



## COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1	Frame aerial LW shunt .. 55,000
R2	V1 CG resistance .. 330,000
R3	V1 fixed GB resistance .. 800
R4	V1 anode LW choke shunt .. 22,000
R5	T.I. adjustment resistances .. 5,500
R6	T.I. surge limiter .. 15,000
R7	T.I. surge limiter .. 9,900
R8	V2 hexode CG decoupling .. 440,000
R9	V1, V2 SG's HT potential divider .. 33,000
R10	V2 fixed GB resistances .. 500
R11	V2 osc. CG resistance .. 600
R12	V2 osc. CG stabiliser .. 55,000
R13	V2 osc. anode HT feed .. 2,200
R14	V2 CG decoupling .. 55,000
R15	V3 SG HT feed .. 440,000
R16	V3 fixed GB resistance .. 99,000
R17	V4 signal diode load .. 220,000
R18	V4 AVC diode load resistances .. 440,000
R19	V4 AVC diode load resistances .. 220,000
R20	V4 signal diode bias, V5 GB .. 99,000
R21	and AVC delay voltage .. 2,200
R22	potential divider .. 99
R23	Manual volume control .. 400
R24	V1, V2, V3, and V5 SG HT feed .. 400,000
R25	V5 grid stopper .. 990
R26	V5 anode stopper .. 99,000
R27	V5 anode stopper .. 99
R28	Variable tone control .. 55,000

## OTHER COMPONENTS

	Approx. Values (ohms)
L1	External aerial coupling .. 0.29
L2	Frame aerial windings .. 0.94
L3	V1 anode LW RF choke .. 47.0
L4	V1 anode MW choke .. 135.0
L5	V2 hex. grid circuit tuning coils .. 40.0
L6	V2 hex. grid circuit tuning coils .. 2.7
L7	V2 hex. grid circuit tuning coils .. 38.5
L8	Osc. circuit MW grid reaction .. total
L9	Osc. circuit LW grid reaction .. 3.9
L10	Osc. circuit MW tuning coil .. 3.5
L11	Osc. circuit LW tuning coil .. 3.5
L12	1st IF trans. Pri. .. 82.0
L13	1st IF trans. Sec. .. 82.0
L14	2nd IF trans. Pri. .. 82.0
L15	2nd IF trans. Sec. .. 82.0
L16	IF filter tuning coil .. 41.0
L17	Speaker speech coil .. 1.9
L18	HT smoothing choke .. 380.0
T1	Output trans. Pri. .. 400.0
T2	Output trans. Sec. .. 0.8
T3	Mains trans. Pri., total .. 21.0
T4	Mains trans. Heater sec. .. 0.06
T5	Mains trans. Rect. heat. sec. .. 0.11
T6	Mains trans. HT sec., total .. 410.0
Sr-S4	Waveband switches ..
S5	"Muting" switch, ganged ..
S6	Internal speaker switch ..
S7	Mains switch, ganged S5 ..

22 SWG enamelled wire, L2 of 12 turns of the same wire, and L3 of 30 turns of 38 SWG enamelled and single silk-covered wire. L1 is between L2 and L3. The ends of the windings are brought to five tags on the wooden framework, which are connected across to five tags on the chassis deck. These are numbered in our plan chassis view, and the connections are indicated by similar numbers in the circuit diagram.

L4, L5 are two chokes in a single screened unit beneath the chassis. L6, L7; L8-L11 and the IF transformers L12, L13 and L14, L15 are in four screened units on the chassis deck.

L16 is in a small brass screened unit beneath the chassis attached to the rear member.

**Scale Lamps.**—These are four Osram MES types, rated at 3.5 V 0.3 A. They are wired in pairs in parallel across each half of the heater secondary of T2.

## CIRCUIT ALIGNMENT

**IF Stages.**—Switch set to MW, and turn gang to maximum. Turn volume control to maximum and muting switch to position 1 (maximum sensitivity). Short circuit C35. Connect signal generator via a 0.1 μF condenser to control grid (top cap) of V2 and chassis. Leave existing connection in place. Connect the output meter. A high impedance type connected to the secondary of T1 is preferable.

Feed in a 125 KC/S signal, and adjust C36, C37, C38 and C39 for maximum output, progressively reducing the input.

**RF and Oscillator Stages.**—With gang at maximum, pointer should be vertical. Connect signal generator, via a standard dummy aerial, to external A and E sockets. If the frame picks up a station, rotate for minimum interference.

**MW.**—Switch set to MW, tune to 214 m on scale, feed in a 214 m (1,400 KC/S) signal, and adjust C34, then C29, for maximum output.

Disconnect C35 by unsoldering the green lead emerging from it beneath the chassis, at the point where it is joined to a tag on a connector panel. Connect an external variable condenser between the disconnected tag and chassis.

Feed in a 500 m (600 KC/S) signal, and adjust the ext. variable condenser and the tuning control, at the same time, for maximum output. Disconnect ext. variable condenser and re-connect C35.

Without altering tuning control, adjust C33 for maximum output.

Repeat the adjustment of C34 and C29 at 214 m.

**LW.**—Switch set to LW, tune to 1,000 m on scale, feed in a 1,000 m (300 KC/S) signal, and adjust C31, then C28, for maximum output.

Disconnect C35 as before, connect ext. variable condenser, feed in a 1,818 m (165 KC/S) signal, and tune it in with the ext. variable condenser and the receiver tuning control at the same time. Disconnect ext. variable condenser, re-connect C35, and without altering receiver tuning control, adjust C32 for maximum output.

## VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 230 V, using the 220 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band, the volume control was at maximum and the muting switch was in position "1." There was no signal input as the frame connections were shorted.

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 Current (mA)
V1 VMP4G	183	2.1	65	1.2
V2 N41	260	1.1	65	1.7
V3 VMP4G	90	2.8	69	2.0
V4 D41	260	3.3	—	—
V5 N41	287	31.0	260	7.2
V6 U12	315†	—	—	—

† Each anode, AC.

## GENERAL NOTES

**Switches.**—S1-S4 are the waveband switches, in a single rotary unit beneath the chassis, indicated in our under-chassis view, and shown in detail in the diagram in col. 3. All the switches are closed on the MW band and open on the LW band.

S5 is the muting switch, which closes in the muting 1 position and opens on muting 2. It is ganged with S7, the QMB mains switch.

S6 is the internal speaker jack switch, at the rear of the chassis, which opens when the plug of an external speaker is fully inserted.

**Coils.**—L1-L3 are the frame aerial windings, L1 consisting of 3 turns of

Repeat the adjustment of C31 and C28 at 1,000 m.

**IF Filter.**—Switch set to LW, with volume control at maximum and feed in a 1,200 m (250 KC/S) signal. Tune this in, and adjust C40 for minimum output.

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