



COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1	Interference suppressor control
R2	V1 SG HT feed
R3	V1 anode HT feed
R4	V1 GB resistance
R5	V2 hexode CG resistance
R6	V2 SG HT feed potential divider
R7	Part V2 fixed GB
R8	V2 osc. CG resistance
R9	V2 osc. anode HT feed
R10	V3 SG HT feed resistance
R11	V3 anode HT feed
R12	IF stopper
R13	Manual volume control; V4 signal diode load
R14	V4 triode CG stopper
R15	V4 triode CG resistance
R16	V4 GB and AVC delay resistances
R17	V4 triode anode load
R18	V4 triode anode load
R19	AVC line decoupling
R20	V4 AVC diode load
R21	V5 CG resistance
R22	V5 grid stopper
R23	V3, V5 and part V2 fixed GB; AVC delay
R24	V1-V4 heater circuit pot.
R25	V5 heater circuit pot.

CONDENSERS

CONDENSERS	Values (μF)
C1	V1 CG circuit shunt
C2	V1 SG decoupling
C3	V1 anode coupling
C4	261 m filter tuning
C5	Auto "setting" coupling
C6	V2 hexode CG decoupling
C7	342 m filter tuning
C8	V2 SG decoupling
C9	1st IF transformer tuning condensers
C10	V2 osc. CG condenser
C11	V2 cathode by-pass
C12	HT circuit RF by-pass
C13	Osc. circuit MW tracker
C14	V2 SG decoupling
C15	Osc. circuit MW tracker
C16	V2 SG decoupling
C17	V2 osc. anode coupling
C18	V3 CG decoupling
C19	V3 SG decoupling
C20	V3 anode decoupling
C21	2nd IF transformer tuning condensers
C22	Coupling to V4 AVC diode
C23	IF by-pass condensers
C24	V4 cathode by-pass
C25	AF coupling to V4 triode
C26	V4 triode to V5 AF coupling
C27	V5 CG decoupling
C28	HT smoothing condensers
C29*	Aerial auto tuning input coupling condensers
C30*	2nd IF transformer tuning condensers
C31*	Aerial circuit SW trimmer
C32	Aerial circuit MW trimmer
C33	Aerial circuit LW trimmer
C34	Aerial circ. manual tuning
C35	Osc. circ. manual tuning
C36†	Osc. circuit SW trimmer
C37†	Osc. circuit MW trimmer
C38†	Osc. circuit LW trimmer
C39†	Osc. circuit LW trimmer
C40†	Osc. circuit MW trimmer
C41†	Osc. circuit LW trimmer
C42†	Osc. circuit MW trimmer
C43†	Osc. circuit LW trimmer
C44†	Osc. circuit LW trimmer

GENERAL NOTES

Switches.—S1-S28 are the waveband and scale lamp switches, in four ganged rotary units beneath the chassis. These are indicated in our under-chassis view, and shown in detail in the diagrams (1 to 4) in col. 6, where they are drawn as seen looking from the underside of the chassis in the directions of the arrows. The table (col. 5) gives the switch positions for the five control settings, starting from fully anti-clockwise. A dash indicates open, and C, closed.

The QMB mains switch S35 is ganged with these switches, and operated by an arm on the main shaft, which opens S35 in the "off" position, and closes it for all other positions.

S29-S33 are the switches associated with the spring-loaded station setting control, which projects from the rear of the chassis. They are ganged in a single rotary unit, indicated in our under-chassis view, and shown in detail in the fifth diagram in col. 6. In the normal (central) position of the control, S31 and S32 are closed; in the clockwise (1) position, S29 and S33 are closed; while in the anti-clockwise (2) position, S30 and S32 are closed.

S34 is the internal speaker muting switch, associated with one of the Ext. LS sockets, in the power and output unit. On fully inserting the external speaker plug, S34 opens and breaks the primary circuit of T1, thus muting the internal speaker. S35 is the mains switch.

S36-S47 are the auto-tuning selector switches, ganged in a press-button unit, on the auto-tuning assembly above the chassis deck. The contacts of all these switches are indicated in our plan chassis view. Each button controls two switches (one aerial circuit and one oscillator) which are closed when the button is pressed.

Coils.—L1 and L8 are two adjustable iron-cored coils beneath the chassis, with screw adjustments at the rear of the chassis. L2, L5; L3, L6; L4, L7; L9, L12; L10, L13 and L11, L14 are in six unscreened units beneath the chassis. The IF transformers L15, L16 and L17, L18 are in two screened units on the chassis deck, with core adjustments at the sides of the cans. L22-L33 are the permeability-tuned auto-tuning coils, in the assembly above the chassis. The aerial coils are the upper ones in each case.

Scale Lamps.—Under this heading come two actual scale lamps, controlled by S24, three waveband indicator lamps switched by S25-S27 and two auto-indicator lamps, controlled by S28. They are all Osram MES types, rated at 6.5 V, 0.3 A, with small bulbs.

CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator via a 0.1 μF condenser to control grid (top cap) of V3 and chassis, feed in a 405 KC/S signal, and adjust the cores of L17 and L18, having first softened the wax by the application of a warm screwdriver. Transfer signal generator to top cap of V2, and similarly adjust cores of L15, L16. The existing lead to each top cap should be left in position, and the response curve of the IF stages should be symmetrical, with a perceptible flat top when viewed on an oscilloscope.

RF and Oscillator Stages.—With gang at maximum, pointer should cover the vertical lines at the extreme right-hand ends of the scales. Connect signal generator to A1 and E sockets, via a suitable dummy aerial. Turn noise suppressor knob fully anti-clockwise.

LW.—Switch set to LW, and tune to 1,200 m on scale. Feed in a 1,200 m (250 KC/S) signal, and adjust C43, then C38, for maximum output. Feed in a 1,875 m (160 KC/S) signal, tune it in, and adjust C44 for maximum output, while rocking the gang for optimum results. Repeat the LW adjustments.

MW.—Switch set to MW, and tune to 214 m on scale. Feed in a 214 m (1,400 KC/S) signal, and adjust C42, then C37, for maximum output. Tracking is fixed on this band.

SW.—Switch set to SW, tune to 18 MC/S on scale, and feed in an 18 MC/S (16.67 m) signal. Adjust C41, then C36 for maximum output. C41 must be adjusted to the peak involving the smaller trimmer capacity.

L1, C4 Filter.—This has to be set to 261 m to reject the National stations when operating on LW (manual or AT). Feed a 261 m signal into the A1 and E sockets, and tune it in manually at about 1,370 m on LW. Adjust core of L1 (rear of chassis) for minimum output.

L8, C7 Filter.—This is for the rejection of London Regional on AT button 6. Feed in a 342 m signal, switch set to AT, and depress button 6. Adjust the lower adjusting screw for this button until the signal is tuned in, then adjust the core of L8 (rear of chassis) for minimum output.

OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial 261 m filter coil
L2	Aerial SW coupling coil
L3	Aerial MW coupling coil
L4	Aerial LW coupling coil
L5	Aerial circuit SW tuning coil
L6	Aerial MW manual tuning coil
L7	Aerial LW manual tuning coil
L8	Aerial 342 m filter coil
L9	Osc. circuit SW tuning coil
L10	Osc. manual MW tuning coil
L11	Osc. manual LW tuning coil
L12	Oscillator SW reaction
L13	Osc. manual MW reaction
L14	Osc. manual LW reaction
L15	1st IF trans.
L16	2nd IF trans.
L17	Speaker speech coil
L18	Hum neutralising coil
L19	Speaker field coil
L20	Speaker field coil
L21	Speaker field coil
L22	Speaker field coil
L23	Speaker field coil
L24	Speaker field coil
L25	Speaker field coil
L26	Speaker field coil
L27	Speaker field coil
L28	Speaker field coil
L29	Speaker field coil
L30	Speaker field coil
L31	Speaker field coil
L32	Speaker field coil
L33	Speaker field coil
T1	Speaker input
T2	Mains
Sr-S23	Waveband and auto/manual change switches
S24-28	Scale lamps switches
S29-33	Setting control switches
S34	Speaker switch
S35	Mains switch
S36-47	Automatic tuning selector switches

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 228 V, using the 220 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 Voltage (mA)
V1 MSPenB	147	2.6	62	0.9
V2 41STH	290	2.4	100	5.8
V3 MVSPenB	112	6.0	—	—
V4 DDT	260	5.2	110	1.6
V5 2XP	132	2.8	—	—
V6 43IU	282	4.0	—	—
	338†	—	—	—

† Each anode, AC.

