



RESISTANCES	Values (ohms)
R1	V1 CG resistance ... 1,000,000
R2	V1 SG HT feed ... 150,000
R3	V1 anode load resistance ... 4,000
R4	V2 pentode CG resistance ... 400,000
R5	V1 and V2 pentode anodes HT feed ... 900
R6	V2 osc. CG resistance ... 51,000
R7	V2 osc. anode HT feed ... 10,000
R8	V2, V3 SG's HT feed ... 20,000
R9	IF stopper ... 47,000
R10	Manual volume control; V4 signal diode load ... 500,000
R11	AVC line decoupling ... 1,500,000
R12	V4 triode CG resistance ... 4,000,000
R13	V4 triode anode load ... 250,000
R14	V5 (G's) resistance ... 1,000,000
R15	V1, V2, V3 fixed GB; V4 triode (gram) and V5 GB resistances ... 200

CONDENSERS	Values (μF)
C1	External aerial MW coupling ... 0.000004
C2	Frame aerial LW fixed trimmer ... 0.000035
C3	V1 CG condenser ... 0.00025
C4	V1 SG decoupling ... 0.005
C5	V1, V2 pentode anodes decoupling ... 0.005
C6	V1 to V2 pentode HF coupling ... 0.000077
C7	V2 osc. CG condenser ... 0.00025
C8	AVC line decoupling ... 0.005
C9	Osc. circ. LW fixed trimmer ... 0.0001
C10	V2 osc. anode coupling ... 0.00025
C11	V2, V3 SG's decoupling ... 0.005
C12	IF by-pass condensers ... 0.0001
C13	AF coupling to V4 triode ... 0.0001
C14	IF by-pass ... 0.00025
C15	V4 triode to V5 AF coupling ... 0.001
C16	Tone control condensers ... 0.025
C17	HT smoothing condensers ... 10-0
C18	Auto GB circuit by-pass ... 35-0
C19	Mains RF by-pass condensers ... 0.015
C20	Frame aerial LW trimmer ... 0.00002
C21	Frame aerial MW trimmer ... 0.00002
C22	Aerial circuit auto tuning trimmers ... —
C23	Frame aerial manual tuning Oscillator circuit manual tuning ... —
C24	Osc. circuit MW trimmer ... —
C25	Oscillator circuit auto tuning trimmers ... —
C26	Osc. circuit LW trimmer ... 0.00011
C27	Osc. circuit LW tracker ... 0.0007
C28	1st IF trans. pri. tuning ... —
C29	1st IF trans. sec. tuning ... —
C30	2nd IF trans. pri. tuning ... —
C31	2nd IF trans. sec. tuning ... —
C32	Aerial image rejector tuning ... —

\*Electrolytic. †Variable. ‡Pro-set.

OTHER COMPONENTS	Approx. Values (ohms)
L1	External aerial coupling
L2	* Image rejector coil ... 3-0
L3	Frame aerial (MW) ... 1-0
L4	Frame aerial (LW), total ... 30-0
L5	Osc. circuit MW tuning coil ... 4-0
L6	Oscillator reaction coil ... 1-0
L7	1st IF trans. Pri. ... 20-0
L8	1st IF trans. Sec. ... 20-0
L9	Degenerative coupling coil ... 30-0
L10	2nd IF trans. Pri. ... 30-0
L11	2nd IF trans. Sec. ... 30-0
L12	Speaker speech coil ... 3-0
L13	Speaker field coil ... 1,700-0
T1	Output trans. Pri. ... 700-0
T2	Output trans. Sec. ... 65-0
	Heater sec. ... 0-2
	HT sec., total ... 700-0
S1a, b, x	Aerial circuit manual and auto selector switches ... —
S7a, b, x	Oscillator circuit manual and auto selector switches ... —
S13, S14	Radiogram change switches ... —
S15	Tone control switch ... —
S16	Mains switch ... —

## VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 230V. The receiver was tuned to the lowest wavelength on the MW band, and the volume control was at

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 7C7E	156	2.4	79	0.5
V2 7A8E	173	1.5	86	3.1
	Oscillator	125	4.9	—
V3 7B7E	176	7.0	86	1.6
V4 7C6	70	0.4	—	—
V5 7B6E	159	25.0	176	5.2
V6 7Y4	275†	—	—	—

† Each anode, AC.

maximum. The frame windings were disconnected so that there should be no signal input.

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

## CIRCUIT ALIGNMENT

It is necessary, when aligning, that the frame aerials be mounted in their correct positions relative to the chassis. If the set is left in the cabinet, and the LW frame aerial (on the back of the set) is laid down at the rear of the receiver, this will be satisfactory.

**IF Stages.**—Press MW manual button, turn gang to maximum, and volume control to maximum. Connect signal generator via a 0.1μF condenser to control grid (pin 6) of V2, and to chassis. Feed in a 451 KC/S signal, and adjust C42, C41, C40 and C39 in turn for maximum output. Repeat these adjustments.

**RF and Oscillator Stages.**—With gang at maximum, pointer should cover index line at left-hand end of scale. Connect signal generator, via a suitable dummy aerial, to external aerial and earth sockets.

**LW.**—Press LW manual button and tune to 290 KC/S (corresponding to dot at 1,034.5m on scale, above letter T in Tiflis). Feed in a 290 KC/S (1,034.5m)

signal, and adjust C37 for maximum output. Feed in a 232 KC/S (1,293m) signal, tune it in, and adjust C24 (on LW frame, adjusted through hole in back of receiver) for maximum output. Feed in a 160 KC/S (1,875m) signal, tune it in, and adjust C38 for maximum output, while rocking the gang for optimum results. Re-adjust C37 at 290 KC/S.

**Image Rejector.**—Connect signal generator direct to the A and E sockets, and press LW manual button. Feed in a 1,095 KC/S (274m) signal. Tune in the image of this signal at about 193 KC/S (1,554.4m) and adjust C43 (through hole in back of cabinet behind L1, C43 screening box) for minimum output.

**MW.**—Connect signal generator via dummy aerial again, and press MW manual button. Tune to 1,400 KC/S (corresponding to 214m on scale, below letter D in word Dublin). Feed in a 1,400 KC/S (214m) signal and adjust C32, then C25, for maximum output. Check calibration at 600 KC/S (500m). There is no tracking adjustment on this band.

Diagrams of the press-button/switch unit. Above, the view looking down on the chassis deck; below, the view from beneath the unit

