

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 CG decoupling	110,000
R2	V1 SG HT feed	25,000
R3	V1 fixed GB resistance ..	100
R4	MW RF trans. pri. damping	2,100
R5	V1 HT feed resistance ..	10,000
R6	LW RF trans. sec. damping	100
R7	V2 hexode CG decoupling ..	260,000
R8	V2 SG HT feed	41,000
R9	V2 fixed GB resistance ..	200
R10	V2 osc. CG resistance ..	51,000
R11	Osc. SW reaction damping ..	200
R12	Osc. MW reaction damping ..	1,500
R13	Osc. LW reaction damping ..	5,100
R14	V2 HT feed resistance ..	5,000
R15	V2 osc. anode HT feed ..	20,000
R16	V3 CG decoupling	260,000
R17	V3 SG HT feed	30,000
R18	V3 fixed GB resistance ..	450
R19	V4 signal diode load resistances	510,000
R20		260,000
R21	Variable tone control ..	2,000,000
R22	Manual volume control ..	500,000
R23	V4 triode grid stopper ..	110,000
R24	V4 triode GB and AVC delay resistances	800
R25		1,500
R26	V4 triode anode decoupling	11,000
R27	V4 triode anode load ..	41,000
R28	V4 AVC diode load resistances	260,000
R29		260,000
R30	V4 AVC diode load resistances	510,000
R31		510,000
R32	V5 CG resistance	510,000
R33	Negative feed-back coupling	250,000
R34	V5 grid stopper	51,000
R35	V5 GB resistance	150

CONDENSERS (Continued)		Values (μF)
C22	Part of variable tone control	0.0002
C23	Coupling to V4 AVC diode ..	0.00001
C24*	V4 cathode by-pass	50.0
C25*	V4 triode anode decoupling	2.0
C26	V4 triode to V5 AF coupling	0.05
C27*	V5 cathode by-pass	50.0
C28*	HT smoothing condenser ..	8.0
C29	V6 heater RF by-pass ..	0.0005
C30*	HT smoothing condenser ..	8.0
C31	Mains RF by-pass	0.0005
C32†	Aerial circuit SW trimmer ..	0.00002
C33†	Aerial circuit MW trimmer ..	0.0001
C34†	Aerial circuit LW trimmer ..	0.0001
C35†	Aerial tuning condenser ..	0.00054
C36†	SW RF trans. sec. trimmer ..	0.00002
C37†	MW RF trans. sec. trimmer ..	0.0001
C38†	LW RF trans. sec. trimmer ..	0.0001
C39†	RF trans. sec. tuning ..	0.00054
C40†	Oscillator circuit tuning ..	0.00054
C41†	Osc. circuit MW tracker ..	0.0003
C42†	Osc. circuit LW tracker ..	0.0003
C43†	Osc. circuit SW trimmer ..	0.00002
C44†	Osc. circuit MW trimmer ..	0.0001
C45†	Osc. circuit LW trimmer ..	0.0001
C46†	1st IF trans. pri. tuning ..	0.0003
C47†	1st IF trans. sec. tuning ..	0.0003
C48†	2nd IF trans. pri. tuning ..	0.0003
C49†	2nd IF trans. sec. tuning ..	0.0003

* Electrolytic. † Variable. ‡ Pre-set.

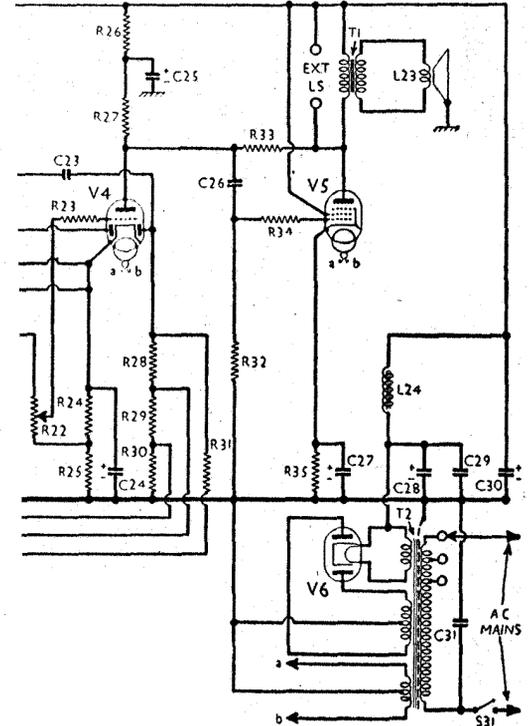
OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial SW coupling coil ..	2.0
L2	Aerial MW coupling coil ..	10.4
L3	Aerial LW coupling coil ..	140.0

VALVE ANALYSIS

Valve voltages and currents given in the table (col. 3) are those measured in our receiver when it was operating on mains of 226 V, using the 216-235 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band, and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 A50P ..	162	6.4	118	2.2
V2 A36B	218	1.3	68	3.6
	Oscillator			
	96	5.9		
V3 A50P	270	6.2	180	2.2
V4 A23A ..	116	3.2	—	—
V5 A70D	248	32.0	270	4.8
V6 A11D ..	252†	—	—	—



OTHER COMPONENTS (Continued)		Approx. Values (ohms)
L4	Aerial SW tuning coil ..	Very low
L5	Aerial MW tuning coil ..	2.5
L6	Aerial LW tuning coil ..	43.0
L7	SW RF trans. pri. ..	7.9
L8	MW RF trans. pri. ..	2.2
L9	LW RF trans. pri. ..	137.0
L10	SW RF trans. sec. ..	Very low
L11	MW RF trans. sec. ..	2.4
L12	LW RF trans. sec. ..	45.0
L13	Osc. circuit SW tuning coil ..	Very low
L14	Osc. circuit MW tuning coil ..	1.7
L15	Osc. circuit LW tuning coil ..	5.0
L16	Oscillator SW reaction ..	0.3
L17	Oscillator MW reaction ..	2.9
L18	Oscillator LW reaction ..	9.6
L19	1st IF trans.	Pri. .. 6.7
L20		Sec. .. 6.7
L21	2nd IF trans.	Pri. .. 6.7
L22		Sec. .. 6.7
L23	Speaker speech coil ..	2.3
L24	HT smoothing choke ..	230.0
T1	Speaker input trans.	Pri. .. 650.0
		Sec. .. 0.3
T2	Mains trans.	Pri., total .. 23.5
		Heater sec. .. 0.05
		Rect. heat. sec. HT sec., total .. 240.0
S1-S30	Waveband switches ..	—
S31	Mains switch, ganged R22 ..	—

GENERAL NOTES

Switches.—S1-S30 are the wavechange switches, in three rotary units beneath the chassis. These are indicated in our under-chassis view, and shown in detail in the diagrams in col. 6, where they are drawn as seen looking from the rear of the underside of the chassis. The table (col. 5) gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and **C** closed.

S31 is the QMB mains switch, ganged with the volume control R22.

Coils.—The SW coils L1, L4; L7, L10 and L13, L16 are in three unscreened tubular units beneath the chassis, close to the switch units. The remaining coils and the IF transformers are in five screened units on the chassis deck, with their associated trimmers and, in some cases, additional components.

L24 is the smoothing choke, mounted on the speaker sub-baffle, and therefore not shown in our chassis pictures.

Scale Lamps.—These are four Ever Ready MES types, rated at 5.5 V, 0.3 A.

External Speaker.—Two sockets are provided at the rear of the chassis for a high impedance (10,000 Ω) external speaker.

Condensers C13, C28, C30.—These are three 8 μ F dry electrolytics in a single carton beneath the chassis, having a common negative (black) lead. The red lead emerging with the black one (connected to one Ext. LS socket) is the positive of C30.

Of the other two red leads, that to V6 holder is the positive of C28, while that to the L19, L20 unit is the positive of C13.

Resistance R23.—This is inside the top cap connector of V4.

Condenser C8.—This is inside the L7, L10 coil unit.

Resistance R18.—This is 450 Ω in our chassis, but 250 Ω in the makers' diagram.

Pre-set Condensers.—Apart from those in the five coil units on the chassis deck, there is one trimmer mounted on each SW coil unit beneath the chassis, and two variable trackers adjustable from the rear of the chassis.

CIRCUIT ALIGNMENT

IF Stages.—Short-circuit the C40 section of the gang, and switch set to MW. Connect signal generator to control grid (top cap) of V2, via a 0.1 μ F condenser, and chassis.

Feed in a 473 KC/S signal, and adjust

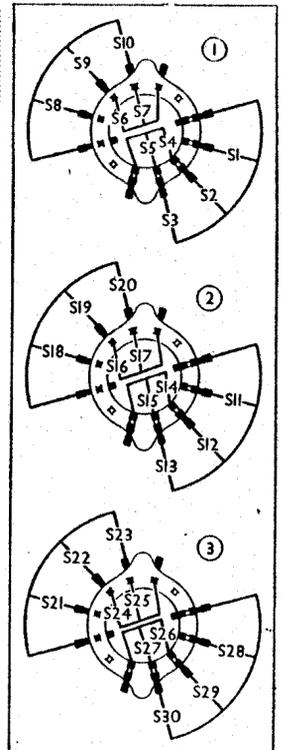
C49, C48, C47 and C46, in that order, for maximum output. Check these settings, then remove the short from the C40 section of the gang.

RF and Oscillator Stages.—With the gang at maximum, the pointer should

TABLE AND DIAGRAMS OF THE SWITCH UNITS

Switch	LW	MW	SW
S1	—	—	C
S2	—	C	—
S3	C	—	—
S4	—	—	C
S5	—	C	C
S6	—	—	C
S7	—	C	C
S8	—	—	C
S9	—	C	—
S10	C	—	—
S11	—	—	C
S12	—	C	—
S13	C	—	—
S14	—	—	C
S15	—	C	C
S16	—	—	C
S17	—	C	C
S18	—	—	C
S19	—	C	—
S20	C	—	—
S21	—	—	C
S22	—	C	—
S23	C	—	—
S24	—	—	C
S25	—	C	C
S26	—	—	C
S27	—	C	C
S28	—	—	C
S29	—	C	—
S30	C	—	—

Diagrams of the three wavechange switch units, as seen from the rear of the underside of the chassis.



Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C41 for maximum output, while rocking the gang for optimum results.

Re-adjust C44, C37 and C33 at 214 m if necessary. Finally, see that the pointer is at the 500 m mark when receiving the 500 m signal, and if not make a final slight adjustment to the tracker C41.

SW.—Switch set to SW, and tune to 15 MC/S on scale. Unscrew C43 fully, and feed in a 15 MC/S (20 m) signal. Screw in C43, and adjust accurately to the first peak reached from the fully unscrewed position. Then adjust C36 and C32 for maximum output. Feed in a 6 MC/S (50 m) signal, and tune it in.

Adjust the top turn of L13, and at the same time rock the gang very slightly, for optimum output. Return to 15 MC/S, and re-adjust C43, C36 and C32 for maximum output.

cover the horizontal line on the scale. Connect signal generator, via a suitable dummy aerial, to the A and E sockets.

LW.—Switch set to LW, set C42 about two-thirds in, and tune to 1,000 m on scale. Feed in a 1,000 m (300 KC/S) signal, and adjust C45, then C38 and C34, for maximum output. Feed in a 1,700 m (176 KC/S) signal, tune it in, and adjust C42 for maximum output while rocking the gang for optimum results. Re-adjust C45, C38 and C34 at 1,000 m if necessary.

Finally, see that pointer is at the 1,700 m mark when receiving the 1,700 m signal, and if not, make a final slight adjustment to C42.

MW.—Switch set to MW, set C41 about two-thirds in, and tune to the 214 m mark on scale. Feed in a 214 m (1,400 KC/S) signal, and adjust C44, then C37 and C33, for maximum output.