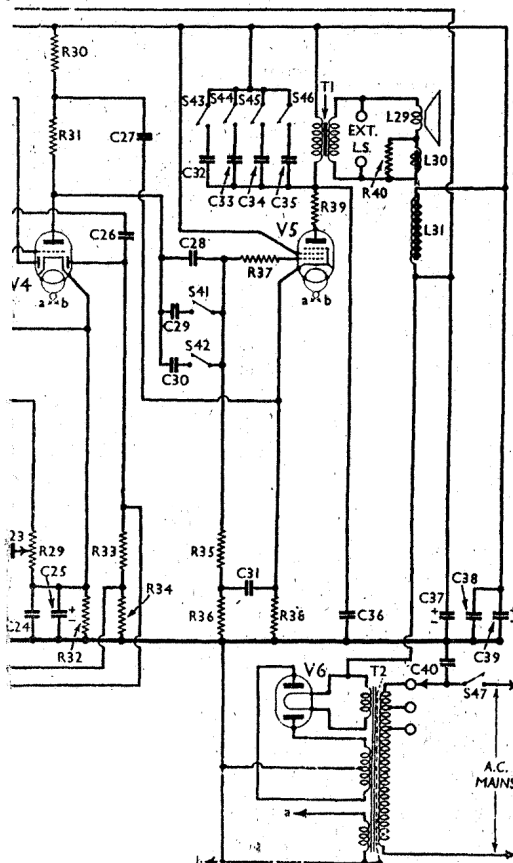
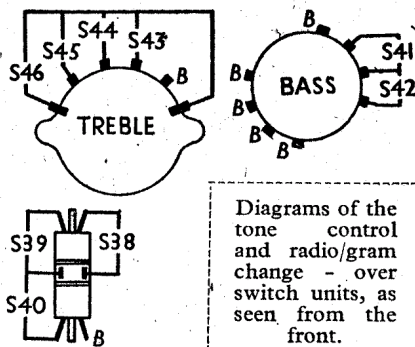


VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VMP4G	280	0.4	75	0.3
V2 X41	280	2.9	75	3.1
	{ Oscillator }			
	95	7.4		
V3 VMP4G	280	5.2	75	3.9
V4 MHD4	100	2.1		
V5 N41	230	43.0	280	9.5
V6 U12/14	390†	—	—	—

† Each anode, AC.

SW2.—Switch set to SW2 band, tune to 16.7 m on scale, feed in a 16.7 m (17.96 Mc/s) signal, and adjust **C52** for maximum output, selecting the peak involving the lesser trimmer capacitance. Feed in a 17.5 m (17.14 Mc/s) signal, tune it in, and adjust **C46** and **C41** for maximum output while rocking the gang for optimum results. The adjustment of **C46** must be done very carefully, constantly readjusting the gang to obtain the absolute maximum reading. Check the foregoing operations several times.



RESISTORS		Values (ohms)
R1	V1 CG decoupling ...	100,000
R2	Aerial LW stabiliser ...	100
R3	V1, V2 and V3 SG's HT potential divider ...	23,000
R4		23,000
R5		23,000
R6		7,500
R7	V1 AVC line decoupling ...	7,500
R8		1,500,000
R9	V1 fixed GB resistors ...	150
R10		10,000
R11	V1 anode decoupling ...	1,000
R12	V2 hex. CG decoupling ...	100,000
R13	RF trans. LW stabiliser ...	100
R14	V2 AVC line decoupling ...	750,000
R15	V2 fixed GB resistor ...	150
R16	V2 osc. CG resistor ...	50,000
R17	Oscillator anode reaction circuits stabilisers ...	150
R18		500
R19	V2 osc. anode HT feed resistors ...	2,300
R20		15,000
R21	V3 CG decoupling ...	35,000
R22		5,000
R23	V3 fixed GB resistor ...	1,000,000
R24	IF stopper ...	150
R25	PU series resistor ...	50,000
R26	PU circuit shunt resistor ...	230,000
R27	V4 triode CG resistor ...	50,000
R28	Manual volume control; V4 signal diode load ...	1,000,000
R29	V4 triode anode decoupling ...	250,000
R30	V4 triode anode load ...	50,000
R31	V4 triode anode load ...	35,000
R32	V4 GB and AVC delay ...	1,000
R33	V4 AVC diode load ...	350,000
R34		230,000
R35	V5 CG resistor ...	230,000
R36	V5 CG decoupling ...	50,000
R37	V5 CG IF stopper ...	1,000
R38	V5 GB resistor ...	1,000
R39	V5 anode stopper ...	500
R40	Hum neut. coil shunt ...	0.8

CAPACITORS		Values (μF)
C1	V1 CG decoupling ...	0.05
C2	AVC line decoupling ...	0.001
C3*	V1-V3 SG's decoupling ...	4.0
C4	V1 cathode by-pass ...	0.1
C5	RF trans. LW shunt ...	0.0003
C6	V1 anode decoupling ...	0.1
C7	SW2 RF "top" coupling ...	0.000005
C8	V2 hex. CG decoupling ...	0.05
C9	V2 AVC line decoupling ...	0.05
C10	V2 SG RF decoupling ...	0.1
C11	V2 heater by-pass ...	0.002
C12	V2 cathode by-pass ...	0.1
C13	1st IF trans. trimmer ...	0.0001
C14	V2 osc. CG capacitor ...	0.00005
C15	Osc. SW2 tracker ...	0.00285
C16	Osc. SW1 tracker ...	0.00184
C17	Osc. MW tracker, fixed ...	0.00035
C18	V2 osc. anode decoupling ...	0.05
C19*		4.0
C20	V3 CG decoupling ...	0.05
C21	V3 cathode by-pass ...	0.1
C22	IF by-pass ...	0.00035
C23	AF coupling to V4 triode ...	0.1
C24	V4 cathode by-pass ...	4.0
C25*		0.0001
C26	Coupling to V4 AVC diode	0.5
C27	V4 triode anode decoupling ...	0.001
C28	AF coupling to V5 ...	0.0015
C29	Bass tone control capacitor ...	0.05
C30	V5 CG decoupling ...	0.1
C31		0.0023
C32	Treble tone control capacitor ...	0.005
C33	Fixed tone corrector ...	0.02
C34		0.05
C35	HT smoothing capacitors ...	0.0023
C36		8.0
C37*	Mains RF by-pass ...	0.25
C38		8.0
C39*	Aerial trimmer (SW2) ...	0.005
C40		—
C41†	Aerial trimmer (SW1) ...	—
C42†	Aerial trimmer (MW) ...	—
C43†	Aerial trimmer (LW) ...	—
C44†	Aerial circuit tuning ...	—
C45†	RF trans. SW2 trimmer ...	—
C46†	RF trans. SW1 trimmer ...	—
C47†	RF trans. MW trimmer ...	—
C48†	RF trans. LW trimmer ...	—
C49†	RF trans. sec. tuning ...	—
C50†	Oscillator circuit tuning	—
C51†	Oscillator trimmer (SW2) ...	—
C52†	Oscillator trimmer (SW1) ...	—
C53†	Oscillator trimmer (MW) ...	—
C54†	Oscillator tracker (MW) ...	—
C55†	Oscillator trimmer (LW) ...	—
C56†	Oscillator tracker (LW) ...	—
C57†	1st LF trans. pri. tuning	—
C58†	1st IF trans. sec. tuning	—
C59†	2nd IF trans. pri. tuning	—
C60†	2nd IF trans. sec. tuning	—
C61†	—	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coil (SW2) ...	2.5
L2	Aerial tuning coil (SW2) ...	0.1
L3	Aerial coupling coil (SW1) ...	16.0
L4	Aerial tuning coil (SW1) ...	0.75
L5	Aerial coupling coil (MW) ...	46.0
L6	Aerial tuning coil (MW) ...	5.5
L7	Aerial coupling coil (LW) ...	140.0
L8	Aerial tuning coil (LW) ...	30.0
L9	RF trans. pri. (SW2) ...	3.1
L10	RF trans. sec. (SW2) ...	0.1
L11	RF trans. pri. (SW1) ...	27.0
L12	RF trans. sec. (SW1) ...	0.75
L13	RF trans. pri. (MW) ...	87.0
L14	RF trans. sec. (MW) ...	5.5
L15	RF trans. pri. (LW) ...	145.0
L16	RF trans. sec. (LW) ...	25.0
L17	Osc. tuning coil (SW2) ...	0.1
L18	Osc. reaction coil (SW2) ...	0.5
L19	Osc. tuning coil (SW1) ...	0.5
L20	Osc. reaction coil (SW1) ...	0.75
L21	Osc. tuning coil (MW) ...	5.0
L22	Osc. reaction coil (MW) ...	1.25
L23	Osc. tuning coil (LW) ...	10.0
L24	Osc. reaction coil (LW) ...	7.0

(Continued next col.)

OTHER COMPONENTS (Continued)		Approx. Values (ohms)
L25	1st IF trans. { Pri. ...	12.0
L26	Sec. ...	8.0
L27	2nd IF trans. { Pri. ...	12.0
L28	Sec. ...	12.0
L29	Speaker speech coil ...	4.0
L30	Hum neutralising coil ...	0.5
L31	Speaker field coil ...	1,200.0
T1	Speaker input trans. { Pri. ...	580.0
	Sec. ...	0.5
T2	Mains { Pri. total ...	19.5
	Heater sec. ...	0.1
	Rect. fl. sec. ...	0.1
	HT sec. total ...	300.0
S1-S37	Waveband switches ...	—
S38	Radio muting switch (gram.) ...	—
S39	Radio-gram switches ...	—
S40		—
S41	Bass control switches ...	—
S42		—
S43	Treble control switches ...	—
S44		—
S45	Mains switch ...	—

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C55 for maximum output while rocking the gang for optimum results. Repeat these operations.

SW1. Switch set to SW1 band; tune to 46 m on scale, feed in a 46 m (6.52 Mc/s) signal, and adjust C53 for maximum output. Feed in a 50 m (6 Mc/s) signal, tune it in, and adjust C47 and C42 for maximum output while rocking the gang for optimum results. Repeat these adjustments.

Switch Table

Switch	S2	S1	MW	LW
S1	0	—	—	—
S2	—	0	—	—
S3	—	—	0	—
S4	—	—	—	0
S5	0	—	—	—
S6	—	0	—	—
S7	—	—	0	—
S8	0	—	—	—
S9	—	0	—	—
S10	—	—	0	—
S11	—	—	—	0
S12	0	0	—	—
S13	—	—	—	—
S14	—	0	—	—
S15	—	—	0	—
S16	—	—	—	0
S17	0	—	—	—
S18	—	0	—	—
S19	—	—	0	—
S20	0	—	—	—
S21	—	0	—	—
S22	—	—	0	—
S23	—	—	—	0
S24	0	—	—	—
S25	—	0	—	—
S26	—	—	0	—
S27	—	—	—	0
S28	0	—	—	—
S29	—	0	—	—
S30	—	—	0	—
S31	—	—	—	0
S32	0	0	—	—
S33	—	—	—	—
S34	0	—	—	—
S35	—	0	—	—
S36	—	—	0	—
S37	—	—	—	0

CIRCUIT ALIGNMENT

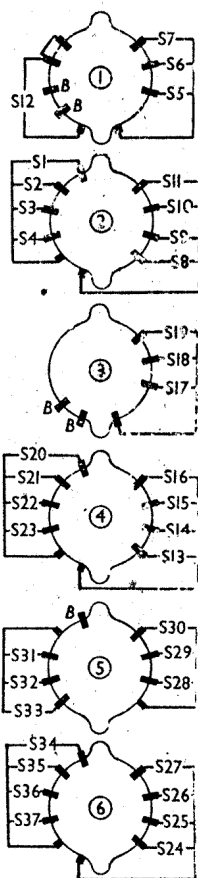
IF Circuits.—Set bass control to minimum cut, treble control to maximum cut, volume control to maximum, waveband switch to MW, and turn gang to maximum. See that set is switched to radio. Connect signal generator to fixed vanes of C50 and chassis, and see that the can is on the IF valve (V3). Tune generator to 460 kc/s (652.1 m), and adjust C58, C59, C60 and C61 in that order for maximum output. Re-check for exact resonance on all four trimmers.

RF and Oscillator Circuits.—Leave tone and volume controls as above. Connect generator to A and E sockets. Engage gang plates fully, and see that pointer is exactly over the 0 and 50 marks on vernier scale. Where tuning points for the receiver are given, obtain these, unless otherwise stated, by setting the pointer accurately according to scale, and not by tuning in the generator signal. Use a 400Ω resistor in series with the generator output as a dummy aerial.

LW.—Switch set to LW, tune to 750 m on scale, feed in a 750 m (400 kc/s) signal, and adjust C56 for maximum output. Set generator to 775 m (387.1 kc/s), tune in the signal, and adjust C49 and C44 for

maximum output. Set generator to 1,700 m (176.5 kc/s) and tune in signal on receiver. Adjust C57 for maximum output, irrespective of receiver calibration, rocking gang meanwhile. Repeat these operations. It may be necessary to de-sensitise V2 by including an additional 2,000Ω resistor in series with the cathode circuit to stabilise the receiver.

MW.—Switch set to MW, tune to 185 m on scale, feed in a 185 m (1,622 kc/s) signal, and adjust C54 for maximum output. Feed in a 205 m (1,463 kc/s) signal, tune it in, and adjust C48 and C43 for maximum output. Feed in a 500 m (600 kc/s) signal, tune it in, and adjust



Diagrams showing in detail the six waveband switch units. They are all drawn as seen when viewed from the rear of the underside of the chassis, and numbered to agree with those indicated in the under-chassis view overleaf. The associated table is in col. 3 on this page. The remaining three switch units are shown in the diagrams in col. 6 opposite.