

RESISTANCES		Values (ohms)
R1	V1 SG HT feed ...	20,000
R2	V1 osc. CG resistance ...	50,000
R3	Osc. MW reaction damping ...	2,500
R4	Osc. LW reaction damping ...	5,000
R5	V1 heptode CG decoupling ...	500,000
R6	V1 osc. anode HT feed ...	20,000
R7	V2 CG decoupling ...	500,000
R8	V2 anode HT feed ...	1,000
R9	IF stopper ...	50,000
R10	Manual volume control ...	500,000
R11	V3 signal diode load ...	250,000
R12	V3 triode grid stopper ...	100,000
R13	V3 triode GB resistance ...	1,000
R14	V3 triode anode decoupling ...	50,000
R15	V3 triode anode load ...	50,000
R16	AVC line decoupling ...	500,000
R17	V3 AVC diode load ...	1,000,000
R18	V4 CG resistance ...	500,000
R19	V4 grid stopper ...	100,000
R20	V4 GB resistance ...	250
R21	V4 anode stopper ...	50
R22	Variable tone control ...	50,000
R23	V1, V2 fixed GB; AVC delay ...	40

### VALVE ANALYSIS

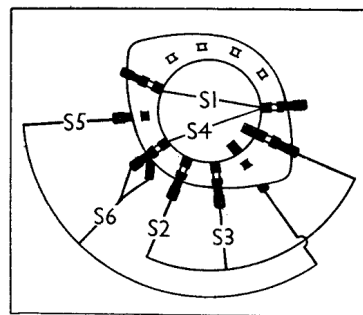
Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 236V, using the 240V tapping on the mains transformer.

The receiver was tuned to the lowest wavelength on the medium wave band and the volume control was at maximum, but in order to suppress any signal that might be picked up a 0.1  $\mu$ F condenser was connected between the top cap of V1 and chassis.

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

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH41 .....	190	2.7	52	6.9
	{ Oscillator }			
	86	5.0		
V2 VP41 .....	73	15.0	190	3.5
V3 HL41DD .....	74	1.8	—	—
V4 AC5Pen .....	175	21.0	190	3.8
V5 UU6 .....	228†	—	—	—

† Each anode, AC.



The wavechange switch unit, viewed from the rear of the assembly, as described above.

### SWITCH TABLE

Switch	MW	LW
S1	C	—
S2	C	—
S3	C	—
S4	C	—
S5	C	—
S6	—	C

### CIRCUIT ALIGNMENT

**IF Stages.**—Connect signal generator, via a 0.1 $\mu$ F condenser to control grid (top cap) of V1 and chassis. Switch set to MW, turn gang to minimum and volume control to maximum, and feed in a 460 KC/S signal. Adjust C36, C35, C34 and C33 in turn for maximum output. Repeat these adjustments.

**RF and Oscillator Stage.**—Signal generator must be coupled to the frame aerials by a loop of wire about 12 inches from the set. With gang condenser at maximum the two pointers should cover the thick lines at the higher wavelength ends of the scales.

**MW.**—Switch set to MW, tune to 214 m on scale, feed in a 214 m (1,400 KC/S) signal, and adjust C30, then C29 (on gang), for maximum output.

**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 C27, for maximum output.

CONDENSERS		Values ( $\mu$ F)
C1	External aerial series ...	0.00001
C2	V1 heptode CG decoupling ...	0.1
C3	V1 SG decoupling ...	0.1
C4	V1 osc. CG condenser ...	0.0001
C5	Osc. circuit MW tracker ...	0.000482
C6	Osc. circuit LW tracker ...	0.000174
C7	V1 osc. anode coupling ...	0.0001
C8	V2 CG decoupling ...	0.1
C9	HT line RF by-pass ...	0.1
C10	condensers ...	0.25
C11	V2 anode decoupling ...	0.1
C12	IF by-pass condensers ...	0.0001
C13	—	0.0001
C14	AVC line decoupling ...	0.01
C15	AF coupling to V3 triode ...	0.01
C16	IF by-pass ...	0.0001
C17	Coupling to V3 AVC diode ...	0.0001
C18*	V3 triode anode decoupling ...	8.0
C19	V3 cathode by-pass ...	0.1
C20	IF by-pass ...	0.0003
C21	V3 triode to V4 AF coupling ...	0.01
C22	Fixed tone corrector ...	0.01
C23*	V4 cathode by-pass ...	50.0
C24	Part of variable tone control ...	0.03
C25*	HT smoothing condensers ...	8.0
C26*	—	8.0
C27*	LW frame aerial trimmer ...	—
C28*	Frame aerial tuning ...	—
C29*	MW frame aerial trimmer ...	—
C30*	Osc. circuit MW trimmer ...	—
C31*	Osc. circuit LW trimmer ...	—
C32*	Oscillator circuit tuning ...	—
C33*	1st IF trans. pri. tuning ...	—
C34*	1st IF trans. sec. tuning ...	—
C35*	2nd IF trans. pri. tuning ...	—
C36*	2nd IF trans. sec. tuning ...	—

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

OTHER COMPONENTS		Approx. Values (ohms)
L1	Frame aerial windings ...	1.4
L2	—	2.3
L3	Oscillator MW reaction ...	2.25
L4	Oscillator LW reaction ...	3.0
L5	Osc. circuit MW tuning coil ...	4.4
L6	Osc. circuit LW tuning coil ...	9.0
L7	1st IF trans. { Pri. ...	18.0
L8	— { Sec. ...	12.0
L9	2nd IF trans. { Pri. ...	12.0
L10	— { Sec. ...	12.0
L11	Speaker speech coil ...	2.0
L12	HT smoothing choke ...	700.0
T1	Speaker input trans. { Pri. ...	480.0
	— { Sec. ...	0.2
	— { Pri., total ...	35.0
T2	Mains trans. { Heater sec. ...	Very low
	— { Rect. heat. sec. ...	0.05
	— { HT sec., total ...	190.0
S1-S6	Waveband switches ...	—
S7	Mains switch, ganged R10 ...	—