

Note the IF rejector circuit L1, C2 and C27, the loading circuits L3, C4 and L6, C3 which provide a special form of aerial coupling, and the arrangements for a pick-up whereby the triode section of V1 is used as an AF amplifier.

COMPONENTS AND VALUES

CONDENSERS	Values (μF)
C1	A2 aerial series condenser .. 0.00005
C2	Aerial IF rejector trimmer .. 0.002
C3	Aerial loading coils' tuning condensers .. 0.002
C4	V1 hexode CG condenser .. 0.00002
C5	V1 hexode CG decoupling .. 0.05
C6	V1 SG RF by-pass .. 0.1
C7	V1 cathode by-pass .. 0.1
C8	V1 anodes and SG and V2, V4 SG's decoupling .. 4.0
C9*	V1 osc. CG condenser .. 0.0002
C10	Osc. circuit MW fixed tracker .. 0.00025
C11	Osc. circuit LW fixed tracker .. 0.00045
C12	Osc. circuit LW fixed trimmer .. 0.00001
C13	V1 triode to V4 gram. coupling .. 0.004
C14	V2 CG decoupling .. 0.05
C15	V2 cathode by-pass .. 0.1
C16	Coupling to V3 AVC diode .. 0.00001
C17	Part of variable tone control .. 0.0002
C18	Radio AF coupling to V4 .. 0.01
C19	IF by-pass .. 0.0002
C20	V3 cathode by-pass .. 0.1
C21	Fixed tone corrector .. 0.004
C22	V4 cathode by-pass .. 50.0
C23*	HT smoothing .. 8.0
C24*	Mains RF by-pass .. 16.0
C25*	Aerial IF rejector tuning .. 0.004
C26	Aerial circuit MW trimmer .. —
C27	Aerial circuit LW trimmer .. —
C28	Aerial circuit tuning .. —
C29	Osc. circuit MW tracker .. —
C30	Osc. circuit LW tracker .. —
C31	Osc. circuit MW trimmer .. —
C32	Osc. circuit LW trimmer .. —
C33	Oscillator circuit tuning .. —
C34	1st IF trans. pri. tuning .. —
C35	1st IF trans. sec. tuning .. —
C36	2nd IF trans. pri. tuning .. —
C37	2nd IF trans. sec. tuning .. —

RESISTANCES	Values (ohms)
R1	V1 hexode CG resistance .. 1,000,000
R2	V1 hexode CG decoupling .. 1,000,000
R3	V1 SG HT feed .. 10,000
R4	V1 SG RF stopper .. 60
R5	V1 fixed GB resistance .. 200
R6	V1 osc. gram. CG resistance .. 250,000
R7	V1 osc. radio CG resistance .. 25,000
R8	V1 osc. anode HT feed .. 40,000
R9	V2 CG decoupling .. 1,000,000
R10	V1 HT, and V2, V4 SG's HT feed .. 2,000
R11	V2 fixed GB .. 130
R12	RF stopper .. 100,000
R13	Variable tone control .. 2,000,000
R14	IF stopper .. 100,000
R15	V3 signal diode load .. 500,000
R16	AVC delay voltage potential divider .. 1,000,000
R17	V3 AVC diode load resistances .. 50,000
R18	Manual volume control .. 250,000
R19	V3 AVC diode load resistances .. 750,000
R20	Manual volume control .. 1,000,000
R21	V4 grid stopper .. 1,000
R22	V4 GB resistance .. 140
R23	V4 anode stopper .. 60

RESISTANCES	Values (ohms)
R1	V1 hexode CG resistance .. 1,000,000
R2	V1 hexode CG decoupling .. 1,000,000
R3	V1 SG HT feed .. 10,000
R4	V1 SG RF stopper .. 60
R5	V1 fixed GB resistance .. 200
R6	V1 osc. gram. CG resistance .. 250,000
R7	V1 osc. radio CG resistance .. 25,000
R8	V1 osc. anode HT feed .. 40,000
R9	V2 CG decoupling .. 1,000,000
R10	V1 HT, and V2, V4 SG's HT feed .. 2,000
R11	V2 fixed GB .. 130
R12	RF stopper .. 100,000
R13	Variable tone control .. 2,000,000
R14	IF stopper .. 100,000
R15	V3 signal diode load .. 500,000
R16	AVC delay voltage potential divider .. 1,000,000
R17	V3 AVC diode load resistances .. 50,000
R18	Manual volume control .. 250,000
R19	V3 AVC diode load resistances .. 750,000
R20	Manual volume control .. 1,000,000
R21	V4 grid stopper .. 1,000
R22	V4 GB resistance .. 140
R23	V4 anode stopper .. 60

OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial IF rejector coil .. 4.0
L2	Aerial MW coupling coil .. 0.3
L3	Aerial MW loading coil .. 16.0
L4	Aerial MW tuning coil .. 2.5
L5	Aerial LW tuning coil .. 19.5
L6	Aerial LW loading coil .. 32.0
L7	Oscillator MW reaction .. 1.4
L8	Oscillator LW reaction .. 1.3
L9	Osc. circuit MW tuning coil .. 6.5
L10	Osc. circuit LW tuning coil .. 17.0
L11	1st IF trans. Pri. .. 13.0
L12	1st IF trans. Sec. .. 13.0
L13	2nd IF trans. Pri. .. 13.0
L14	2nd IF trans. Sec. .. 13.0
L15	Speaker speech coil .. 2.0
L16	Hum neutralising coil .. 0.1
L17	Speaker field coil .. 1,000.0
T1	Speaker input trans. Pri. total .. 450.0
T2	Mains trans. Heater sec. total .. 40.0
	Rect. heat. sec. .. 0.15
	HT sec. total .. 460.0
S1-S6	Waveband switches .. —
S7, S13	Gram. pick-up switches .. —
S14	Mains switch, ganged R20 .. —

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 225 V, using the 220-240 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 AC/THr	208	3.3	117	8.7
	70	2.5	—	—
V2 AC/VP2	255	11.0	208	3.3
V3 Vot4	—	—	—	—
V4 AC/5Pen	235	35.0	208	5.8
V5 UU4	302†	—	—	—

† Each anode, AC.

GENERAL NOTES

Switches.—S1-S6 and S8-S12 are the wave-band switches, while S7 and S13 are the radiogram switches. All are included in two ganged rotary units beneath the chassis, indicated in our under-chassis view and shown in detail in the diagrams in col. 3.

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

Actually there are four positions of the control knob, but the fourth is not intended to be used on this receiver.

S14 is the QMB mains switch, ganged with the volume control **R20**.

Coils.—L1-L10 are in pairs in five tubular unscreened units beneath the chassis, and are indicated in our under-chassis view. The IF transformers **L11**, **L12** and **L13**, **L14** are in two screened units, with the associated trimmers, mounted on the chassis deck.

External Speaker.—Two sockets are provided at the rear of the chassis for a low impedance (about 2 Ω) external speaker. A plug and socket device permits the internal speaker to be muted.

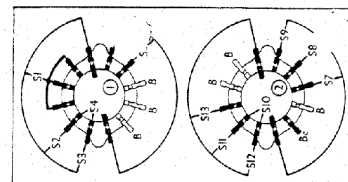
Scale Lamps.—These are two MES types, rated at 4.5 V, 0.3 A, run in parallel across a tapping on the heater secondary of **T2**.

Condensers C24, C25.—These are two dry electrolytics in a tubular metal can on the chassis deck, the can being the common negative. The positive connections project beneath the chassis and are marked with coloured spots; that with the red spot belonging to **C24** (8 μF), and that with the yellow spot belonging to **C25** (16 μF).

Condenser C4.—This condenser is made up of two condensers connected in parallel.

TABLE AND DIAGRAMS

Switch	Gram.	MW	LW
S1	C	—	—
S2	—	C	—
S3	—	—	C
S4	C	—	—
S5	—	C	—
S6	—	—	C
S7	C	—	—
S8	—	C	—
S9	—	—	C
S10	C	—	—
S11	—	C	—
S12	—	—	C
S13	C	—	—



CIRCUIT ALIGNMENT

IF Stages.—Connect a signal generator to the control grid (top cap) of **V1** and chassis, feed in a 470 KC/S (638.3 m) signal and adjust **C39**, **C38**, **C37** and **C36** in that order for maximum output. Now connect the high potential lead of the signal generator to the **A1** socket, switch the set to LW, tune the set to 950 m, feed in the 470 KC/S signal and adjust **C27** for minimum output.

RF and Oscillator Stages.—Leave the high potential lead of the generator connected to **A1** and the other lead to chassis.

MW.—Switch the set to MW, tune it to 200 m, feed in a 200 m (1,500 KC/S) signal and adjust **C33** and **C32** for maximum.

LW.—Switch the set to LW, tune it to 1,000 m, feed in a 1,000 m (300 KC/S) signal and adjust **C34** and **C35** for maximum output. Feed in a 1,700 m (176.5 KC/S) signal, tune it in and adjust **C38** for maximum output, while rocking the gang for optimum results.