



COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 pentode CG MW and LW decoupling	1,100,000
R2	V1 osc. CG stabiliser	50
R3	V1 osc. CG resistance	20,000
R4	V1 osc. anode HT feed	3,000
R5	V1 SG HT feed resistances	50,000
R6	V2 CG decoupling	110,000
R7	V2 SG HT feed	1,100,000
R8	V2 SG HT feed	25,000
R9	V3 signal diode load	510,000
R10	Manual volume control	1,000,000
R11	V3 triode anode decoupling	20,000
R12	V3 triode anode load	30,000
R13	V4 AVC diode load	1,100,000
R14	V4 CG's decoupling	50,000
R15	Part of fixed tone corrector	20,000
R16	Negative feed-back potential divider resistances	100
R17	V1, V2 fixed GB, V3 triode and V4 GB, and AVC delay potential divider resistances	50
R18		50
R19		50
R20		1,000

CONDENSERS		Values (μF)
C1	V1 pentode CG MW and LW decoupling	0.05
C2	Aerial circuit LW trimmer	0.000005
C3	V1 pentode CG SW decoupling	0.000003
C4	Small coupling	0.0001
C5	V1 osc. CG condenser	0.0001
C6	Osc. circuit SW tracker	0.0005
C7	Osc. circuit MW fixed tracker	0.00055
C8	Osc. circuit LW trimmer	0.00001
C9	V1 osc. anode decoupling	0.1
C10	V1 SG decoupling	0.1
C11	V2 CG decoupling	0.05
C12	V2 SG decoupling	0.1
C13	2nd IF trans. sec. fixed trimmer	0.00002
C14	IF by-pass	0.0001
C15	AF coupling to V3 triode	0.01
C16	Coupling to V3 AVC diode	0.0001
C17*	V3 triode anode decoupling	2.0
C18	IF by-pass	0.0002
C19	AF coupling to T1	0.1
C20	Fixed tone corrector	0.00002
C21	Part of tone control circuit	0.0002
C22	Part of fixed tone corrector	0.01
C23*	HT circuit reservoir	8.0
C24	Aerial IF filter tuning	—
C25	Aerial circuit SW trimmer	—
C26	Aerial circuit MW trimmer	—
C27	Aerial circuit tuning	—
C28	Oscillator circuit tuning	—
C29	Osc. circuit MW trimmer	—
C30	Osc. circuit MW tracker	—
C31	Osc. circuit LW tracker	—
C32	1st IF trans. pri. tuning	—
C33	1st IF trans. sec. tuning	—
C34	2nd IF trans. pri. tuning	—
C35	2nd IF trans. sec. tuning	—
C36	Reaction control	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial IF filter coil	11.0*
L2	Aerial SW coupling coil	0.5
L3	Aerial MW and LW coupling	145.0
L4	Aerial SW tuning coil	0.05
L5	Aerial MW tuning coil	2.8
L6	Aerial LW tuning coil	12.0
L7	Osc. circuit SW tuning coil	Very low
L8	Osc. circuit MW tuning coil	1.8
L9	Osc. circuit LW tuning coil	5.0
L10	Oscillator SW reaction	34.5
L11	Oscillator MW reaction	6.1
L12	Oscillator LW reaction	total
L13	1st IF trans. { Pri. ..	7.5
L14	2nd IF trans. { Sec. ..	7.5
L15	2nd IF trans. { Pri. ..	4.8
L16	V3 triode anode reaction	30.0
L17	2nd IF trans. sec. ..	4.8
L18	Speaker speech coil	2.0
T1	Interval trans. { Pri. ..	1,000.0
T2	Output trans. { Sec., total	7,500.0
S1-S7	Waveband switches	0.3
S8, S9	Tone control switches	—
S10	GB circuit switch	ganged
S11	HT circuit switch	R10
S12	LT circuit switch	—

* May be 18 Ω.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with a new HT battery reading 150 V overall, on load. 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. In our chassis V4 was graded R for section A and S for section B.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 FC2A	140	0.4	30	0.6
V2 VP2	130	2.4	110	0.6
V3 TDD2A	140	2.0	—	—
V4 K77A	80	1.0	—	—
	138	1.5	†	0.2

† 120 V for section A; 127 V for section B.

GENERAL NOTES

Switches.—S1-S7 are the waveband switches ganged in a unit beneath the chassis. All the switches are indicated in our under-chassis view. Note that two tags are blank, while one is common to two switches.

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	SW	MW	LW
S1	C	—	—
S2	C	—	—
S3	—	C	—
S4	—	—	C
S5	C	C	—
S6	C	—	—
S7	C	—	—

The reaction condenser C36 can be used to increase sensitivity on all bands. Switch set to MW, tune to the top of the band, and adjust C36 for maximum output without instability. After adjusting, it is necessary to re-adjust C35 as explained under "IF stages."

To adjust the IF filter, feed a 465 KC/S signal into A and E sockets, and adjust C24 for minimum output.

S8 and S9 are the two tone control switches, in a rotary unit at the front of the chassis. Their tags are indicated in our under-chassis view. Two tags on the unit are blank. In the fully anti-clockwise position S8 is closed; in the centre position both are open; and in the clockwise position S9 is closed.

S10-S12 are the battery circuit switches, in a QMB unit ganged with the volume control R10. These switches have one common contact, which is connected to chassis.

Coils.—L1 is an unscreened coil on a bracket, with C24, mounted at the rear of the chassis deck. L2-L6, L7-L12 and the IF transformers L13, L14; L15-L17, are in four screened units on the chassis deck, with their associated trimmers.

External Speaker.—The internal speaker is fitted with socketed plugs, into which a low impedance (1.5-2.5 Ω) external speaker can be plugged.

Scale Lamps.—These are two Eveready MES types, rated at 2.5 V, 0.1 A.

CIRCUIT ALIGNMENT

With gang at maximum, pointer should be opposite the scale setting mark at the top end of the MW scale. During alignment, volume control should be at maximum.

IF Stages.—Connect signal generator to control grid (top cap) of V1, via a 0.002 μF condenser, and chassis. Remove existing top cap connection, and connect a 0.5 MO resistance from top cap to chassis. Connect a 0.25 μF condenser from oscillator anode of V1 to chassis.

Feed in a 465 KC/S signal, and adjust C35, C34, C33 and C32, in that order, for maximum output. When adjusting a primary trimmer, connect a 50,000 Ω loading resistance across the secondary, and vice-versa.

RF and Oscillator Stages.—Connect signal generator to A and E sockets. Switch set to SW, tune to 20 m on scale, feed in a 20 m (15 MC/S) signal, and adjust C25 for maximum output.

Switch set to MW and tune to 210 m on scale. Feed in a 210 m (1,428 KC/S) signal, and adjust C29 and C26 for maximum output. Feed in a 520 m (577 KC/S) signal, tune it in, and adjust C30, while rocking the gang for optimum results. Re-check C29 and C26 at 210 m.

Switch set to LW, feed in an 1,800 m (166.5 KC/S) signal, tune it in, and adjust C31 for maximum output, while rocking the gang for optimum results.