



### COMPONENTS AND VALUES

CONDENSERS		Values (μF)
C1	Aerial series condenser	0.0004
C2	V1 pentode CG condenser	0.0001
C3	V1 pentode CG decoupling	0.02
C4	V1 SG decoupling	0.1
C5	V1 cathode by-pass	0.1
C6	V1 osc. CG condenser	0.0001
C7	Osc. circuit SW tracker	0.0043
C8	Osc. circuit LW tracker	0.00058
C9	Osc. circuit MW tracker	0.000565
C10	V1 osc. anode coupling	0.0002
C11	V2 CG decoupling	0.02
C12	V2 cathode by-pass	0.1
C13	IF by-pass condensers	0.0001
C14	AF coupling to V4	0.0001
C15	Coupling to V3 AVC diode	0.02
C16	Fixed tone corrector	0.0001
C17	V4 cathode by-pass	0.006
C18	Part of variable tone control	50.0
C19	HT smoothing condensers	8.0
C20	Mains RF by-pass	8.0
C21	Aerial circuit SW trimmer	0.006
C22	Aerial circuit LW trimmer	—
C23	Aerial circuit MW trimmer	—
C24	Aerial circuit manual tuning	—
C25	Osc. circuit manual tuning	—
C26	Osc. circuit SW trimmer	—
C27	1st IF trans. pri. tuning	—
C28	1st IF trans. sec. tuning	—
C29	2nd IF trans. pri. tuning	—
C30	2nd IF trans. sec. tuning	—
C31	Aerial LW coupling	0.00125
C32	Aerial circuit MW automatic tuning trimmers	—
C33	Aerial circuit LW automatic tuning trimmers	—
C34	Aerial circuit LW trimmer	0.0002
C35	Osc. circuit LW trimmer	—
C36	Osc. circuit MW trimmer	0.0002
C37	Oscillator circuit LW automatic tuning trimmers	—
C38	Osc. circuit MW trimmer	—
C39	Oscillator circuit MW automatic tuning trimmers	—
C40	—	—
C41	—	—
C42	—	—
C43	—	—
C44	—	—
C45	—	—
C46	—	—
C47	—	—
C48	—	—

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

### VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 AC/THr	238	3.2	112	8.6
V2 VF4B	238	8.4	238	2.9
V3 2D4A	—	—	—	—
V4 AC/SPen	220	39.0	238	7.1
V5 R2	302†	—	—	—

† Each anode, AC.

Valve voltages and currents given in the table above are those measured in our receiver when it was operating on mains of 230 V, using the 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.

RESISTANCES		Values (ohms)
R1	V1 pentode CG resistance	500,000
R2	V1 pentode CG decoupling	500,000
R3	V1 pentode CG stopper	40
R4	V1 SG HT feed	15,000
R5	V1 fixed GB resistance	200
R6	V1 osc. CG resistance	50,000
R7	V1 osc. anode HT feed	30,000
R8	Osc. SW reaction damping	75
R9	V2 fixed GB resistance	200
R10	IF stopper	70,000
R11	V3 signal diode load	300,000
R12	AVC line decoupling	500,000
R13	V3 AVC diode load	500,000
R14	Manual volume control	500,000
R15	V4 GB and AVC delay resistances	140
R16	—	160
R17	V4 anode RF stopper	150
R18	Variable tone control	50,000

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial SW coupling coil	0.2
L2	Aerial MW and LW coupling	13.0
L3	Aerial SW tuning coil	Very low
L4	Aerial LW tuning coil	12.0
L5	Aerial MW tuning coil	2.5
L6	Osc. circuit SW tuning coil	Very low
L7	Osc. circuit LW tuning coil	3.3
L8	Osc. circuit MW tuning coil	1.6
L9	Oscillator SW reaction	0.4
L10	Osc. LW and MW reaction	5.3
L11	1st IF trans. { Pri. . . . .	5.5
L12	1st IF trans. { Sec. . . . .	5.5
L13	2nd IF trans. { Pri. . . . .	5.5
L14	2nd IF trans. { Sec., total. . . . .	5.5
L15	Speaker speech coil	1.5
L16	Hum neutralising coil	0.2
L17	Speaker field coil	1,000.0
T1	Speaker input { Pri. . . . .	250
	trans. { Sec. . . . .	0.25
T2	Mains { Pri, total . . . . .	30.0
	trans. { Heater sec. . . . .	0.05
	trans. { Rect. heat. sec. . . . .	0.2
	trans. { HT sec., total . . . . .	550.0
F1	Mains circuit fuse	—
S1a, x and S16a, b, x	MW manual tuning switches	—
S2a, x to S6a, x	Aerial automatic tuning selector switches	—
S7a, x and S10a, b, x	LW manual tuning switches	—
S8a, b, x and S9a, b	SW tuning switches	—
S11a, b, x to S15a, b, x	Oscillator automatic tuning selector switches	—
S17	Mains switch, ganged R14	—

### GENERAL NOTES

**Switches.**—S1a, x to S16a, b, x are all press-button switches, in a double-sided assembly in the auto-tuning unit beneath the chassis, and a separate detached view of this is given. This shows the contacts of all the switches, and also the various pre-set condensers and other components associated with this unit.

There are eight press-buttons, three for wavechanging and five for station selection. Each controls two series of switches, one on each side of the switch bank. Thus the left-hand button (looking at the front of the cabinet) controls S1a, x and S16a, b, x, the second controls S2a, x and S15a, b, x, and so on.

The suffixes a, b, x, have the usual significance. When a button is pressed, a and b switches close, while the x switches open, and vice versa.

S17 is the QMB mains switch, ganged with the volume control R14.

**Coils.**—L1, L3; L2, L5; L4; L6, L9; and L7, L8, L10 are in five unscreened units beneath the chassis. The IF transformers L11, L12 and L13, L14 are in two screened units on the chassis deck, with their associated trimmers.

**Fuse F1.**—This is combined with the mains voltage adjustment plug, a piece of 2A wire being connected between the two pins.

**Scale Lamps.**—These are two MES types, rated at 6.0 V, 0.3 A.

**External Speaker.**—Two sockets are provided at the rear of the cabinet for a high impedance (8,000 Ω) external speaker. The sockets are not isolated from the HT supply.

**Condensers C18, C20, C21.**—These are three dry electrolytics in a single carton beneath the chassis, having a common negative (black) lead. The yellow lead is the positive of C18 (50 μF, 15 peak volts); the blue lead is the positive of C20 (8 μF, 525 PV) and the red lead the positive of C21 (8 μF, 450 PV).

**Auto-Tuning Unit.**—All the inter-connecting leads (of which there are twelve) are indicated and colour-coded on the circuit diagram, and on the under-chassis view and auto-tuning unit illustration.

The auto-unit contains all the press-button switches, twelve Tempa trimmers (of which ten are for the pre-tuned stations, and two are the MW and LW oscillator trimmers), three extra fixed trimmers (C39, C41 and C48), and the aerial LW coupling condenser C33.

Note that in the circuit diagram the MW coils are below the LW coils, a reversal of the usual practice. Thus L4 and L7 are LW coils and L5 and L8 are MW coils.

### PG/AW MODIFICATIONS

The radiogram model is very similar, except for the addition of a gramophone motor, and a pick-up. The pick-up is switched into circuit by a single-pole changeover switch, which either connects the upper pick-up socket to the top of R14, on gram, or vice-versa on radio.

### CIRCUIT ALIGNMENT

**IF Stages.**—According to the makers, the IF trimmers are adjusted at the factory for the correct response curve with an oscilloscope, and should not be touched unless they have been tampered with, or a new transformer has been fitted. The IF is 465 KC/S, and alignment follows the usual practice.

