

### COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1	Aerial circuit L.W. damping .. 1,000
R2	V1 tetrode C.G. decoupling .. 250,000
R3	V1 fixed G.B. .. 250
R4	V1 osc. C.G. resistance .. 50,000
R5	V1 osc. anode H.T. feed .. 10,000
R6	V1, V2 S.G.'s H.T. feed .. 25,000
R7	V2 fixed G.B. .. 250
R8	A.V.C. line decoupling .. 250,000
R9	Manual volume control .. 1,000,000
R10	V3 diodes load resistance .. 500,000
R11	V3 triode G.B. resistance .. 5,000
R12	V3 triode anode load .. 250,000
R13	V4 C.G. resistance .. 500,000
R14	V4 G.B. resistance .. 500
R15	V5 anodes surge limiter .. 50
R16	Part heater circuit ballast and scale lamps shunt .. *56
R17	Part heater circuit ballast .. *134
R18	Mains heater circuit ballast .. †350

\* K52H tube; R16 centre tapped. † In mains lead.

CONDENSERS	Values (μF)
C1	Aerial series condenser .. 0.0005
C2	Earth blocking condenser .. 0.01
C3	V1 tetrode C.G. decoupling .. 0.05
C4	Aerial circuit L.W. fixed trimmer .. 0.000025
C5	V1 cathode by-pass .. 0.1
C6	V1 osc. C.G. condenser .. 0.00005
C7	Osc. circuit L.W. fixed trimmer .. 0.00007
C8	V1 osc. anode R.F. by-pass .. 0.1
C9*	V1 osc. anode decoupling .. 8.0
C10*	V1, V2 S.G.'s decoupling .. 8.0
C11	V1, V2 S.G.'s R.F. by-pass .. 0.1
C12	V2 C.G. decoupling .. 0.05
C13	V2 cathode by-pass .. 0.1
C14	I.F. by-pass .. 0.0002
C15	A.F. coupling to V3 triode .. 0.01
C16*	V3 cathode by-pass .. 50.0
C17	V3 anode I.F. by-pass .. 0.0002
C18	V3 triode to V4 A.F. coupling .. 0.01
C19*	V4 cathode by-pass .. 10.0
C20	Fixed tone corrector .. 0.01
C21*	H.T. smoothing .. 32.0
C22*	H.T. smoothing .. 10.0
C23	Mains R.F. by-pass .. 0.01
C24†	Aerial I.F. filter tuning .. —
C25†	Aerial circuit S.W. trimmer .. —
C26†	Aerial circuit M.W. trimmer .. —
C27†	Aerial circuit L.W. trimmer .. —
C28†	Aerial circuit tuning .. —
C29†	Oscillator circuit tuning .. —
C30†	Oscillator circuit M.W. tracker .. —
C31†	Oscillator circuit L.W. tracker .. —
C32†	Oscillator circuit S.W. trimmer .. —
C33†	Oscillator circuit M.W. trimmer .. —
C34†	Oscillator circuit L.W. trimmer .. —
C35†	1st I.F. trans. pri. tuning .. —
C36†	1st I.F. trans. sec. tuning .. —
C37†	2nd I.F. trans. pri. tuning .. —
C38†	2nd I.F. trans. sec. tuning .. —

\* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial I.F. filter coil .. 9.0
L2	Aerial S.W. coupling .. 0.3
L3	Aerial M.W. coupling .. 2.8
L4	Aerial L.W. coupling .. 42.0
L5	Aerial S.W. tuning coil .. 0.05
L6	Aerial M.W. tuning coil .. 3.0
L7	Aerial L.W. tuning coil .. 18.0
L8	Osc. circuit S.W. tuning coil .. 0.05
L9	Osc. circuit M.W. tuning coil .. 4.25
L10	Osc. circuit L.W. tuning coil .. 6.5
L11	Oscillator S.W. reaction .. 25.0
L12	Oscillator M.W. reaction .. 70.0
L13	Oscillator L.W. reaction .. 8.0
L14	1st I.F. trans. { Pri. .. 9.0
L15	1st I.F. trans. { Sec. .. 10.0
L16	2nd I.F. trans. { Pri. .. 9.0
L17	2nd I.F. trans. { Sec. .. 10.0
L18	Speaker speech coil .. 1.75
L19	Hum neutralising coil .. 0.1
L20	Speaker field coil .. 2,000.0
L21	Mains filter chokes .. 3.5
L22	Mains filter chokes .. 3.5
T1	Speaker input trans. { Pri. .. 250.0
S1-S12	Waveband switches .. 0.2
S13	Mains switch, ganged R9 .. —

### VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on A.C. mains of 233 V. 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, as the aerial and earth leads were shorted together.

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 6A8G*	175	1.9	70	2.5
V2 6K7G	175	5.8	70	1.3
V3 6Q7G	58	0.2	—	—
V4 25A6G	163	38.0	175	7.0
V5 25Z6G	230†	—	—	—

\* Oscillator anode (G2) 133 V, 3.1 mA.

† Each anode, A.C.

### GENERAL NOTES

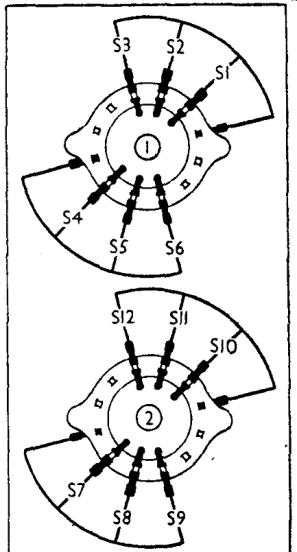
**Switches.**—S1-S12 are the waveband switches, in two rotary units beneath the chassis. These are indicated in our

under-chassis view, and are shown in detail in the diagrams on this page.

The table below gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open and C closed.

Switch	S.W.	M.W.	L.W.
S1	C	—	—
S2	—	C	—
S3	—	—	C
S4	C	—	—
S5	—	C	—
S6	—	—	C
S7	C	—	—
S8	—	C	—
S9	—	—	C
S10	C	—	—
S11	—	C	—
S12	—	—	C

Switch diagrams, looking from the rear of the underside of the chassis.



**S13** is the Q.M.B. mains switch, ganged with the volume control, **R9**.

**Coils.**—**L1** is attached to the underside of the chassis. The remaining coils up to **L13** are in pairs on tubular formers beneath the chassis, attached to the screen between the two switch units. They are indicated in our under-chassis view. The I.F. transformers **L14**, **L15** and **L16**, **L17** are in two screened units on the chassis deck, with their associated trimmers. The chokes **L21** and **L22** are on separate formers beneath the chassis.

**Scale Lamps.**—These are two M.E.S. types, with tubular bulbs, rated at 6.0 V, 0.15 A. Those fitted are marked Tre Vita.

**External Speaker.**—No provision is made for this, but a low impedance type could be connected across the secondary of the internal speaker transformer. As the set is for A.C./D.C. operation, no external speaker should be connected to the primary of **T1**.

**Condenser C21, C22.**—These are two dry electrolytics in a single tubular metal case on the chassis deck. The case forms the common negative connection. Of the two wires emerging beneath the chassis, the yellow is the positive of **C22** (10 μF) and the red the positive of **C21** (32 μF).

**Resistances R16, R17.**—These are ballast resistors, contained in a metal-cased unit fitted with an octal base, and plugging into a holder on the chassis deck. In the circuit diagram the ends of the two resistances, and the centre tap of **R16** are indicated by numbers in circles, which correspond with the pin numbers of the base, a dia-

**Speaker Connections.**—These are taken to a special 5-pin plug, fitting into a socket at the rear of the chassis. The connections are numbered from 9 to 13 in the circuit diagram, and beneath it is a diagram of the plug, looking at its underside.

**Valves.**—These are all octal types, and a diagram of the base is given on this page, together with a table of connections. B indicates a blank pin, and a dash, no pin.

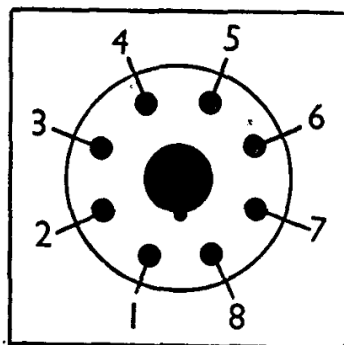
### CIRCUIT ALIGNMENT

**I.F. Stages.**—Feed a 465 KC/S signal into control grid (top cap) of **V1** and earth connection (not chassis), and adjust **C38**, **C37**, **C36** and **C35** for maximum output.

**R.F. and Oscillator Stages.**—With gang at maximum, pointer should cover the 550 m. mark on the M.W. scale.

**S.W.**—Connect signal generator to **A** and **E** leads, feed in a 17.6 MC/S (17 m.) signal, switch set to S.W. and tune to 17 m. on scale. Adjust **C32** and **C25** for maximum output.

**M.W.**—Switch set to M.W., feed in a 1,500 KC/S (200 m.) signal, tune to 200 m. on scale, and adjust **C33** and **C26** for maximum output. Feed in a 600 KC/S (500 m.) signal, tune it in, and adjust **C30** for maximum output, rocking the gang slightly for optimum results.



VALVE	PIN								TOP CAP
	1	2	3	4	5	6	7	8	
6A8G	B	H	A	G <sub>3</sub> , G <sub>5</sub>	G <sub>1</sub>	G <sub>2</sub>	H	C	G <sub>4</sub>
6K7G	B	H	A	G <sub>2</sub>	G <sub>3</sub>	—	H	C	G <sub>1</sub>
6Q7G	B	H	A	D <sub>1</sub>	D <sub>2</sub>	—	H	C	G
25A6G	B	H	A	G <sub>2</sub>	G <sub>1</sub>	—	H	C	—
25Z6G	B	H	A <sub>2</sub>	C <sub>2</sub>	A <sub>1</sub>	—	H	C <sub>1</sub>	—

Octal base, and table of pin connections.

gram of which is beneath the circuit diagram. Pins 4 and 6 are missing, and pin 5 is blank. The unit is an American K52H.

**Resistance R18.**—This is a flexible resistor included in the mains lead.

**L.W.**—Switch set to L.W., feed in a 300 KC/S (1,000 m.) signal, tune to 1,000 m. on scale, and adjust **C34** and **C27** for maximum output. Feed in a 150 KC/S (2,000 m.) signal, tune it in, and adjust **C31** for maximum output, rocking the gang slightly for optimum results.

**I.F. Filter.**—Feed a 465 KC/S signal into **A** and **E** connections, switch set to L.W., tune to 1,300 m. on scale (a harmonic of 465 KC/S) and adjust **C24** for minimum output.