN	UB-R 081	—
EM8C1L	UC-I 008	UC11WF
EN3D	UA3D 142	—
EO1AAK	UA1A 169	UZ1AXN
EO1ACL	UA1C 136	UZ1AXN
EO1AQW	UA1Q 120	UZ1QWA
EO2CWO	UC-W 006	—
EO2QGL	UQ-G 037	UQ1GWF
EO3AIR	UA3I 126	UZ3IWA
EO3ALE	UA3L 155	UZ3LWN
EO4AHK	UA4H 133	UZ4HWA
EO5BQM	UB-Q 064	—
EO7L	UL-G 190	UL8GWB
EO0AAK	UA0A 103	UZ0AWA
ER3A	UA3A 170	UZ3AZO
EUIQ	UQ-G 037	—
EU6D	UD-D 001	—
EU81	UI8A 189	—
EV4AW	UA4W 095	—
EV9AW	UA9W 084	UW9WR
EV9AX	UA9X 090	UZ9XWA
EW1AA	UA1A 169	UZ1AWA
EW3A	UA3A 170	UZ3AZM
EW6AA	UA6A 101	UV6AM
EW7BF	UB-F 070	UB4FWW
EW8TJ	UT-J 187	UT4JWA
LY4L	UA4L 164	UZ4LWA
RT0U	UT-U 186	UT4UWV
RU4CG	UA4C 152	—
UA1POL	Polar	UZ1OWA
4K1ZZ	Polar	UY5DJ
4K0COC	Polar	UA3AOC

Table 2. Special calls, likely oblasts, and QSL routings (where known) for recently active USSR stations. The 'E' activity was a one day "Victory-41" celebration around May 7th.

There is a quiet battle going on at the top end of the Oblasts 'Heard' table. Brad, BRS 1066, is in the lead, but Frank, BRS 88557, is searching hard for oblasts hoping to catch up.

Brad, BRS 1066, reports an all-time new one: UH8YAF in 046 heard on 3.5 MHz. A nice catch. UH8Y is on several wanted lists. Brad is on holiday in the U.S. in July: if he gets a chance to do any listening while on holiday, he'll probably find oblast chasing a bit harder in the U.S. than from the U.K.

Special Calls

An odd call mentioned by Alan, G3PMR, is LY4L. This was a special station from oblast 164 (UA4L) located at Lenin's birthplace; QSLs via UZ4LWA.

Another special call EN3D celebrated the 30th anniversary of the United Nuclear Research Institute in Dubna near Moscow (oblast 142) from 15 to 25 April 1986. They were also scheduled to be active between July 18 and 28.

Special call RU4CG marked the 25th anniversary of the first flight by man into space. RU4CG is reported as operating from the place where Yuri Gagarin landed on April 12th, 1961.

There was another burst of special prefix (ER, EW, EU, EV, EM, EN and EO) activity around May 7th. This was "Victory-41". Last year there were several months of "Victory-40" activity, but this year the on-air end of W.W.II celebrations were only for a day or two.

Plenty more strange USSR prefixes are on the horizon too. According to W4KM's translation of an item in the March issue of

Radio, there are plans to extend the "Victory" celebrations over five years(!) including special operations from "battle sites, partisan centres and cities where the arms of victory were forged". All this omens well for prefix hunters.

According to the same item, rules for a permanent "Victory" award are being drawn up.

Wanted Lists

Brad, BRS 1066, has provided a list of his all-time wanted oblasts. There are eight. They are UD-N (002), UL-K (024), UJ-R (042), UA0D (111), UA8T (174), UA8V (175), UM-T (184) and UI-Q (185). G3TXF's 'wanted list' of twelve includes four in common with Brad's list: UA8T (174), UA8V (175), UM-T (184) and UI-Q (185).

It would be interesting to determine the 'rarest' oblasts. If you've got more than, say about, 140 heard/worked All-Time oblasts, include a list of 'wanted' oblasts with your next entry.

'Wanted' lists vary depending where you are in the world. The three top stations listed on KIKI's 'Russian Oblasts needs list', which are all U.S. stations, each need only one oblast (UD-K 003) to get the full house (184 oblasts).

Peter, G4VFG, has received SWL cards for several USSR listeners, including five from oblasts he still has to work! These are from listeners in UA4W (95), UA9O (145), UA0L (107), UF6Q (014) and UL7M (022).

USSR Joins in Field-Day

This year, for the first time, there was welcome participation from the USSR in the European HF National Field-Day (7-8th June). The dates of "field-day" had been published in UW3AX's amateur bands column in the May 14th edition of the *Soviet Patriot*. A number of portable USSR stations were operating during the 24 hour event, including RB5IP/P, UA6AX/P, UB4ZWC/P and UZ3AYN/P.

Granddad's Band (160m.) Lives On

For years Top Band (160m.) was the first band that many U.K. amateurs used. A simple 10W top-band CW/AM transmitter could be made without too much difficulty. Combined with a surplus AR88, or similar, receiver, these were the first means of "getting on the air" for many G3's.

In an article in the April issue of *Radio*, UF6FHC says that in Georgia UF6, "as a rule the great majority of amateurs begin by operating on 160m. This is explained not only by the relative simplicity of equipment, but also by the fact that all modes (CW, AM and SSB) are permitted".

UF6FHC goes on to say that 160m. has become crowded, because it is so popular, and that because of this it has become hard to accommodate the interests of both the beginner and the DX-er/contester. UF6FHC advocates better operating discipline and less "radiohooliganism" on the band.

"Beginners get strong impressions from what they hear on the air" continues UF6FHC "Yet, we may as well admit it, we fairly often still tolerate violations of discipline on 160m., such as blowing many times into the mike; asking, without listening for a reply, whether the frequency is in use, forgetting to lower power to the permitted 5 watts". The result, UF6FHC says, is a "noise curtain" which disturbs other users of the band.

UF6FHC's *Radio* article concludes by exhorting experienced operators to work more on 160m. and in particular to work beginners.

Table Entries

Send entries for the "All-Time" and the "1986 In-Year" oblast heard/worked tables to reach G3TXF at "Holt Cottage", Kingston Hill, Kingston-upon-Thames, Surrey KT2 7JH, by August 29th to appear in the October issue.

Many thanks to Tom KIKI (USSR *Tidbits*), IARU/ARRL, Dex W4KM and RSGB/DX *Newsheet* for items extracted. Good hunting and DSW!

PRODUCT REVIEW

C. M. Howes Communications HC220 Two-to-Twenty Metre Transverter Kit

IAN KEYSER, G3ROO

THIS *Howes* kit is designed to work with any multimode 2-metre transceiver to enable it to generate and receive on 20 metres. Its sensitivity is sufficient for mobile use and has an output capability of 10 watts. The HC220 can be used in any of the modes provided by the 2-metre rig and its drive requirement can easily be met by an FT-290R. It is not meant to compete with the higher class receivers, but should hold its own against FT-101, TS-530 and similar equipment when used with a 2-metre station with good dynamic range.

The kit arrived well packed in a sturdy little box. It contained the instructions, the printed circuit board and three bags containing the R's and C's, the semiconductors and ferrites, and the necessary wire to complete the kit. The instructions are very comprehensive and give the constructor all the information he could possibly require.

Building kits is generally not something I particularly enjoy as I am used to being so conversant with the board layout and the circuit that I do not have to refer to component lists and layouts! To fill the board it is necessary to refer to the list and then find the location and insert the component. I would have preferred to have had the component value on the circuit diagram and having located the major components, such as transistors and inductors, then build the board following the circuit. This would not only have been faster for me, but would have given me intimate knowledge of the PCB. This method, however, is far from desirable for the inexperienced, the component-by-component method being far more accurate and should produce a working unit without problems.

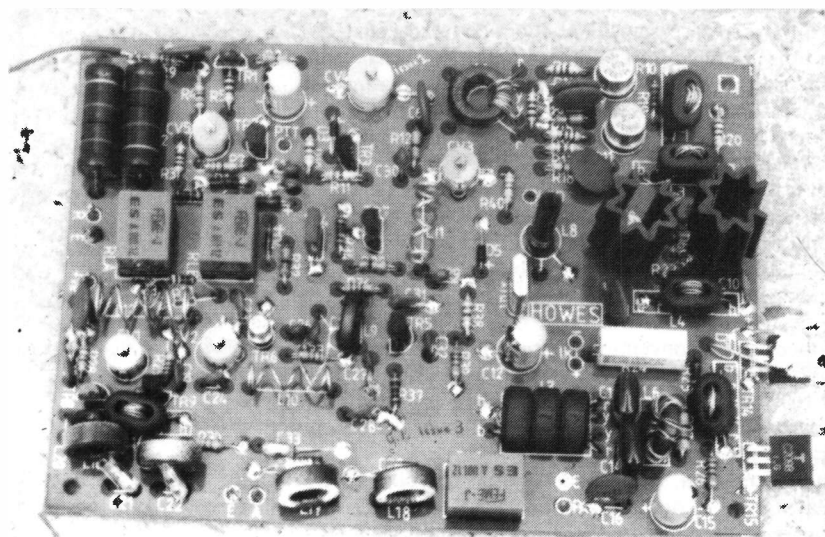
The PCB is printed with component locations on a green background of 'solder resist' with islands for connections to the

PCB surface. This makes the component locations easy to see but the silver PCB exposed would give the look of a real 'home built' piece of equipment! A slight problem was experienced when using a temperature controlled iron as it was difficult to get the solder to flow on the PCB surface as if there was a 'film' present; on changing to my Antex 17-watt iron this difficulty was overcome. (Talking this over with Dave Howes of *C. M. Howes Communications* we cannot see any reason for it, except the possibility of a flux incompatibility between the flux used during tinning and that in *Ersin* multicore solder: When used with *Alpha Metals* solder there is no problem.)

The PCB was built following the instructions and took total of three hours work. Power was applied and the set burst into life with stations audible; I peaked CV1 and CV2 and tuned over the band. It turned out that 20m. was wide open with signals booming in from the States. Switching from the beam to the 20m. dipole I found a clear spot, removed aerial and noted a reduction in background noise showing that the set's signal-to-noise ratio was adequate. Checking the band on the dipole all signals were fine with no indication of the set cross-modulating. On switching onto the beam (full size 3-element Yagi) some cross-modulation splurges were noted near S9 signals. To check if this was the transverter mixer or the FT-290 mixer CV1 was detuned slightly and the cross-modulation vanished — indicating that it was the FT-290 unable to handle the signal. This is not really surprising due to the very high front-end gain used in VHF transceivers in general. On switching back to the dipole the combination behaved very well and it was rather eerie to hear W and VE stations coming from the FT-290 speaker!

The output transistors were bolted to a large chunk of alloy and

The Howes HC220 2 to 20-metre transverter unit.



the temperature diode fitted in contact with the transistor case. The instructions were followed and the transmit section aligned for an output of ten watts. An aerial was connected and the set fired up on the air. On the beam and dipole there was no sign of instability, but when the unit fed *via* the AMU (aerial matching unit) to the long wire there was a tendency for the PA to burst into oscillation with an output of over 20 watts as the SWR passed through 3 to 1. It did not seem to matter if the reactance seen by the PA was capacitive or inductive so it appeared likely that this instability was caused by the total lack of screening and the high RF field in the shack. To check that this was the case the unit was bolted inside a diecast box and the same test carried out with no sign of the instability.

On-Air Results

During the daytime all European stations were worked but by the early evening stations in the U.S.A. were coming through. Three Stateside stations were worked, one in New York on SSB where a report of 57 was received and two on CW with reports of 589. The cross-modulation on the beam was troublesome at times

but only to be expected with this sort of set-up using an FT-290 or similar rig.

Having completed the tests some thought was then given to what could be expected from such a system. It is obvious that it cannot compete with a properly engineered first-class HF rig, but its performance was considerably better than expected prior to the tests. It must be pointed out that the FT-290 was the cause of the problem in these tests and with a rig with a superior dynamic range on 2m. it is unlikely that cross-modulation would be a problem.

For a price tag of £48.90 for the kit, plus 80 pence postage and packing, it is an excellent way for the owner of an FT-290R or similar set to get onto 20 metres. By the time this review gets into print there will also be an 80m. version of the kit available at the same price.

This unit when used with an FT-290R is ideal for portable and mobile operating, and this opens up a facet of the hobby that once sampled often becomes obsessive!

The kit is available from *C. M. Howes Communications*, 139 Highview, Vigo, Meopham, Kent DA13 0UT. Tel: Fairseat (0732) 823129.

Amateur Radio Computing

A Bi-monthly Feature for All Those with a Radio Station and a Computer

PAUL NEWMAN, G4INP

As mentioned in my last article, the very valuable assistance of a leading supplier (1) of "intelligent terminal units" has led to some interesting developments concerning the use of the Sinclair computers with RTTY/ASCII/CW/AMTOR.

Whilst there are several undoubtedly excellent RTTY/CW programs for the Spectrum for example, no-one has yet proposed a suitable way of handling AMTOR. Several programs will handle AMTOR in ARQ (Automatic Request) mode (Technical Software RX-4 for example) (2) but these only suit the listener and offer the transmitting amateur nothing.

Several attempts at generating AMTOR Tx/Rx with the Spectrum have been partly successful but, due to the precise nature of the timing involved in FEC (Forward Error Correction) mode, have finally fallen on just this point.

Intelligent terminal units comprise a conventional, albeit high quality, terminal unit with logic output, linked to a computer interface using a conventional communications protocol (usually RS232). The interface has its own intelligence in that it is necessary only to send it either "escape sequences", "control codes" or standard ASCII-coded text to make its own internal, processor operate in the mode selected.

Our micro then, becomes a way of controlling the unit and displaying the incoming data (or acting upon received control characters if the computer program is clever enough!).

Modem users will probably have a "terminal emulator"

program and this would perform the above outlined functions with few, if any, modifications although this would provide only minimal facilities since this amounts to a "dumb terminal emulator". We really need to utilise our micros facilities as fully as possible.

Since we already know that our micro, given the right hardware and software, is capable of just about any of the data modes usable on the amateur bands, we could be excused thinking that the purchase of an ITU ranks as extravagant!

This is true in one sense. But consider the likely costs to put your Spectrum onto AMTOR alone. A high specification terminal unit would still be needed, as would the computer interface to it. Dedicated software, and hardware of this sophistication, is also very expensive and I doubt if the approach outlined here will be as expensive, given that we are considering CW/RTTY/ASCII/AMTOR altogether and that this may well be the only successful route to AMTOR.

In putting these ideas forward, I must add that I shall draw no comparisons between the many RTTY/CW programs available for the Spectrum and systems based on an ITU. They each have their place and their undoubted attractions and I stand by my own personal recommendations in this respect.

I decided to investigate the AMT-2 fully in an attempt to identify the problems likely to be encountered in its use with Sinclair micros — the Spectrum being first on the list.

I connected the AMT-2 to a spare Sinclair Spectrum power supply unit (with polarity reversed) making the data-in, data-out, ground and DTR pull-up connections to the Spectrum RS232. Note that no handshaking is provided.

I must say that I was amazed at the relative ease with which results were achieved because I had anticipated considerable problems when I noted the absence of handshaking. This is the way two devices "talking" to one another know when they are ready to transmit/receive data.

In simple terms control of the AMT-2 is achieved like this:

NB: in all cases read £ as the "hash" sign

```
100 FORMAT "B"; 300: REM format a channel for
      communication
      : REM must be "b" to allow
      : REM escape (CHR$27)
200 LET ES = CHR$ 27 : REM ES = <escape> ie ascii 27
300 PRINT £4; ES : REM put AMT-2 into command
      mode ready to
      : REM set up in required mode
```

```
400 PRINT £4; E$; "B"; 50 : REM send AMT-2 escape, B,
                             number
                             REM sets RTTY baudrate at 50
                             baud
```

```
500 PRINT £4; E$; "R": REM send "goto RTTY" mode
```

The AMT-2 will then be in RTTY receive mode. Changing to transmit simply consists of something like:

```
600 PRINT £4; CHR$ 3 : REM 3 = CONTROL/C (standard
ascii)
```

switching back to receive is likewise:

```
700 PRINT £4; CHR$ 4 : REM 4 = CONTROL/D (standard
ascii)
```

Using a test-tape prepared with GIFTU RTTY and GIFTU CW programs, I tested the ease with which these modes could be received. The following lines illustrate the general means of getting data from the AMT-2:

```
100 FORMAT "B"; 300 : OPEN £4; "B" : REM a channel for
input
```

```
          : REM from the
          RS232
```

```
110 PRINT INKEY$£4; : GOTO 110 : REM print incoming
characters
```

```
          : REM from the
          RS232
```

I found that this works (after a fashion) although is nowhere near fast enough for our purposes. No check is made on the validity of incoming data and this method often results in either tokens being printed or the program halting when characters with codes less than 32 are being printed. This is inevitable since incoming data might be corrupted or be control sequences sent by the AMT-2.

Next, a similar test involving transmit (in RTTY) was conducted and in BASIC looks much like thus:

```
100 FORMAT "B"; 300 : OPEN £4; "B"
```

```
110 LET Z$ = INKEY$ : IF Z$ <> "" THEN PRINT£4;Z$; :
REM RS232 out
```

```
120 GOTO 110
```

Again, this worked but was far too slow. Clearly then, the problems are: (i) speed — BASIC is just too slow — this is exactly as expected; (ii) the non-standard nature of the Sinclair system in respect the character-codes below 32 (space) cause BASIC errors when printed; (iii) some versions of Interface-One ROM will actually interpret the space key as BREAK during RS232 operations so an unwanted program break is bound to occur easily.

Any additional features are almost certain to detract from performance when attempted in BASIC and therefore machine code needs to be used for most operations.

Work has been proceeding well and routines which send and receive RTTY, CW and ASCII via the AMT-2 have been coded in Z80 assembler. Work is going ahead on the equivalent AMTOR routine together with additional features like "memories" and better screen-handling which I hope to report on next time.

I see no reason at present why the AMT-2 may not be used with the QL although I doubt whether I shall be able to be involved in this to as great a level as with the Spectrum. I think, however, that at least a "bright" dumb-terminal emulation will get us part-way to our goals with this machine.

Turning briefly to the G4IDE weather-FAX system mentioned last time, I am pleased to report that it has been very well received internationally and continues to give excellent results (3). A very impressive weather-chart is published in SARUG newsletter, issue 23.

Some suggestions on the use of printers with this system can be had from G4IDE at the address below, enclose s.a.e. I use the TASCOPY (4) program with mine to obtain large screendumps on either my M1009 or HR5 printers. TASCOPY supports most common printers and with a little care can be added to the WEFAX program itself.

News of a Spectrum decoder for the charge-coupled device (CCD) imager on board OSCAR should be available by the time my next article appears. I have seen some preliminary results and these look promising — though not, as yet, impressive — due to the imager not being targeted properly!

Several correspondents have enquired about the situation *vis-a-vis* SARUG and the Amstrad-Sinclair takeover. It is my firm intention to work for the continuance of the group for as long as there are members needing the support SARUG gives. If this means altering the content later on to include Amstrad material, then even this will be considered — though I emphasise that we have not taken this step just yet.

I hope that the next column will include a program for Sinclair owners — something a little out of the ordinary perhaps!

In the meantime, please write in (enclosing an s.a.e. where appropriate) if you have anything of interest. *73 de Paul*, 3 Red House Lane, Leiston, Suffolk IP16 4JZ.

References:

1. ICS Electronics Ltd., PO Box 2, Arundel, Sussex BN18 0NX.
2. Technical Software, Fron, Upper Llandwrog, Caernarfon, Gwynedd LL54 7RF.
3. G4IDE Microsystems, 79 South Parade, Boston, Lincs. PE21 7PN.
4. Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN.



News from South Midlands Communications Ltd. Above, a drawing of the handsome new premises to which the firm moved during July, and which were formally opened by Mr. S. Hasegawa, president of Yaesu Musen Company. S.M.C.'s new address is S.M. House, School Close, Chandlers Ford Industrial Estate, Chandlers Ford, Hants. SO5 3BY (Tel: 04215-55111, telex: 477351 SMCOMM G, fax 04215 63507 SMC FX). Below, at a recent ceremony managing director Barry Gardner (right) presented a transceiver to David Hopkins, coordinator of the "Operation Raleigh" support centre at Hull. The station will be used to keep in contact with the *Sir Walter Raleigh* during its voyage round the world; at present the ship is in New Zealand and will be in those waters for the next 10 months. South Midlands Communications Ltd. is sponsor of "Operation Raleigh".



• • • “Practically Yours” • • •

with GLEN ROSS, G8MWR

THIS month we are going to give you something a little different to play with, in the form of a quiz which will test your understanding of aeriels and feeder systems.

True or false?

1. VSWR at the input end of a transmission line is the same as that at the load. (False; because VSWR is lower at the input end because of line losses.)
2. VSWR on a transmission line is normally different when receiving to when transmitting. (True; VSWR depends on the impedance of the load, which is the receiver when receiving and the aerial when transmitting, and these impedances are seldom identical.)
3. VSWR is the ratio of maximum voltage to minimum voltage on a transmission line. (True.)
4. A half-wave folded dipole gives at least 2dB gain over a normal half-wave dipole. (False; the only difference is the feed impedance.)
5. The bandwidth of a half-wave dipole is greater than that of a half-wave folded dipole. (False; the folded dipole usually has a greater bandwidth but this depends on the constructional details.)
6. Coaxial transmission line is better than open wire line for feeding a simple dipole which is to be used on several bands. (False; open wire can better handle the large voltages which can occur. It has lower loss at high VSWR and may even be used as a matching section.)
7. Little is gained by reducing the VSWR below 2:1 especially at HF. (True.)
8. Reflected power from an aerial is absorbed in the transmitter. (False; reflected power is not actual power but a convenient fiction to explain the concepts of aerial losses.)
9. A horizontal half-wave dipole is nearly 100% efficient when mounted more than a quarter-wave above ground. (True.)
10. There is little point in using ground radials longer than a quarter wavelength with a quarter-wave vertical aerial. (False; longer radials will increase the gain due to decreased ground reflection losses.)
11. High aerial efficiency is less important for receiving than transmitting. (True; signal-to-noise ratio is usually determined by atmospheric or local electrical noise.)
12. The gain of two vertical monopole aeriels mounted side by side can be greater than 3dB over a single monopole. (True; almost 5dB can be achieved at a spacing of 0.67 wavelengths between the elements.)
13. Feeding a horizontal half-wave dipole directly with coax cable normally results in serious feed line radiation. (False; feed line radiation is usually negligible unless the aerial is asymmetrical with respect to the feed line.)
14. Vertically stacked Yagis may give no improvement in signal-to-noise ratio over a single Yagi when used for receiving. (True; but only when all noise is arriving at low angles.)
15. The “gain” of a half-wave dipole is independent of the height of the dipole above ground. (False; the “gain” varies with height over a range of 2dB. The greatest “gain” is obtained at 0.6 wavelength above ground.)
16. For all practical purposes a single ground rod is as good as a system of quarter-wave radials when used with a quarter-wave vertical. (False; the radial system gives over 3dB greater efficiency.)
17. Ground radials on an HF vertical can be buried several inches deep without seriously affecting performance. (True.)
18. A vertically polarised aerial should be used for best results at HF when working DX stations who use a vertical aerial. (False; the signal from the DX station will be randomly polarised by the time they reach you and a horizontal aerial usually gives greater gain.)
19. Symmetrical radiation patterns cannot be obtained from a beam unless it is fed through a balun or with a balanced transmission line. (False; although some Gamma matched beams do exhibit a slight squint.)
20. Transmission line loss does not depend on the VSWR on the line. (False; greater VSWR gives greater line loss although this is usually insignificant.)
21. The gain of a half-wave dipole can be increased by placing it in front of a flat screen reflector. (True; gains of over 6dB are easily achieved.)
22. The ground increases the maximum gain of an aerial elevated above it by up to 3dB. (False; up to 6dB is obtained due to addition of the reflected and ground waves.)
23. A 7 MHz horizontal dipole seventy feet above ground has greater gain than a quarter-wave vertical with many quarter-wave radials. (True; a horizontal dipole has greater gain in its favoured direction even to the horizon where a vertical is often thought to be superior.)
24. The gain of a horizontally polarised aerial at HF is significantly greater if the aerial is above sea water rather than earth. (False; ground reflection losses are small in either case.)
25. The loss in 100-ft. of RG8 cable is less than 2dB in any of the HF bands below 30 MHz if the VSWR is less than 4:1. (True.)
26. A perfectly balanced open wire transmission line will not radiate. (False; however radiation is usually negligible below the UHF bands.)
27. An ATU can be used at the transmitter to reduce the VSWR on the transmission line to the aerial. (False; the ATU only affects the impedance seen by the transmitter.)
28. A five-element 14 MHz Yagi on a 48-ft. boom can be expected to give more than 3dB gain over a three-element Yagi on a 24-ft. boom. (False; the difference is only about 2dB even when tuned for maximum gain.)
29. The gain of an inductively loaded quarter-wave dipole can be within 0.5dB of the gain of a normal half-wave dipole. (True; when the loss resistance of the loading coils is made very low.)

If, scoring one point per correct answer, you managed 20 or over you are fairly well up on aeriels. If you scored less than ten points perhaps you should get the books out again!

next month, G4DCV starts building the ultimate memory keyer!

Practical, Simple Sideband Part 3

in this special series, these two very well-known designers and constructors get together to unravel its mysteries

REV. G. C. DOBBS, G3RJV and IAN KEYSER, G3ROO

Delegate! — by G3RJV

I HAVE never managed to find the time to go on a management course, but I know other clergymen who have been on such courses. I remember one such telling me that the way I worked was a classic example of *crisis management*. I am not sure what he meant, but I can guess! He added that the supreme aim in our kind of work is delegation. Which I assume means getting someone else to do the work you don't want to do yourself. Sadly I rarely seem to find anyone willing, or foolish enough, to oblige.

Delegation would seem to be a good idea for the amateur radio constructor: why not get someone else to build all the difficult or fiddly bits of a project? Well — this article suggests just how that can be done. It uses an existing circuit board which takes a lot of the hard work out of building a simple single-sideband transceiver.

In Parts One and Two of this series (*Short Wave Magazine* June and July 1986) Ian, G3ROO, discussed the theory of generating a single-sideband signal by the filter method and went onto offering some simple practical circuits for the task. These circuits were easily reproducible by the average amateur radio constructor. The articles then showed how to get the SSB signals onto amateur bands from the intermediate frequency (IF) at which the signals were processed. The fiddly bit is the generation of the SSB signal in the transmission circuitry and the processing of the received

signal to an audio frequency output. It is this that we will delegate to someone else. That 'someone else' being, as so often in this hobby, an oriental electronics company.

The idea is not a new one. Many amateur radio constructors have made their first excursion into single-sideband construction by taking a ride on an existing board. The two common SSB boards in the U.K. have been the G3ZVC board and the G4CLF board, both based upon the Plessey series of communication ICs. The principle is to take a board which does most of the hard work and add the band options and power amplification to produce a complete transceiver.

The MLX Board

My ears pricked up when Leo Delaney, KC5EV, on one of his visits to the U.K., mentioned a surplus SSB board becoming available in the U.S.A. The story is that a well-known American manufacturer of amateur radio equipment had been involved in a take-over and was shedding part of its range of products. Amongst these was a range of small, single-band SSB transceivers designed for mobile use. The result was that a number of boards from these transceivers had been dumped onto the surplus market in the U.S.A. and among these boards was the main processing board for the transceiver. Leo left me one of the boards to play with and a promise of supplies of the board for sale *via* the G-QRP Club if they proved to be useful.

It is rare, these days, that an item appears on the surplus market

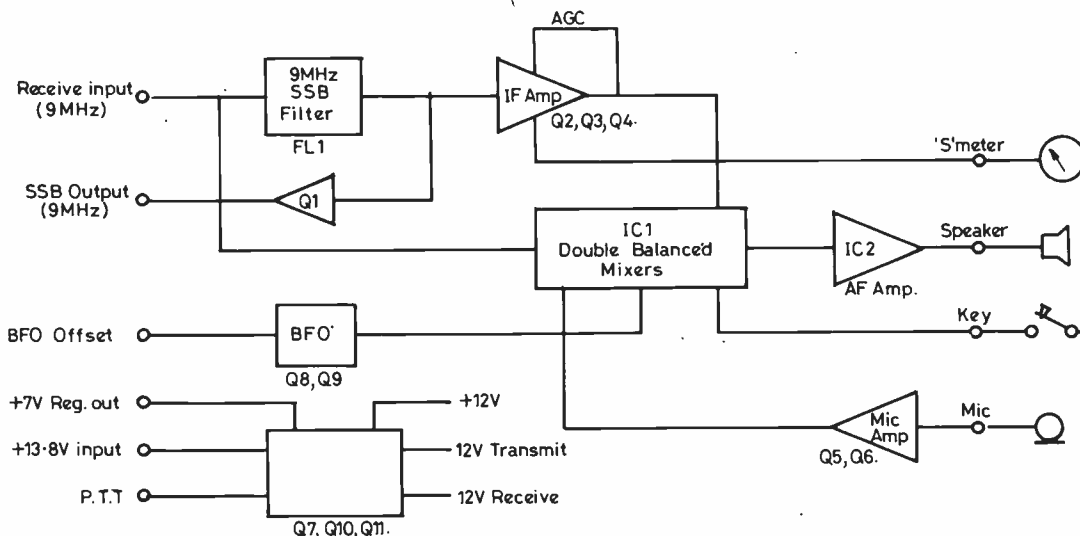


Fig.1 MLX BOARD FUNCTIONS

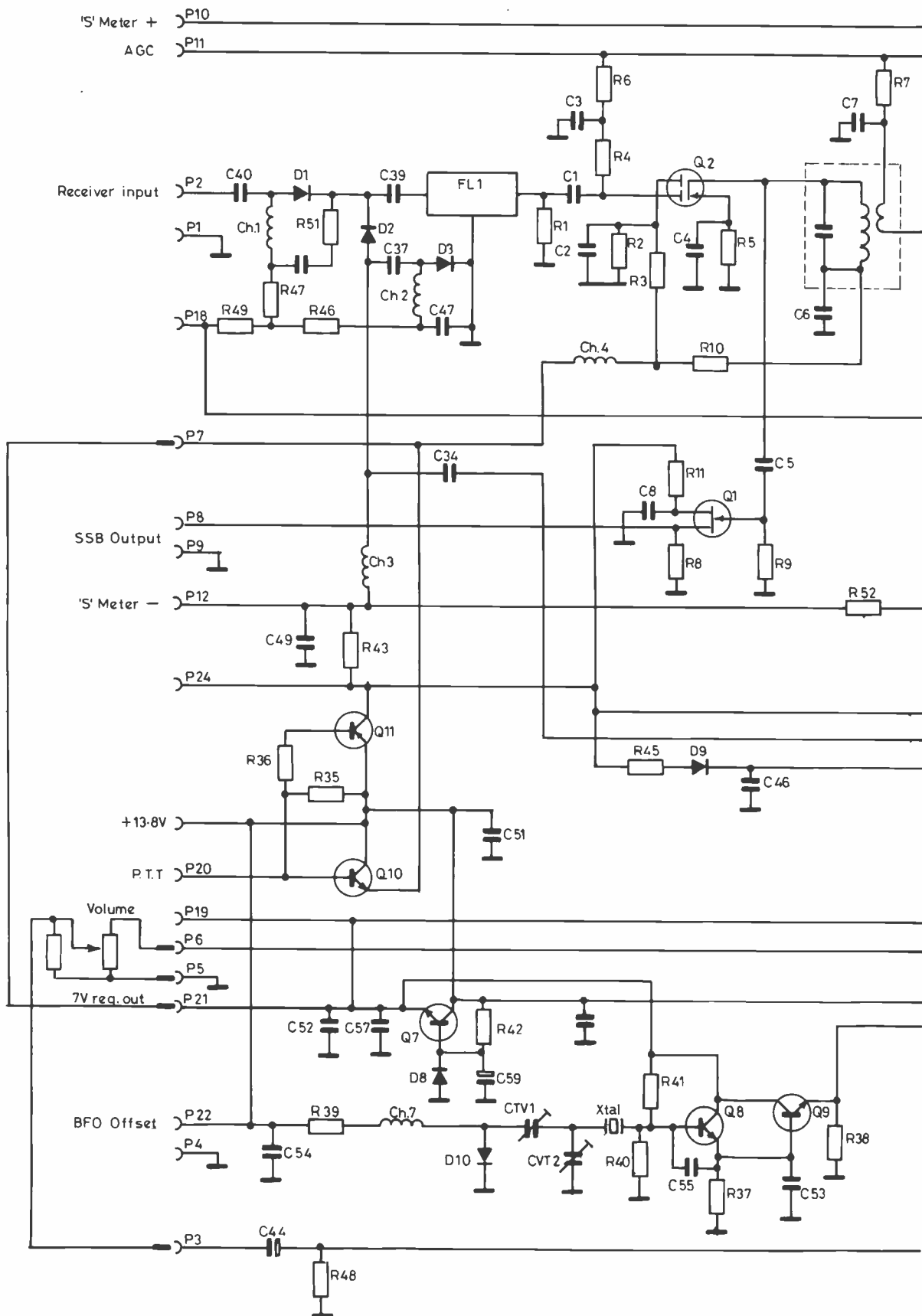
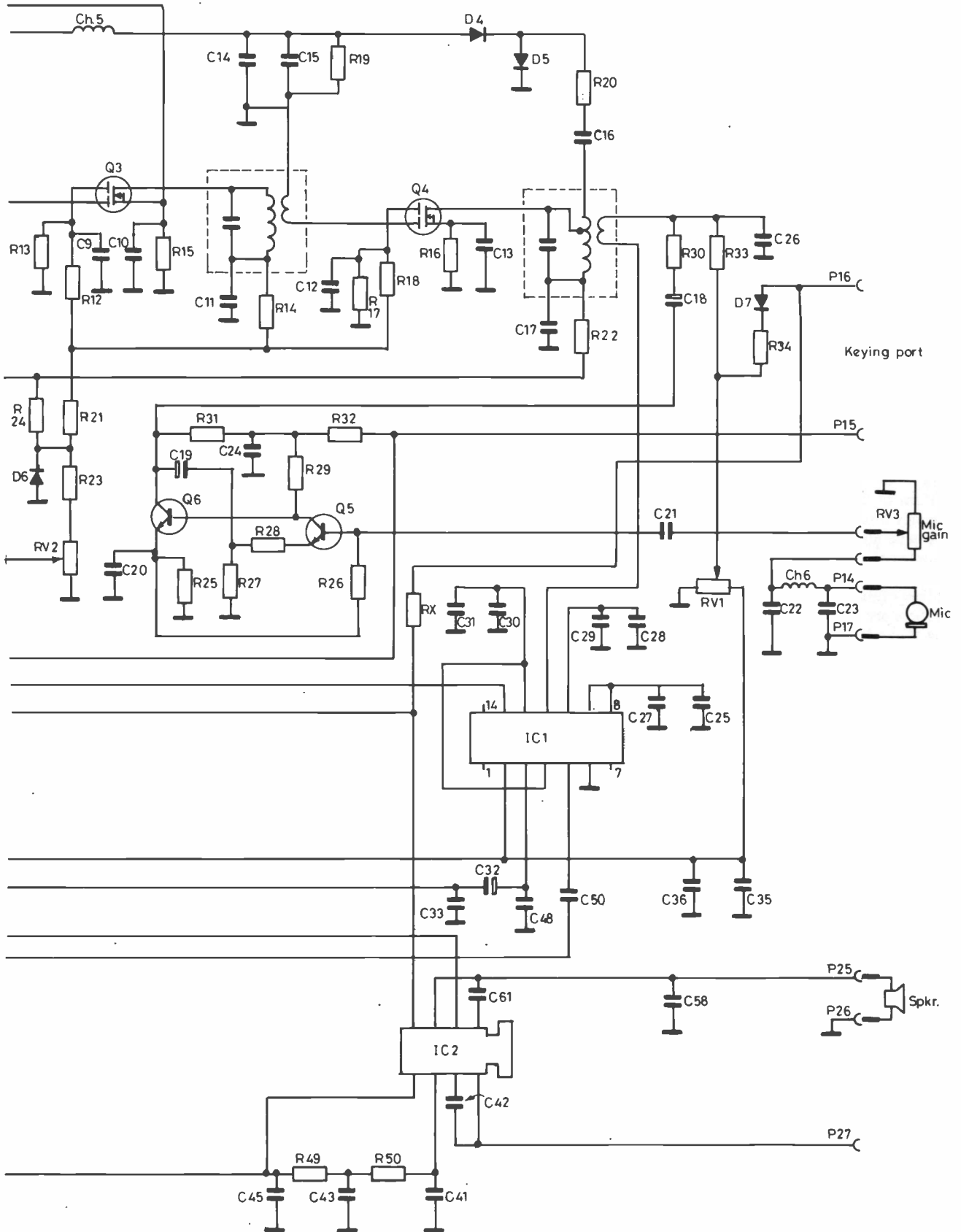


Fig. 2 MLX BOARD SSB/IF/RX/TX BOARD





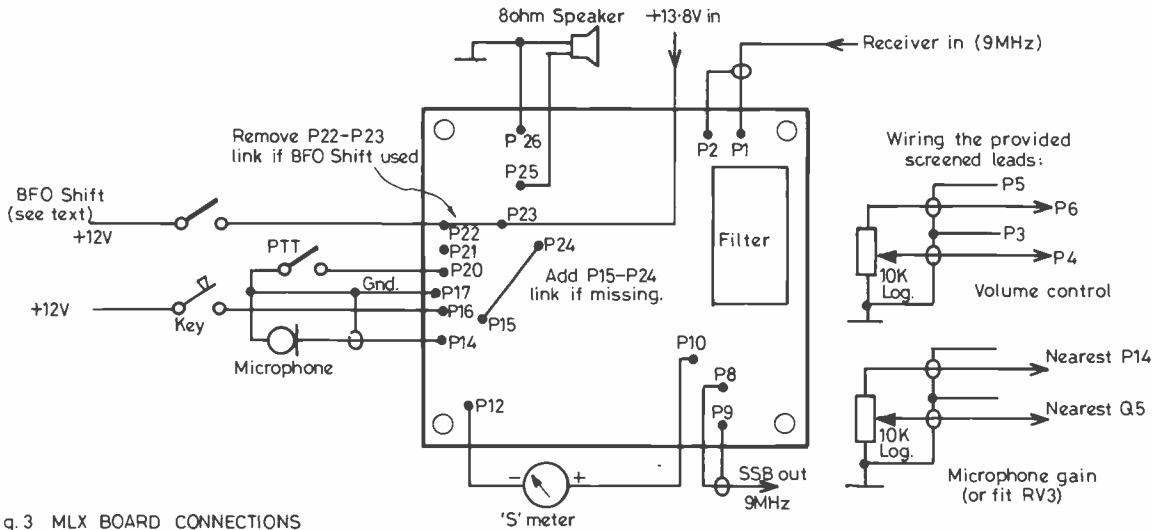


Fig. 3 MLX BOARD CONNECTIONS

E 757

that is directly usable for amateur radio applications, and this board looked encouraging. The board proved to be made by Mizuho and very useful; a block diagram showing the functions of the board appears in Fig. 1. It provides SSB transceiver functions at an IF frequency of 9 MHz, that useful amateur frequency discussed by G3ROO in Part One of this series. The board generates and receives SSB signals at 9 MHz and to produce a complete transceiver very little extra circuitry is required.

So far some 200 of these boards have been obtained by members of the G-QRP Club and although the supply is running low, there are details at the end of this article on how readers of *Short Wave Magazine* can obtain the board. Even if the supply dries up, not all is lost because there are plans to produce a similar board for sale in the U.K. Even without an MLX board, the circuits described below, in themselves, provide ideas for incorporating into a simple SSB transceiver; SSB communication need not be complex.

The Circuit

The circuit of the MLX board is shown in Fig. 2. It is a compact board with all of the stages shown on a single board measuring 4" x 3 1/2". The board forms the heart of an SSB transceiver. Q7, the 7 volt regulator, is used to operate Q8 and Q9, the 9 MHz carrier oscillator and buffer stages. An output of this regulated supply is available at P21 and could be used to supply a VFO circuit, although I have not done this in my applications.

Q2 is the first IF amplifier which is used in both transmit and receive. The receiver input, at 9 MHz, passes through the filter FL1 and onto the IF chain, Q2/3/4, and thence to IC1; IC1 is the SSB generator and detector, being two double balanced mixers in one package. The 9 MHz receive signal is mixed with the BFO input with resultant audio output at pin 3. IC2 is the audio amplifier designed to drive a 3-ohm loudspeaker.

In the transmit mode, the mixer (IC1) is balanced for SSB or unbalanced for CW by applying 12-13 volts to P16 which is connected to the balance adjust preset, VR1. In SSB mode the microphone input is amplified by Q5 and Q6 and fed to VR1. The DSB signal emerging from IC1 at pin 13 is fed via D2 to the SSB filter, FL1. The resultant SSB signal is amplified by Q2 and Q1 and appears at P8.

Q10 and Q11 are used to switch the power line to P24 (transmit) or P18 (receive); they are controlled by arranging for a "press-to-talk" switch to ground P20. The receive IF stages generate AGC from D5 and D4 which is fed to P11 for use, if required, on off-board RF stages. Access to an S-meter line is also provided. P22 gives access to a BFO offset line controlled by D10. This seems to have been designed for obtaining appropriate offsetting on CW, but more of this facility later.

In fact one of the oddities of the board is that there is only one BFO crystal on the board and it is at 8998.5 kHz. Recalling G3ROO's section on mixing in the first part of this series, that means that for 20m. the BFO frequency is fine, being 5.0 to 5.5 MHz. The problem is that low frequency bands have to be mixed on the high side of the IF frequency: for example in the original 80m. version the manufacturer used a VFO on 12.5 to 13.0 MHz. Not only odd, but undesirable! But have no fear, the answer is coming up shortly. Also the board does not contain a first mixer for the receiver nor a mixer for the SSB output — again this is no real problem.

There are a lot of connection points on the board, not all of which are used for our applications. To avoid confusion, Fig. 3 shows how the connections to the board that we require are made. A word of warning: on most of the boards a link has to be made between pin 15 and pin 24 to provide power for the microphone amplifier on transmit. The connections shown in Fig. 3 include two potentiometer controls. These do not need to be made directly to the pins as screened leads are provided to run to and from the controls. In practice there is little point in fitting a front panel control for the microphone gain as this really only needs to be set once for average use. A better approach is to add a preset control to the board; there is a space for this on the board marked "VR3".

Improvements to the Board

My original tests used the MLX board exactly as it is built, which is fine, but two small changes are worth thinking about.

The first of these is to improve the audio quality of the board on receive. I suspect that the audio IC used as the output stage is a just a cheap IC of the "entertainment" variety. Certainly it does have quite a bit of inherent noise in use and gives quite a tippy sound to the signals. It would be possible to cut out this stage and replace it with another IC, say the LM386 or even discrete audio stages, but with a little shaping the output quality is much better. The circuit I used is shown in Fig. 4. Nothing to it. It is merely a tuned stage at somewhere near 800 Hz added into the input of the audio IC. I

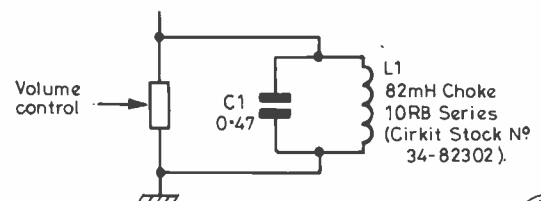
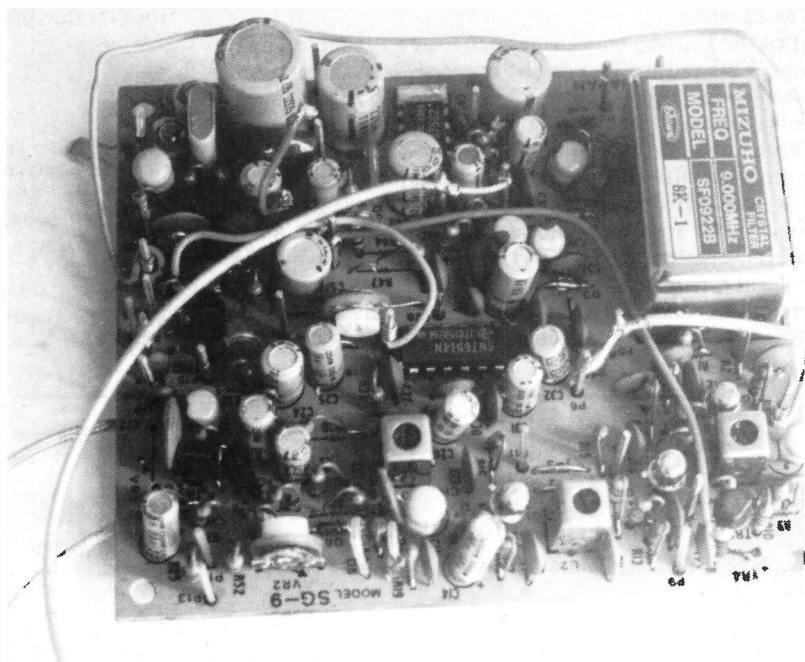


Fig. 4 ADDING AUDIO SHAPING ON RECEIVE

E 758

The MLX board



chose to place it across the audio gain control simply as a convenient access point. The fact the tuned circuit is damped by the resistance of the control seems to have little effect and may even be an asset — because if the board is being used mainly for SSB work, too much tuning at one audio frequency is probably not a good idea.

The circuit, simple as it is, does a surprisingly good job in “cleaning up” the audio quality and reduces the rather unpleasant hiss of the original arrangement. The large value of inductance, 82mH, is provided by a commercial inductor. This small potted coil is available from Cirkit Holdings. If the constructor happens to have one of the famous ex-telephone 88mH inductors, so common in the U.S.A., yet so rare here, that would serve just as well. The 82mH inductor described is, however, much smaller and will fit with its capacitor on the back of the volume control potentiometer.

The second modification worth considering is converting the BFO offset point to a circuit capable of switching sidebands on an SSB signal. The original design, with one crystal on the low side of the 1F is inconvenient for lower frequency bands. The simplest

way out of this problem, and the one I used in the prototype single bander transceiver is to buy another BFO crystal for 9001.5 kHz in place of the existing 8998.5 kHz type. Ian, G3ROO, thought this needlessly expensive and inconvenient if both sidebands were to be used in a multiband transceiver and played around with the BFO offset circuit. As it stands the circuit gives a rather small offset of frequency and is probably designed for using the board in the CW mode.

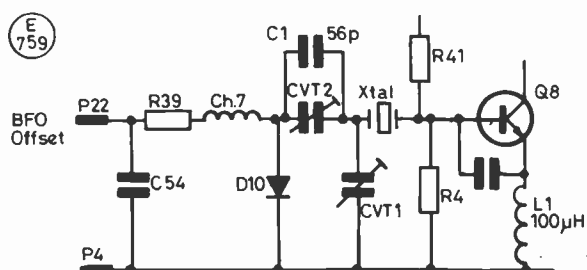
On the original boards, the BFO offset point (pin 22) is hard wired to the 13.8 volt supply at pin 23. This pulls down diode D10, allowing a trimmer, CVT2, to adjust the frequency to 8998.5 kHz. If the voltage is removed from pin 22 CVT2 is raised and the frequency goes up and may be adjusted by CVT1. This change is not enough to take the frequency up to the other sideband at 9001.5 kHz: more capacitance is required for CVT2 to give a greater capacitance swing between the two positions. Fig. 5 shows how the problem was resolved. A small plate ceramic capacitor of 56pF was added, under the board, across CVT2. However with this addition the oscillator failed to go into oscillation every time. Extra feedback was added to the circuit by removing the emitter resistor of Q8 (R37) and replacing it with a small axial radio frequency choke of 100µH.

The link between pins 22 and 23 is removed and a switch added so that the voltage can be switched on and off at pin 22. The two trimmers CVT1 and CVT2 can now be adjusted to allow oscillation on either sideband. With the supply switched off from pin 22, CVT1 is adjusted to give an output at 9001.5 kHz. The supply is applied to pin 22 and CVT2 is adjusted to give an output of 8998.5 kHz. These controls interact so the process needs to be repeated a few times to give the desired frequency change between the two positions.

This alteration does imply the use of a frequency counter. If the constructor does not own one and cannot borrow one, all is not lost. It is possible, although much cruder, to set the BFO when the rest of the circuitry of the transceiver is completed. Initially by adjusting on receive, then by a final adjustment of reported speech quality on transmit.

Making the Board Receive

My first approach with the MLX board was to get it going on 80 metres, later I converted the single band 80-metre transceiver to a 160-metre transceiver. Below I offer the circuitry for both bands. These are not bad bands for a first try at SSB. There is usually enough SSB on 80 metres to get plenty of test reports and QSOs



Notes:

1. Add C1 across CVT2.
2. Remove R37. Replace with 100µH Choke. Siemens B78108. Cirkit Stock N° 35-71104
3. Remove link between P22 and P23.
4. No connection to P22. Adjust CVT1 to 9001.5 kHz output.
5. 12V + to P22. Adjust CVT2 to 8998.5kHz.
6. Repeat (4) and (5) a couple of times as controls interact.

Fig. 5 ADDING SIDEBAND SWITCHING TO MLX BOARD.

and many amateurs with commercial transceivers do not have 160 metres as an option.

The first test I attempted with the board was very simple. I used an existing VFO and an SBL1 passive mixer, with one input tuned circuit on 80 metres to test the receive capabilities of the board. The results were very encouraging for such a simple setup.

A glance at Fig. 2 shows that the receiver input and the SSB output are from different ports: the receive at pin 2 and the SSB output at pin 8. My first thoughts were to attempt a common bi-directional mixer for input and output, using a passive mixer rather than the pattern of the G3ZVF and G4CLF Plessey boards. The problem here is that this approach would require switching between transmit and receive functions. Also commercial passive mixers are very expensive. A better approach would be to have

separate mixers for the two functions using cheap components. However the first task is to build a stable VFO.

to be continued

Suppliers: Cirkit Holdings PLC, Park Lane, Broxbourne, Herts. EN10 7NQ (0992-444111). J. Birkett, 13 The Strait, Lincoln LN2 1JF (0522-20767). TMP Electronics, Unit 27, Pinfold Lane, Buckley, Clwyd CH7 3PL (0244-549563).

MLX boards: a few available at the original price of £30.45 from G-QRP Club, c/o 498 Manchester Road, Rochdale OL11 3HE (cheques: G-QRP Club). When further stocks are available this will be announced in *Short Wave Magazine*. 9001.5 kHz crystals at £1.75 inc. postage from G-QRP Club, as above.

Part 2 (last month)

Shown here is Fig. 21, held over from last month's article by G3ROO.

**Table of Values
Fig. 21**

R1, R2 = 33K, ¼W	C12, C13, C14 = to suit output frequency
R3 = 470R, ¼W	L1, L2, L3 = to suit output frequency
R4 = 37R, ¼W	VR1, VR2 = 47K min. preset
VR1, VR2 = 47K min. preset	C1, C3, C8, C9 = 0.01 µF ceramic
C1, C3, C8, C9 = 0.01 µF ceramic	IC1 = SL641 or SL1641
C2 = adjust on test	IC2 = SL610 or SL1610
C4, C5, C6, C7, C10, C11 = 0.1 µF ceramic	TR1 = BC183
	Reg = 78L06

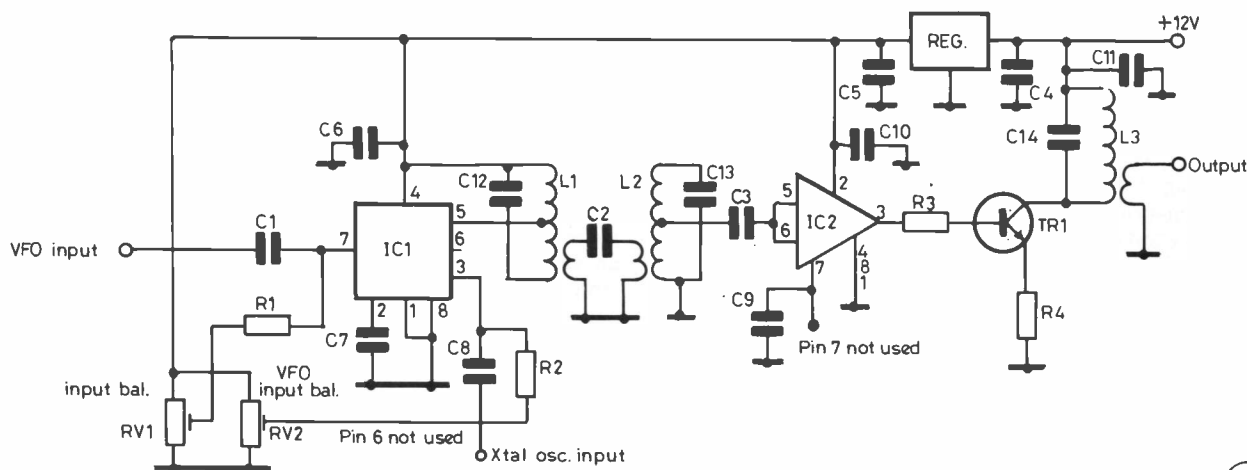


Fig. 21 TYPICAL CRYSTAL MIXER VFO CIRCUIT



Douglas Byrne, G3KPO, a founder and curator of the Communications and Electronics Museum, holding a 1932 Eddystone SW two-valve receiver (left) and a McMichael battery superheterodyne set which will be part of an exhibition at the Edinburgh College of Art entitled 'Communications Across the Commonwealth', until August 31st



VHF BANDS

NORMAN FITCH, G3FPK

ALTHOUGH there have been frequent *Sporadic E* openings on 6m. and a few on 4m., June was a very disappointing month for *Es* events on 2m. However, there were some welcome tropo. lifts on the VHF/UHF bands, so most readers managed to work some reasonable DX.

Awards News

Welcome to Agustín Bendamio Quintas, EA1YV, from Vigo in northwest Spain (VC67h), who is member number 66 of the 144 MHz QTH Squares Century Club. His certificate was issued on June 20 with a sticker for 125 and he has 135 squares confirmed. The breakdown was 103 QSOs on SSB, 30 on CW and two on FM, with 70 squares on tropo., 28 via *Es* and 37 by MS. Agustín's station comprises a Kenwood TS-770E, optimised with a selected BF981 RF amplifier stage. At the mast head, he has an SSB Electronics 3SK97 preamp. with 20 dB gain and a noise figure of 0.7 dB. The PA is a Dressler D-200S with a 4CX350A valve and claimed output of 500w. The antennas are either a 19-ele. *Cushcraft* long *Yagi* or a *Tonna* 9-ele. crossed *Yagi* with right hand circular polarisation and elevation for short distance work. The feeder is 31 metres of low-loss *Cellflex* CU2Y with N-type connectors throughout.

EA1YV is a keen MS operator and he uses a *Sanyo* cassette recorder, modified for low speed, with an LA8AK LF up-converter using a TBA120 IC. Agustín prefers CW for MS skeds and his maximum speed is 2,000 *l.p.m.* As he is in the rare VC square, being the only habitually active 2m. operator there, he is in much demand. His QTH for skeds is López Mora Str. No. 70-1^o A, VIGO, Spain, the telephone no. being 986-293947 in Spain. From the U.K., it would be 010 34 86 293947 and the best time 2000 GMT. He prefers skeds between 0430 and 0630, any day, but warns that European mail can take 15 to 25 days. He is QRV on the 20m. VHF net or EA1OD will QSP information.

Paul Thomsson, G6MEN, from Shrewsbury, (SPE) was elected member no. 384 of the 144 MHz VHF Century Club on June 16, but all the QSOs were made from his former QTH in Southport

(YN35b). The buying of an RCA AR88D HF Rx in the early 1980s turned him into a short wave listener on the broadcast and amateur bands, then a couple of months of legal CB operation gave Paul some operating confidence. He was then encouraged to study the R.A.E. course by a G3 friend and passed the examination with two distinctions.

He built up a "modest station" at Southport providing multimode operation on 2m. and 70cm. and HF listening using a *Racal* RA17. Paul indulged in 3cm. portable operation carrying the station to hill tops on his motorcycle. A permanent station was set up in the Spring of this year at Shrewsbury, current activity on 2m. being SSB, FM, CW and RTTY; on 70cm., SSB, FM, CW, RTTY and TV; on 23cm., SSB, FM, CW and RTTY. He still operates -/P on 3cm. and also operates through the Soviet *RS* satellites where-on his tallies are 40 counties, 21 countries and 55 locator squares, the best DX being UA9. Future plans include 70cm. mobile operation on the motorcycle, -/P operation on 24 GHz, some *Oscar-10* work and probably a go at the Morse test.

Contest Notes

The GB2RS News Bulletin on June 29 broadcast the results of recent contests. The 70 MHz and SWL event on April 20 was won by the *Flight Refuelling ARS* in the Fixed section from a site 7kms. north of Poole (DOR). Joint winners of the All Other section were the *Wirral and District ARC*, 12kms. west of Wrexham, and the *Sheppey Outcasts Contest Group*, 16kms. SW of Lampeter. M. Parry, BRS 52543, from Blackpool, won the listener part.

The 432 MHz CW contest on April 6 was won by GW4MGR/P with 377 pts. from 41 contacts, and G4BVY/P 297/35 was runner-up. Only 17 entries were received. This was a single section event.

The 144 MHz Low Power and SWL Contest is on July 26, 1500-2300, which is a Saturday. Three sections; Fixed, All-other and SWL. Radial ring scoring with a multiplier comprising the total of counties plus countries worked. Up to three contacts with stations in the Scottish regions can be counted for multipliers, e.g. if you work two GMs in Strathclyde, they count for two multiplier points; if you work three or more, they count as three. The power limit is 25w *p.e.p.* measured at the Tx.

The 432 MHz Low Power and SWL Contest follows on July 27, 0900-1500, following the same rules except that the maximum power is 10w *p.e.p.* measured at the Tx. The next legs of the 10 GHz and Microwave *Cumulatives* are on Aug. 17, the microwave band being 3.4 GHz. The last leg of these two events is on Sept. 14, the microwave band being 5.7 GHz. On Aug. 17, the *Salisbury Radio and Electronics Society* is running its 2m. contest, 0900-1500, SSB and CW only, maximum *e.r.p.* being 250w. Exchanges to

consist of callsigns, report/serial number and county. Scoring is one point *per* contact plus 10 pts. for each new county or country. If you work G3FKF/P, it is worth 10 pts. *N.B. No QSOs above 144.295 MHz.* Entries go to G4RLF, 27 Bulbridge Road, Wilton, Salisbury, Wilts., SP2 0LQ by Sept. 17.

On Aug. 24, 0900-1500, there is the 1,296/2,320 MHz Contest for Fixed and All-other stations. Scoring at one point *per* kilometer with half points for cross-band QSOs. In September, the major event is the *RSGB* and *IARU* Region 1 Contest on the 6/7 weekend; more details next issue.

French Notes

Recently some new prefixes have been heard from France, e.g. FF, which is allocated to Radio Clubs. FA is phone only, 144 MHz, 20w for 13 years olds; FB is similar but also permits phone in part of the 10m. band and CW in parts of 40, 20, 15 and 10m. and on 2m., 144.050 to 144.090 MHz. FC is phone only, 144 MHz, 100w for 16 years olds; FD is phone and CW, 100w all bands for 16 years olds; FE, or just F in the case of old hands, is phone and CW, 250w all bands after three years with a Class D licence. In overseas territories, including Corsica, TK, the number indicates the licence class, 1 to 5 equating to A to E. The new address for the QSL bureau is:— REF QSL, B.P. 273, F-81209, Mazamet Cedex, France.

"VHF Bands" deadlines for the next three months:-

September issue — August 6th
October issue — September 3rd
November issue — October 8th

Please be sure to note these dates.

Beacon News

Some further notes concerning the Greenland beacons, OX3VHF. As reported in the June issue, the locator is GP60QQ on the island of Simiutaq, a few hours by boat from Julianehaab and near the southernmost point of Greenland. The site is 200m. *a.s.l.* The 6m. one is on 50.045 MHz running 20w to a ground plane antenna. The 2m. one is on 144.902 MHz and runs 5w to a 4-ele. *Yagi* beaming WSW, and 5w to another 4-ele. *Yagi* beaming ESE. Keying for all is A1A. Reception reports should be sent to:— Bo Christensen, OX3LX, Telestationen, Box 187, DK-3920 Julianehaab, Greenland.

From John Hunter, G3IMV, via José M. a Gené, EA3LL, news that the Spanish beacon, EA1VHF (VD59e) has been "having problems," which explains why it has not been heard for some time in openings to northern Spain.

DX-Peditions

From Aug. 3 to 14, the *Can Contest Club*, G4CAN, plan to operate from South Harris in the Outer Hebrides (WIL) from WR16f, which is NG08 for WAB addicts. On 2m. the call will be GM4AFF/P using 400w to four 17-ele. Yagis; on 70cm., GM4RQI/P running 100w to four 19-ele. Yagis, while on 6m. they plan to use GM4CAN with 10w to a 4-ele. Yagi As you read this, the *Five Bells Contest Group's* operation from the Shetlands should be in progress — see page 171 in the July issue for details.

Clive O'Hennessey, GW4VVX, has written to advise of his Scottish trip with Steve Jones, GW6TGX from Aug. 9 to 21, covering the peak of the *Perseids* shower. The QTH will be Lairg in Sutherland in XS square and all activity will be on 144.222 MHz. At present, they have 100w capability but hope to increase that. The antennas are two 13-ele. Yagis which will be at 30ft, the site being 400ft. a.s.l. The calls will be GM4VVX/A and GM6TGX/A.

The *Square Bashers Expedition Group* will also be active from Scotland between Aug. 6 and 14 and Jonathan Eastment, GW4LXO, has forwarded the details. The first operation will be GB2ZR (ZR42h) from the late afternoon of the 6th until midnight on the 8th, mainly tropo, but some MS skeds for which contact G4VXE. The next operation will be from 0000 on the 10th till 2400 on the 14th using GB2YS (YS54c), mainly MS but some tropo. For this, contact GW4LXO by letter, or on the telephone on 0222 620694 after 1700 GMT any day.

They hope to be on 6m. from YS with the call GM4NXO on 50.185 MHz. The CW MS QRG is 144.132 MHz and the SSB MS one is 144.432 MHz, while for tropo., they propose 144.265 MHz. On 4m. they plan to operate all modes on 70.185 MHz. On the UHF and microwave bands, all operation will be on decimal 185. For 2m. MS CW skeds, they will use 2½ minute periods at up to 800 l.p.m. and GB2ZR and GB2YS will transmit on the second period. Stations "tail-ending" should note this procedure. On random CW on 144.100 MHz, five minute periods will be used with the same speeds and sequencing.

Flemming Jul-Christensen, G4MJC, will provide opportunities to work some "wet" squares on his trip to his native Denmark. On Aug. 7/8, he will pass through BM, BN, CN, CO, CP and DP and on the 20th, he will be on in the reverse order on the way back. During his stay, he hopes to operate from about 9 p.m. each evening. Those needing Andorra should listen for DC8UM, C30 call unknown, who plans operation from AC37e, Aug. 1 to 4, on 2m. using 50w from a site 2,000m. a.s.l.

Frank Fischer, DL4EA, plans extensive operation from rare LA and SM squares between Aug. 8 and Sept. 17. Mentioned

are DT, DU, EV, EW and EX, possibly DX. In the *Perseids*, the preferred squares would be DT, DU or EV. He would continue his car journey to the X line of squares, then crossing to Sweden to work from GW, GV and GU. Skeds can be arranged over the 20m. or 80m. VHF nets, via DL4EA/P. QRGs are: 144.117 for 2½ min. CW MS and 144.417 MHz for one min. period SSB and CW MS using 600w to a 9-ele. Yagi, up to 1,000 l.p.m. On 70cm. he will have 500w and 19-ele; on 23cm., 150w to a 2m. dish and on 13cm., 10w to a 2m. dish. Frank's telephone no. is Düsseldorf 776412 and the dialling code from the U.K. is 010 49 211.

Satellite Matters

The *AMSAT-UK Technical Group* has published a short paper of the "What do we do next?" kind. The group is chaired by Dr. Martin Sweeting, G3YJO, the other members being G2UK, G3AAJ, G4IQQ, G0/K8KA and G0/LA1YQ. This is a well written discussion paper outlining possible future projects for *AMSAT-UK* to undertake and *AMSAT-UK* members are asked to submit their comments.

The *University of Surrey's UoSAT Spacecraft Engineering Research Unit* has revised and enlarged its *UoSAT Spacecraft Data Booklet* which now runs to 40 pages. This covers all you need to know about *UoSATs 1* and *2* and will be of particular interest to educational establishments and to anyone new to these research spacecraft. Highly recommended. For further information, contact Dr. M. N. Sweeting, Dept. of Electronic and Electrical Engineering, University of Surrey, GUILDFORD, Surrey, GU2 5XH. (Tel. no. 0483 571281, Telex. 859003). Alternatively, send a stout 12¼ × 9 inch envelope with a 38p stamp for a copy. In *UoSAT Bulletin* No. 44, it states, "A small donation to cover printing costs also welcome."

OSCAR-10 remains in a very ill state. ZL1AOX recently loaded a memory test program into its computer which revealed that all memory locations with even addresses were at fault. But on June 11 at 1354, the IHU failed and Ian made many unsuccessful attempts to reset it. The engineers diagnosis is that the Error Detection and Correction Circuit — EDAC — is damaged and, rather than correcting errors, the circuit may be causing them.

The latest failure of the *ARIANE-2* rocket on May 30 means that the launch of the *Phase 3C* spacecraft will slip into 1987 and *ESA* officials anticipate a delay of two to six months before launches are resumed. It has been suggested that *AMSAT* might take advantage of this to improve the IHU radiation hardness to combat the problem encountered by *O-10*, by rebuilding the IHU with harder memory chips. It's an ill wind. . . .

On the Soviet scene, *RS-5* and *RS-7* are

on a restricted schedule until further notice. As always, Wednesdays are off days. At June 18, *RS-5* was on from 0500 to 1000 and *RS-7* from 1000 to 1700 both dependent on being within range of the USSR command stations. The launch of *RS-9* and *RS-10* has been further delayed until at least September or October, according to *Oscar News* No. 60.

Now to Japan, where the launch of *JAS-1* is on schedule for July 31 at 2030 UTC nominal. If so, the first signals from its 20 w.p.m. CW beacon on 435.795 MHz should be heard in England from 2149 on a SW beam heading. 12 mins. later it would be at an elevation of 43°, azimuth SE, setting at 2213 towards the ENE direction. These predictions were given in *Oscar News* No. 60 based on an anticipated mean motion of 12.412719 revolutions per day and an inclination of 50.004°. At a height of 1,501 kms., the longitude increment would be 29.31° W per revolution. Launch information will be available on 20m. on 14.282 MHz over the usual "ALINS" net. *AMSAT-UK* will be on 3,780 kHz from 1800 GMT on launch day, too.

The *AMSAT-UK Colloquium* on July 5/6 at the *University of Surrey* was very successful with 174 people attending, including 14 from overseas. Karl Meinzer's, DJ4ZC, talk was very well received and went on longer than scheduled by popular demand. Your scribe well appreciates the great deal of hard work by Ron Broadbent, G3AAJ, and his wife, Beryl, that went into this first such event, particularly when there was a last-minute accommodation hiccup.

This year is the 25th anniversary of amateur satellites and to commemorate this, *AMSAT-UK* has some smart coffee mugs in white, Great Yarmouth china, with a picture of *O-10*, the *AMSAT* logo and an inscription. 50 were sold at the Colloquium and are available at £4.00 each including VAT and U.K. postage and packing. Order from *AMSAT-UK* at 95 Herongate Road, London, E12 5EQ.

Packet Radio

Phil Cadman, G4JCP, from Dudley is a new contributor and has written about PR activity in the Midlands which has been all on 144.675 MHz. He uses a PK-80 manufactured by the U.S. company *Advanced Electronic Applications Inc.* of Lynnwood, Washington, whose products are imported into the U.K. by *ICS Electronics Ltd.* Arundel, W. Sussex. Phil runs 20w to an *AEA Isopole* antenna at 20 ft. He uses a terminal ("dumb" RS232) with the PK-80 and can hook it up to an *Apricot* portable computer, if required.

Others active in the area include Bill Hartshorne, G4TEC, from Wolverhampton who also runs a PK-80 and a TNC-1 into a *BBC Micro*; Andy Witts, G1DIL, in Wolverhampton with a PK-80 and Derek Rea, G1INW, from Shirley who has a PK-64. They can just about make it into

ANNUAL VHF/UHF TABLE

January to December 1986

the Manchester area using G4TEC as a "digipeater," and down to Cheltenham via G4JCP himself. Once into Cheltenham, they can then reach Bristol and Crewkerne (SOM) via Robin Harvey, G4BBR.

Others in the Dudley and Wolverhampton areas have expressed an interest in the mode, so a local PR group is on the cards. Anyone interested should contact G4JCP or G4TEC, both *QTHR*. There are thoughts of a digipeater on a local high spot to link Manchester with Bristol and the southwest. Recently, G1D1L operated -/P on the Cleve Hills and achieved such a link. Reports on PR activity in other areas would be welcome.

Six Metres

Ken Ellis, G5KW, (KNT) monitored the band until 0100-0200 from June 26 in anticipation of any transatlantic openings but, unlike recent summers, no such propagation occurred up to July 6. Ken relayed the following news from G31MW (LDN); On June 24, OX3LX (GP60XR) worked G3UUT (CBE), G4BAO (CBE), G4GLT (LEC), G4ADR (OFE) and G4HK (CHS). On the 26th, W6JKV operated from the Azores Is., new prefix CU, from 1300 to 1400 and G3UUT worked him on 50.110 MHz. On July 1, Peter John, DL7YS, in Berlin, found 6m. open all day till 1900 and worked 125 stations, crossband to 10m.

G5KW reports that, after the good spell around June 19, the band was quiet until the 24th when Steve Richardson, F/G4JCC, reappeared to make some 10/6m. crossband QSOs. ZB2VHF was S7 for a long time and YU3ES came on. The next day, ZB2VHF was S9 and Ken contacted CT1LN direct at 0750. He copied the Cyprus beacon 5B4CY at 1305 at S1 for a short time. At 1620, EA1MO was worked and he was S9 plus 40 dB, Ken getting S9 plus 20 dB. ZB2VHF came in at 0550 on the 26th. On July 1, G5KW worked CT1WW (WB) at 1907.

Phil Catterall, G4OBK, (LNH) thinks this is his first contribution to VHF although he is a regular reporter to CDXN. He caught the *Ar* on May 6 and the first *Es* opening was on May 21 when he worked OE1XA (JN88EE) crossband. On May 30, he made crossband QSOs with OZ1DOQ and OE3OKS on SSB, and on June 3, crossband, crossmode contacts with HB9QQ and DL7YS. Phil's first inband QSO outside the U.K. was with EA2JG (IN83MK) on SSB. On the 7th, he worked CT4KQ (IN60BP) who was RST579 using 2w. CT4KQ and CT1WW were worked on SSB on the 14th and on the 24th, he made crossband contacts with HB9QQ (JN47KJ) and EA3ADW (JN11CQ). The ZB2 beacon has been very strong for hours on end in June.

Phil uses a Yaesu FT-107M and *Spectrum* transverter with a 20w amplifier and a 3-ele. *Yagi*. He is quite satisfied with

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		23 CENTIMETRES		TOTAL Points
	Counties	Countries	Counties	Countries	Counties	Countries	Counties	Countries	
G1KDF	—	—	92	17	66	12	22	5	214
G4NBS	28	2	68	18	55	15	37	11	201
G6XVV	—	—	78	16	42	7	20	4	167
G1DOX	—	—	74	10	41	6	22	4	157
G6HKM	—	—	71	18	33	9	—	—	131
G1LSB	—	—	56	12	48	14	—	—	130
G4YCD	—	—	72	20	30	4	—	—	126
G4SEU	36	4	40	7	29	3	—	—	119
G4HGT	21	2	68	16	6	2	—	—	115
G0CUZ	—	—	66	22	19	2	—	—	103
G4MUT	24	2	38	10	23	5	10	2	102
G6AJE	—	—	44	11	35	8	3	1	102
G3FPK	—	—	78	19	—	—	—	—	97
G1EHJ	—	—	49	6	36	4	—	—	95
G4WXX	—	—	79	14	—	—	—	—	93
G4DEZ	—	—	48	14	5	1	16	6	90
G6OKU	—	—	51	7	23	2	—	—	83
G8XTJ	—	—	60	13	—	—	—	—	73
G1SWH	—	—	64	6	—	—	—	—	70
G4VOZ	36	3	—	—	28	2	—	—	69
G4TGK	—	—	55	12	—	—	—	—	67
G6XRK	—	—	58	9	—	—	—	—	67
GW6VZW	—	—	54	12	—	—	—	—	66
G1PDW	—	—	55	11	—	—	—	—	66
G4Y1R	—	—	51	11	—	—	—	—	62
G8RWG	—	—	45	9	4	1	—	—	59
G1CRH	—	—	39	7	—	—	—	—	46
GW4HBK	38	6	—	—	—	—	—	—	44
G4EZA	—	—	32	10	—	—	—	—	42
GU4HUY	—	—	33	3	—	—	—	—	36
G2DHW	4	1	24	2	1	1	—	—	33
G1HGD	—	—	10	2	11	2	—	—	25
G4T1F	10	2	6	3	1	1	—	—	23
G6CSY	—	—	9	2	6	1	—	—	18

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

the transverter, experiencing none of the problems encountered by G4ZTR—see page 66, April VHF. It has given two years of reliable service and, at under £70, including the amplifier board, he reckons it all good value for money. The antenna is a home made *NBS* design supplied by Ken Wood, GM3WCS.

Now some observations from Ted Collins, G4UPS (SOM) based on his long experience operating from Ascension Island as ZD8TC. He advocates the use of a vertical antenna with a few radials for reception since much of the fading on 6m. is simply due to polarisation changes; hence, switching between the mandatory horizontal antenna for the Tx and a vertical will iron out this effect. Ted suggests we exploit back scatter mode which he found useful when working KP4EOR when conditions were declining. When they used to both beam SW, they could maintain contact for a longer period. Regarding antennas, he reckons a 2-ele. *Yagi* is sufficient as longer ones, with more elements, tend to be too sharp "... for the inquisitive operator." He is getting very good results with his *HQ-1 Minibeam*.

John Palfrey, G4XEN, (NHM) uses a home made transverter, 20w to a dipole and between May 17 and June 18, made cross-band QSOs to 10m. stations OH1ZAA (KP01), OE1XA (JN88), YO2IS (KN05), DL3MBG (JN68), EA4CGN (IN80), EA3ADW, DL7YS (JO62), F9HS (JN13) and EA3LL (JN01). Direct QSOs were made with LA6QBA on MS on May 31 and June 1, and on the

14th, John made his first in-band *Es* QSOs with CT1WW and CT4KQ, also EA1MO (IN71).

Mike Johnson, G6AJE, has made a thin wire *Quad* loop installed over the garage roof and on June 6, heard 5B4CY, and ZB2VHF for the first time at S9-plus, revealing nasty key clicks. Next day, both beacons were copied again, along with CT4KQ, CT1WW and EA1MO, GW4LXO (GNS) lists QSOs with EA2JG (YD), ZB2BL (XW), CT1WW, CT4KQ, EA1MO, GM3JIJ (WS) and GM3WOJ (XR), all *via Es*, but Jonathan did not give the dates. He uses 30w to an outdoor dipole.

John Baker, GW3MHW, (DFD) sent in a long account of what has been heard and worked since May 6. To help with propagation studies, he suggests beacons in such as OK, TA, JY, VU, etc. even though such countries might not consider any Tx licences, pointing out the usefulness of quite low power beacons. On several occasions, John has observed back scatter reception of G signals when beaming at 150°. He has copied the 5B4CY beacon amongst the various video and RT signals. On June 4, CT4KQ on CW was a new country for GW3MHW and on the 6th, at 1655, he contacted CT1LN (IM67BA) on CW. He completed many crossband QSOs with the enthusiastic Europeans.

Dave Lewis, GW4HBK, (GWT) also remarks on the incredible continental interest in 6m. and lists about 20 different stations worked crossband to 10m. He

completed inband QSOs with ZB2BL, CT1WW and CT4KQ. From K1TOL, news that GB3SIX has been copied in Florida between 1400 and 1600 and that he has heard it in Maine about 6 or 7 times between 2100 and 2300 up to June 18. Lefty calls on 50.110 MHz and suggests we use 50.090 to 50.110 MHz. Many Ws and VEs are eagerly listening for European signals.

Four Metres

The GB4MTR callsign will be used till Aug. 12 by GM4ZUK (GRN), then from the 13th until Sept. 9, it will be G4WGT's turn from Lancashire. John Wilkinson, G4HGT, (YSW) now has 130w to a 3-ele. *Yagi*, but can only operate on Sunday mornings due to severe TVI to his next door neighbour's set, a direct breakthrough case. GB3ANG is normally 10 dBn and GB3CTC is just audible, most of the time. His best DX are G4FRO (AVN) and G4YUZ (HFD). Anyone needing West Yorkshire should contact G4HGT for a sked.

Tony Collett, G4NBS, (CBE) worked GB4XN on June 2 for a new county and square, and also GB4MTR when G4ASR (HWR) was using the call. GW3MHW has devoted most time to 6m. but did have a crossband to 10m. QSO on May 16 with DK1PZ. The German was copying both the EI4RF and GB3ANG beacons at S9 at the time, but John only got RST529. GW4HBK worked GB4XN on June 3, heard ZB2VHF on the 9th at 1445 and on the 14th, at 1032, contacted CT1WW who was on 6m. At 1157, Dave made it two-way with ZB2BL. Other QSOs were with locals and not-so-local G stations.

Two Metres

As mentioned at the beginning, this summer has been extremely disappointing for *Es* openings. Apart from the early one on May 16, all we have had are a few very brief openings, timed in minutes, with a lucky few able to work anything. Peter Atkins, G4DOL (DOR) heard IW5BML (JN52) at 0939 for 30 secs. working a northern F station on June 1. On the 6th he worked 9H1GB (JM75FU) at 1728 and heard 9H5AZ a minute later. I6DRF (JN62QJ) was worked at 1744, 9H1GB again at 1751 and IT9TVF heard. On the 7th, YU1AFS was copied at 1705, YU1PV (JN94WG) worked at 1713 and YU1WP heard at 1716.

G4HGT heard an IW6 for all of 30 secs. on May 30 at 1321 while wallpaper hanging, the next opening lasting 4½ mins. on June 7 from 1720 to YU and LZ. Nick Peckett, G4KUX, (DHM) fared better on July 2 as the band was open to Russia between 1600 and 1645. Between 1604 and 1630 he worked UA6LJV and RB5CCO, both in TH, RB5VD (QI26b), UB4WVV (QI) and UB5BN (KO50FV = PK). Nick mentioned that while working an OZ at lunchtime on July

1, G4SXU in Harrogate was called by a station signing UA9QE. RS51 reports were exchanged and the locator given was ZX29f. This UA9 was very excited and babbled away in Russian before disappearing. The question is, Was it genuine or a "wind-up"? The QRB is about 3,230 kms.

On June 20 at 1330, G4MJC, (SXE) contacted LZ1ZB (KN12PR = LC) for six mins. and there was nobody else heard at either end. At 1345, Flemming worked YU1DU who was there for all of 45 secs. On June 7, Dave Dibley, G4RGK, (BKS) worked four stations in a 10 mins. opening starting at 1707 with YU4WEU (EI), then YO7DL (LE), YO2AVM (LF) who both answered a CQ call, finally YU6AH (JC). G4XEN also caught this brief event which lasted from 1705 to 1720 and John worked YU1PZL (KN04), YU6AH and YU6ZBG (JN92), none being new squares, though.

On June 6, Martin Lowe, G4YCD, (AVN) was fortunate in working IC8EGJ (HA) in a 30 secs. opening and the next day he got a YU in KD, YO2IS (KF) and an HG in KG. On July 1, he contacted YU4BK (JC) in a 45 secs. opening. Paul Baker, GW6VZW, (GWT) was called by YU8ALN (KC) on June 7 but a QSO was not completed, and he heard TK5EP in Corsica and OE9NW in short bursts on the 8th. On July 1, John Baker, G8LZB, (SRY) worked IW9AQS (GX) at 1015 in the fleeting opening. In another brief event on July 2, Richard Burton, G4KPX, (LDN) had a CW contact with RB5AL (QL) at 1625, about five minutes after your scribe switched off. On June 7, Bob Ainge, G4XEK, (SFD) worked YU1LA (KE) and LZ2KBI (LD) which was a new square.

Now to MS and Charles Coughlan, EI5FK, (Co. Cork) who was active in the *Arietids* on June 4. On SSB he completed with I4YNO (FE), LA9FY (EU), both new countries and squares, LA9BM (EU), but skeds with DL7YS and F6BSJ failed. On the 6th, he completed on SSB with DL4MDQ (FI) after many previous failures. On the 7th, Charles had success with I2FAK (EF) another new square, the next day bringing DK4TG (DL) and CT1WW (WB) from whom he got 47 bursts and 36 pings; another new square and country.

G4RGK again found June to be a very reliable month for MS mode and his best QSO was probably HV2VO (GB) who sent Dave a 38 report. A sked with I3LDP (FF) was completed in 25 mins. and I4YNO tail-ended. A few days later, an almost identical repeat when EA6FB (AZ) was tail-ended by EA3BTZ (AB). Other successes were OK2PZW (IJ), OE3JPC (II), OZ2ZB (ER) and EA3LL (AB), all on CW.

G4XEN had a sked with a Y station and received a two seconds burst in which R27 was sent seven times. But John had not copied any call because the East German had not programmed them into his

memory keyer. G4XEN's June successes were IV3HWT (JN65) on the 4th; SP9AMH (JO90) on the 9th; I3LDP on the 12th; I1ANP (JN44) on the 13th and SM5MIX (JO78) on the 21st; GW4LXO completed with HV2VO on CW on June 3 for the first Wales/Vatican QSO. It was country no. 42 for Jonathan.

Next the tropo. scene starting with EI5FK who now has a pair of 19-ele. *MET Yagis* in place of the 16-ele. G2BCX antenna. During the Spanish contest on June 8, Charles worked EA1RCA (WD) and ED1URL (VD) but FX3VHF (YI) was only S1 at the time. Depending on the weather, he and Tom Cocking, EI4DQ, hope to operate from UM or UL and will spread the news *via* G1KDF. Charles reminds us that Monday nights are EI activity evenings from 2000 – 2200 local time with working frequencies of 144.260 and 144.275 MHz.

Mike Honeywell, G0ABB, (HPH) is a keen CW operator but finds the calling frequency rather cluttered so tends to use 144.085 MHz instead in the hope that others will tune around. Philip Everitt, G1CRH, (CBE) took advantage of the lift on June 21/22 to add to his table score and his best DX was GW6VVFJ/P (GNW), plus F61FR and GD3XLE for new countries. John Acton, G1DOX, (CBA) added new squares and table points in the June 20/21 slot with D, ON and PA QSOs.

Bob Nixon, G1KDF, (LNH) is a dab hand at finding rare Irish counties and on June 4, found EI3ES in Leix. There was plenty of EI activity on June 14 with EI2CA on Saltee Islands, off the southern tip of Co. Wexford; EI3VTU/P in Co. Cork and EI3ES again. On the 15th Bob found EI2VZB, one of the 'VTU group, this time from WL square. June 20/21 brought excellent conditions to D, F, ON and PA and on the 22nd, LA8OJ was S9 from 1830 for an hour. On the 26th, F6DKW, F3VG/P (DF), FC1JRX (CF) and other Fs in BJ, CG and ZH were worked. June 27/28 saw good tropo. to the Channel Is.

Paul Brockett, G1LSB, has now moved to Sutton bridge, (LCN) to AM11d and has re-entered the tables. His 2m. station comprises an *Icom* IC-271H, 85w to a 19-ele. *Cushcraft Yagi* 45ft. *a.g.l.* The '271 has a *mu Tek* board fitted. Up to the end of June his scores were already 56 countries, 12 countries and 46 squares. Ian Rose, G1PDW, (ESX) heard HB9, LA, LX, OZ and SM stations but thinks it time he increased his power from 10w. He added G4AFF/P (CNL), GM4PPT/P (DGL) and G1POD/P (SXW) in June.

George Haylock, G2DHV, (KNT) has been travelling around a lot using the repeaters. He finds those outside of the London area to be excellent. His reference to "SW repeaters" he explains was south western. John Quarmby, G3XDY, (SFK) was one of the lucky ones to work OY9JD (WV) on June 22. In the London area the Faroes station was just about detectable at

Station	ANNUAL CW LADDER				Points
	4m.	2m.	70cm	μ Wave	
G0ABB	—	208	—	—	208
G4AGQ	8	178	5	—	191
G4YIR	—	179	—	—	179
G4SFY	—	151	—	—	151
G4ZVS	—	131	—	—	131
E15FK	—	116	—	—	116
G4OUT	—	112	—	—	112
G4XUM	—	105	—	—	105
G4EIB	—	100	—	—	100
G4PPV	—	86	—	—	86
G4EZA	—	67	—	—	67
G0DJA	—	62	—	—	62
G4TJE	—	52	—	—	52
GW4HBK	33	—	—	—	33
G2DHV	4	18	—	—	22

No. of different stations worked since Jan. 1.

G3FPK, but R1. Jim Challenger, G4EIB, (WMD) is surprised at the number of West Midlands stations who always seem to beam to the south or southeast and wonders why they do not beam towards Scotland occasionally.

Tim Charles, G4EZA, (ESX) has been busy moving QTH and turning a jungle into a garden, so has missed all(?) the *Es*. However, he did catch the northerly tropo. in June working LA1BEA/P (CT), LA5IH (CU) and GM8PNP (ZU). Two weeks earlier, he found LX1YZ (CJ) on CW on a flat band. G4HGT has worked G14KIS/P (FMH) and G0AEA (IOS), all-time new counties, and EI3GG/P (Donegal) on June 1. On the 14th, in a "standard North Sea tropo. duct," John contacted DJ9YE (EN) and heard OZ1QQ/A, plus lots of PA and northern Germans.

G4NBS took time off the higher bands to work GM8PNP (SLD) at 0025 on June 21, Tony's best 2m. DX so far on 10w. On the 29th, his 10w brought OZ1BVW (EP), the only pile-up he could crack. Ian Cornes, G4OUT, (SFD) now runs an *Icom* IC-271E with *muTek* front end and up to June 24, he had worked 112 CW stations including a number of GM, D, ON and PAs in June, on 25w. John Wimble, G4TGK, (KNT) lists GM6KJD (GRN) on June 21, three HB9s (DH) on the 28th and FC1JRX (CF) on the 29th, the day of the football World Cup final, which later brought OZ1JXY (EQ), GM8PNP and GM3XOQ (ZT). John is a WAB enthusiast and is always pleased to give TR02 to others as he is about the most south easterly station in the country.

G4XEK lists LA4IAA (CS) on June 20 and Y23SB (FN) on the 21st on CW, and on the 26th, F3VG/P (DG41d) on SSB. Between June 20 and 23, G4XEN copied the Angus beacon, GB3ANG, well over S9 most of the time. So John lists several GMs in that period including 3ZET, 6RGN and 8PNP, all in SLD, along with some DLs. June Charles, G4YIR, (ESX) was well pleased with her June results which included LA1BEA/P on CW and GM8PNP and EI3GE (Wicklow) on SSB on the 20th. She added another 23 stations to her CW Ladder total, 11 of which were continentals.

Colin Ford, G4ZVS, (WMD) worked

some PA and D on June 20/21, also LA8OJ (CS) for his first Scandinavian on 2m. The morning of the 29th brought very strong signals from ON6NH, all on CW. G6AJE was QRV in the European Field Day on June 8 and worked some ONs. In the lift on the 20th/21st, the only DX Mike reported was Y23LI/P (FK) worked on 8w for his 21st country. Ela Martyr, G6HKM, (ESX) devoted much of her time to the band this month. She mentions OZ5GN (EQ) on June 14; GM6RGN (SLD) at 1,009 kms., GM1SZF (YS), LA60J (CS) and three OZs in EQ on the 20th and on the 21st, a CQ call at 1631 resulted in 32 continental QSOs up to 1850. On the 27th, F1EFW (CG) was a new square and the following day, Ela copied some of I2FHW (EE17f).

Haydn Barker, G6XVV, (YSS) hoped to have his 2 times 4CX250B amplifier going by the end of June and an array of four 19-ele. *Yagis* launched in time for the *Perseids*. The suggested peak for this shower is 0700 on Aug. 12, according to W1JR in *Ham Radio*, by the way. Julie Yates, G8MKD, (WMD) has a *Trio* TS-770 and *Microwave Modules* 50w PA. The antenna is a 19-ele. *Tonna Yagi* at 20ft fed through a long length of UR43. She hopes to raise it to 30ft and install some *Pope* H-100 feeder soon. Her best DX on June 20 was LA1ZE (CS) and LA5IH was heard. Best DX next day was DF3XZ (FN) but activity declined from Germany when the Cup Final was in progress. DL0PR was up to S7, but the DL and OZ stations were quite weak on the 22nd, but by the afternoon of the 23rd, things were back to normal.

GW6VZW heard F6EZZ (ZD) on the night of June 8. On the 14th, Paul found G1NZR (MSY) for an all-time new county and on the 15th, got EJ2CA/P for a new 1986 county/country. On the 26th, FB1LLA (DG) was an all-time new square and GM0BQM/P (DGL) was also new for this year's table. On the 27th, Paul worked GU3EJL (ALD) and HB9SAX/P (DH).

Lastly a welcome letter from Jack Hum, G5UM, who suggests that newcomers to the band might be unaware that Monday evenings have been CW nights for a couple of decades or more. Jack launched this idea when he used to write his VHF column for the *RSGB* because CW was a very neglected VHF mode then. Your scribe would like to request that CW operators give honest reports. Some signals, unfortunately, are quite awful meriting an RST597K report in some cases. Worst of all are those signals from stations using RF switched PA stages; every time the key makes, there is a nasty click and it is usually even worse on break. Please ensure your add-on PA is *hard switched* to avoid this nuisance. The phase noise from some synthesizers is so bad that when you tune away from the signal it sounds just like an *Auroral* one.

Seventy Centimetres

How's this for real DX? On June 27, F1EFN/7X' (DW22a) in Algeria was working French stations in ZI and ZJ squares and was reportedly copied by someone in the New Forest Area. Had it been NFD weekend, they would certainly have been worked from England and the Channel Is. G1DOX worked a number of new squares and countries on the near continent during the June 20/21 lift, which takes some doing from Cumbria.

G1KDF thought few Fs on ONs were QRV on the band for the June 8 contest and Bob only worked F6HMQ/P (XI) and F6KBF/P (ZI). On the 12th, in the late evening, he contacted GU8FBO (GUR), GW1MCD (GWT), GW8TBX (GNM) and G8KBQ (SOM). On the 14th, EI3VTU/P (VL) and EI2VZB/P (WL) on the 15th were new squares. On the 20th, new squares were DM, DN, EQ and FN, while the 26th/27th brought more French QSOs, plus GJ6TMM who was only using 1w.

G1LSB uses an *Icom* IC-471H, 90w to a 21-ele. *Tonna Yagi* at 50ft and has done well since the move of QTH. In the June 1 contest, Paul worked Ds in DJ and DK, and GMs in YP and YQ. In the June 7/8 Field Day, he made many contacts into F, ON and PA. The 13/14 period saw OZs and Ds, including DL8HAL (FN) with 1w. in the log, while the 20/21 slot brought GMs and LA1ZE. On the 27th, Paul contacted HB9AMH/P (DH), OZs and SM6JDO (GQ) at 906 kms. The next day brought SM6GWA (FS) plus GI, GD and F stations, and LA9DL (FT) and on the 29th, OZ, DL, LA, GM and SM were worked.

G3XDY's best were GM8PNP on June 21, OZ1JPT, the same day, OY9JD (WV) on the 22nd., HB9SAX/P, F1FEN and LA9BM on the 29th. John is now up to 130 squares on the band. G4NBS compiled his list on a day-to-day basis, using different colour inks for the different bands. Tony lists a wide assortment of continentals, Scandinavians and GM8PNP to bring his 1986 table points to 70. G4XEN runs 50w to a 24-ele. long *Yagi* on 70cm. and John lists D. LA and OZ QSOs in the various June lifts.

G6AJE did well from Ratby, (LEC) in the 20/21 June lift with D, ON, OZ and PA stations worked. Some Fs were contacted on the 26th including F6APE (ZH) for a new square. G6HKM likes the idea of an S.W.M. sponsored 70cm. contest to promote more activity. On June 29, Ela worked DD5IJ, who is an Ex-G, and was then called by PE1JYE who was S5 with 200 milliwatts and no Rx preamp.

The Microwaves

Dave Ackrill, G0DJA, (WMD) has been out portable with his 24 GHz gear and proved the equipment at a microwave open evening at the *South Birmingham Radio Society* on June 4 with the help of

Glen Ross, G8MWR. His estimated *e.r.p.* is 30w. From Cumbria, G1DOX has been persevering on 13cm. The June 20—22 period was very good but another 3 dB of signal strength would have helped with the tests with PE1GHG and PA0RDY. Tests with G6FK in Wolverhampton and G6DER in S. Yorks. continue. Recent QSOs included GB4XN, G4BYV (NOR), and G4FRE (SFK). On 23cm. John worked G3XDY (AM) on June 15 for a new square and PA0RDY (CM) was a new square and country on the 20th. Other QSOs were with G4BYV, PE1GHG, G4FRE, PE1CMD and PA3DZL.

G1KDF worked G14KIS/P (ATN) in

both WP and XP on June 8 and G4KLX (DYS) after many earlier attempts on 23cm. On the 21st, Bob got PE1GHG but no luck with LA8OJ the next day. On the 26th F6DKW (BI) was worked easily but QSOs with ZH stations failed. Also no luck yet with G8PNN (NLD), G6URX (IOW) or GM4YPZ (GRN). On June 29, Bob did work G3TDG (KNT) for a new county and AL square.

G3XDY on 23cm. worked GB4XN, G1DOX; GM8MBP/P (ZR) on June 28; HB9SAX (DG), F1FEN (CF), GM4YPZ (YQ) and LA6LCA (FT), while 13cm. provided DL0HC/P (EL) on the 21st and

DB1BX (DM). Others contacted were ON5GF (CK), G6DER and G4BEL (CBE). Just space to acknowledge G4NBS's letter listing lots of good 23cm. QSOs. Tony is very pleased with his success on this band.

Finale

Sorry no room for the Squares Table. Your reports on everything by the date in the box, please. Send to:— "VHF Bands", Short Wave Magazine, 34 High Street, WELWYN, Herts. AL6 9EQ. 73 de G3FPK.

"Beyond the Call"

G3ZPF

DAVID Reynolds' interest in the electronics world started while he was still at school when he discovered that some of his classmates were building electronic gadgets. This looked like fun but, like most schoolboys, being hard up it took some time to save up his pocket money so that he could buy the well known H.A.C. one-valve kit that so many of us started on.

He did not find any amateur stations but had a lot of amusement listening to the broadcast stations until one day the HT battery got accidentally connected to the filament rail and exit one valve!

Not deterred he took a Saturday job at a builders' merchant for

one of the boys who had got David's interest started some years before.

At this time he was still heavily involved in home construction and the desk shown in the photograph was one of his projects as well as a range of bridges, keyers and a frequency counter.

Eventually an FT-DX560 was obtained and the interest turned to the DX bands. Early contacts were made with the neighbours' TV sets, but these problems were sorted out and he now has all the cards for a five-band DXCC — without, as he proudly states, resorting to beams or linears.

In recent years he has written several articles for *Short Wave*

photo:



A. J.
Reynolds

the princely sum of £1 a day to raise the cash for a Codar CR-70A and later a Star 200. He also discovered this illustrious magazine and its short wave listener section. Using only loft aerials he was soon close to the top of the HPX ladder by the time he passed his RAE, having been coached by G3NOW. No Morse classes were available and so he bought a set of the "Morse in a month" records. As he says, "A year later I was ready to take the test!"

This was taken at Ilfracombe coast station and he celebrated the pass by buying a Codar AT-5 Top Band rig and building a Heathkit 2m. rig. The ticket arrived in 1970 and coincidentally the first contact was with G3WWR who turned out to be the father of

Magazine and has also given lectures to the local clubs on various topics. He has also (and he blames G4JCP for this), got hooked on computers but finds the RFI they produce to be a bit of a problem. He has recently purchased a new house and is now thinking, having done it the hard way, of a tower and beams.

If you would like to appear in this feature please send a good photograph and some details about yourself to the Editor, S.W.M.

CLUBS ROUNDUP

By "Club Secretary"

The Mail

WE have the pile upside down right now, so that's the way we'll work, for a change.

The **308** crowd have their place at the Coach House, Church Hill Road, Surbiton, which we understand is not a pub but a church hall. For the other details we have to refer you to the Hon. Sec. — see Panel for the details you need.

The **York** members have been in the United Services Club at 61 Micklegate, York, for as long as we can recall, and their meetings are on every Friday evening.

August at **Yeovil** offers, on August 14, G3GC doing the first part of his talk on oscilloscopes, and on 21st G3MYM talks about the effect of the sunspot cycle. August 28 is the monthly natter night, and on September 4 G3MYM talks about fading and fade-out. Hq. is at the Recreation Centre, Chilton Grove, Yeovil.

Tuesday evenings at Silver Street Community Centre is the form for **Wythall** which nowadays is part of South Birmingham, but when your scribe knew it it was the country over the boundary where the balloons lived! For details on the club meetings, contact the Hon. Sec. — see Panel.

Wednesdays are the days for **Worthing** in their Hq. at Lancing Parish Hall, South Street, Lancing, West Sussex. Ragchew evenings are on August 6 and 20; August 13 was being finalised when they wrote, and on August 27 they are also to have something as yet unknown. Latest details from the Hon. Sec. — see Panel.

Turning to **Wolverhampton**, the Hon. Sec. notes their home address as being Wolverhampton Electricity Sports and Social Club, St. Marks Road, Chapel Ash; on August 3 they have a D/F hunt, starting from Tettenhall Park at 1100. August 5 is a visit — details from the Hon. Sec. — and on 12th they have a discussion on the relative merits of home-brew or commercial equipment. August 19 sees the visit to R.A.F. Cosford, they have a night-on-the-air on 26th, and another D/F hunt on August 31.

Wimbledon's August 8 date is a briefing for the Summer Camp. Hq. is the St. John Ambulance Hall, 124 Kingston Road, Wimbledon, SW19.

The Hon. Sec. at **Welwyn-Hatfield** takes the stand himself on August 4, to talk about radio-controlled aircraft. August 18 is the informal, plus working the RTTY station. Hq. is at the Scout Hut, Knightsfield, Welwyn Garden City.

Warrington have their booking at Grappenhall Community Centre, Bellhouse Lane, Grappenhall, Warrington, where on August 5 they have an open forum. August 12 is a barbecue and on August 19 they have G4YZE from IBA Winter Hill, while on 26th they have an RSGB film.

The **WACRAL** membership comprises committed Christians from all over the world; details from the Hon. Sec. — see Panel.

Now **Verulam**; this means the R.A.F.A. Hq., New Kent Road, off Marlborough Road, St. Albans; August 12 is an activity evening, and on 26th there is the annual bring-and-buy.

New Formation

This one is the **Vale of Evesham** where they have the first Thursday at the "Round of Gras" (that is the right spelling!) and on the third Thursday at "The Anchor". The former venue is at Badsey and the latter in Fladbury; and we note they have G5UM down for September 4.

At **Trafford** the locals have a spot reserved at the Sea Cadets in Bradshaw Lane, Stratford, every Thursday.

Alternating between Thursday and Fridays each week, and

with a main meeting on a Saturday, marks this one out as **Torbay**. The Hq. is at ECC Social Club, Ringslade Road, Highweek, Newton Abbot, and the other details are available from the Hon. Sec. — see Panel.

Up to **Todmorden** and this group is booked in at the Queen Hotel, Todmorden, on first and third Mondays.

On the first Tuesday of the month the Thames Ditton Library, Watts Road, is the place the **Thames Valley** gang head for; details on the August meeting from the Hon. Sec. — see Panel.

As this is being written the **Telford** crowd are having an Open Day at Dawley Bank Community Centre, Dawley, Telford. Normal meetings are on Wednesdays at the same venue.

Now for **Sutton & Cheam** where they meet at Downs Tennis Club, Holland Avenue, Cheam; August 15 is a session on computers in amateur radio, by various members, and on August 24 they go to the Sandown Park BARTG Rally.

Over to **Surrey** where August 4 is a social event; get the details from the Hon. Sec. lest it is an 'away' date. The 'home' ones are at *TS Terra Nova*, 34 The Waldrons, South Croydon, on first and third Mondays.

At **Stourbridge** they seem to have got rid of their nice newsletter cover in favour of a full-size A4 offering covered in assorted 'Saturns' on the outside, and on the inside a complete listing of all that anyone needs to know about the club — great! First and third Mondays are the ones, at the Robin Woods Centre, School Street, off Enville Street, Stourbridge.

Turning to **Stockport** we find they are at the Magnet Inn on second and fourth Wednesdays plus an informal natter on the third Wednesday; August 13 and 20, then, are natters and on August 27 they have a talk by G4HK on the use and abuse of VHF aerials.

Deadlines for "Clubs" for the next three months—

September issue—July 24th

October issue—August 28th

November issue—September 25th

December issue—October 30th

Please be sure to note these dates!

Stafford has a new Hon. Sec. — see Panel. They foregather at the Coach & Horses Motel, Weston, near Stafford, every Tuesday evening.

The **South Manchester** group is to be found every Friday evening at Sale Moor Community Centre, Norris Road, Sale, starting at 8. For more details contact the Hon. Sec. at the given address in the Panel.

Southgate has an Open Evening on August 14, and on 28th there is an informal. Meetings are at Holy Trinity Church Hall (Upper), Green Lane, Winchmore Hill.

August 4 for **Southdown** is a red-letter day, for the speaker at Chasely Home for Disabled Ex-Servicemen, Southcliff, Eastbourne, is none other than G5RV who will, presumably, be talking about aerials.

August 6 for **South Bristol** is a talk on how to take better pictures, by W. Pipping, in Rooms 3/4, Whitchurch Folk House, East Dundry Road, Whitchurch, Bristol; on August 13 they have Dundry Activity Night, and for the remainder of the weekly meetings we have to refer you to the Hon. Sec. — see Panel.

Firth Park Pavilion is the home these days of the **Sheffield** club from which we see they have the first two Mondays and the last two Wednesdays of the month. The latter of these two is kept open as bookable by any minority group in the club, for a specified activity — sounds like a good idea.

SARUG is the Sinclair computer user group in amateur radio, and the Hon. Sec. is of course our contributor on this subject — which will give you a fair idea that the newsletter is very well worth having. Details from the Hon. Sec. — see Panel.

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- YEOVIL: E. H. Godfrey, G3GC, Dorset Reach, 60 Chilton Grove, Yeovil, Somerset BA21 4AW. (0935 75533).
- YORK: K. R. Cass, G3WVO, 4 Heworth Village, York. 308: R. Chalker, G1JRR, 89 Mount Road, Chessington, Surrey KT9 1JH. (01-391 0788)

The Reigate newsletter we have to hand is well adrift in time terms for programme details so we must refer you to the Hon. Sec. — see Panel. However we can say they get together at the Constitutional and Conservative Club, Warwick Road, Redhill, on the third Tuesday of each month.

Now RAIBC, the club for the blind and disabled amateur or SWL; and of course there are always supporters and representatives wanted who can 'make it all happen' for the full members. Details from the Hon. Sec. — see Panel.

Turning to Powys this group meets every Thursday evening at

Lymore Park Cricket Pavilion, near Montgomery; we suggest you contact the Hon. Sec. — see Panel — for the directions or you will never find it!

The **Poole** crowd is anxious that we give them a mention; they are to be found at Commanders House, Consitutional Hill, Poole on the last Friday of the month. August 29 sees a talk on “Ten — dead or alive?” by G4XYX.

Next **Pontefract** where the informal is on August 4, and 21st is an on-the-air-night. They have moved from the top floor down to ground level at Carleton Community Centre, as the older members were finding it a little difficult to climb to the Eagle's Nest!

For all the details on the **Plymouth Polytechnic Club** we have to refer you to the Hon. Sec. — see Panel.

The same words, sad to say, also apply in the case of **Pembrokeshire** — details from the Hon. Sec. at the address in the Panel.

It looks like there is no meeting in August for the **Ormskirk** crowd; normally they have the first Thursday of each month at Ormskirk Community Centre, Chapel Street.

On now to **Nottingham** where we hear they did a good job helping an RAIBC member with a sick aerial earlier this year. For August they have a fox-hunt on 7th, and activity nights on 14th and 21st. That leaves August 28 for G4MHB to talk about his visit to the U.S.A.

North Wakefield has a mobile rally for October 4, at Outwood Grange School, Potovens Lane, Wakefield. For details contact the Hon. Sec. — see Panel. We reckon he will also tell you all about the club meetings and get you to join with a little luck!

Every Wednesday evening the **Nene Valley** group heads for the “Prince of Wales”, Well Street, Finedon; on August 13 they have a talk on crime prevention, and the other evenings in August are informals.

On to **Midland** who are now to be found at Henstead House, Henstead Street, Birmingham B5; for details of the outing on August 19 we must refer you to the Hon. Sec. — see Panel for his details.

The **Medway** letter we have doesn't give the August details, but we understand they are to be found every Friday evening at St. Lukes Church Hall, Gillingham, Kent.

The **Maltby** meetings are on Fridays at Hellaby Community Hall, Clifford Road, Hellaby, and they seem to alternate formal talks and similar events with natter nights, and activity on the air.

Loughton, Essex, seem to have the first and third Fridays at Loughton Hall; and if you are searching for the Hq. don't get lost in Epping Forest! Details from the Hon. Sec. — see Panel.

Both August 5 and 19 were still to be finalised at the time the **Kidderminster** scribe sent his letter; hence we suggest that you contact him — see Panel — for all the details of what's on at Harriers Vice-Presidents Club, Hoo Road, Kidderminster.

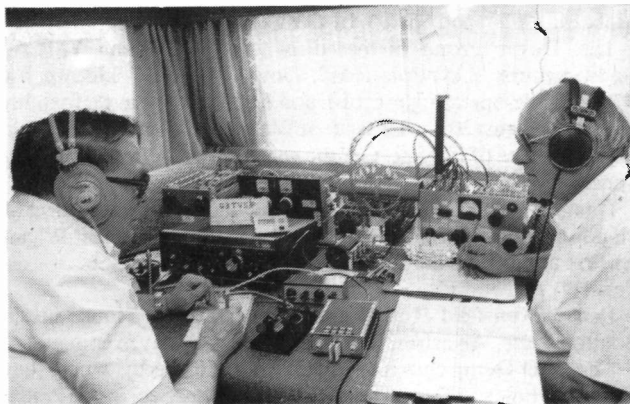
At the **Isle of Man** the locals meet on Mondays at the Howstrake Hotel, Onchan; in addition they have regional meetings at the British Legion in Peel on Thursdays, and the Perwick Hotel on Fridays in Port St. Mary.

At **Ipswich** the locals forgather at the “Rose and Crown”, in the upstairs clubroom on the second and last Wednesday of each month; the venue is on the corner of 77 Norwich Road, Ipswich, and the room is away from the public bars so juniors are welcome.

Holyhead now, and here the locals foregather at the “Foresters Arms”, Kingsland Road, Holyhead, Gwynedd, on alternate Sundays at 7.30 p.m. Details on what's going on from the Hon. Sec. — see Panel.

Over now to **Hereford**, which of course means the County Control, Civil Defence Hq., Goal Street, Hereford, where they will be found on August 1 and 15. The first date will be the ‘main’ meeting with speaker, while the latter one will be the informal session.

A most interesting series in the **Harrow** newsletter has detailed the club's history in this 40th anniversary year. Meet the gang — and Grubby the Gremlin — on any Friday evening at Harrow Arts Centre, High Road; Harrow Weald.



During this year's National Field Day, Thames Valley A.R.T.S. operators G3JIP and G3BPM worked from the comfort of a luxury caravan sited on the G30GP farm, matching their Drake TR7 to a 264-ft. centre-fed dipole with a bank of five home-built antenna tuners, switched for fast band changing and precise matching on all contest frequencies.
photo: G3JNB

Harpenden are to be found at the “Silver Cup” pub, St. Albans Road, Harpenden, on August 12 for a talk on the 62 Set — blimey! — and then on 26th for a natter night.

Over to **Guildford** where the programme details are not organised far enough ahead for our deadlines; but they are to be found on the second and fourth Fridays each month at the Model Engineers' Hq. in Stoke Park, Guildford.

Greater Peterborough has its base at Southfields Junior School, Stanground, Peterborough at 7.30 p.m. in normal months. However, for August they have a social event and for the venue and other details we must refer you to the Hon. Sec. — see Panel.

The **Grafton** club is to be found these days at *TS Wizard* of the Sea Cadets, in White Hart Lane, opposite Haringey Football Ground, on second and fourth Fridays.

G-QRP Club caters for the low-power enthusiast, and by extension, since QRP-ers are mostly home-brew enthusiasts also, it is the one for the home constructor to join. Get the details from the Hon. Sec. — see Panel.

At **Glossop** the local club foregathers in the “Nags Head” pub for a talk by G3CSG on Japanese Morse on August 28.

Over to **Fylde** where the sub. includes membership of the Kite Club at Blackpool Airport, which is where they have their Hq. They meet on August 5 for a talk by G4OBK on Top Band DX and on August 19 they have their informal evening with Morse. Members can also visit the Kite Club at any time to watch the aircraft.

At **Felixstowe** they have a social on August 11, and on 25th a projects evening. August 28 is down for a visit to *Radio Orwell*, and on August 30 they take part in the Felixstowe Carnival. ‘Home’ meetings are at “The Feathers” pub, in the back room; this is in Walton High Street.

The **Farnborough** venue is the Railway Enthusiasts Club, Access Road, off Hawley Lane, and the dates are August 13 and 27; on the latter they have Ray Flavell, G3LTP, to talk about propagation.

Now **Edgware** which meets on second and fourth Thursdays; August 14 is skipped (no meeting) and on August 21 they have a pre-NFD briefing. This date looks a little odd, so we refer you to the Hon. Sec. for a confirmation — see Panel. The Hq. is at 145 Orange Hill Road.

On the first Tuesday of each month there is a lecture or demonstration, and on the last Tuesday an informal, for the **East Lancs** gang, says the Hon. Sec. The venue is the Conservative Club, Cliff Street, Rishton.

On the second Monday of every month, the **Droitwich** members head for the club shack at 17 Ombersley Street West — *chez* G4PQZ — and then on the fourth Monday the Scout Hut in Union Lane is used for the formal meeting. August 25 is down for

a talk on RTTY and SS/TV by G3CXI.

The **Dover** group is based at the S.E. Kent YMCA, Godwynehurst, Leyburne Road, Dover. August 7 is down for QRP outside-operating practice, and on 13th they have a foxhunt on VHF. August 20 is a barbecue at Walmer, and on 27th there is a visit to a place of interest. Get the gen from the Hon. Sec. — see Panel.

Douglas Valley and Wigan are synonymous; they now meet at Standish Conservative Club, School Lane, Standish, near Wigan on first and third Thursdays. Details from the Hon. Sec. — see Panel.

Derby (Nunsfield House) are at the Nunsfield House site in Boulton Lane, Alvaston, in Room 7, every Friday evening.

The other **Derby** club is at 119 Green Lane, Derby, where they have the whole top floor. Details from the Hon. Sec. — see Panel.

Denby Dale is where the famous pie comes from, and the local club in fact meets in the Pie Hall; August 6 and 20 are both for a noggin and a natter. August 13 is the Chairman's Evening in Room 3, and on 27th they will be working on the Mobile Rally, also in Room 3.

Heading now to **Dartford Heath D/F** we find they are actively looking for new members. Meet them at the "Horse & Groom" on the evening of August 5 or 19; or of course at one of the hunts, which are on August 3, 10, or 17th, the latter being an evening job. Get the full details from the Hon. Sec. — see Panel.

The August meeting of **Crystal Palace** will be on 16th, when Ceri Stone, G3SGN, will talk about professional communications and satellite operations, at All Saints Parish Rooms, Beulah Hill, London SE19.

Crawley has a barbecue on August 13 and a pub hunt on 27th; for both these events we must refer you to the Hon. Sec. — see Panel.

Normally the **Coventry** meetings are every Friday at Baden-Powell House, 121 St. Nicholas Street, Radford, Coventry. Mini lectures fill August 1, while 8th and 22 are both spent on the air. August 15 is a two-metre D/F hunt and on 29th they will be learning how to use an oscilloscope.

August 7 at **Cornish** is down for a talk about "My Eyes have a Cold Nose, and Other Things" by G4FNP; find the club at the Church Hall, Treleigh, on the old Redruth By-pass.

On first and third Tuesdays the **Chichester** gang is in session at the North Lodge Bar, County Hall, Chichester; but we don't have the August details to hand, for which we have to refer you to the Hon. Sec. — see Panel.

Up at **Chester** the locals have a billet at Chester RUFC, Hare Lane, Vicars Cross; August shows only one meeting, on 26th, for a pre-SSB FD meeting. The weekly routine recommences in September.

The latest copy of the **Cheshunt** newsletter is adorned with a nice drawing of the club Hq. and beam, by the XYL of G4ZCX; this is of course Church Room, Church Lane, Wormley, near Cheshunt. August 6 and 20 are natters, August 13 is equipment night and on 27th they have a visitor from Wulfrath in West Germany.

If you want to find the **Chesham** crowd you have to find Bury Farm, Pednor Road, Chesham on any Wednesday evening.

For the August meeting of **Cheltenham** they are going to a common meeting with Evesham to hear G8VR — this is on Thursday, August 7. The next meeting in the Stanton Room, Charlton Kings Library, is September 5 for a test equipment evening.

At **Chelmsford** on August 5 they have a talk on Sunspot Cycle 21 at Marconi College, Arbour Lane, Chelmsford.

The **Central Lancs** gang is at the Priory Club, Broadfield Drive, Leyland on the first and third Monday of each month.

Bury next; and their bit of big news is the new HF beam atop the Mosses Community Centre, Cecil Street, where they meet every Tuesday; and we gather that when they aren't having their formal meetings the new beam is 'doing its thing' to no mean effect.

On the first and third Wednesday of each month the **Brighton** crowd all head for the Seven Furlong Bar at Brighton racecourse.

Programme details, and indeed gen on the Monday Morse classes are available from the Hon. Sec. — see Panel.

At **Bredhurst** the August 7 meetings is down for G5RV on wire aerials and feeder systems, while August 21 is set aside for G8CCJ. Find them at Parkwood Community Centre, Parkwood Green, Rainham, Kent, on alternate Thursdays.

August for **Borders** starts with a visit to the Tyneside Coastguard, on 1st, followed by a talk on 15th on safety in the shack; August 24 is Galashiels Open Day. The 'home' meetings are at Tweed View Hotel, Berwick-on-Tweed.

The **Biggin Hill** group has its place at the Village hall in Downe, on the second Tuesday, for an evening D/F *cum* treasure hunt; details from the Hon. Sec. — see Panel.

At **Basingstoke**, August 4 is a natter night, and we understand they also have an informal occasionally on a Tuesday evening — details from the Hon. Sec. on all this.

Nice to hear again from **Barry College of Further Education** who are to be found at the Annexe in Weycock Cross from 7 till around 10.30 every Thursday evening, when they usually have a station on the air.

August 19 at the Chiswick Town Hall, High Road, Chiswick, has the **Acton, Brentford & Chiswick** crowd listening to a talk on microprocessors for the radio amateur by G1HSM, starting at 7.30 p.m.

Finally **Abergavenny and Nevill Hall**, where they meet in the room above Male Ward 2 at Pen-y-Fal Hospital, Abergavenny, on Thursday evenings, with a Morse class also running as part of the weekly programme. Details from the Hon. Sec. at the address in the Panel.

Finished!

We've found the bottom of the pile again, and the time has come to mention deadlines — they are in the 'box' in the body of the piece and are the dates for arrival of your letters, addressed to your "Club Secretary", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ. 'Bye now!

August Rallies

August 10, Hamfest '86, organised jointly by Flight Refuelling A.R.S. and Bournemouth RAIBC, at Flight Refuelling Sports and Social Club Ground, Merley, Wimborne, Dorset, as well as many attractions for the radio amateur there will be a wide range of super family attractions. Full details from Ashley Hulme, G0CDY, on 0202-872503. **August 24, Galashiels** and D.A.R.S. Open Day at the Rugby Club, Netherdale, Galashiels, doors open at 11 a.m., trade stands, bring-and-buy, family attractions. **August 31, Telford Mobile Rally** at Telford Racquet & Fitness Centre, Telford, Shrops., talk-in via GB4TRG on S22 and SU8, doors open 11 a.m., all facilities. More details from G8UGL (Telford 584173) or G3UKV (Telford 55416).

Special Event Stations

West Middlesex Radio Group will again be operating **GB1RSG** and **GB2RSG** for this year's *Star and Garter Appeal*. The stations will be on the air during **August 23/24/25** and the organisers are looking for sponsors for the event. Further details from G1DDR, 62 Seward Road, Hanwell, London W7 2JL (01-579 7860).

Eddystone Radio Ltd. will be operating the company call, **G6SL**, during its Open Day at the firm's Birmingham factory, **August 9**.

Expedition

An expedition to **Flat Holm Island** by Barry College of F.E. Radio Society will take place between **August 22nd and 26th**, using the call **GB2FL**. The station will be active on all HF bands, 6m. as GW3VKL, 4m., 2m., 70cm., 23cm., and 3cm. wideband FM; sked frequencies will be 50.12, 70.22, 144.27, 432.27 and 1296.27 MHz. For skeds contact GW8NVN, GW1JCB or GW8CMU, all QTHR.

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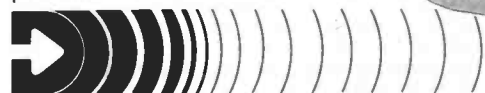


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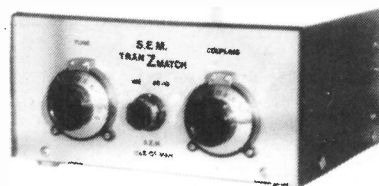
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see information panel on p. 243

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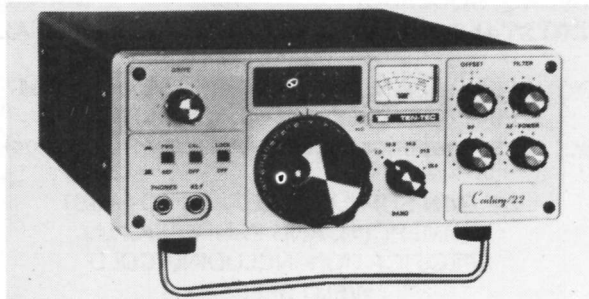
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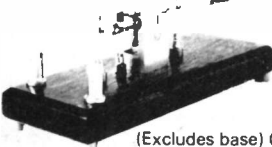
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