



COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1 AF rector damping ..	2,500
R2 V1 hexode CG decoupling ..	500,000
R3 V1 fixed GB resistance ..	200
R4 V1 osc. CG resistance ..	25,000
R5 Oscillator SW circuit stabiliser ..	500,000
R6 V1 osc. anode HT feed ..	5,000
R7 V1, V2 SG HT feed ..	25,000
R8 V2 fixed GB resistance ..	300
R9 IF stopper ..	25,000
R10 Variable tone control ..	500,000
R11 Manual volume control ..	500,000
R12 V3 signal diode load ..	500,000
R13 V3 GB and AVC delay resistance ..	10,000
R14 V3 triode anode load ..	250,000
R15 AVC line decoupling ..	500,000
R16 V3 AVC diode load ..	500,000
R17 V4 CG resistances ..	500,000
R18 V4 GB resistance ..	50,000
R19 V4 anode load ..	10,000
R20 V5 CG resistance ..	250,000
R21 V5, V6 GB resistance ..	300
R22 T.I. anode HT feed ..	250,000
R23 Scale lamps shunt ..	100
R24 V7 anode current limiter ..	100
R25 V8 anode current limiter ..	100

CONDENSERS	Values (μF)
C1 Aerial series condenser ..	0.00025
C2 Earth isolating condenser ..	0.1
C3 Aerial coupling condenser ..	0.00025
C4 MW and LW aerial coupling ..	0.00025
C5 Aerial LW fixed trimmer ..	0.00002
C6 1st IF trans. fixed trimmer ..	0.000025
C7 V1 cathode by-pass ..	0.1
C8 HT circuit RF by-pass ..	0.1
C9 AVC line decoupling ..	0.1
C10 Osc. circuit LW fixed trimmer ..	0.00011
C11 V1 osc. anode coupling ..	0.00025
C12 V1, V2 SG's decoupling ..	0.1
C13 V2 cathode by-pass ..	0.00025
C14 IF by-pass condensers ..	0.00025
C15 Part of variable tone control ..	0.004
C16 AF coupling to V3 triode ..	0.00025
C17 Coupling to V3 AVC diode ..	0.00025
C18 Fixed tone corrector ..	0.00025
C19 V3 cathode by-pass ..	25.0
C20 V3 triode to V4 and V6 AF coupling ..	0.01
C21 V4 cathode by-pass ..	5.0
C22 V4 to V5 AF coupling ..	0.01
C23 Fixed tone correctors ..	0.001
C24 Fixed tone correctors ..	0.002
C25 Fixed tone correctors ..	0.002
C26 HT smoothing ..	20.0
C27 Mains RF filter ..	20.0
C28 Aerial circuit SW trimmer ..	—
C29 Aerial circuit MW trimmer ..	—
C30 Aerial circuit LW trimmer ..	—
C31 Oscillator circuit tuning ..	—
C32 Osc. circuit MW tracker ..	—
C33 Osc. circuit SW trimmer ..	—
C34 Osc. circuit MW trimmer ..	—
C35 Osc. circuit LW trimmer ..	—
C36 Osc. circuit SW tracker ..	—
C37 1st IF trans. pri. tuning ..	—
C38 1st IF trans. sec. tuning ..	—
C39 2nd IF trans. pri. tuning ..	—
C40 2nd IF trans. sec. tuning ..	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS	Approx. Values (ohms)
L1 Aerial AF modulation rector ..	20.0
L2 Aerial SW coupling coil ..	Very low
L3 Aerial SW tuning coil ..	0.05
L4 Aerial MW tuning coil ..	3.0
L5 Aerial LW tuning coil ..	15.5
L6 Oscillator SW tuning coil ..	Very low
L7 Oscillator MW tuning coil ..	2.0
L8 Osc. LW tuning and reaction ..	5.0
L9 Oscillator SW reaction coil ..	0.15
L10 Oscillator MW reaction coil ..	0.7
L11 1st IF trans. Pri. ..	9.5
L12 1st IF trans. Sec. ..	13.0
L13 V1 osc. anode feed choke ..	20.0
L14 2nd IF trans. Pri. ..	13.0
L15 2nd IF trans. Sec. ..	9.5
L16 Speaker speech coil ..	2.0
L17 Hum neutralising coil ..	0.1
L18 Speaker field coil ..	1,000.0
T1 Speaker input ..	650.0
Tr. trans. Sec. ..	0.3
S1-S12 Waveband switches ..	—
S13 Gram. pick-up switch ..	—
S14 Mains switch, ganged R10 ..	—

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6A7	150	2.1	58	2.7
V2 6D6	130	3.1	58	1.1
V3 75	150	0.7	—	—
V4 76	38	0.4	—	—
V5 43	140	30.0	150	7.0
V6 43	140	30.0	150	6.2
V7 12Z3†	—	—	—	—
V8 12Z3†	—	—	—	—
T.I. 6G5	37	0.9	—	—
	245	0.3	—	—

† Each cathode to chassis 245 V, DC.

Valve voltages and currents given in the table above are those measured in our receiver when it was operating on AC mains of 230 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. Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

If, as in our case, V1 should become unstable when its anode current is being measured and V2 when its screen current is being measured, they can be stabilised by connecting a non-inductive condenser of about 0.1 μF from grid (top cap) to chassis.

GENERAL NOTES

Switches.—S1-S12 are the waveband switches and S13 the pick-up switch, all ganged in a double-sided rotary unit beneath the chassis. The two sides are marked with the letters A and B in circles in our under-chassis view, and are shown in detail in the diagrams on this page. Note that in many cases tags opposite each other on either side of the paxolin support are common.

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

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

S14 is the QMB mains switch, ganged with the tone control, R10.

Coils.—L1 and L13 are unscreened and are mounted in two units beneath the chassis. L2-L5; L6-L10; L11, L12 and L14, L15 are in four screened units on the chassis deck, with their associated trimmers.

Scale Lamps.—These are two miniature bayonet cap types, rated at 4.5 V, 0.3 A. (National Union type 51).

External Speaker.—Two sockets are provided at the rear of the chassis for a high impedance (14,000 Ω) external speaker. The sockets are not isolated in this set.

Condensers

C27, C28.—These are two 20 μF dry electrolytics in a single metal can

on the chassis deck. The can is the common negative connection, and the

Trimmers and Trackers.—All the trimmers are housed inside the cans of the coil units with which they are associated. The three trackers, C35, C39, C40, are adjusted by means of screws above the chassis deck, on the right-hand side as seen in our plan chassis view.

A-E Leads.—These are short lengths of insulated wire, terminating in fahnstock clips. The aerial wire has a green covering, and the earth, black.

Chassis Divergencies.—R7 is given as 50,000 Ω in the makers' diagram, but was 25,000 Ω in our chassis. C6 is not shown in the makers' diagram. C16, given as 0.01 μF by the makers, was 0.004 μF in our chassis.

CIRCUIT ALIGNMENT

The scale pointer should be vertical when the gang is fully meshed, marks being provided for accurate setting.

IF Stages.—Connect signal generator to grid (top cap) of V2 and earth lead, feed in a 465 KC/S signal and adjust C43 and C44 for maximum output. Transfer signal generator to grid (top cap) of V1, switch set to LW, see that gang is fully meshed, and adjust C41 and C42 for maximum output. Keep input low.

If necessary, re-adjust C43 and C44.

RF and Oscillator Stages.—First adjust trackers for maximum output at the top of each band, with the gang fully meshed. To do this, connect a high frequency buzzer via a 50 μF condenser to the aerial lead of the set, and adjust C39 on the SW band, C35 on the MW band and C40 on the LW band for maximum output.

Switch set to SW, connect signal generator to A and E leads and feed in a 21 m signal. Tune to 21 m on scale (about 235 m on MW calibrated scale). Adjust C36 and C30 for maximum output. Fully mesh the gang again and re-track C39 as above.

Return to 21 m and re-adjust C36 and C30. Re-track C39 again.

On the MW band, repeat above procedure, trimming C37 and C31 at 250 m and tracking C35 at the top of the scale.

On LW, trim C38 and C32 at 1,200 m, and track C40 at top of scale.

On the SW band, if C36 peaks at two places, that with the least trimmer capacity is correct.

