

CONDENSERS	Values (pF)
C1	Aerial isolating condenser ... 0.01
C2	Earth isolating condenser ... 0.01
C3	Aerial coupling potential divider condensers ... 0.005
C4	Aerial LW fixed trimmer ... 0.00025
C5	Aerial LW tuning coil ... 0.1
C6	V1 cathode by-pass ... 0.001
C7	V1 osc. CG condenser ... 0.0005
C8	Osc. circ. LW fixed trimmer ... 2.0
C9*	V1 osc. anode decoupling ... 0.00025
C10	Osc. circuit LW tracker ... 0.01
C11	V1 osc. anode coupling ... 0.1
C12	V2 CG decoupling ... 0.1
C13	V1, V2 S.G.'s decoupling ... 0.1
C14	V2 cathode by-pass ... 0.0005
C15	IF by-pass ... 0.00025
C16	Coupling to V3 AVC diode ... 0.01
C17	AF coupling to V3 triode ... 0.01
C18*	V3 cathode by-pass ... 25.0
C19	V3 triode to V4 AF coupling ... 2.0
C20*	V4 S.G. decoupling ... 25.0
C21*	V4 cathode by-pass ... 0.005
C22	Fixed tone corrector ... 0.05
C23	Part of tone control ... 0.05
C24*	HT smoothing condensers {
C25*	Main RF by-pass ... 0.01
C26*	Aerial circuit SW trimmer ... 0.00004
C27*	Aerial circuit MW trimmer ... 0.00004
C28*	Aerial circuit LW trimmer ... 0.00004
C29*	Oscillator circuit tuning ... —
C30*	Oscillator circuit tuning ... 0.00004
C31*	Osc. circuit SW trimmer ... 0.00004
C32*	Osc. circuit MW trimmer ... 0.00004
C33*	Osc. circuit LW trimmer ... 0.00004
C34*	Osc. circuit MW tracker ... 0.00075
C35*	1st IF trans. prt. tuning ... 0.00022
C36*	2nd IF trans. prt. tuning ... 0.00022
C37*	2nd IF trans. sec. tuning ... 0.00022
C38*	2nd IF trans. sec. tuning ... 0.00022
C39*	2nd IF trans. sec. tuning ... 0.00022

RESISTANCES	Values (ohms)
R1	V1 pentode CG decoupling ... 500,000
R2	V1 fixed GB resistance ... 50,000
R3	V1 osc. CG resistance ... 50,000
R4	V1 oscillator anode HT feed resistance ... 5,000
R5	V1, V2 and V4 S.G.'s HT feed potential divider ... 50,000
R6	V2 fixed GB resistance ... 50,000
R7	IF socket ... 50,000
R8	Manual volume control ... 500,000
R9	V2 signal diode load ... 500,000
R10	V3 triode GB; AVC delay ... 5,000
R11	V3 triode anode load ... 250,000
R12	AVC line decoupling ... 500,000
R13	V3 AVC diode load ... 250,000
R14	V4 CG resistance ... 500,000
R15	V4 GB resistance ... 400
R16	Parts of tone control ... 5,000
R17	V5 anodes surge limiters ... 100
R18	Heater circuit ballast ... 885*

\* Tapped at 430 V + 85.0 + 70.0 from V5 heater.

OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial circuit choke ... 27.0
L2	Aerial SW coupling coil ... 0.4
L3	Aerial SW tuning coil ... Very low
L4	Aerial MW tuning coil ... 30.0
L5	Aerial LW tuning coil ... 30.0
L6	Osc. circuit SW tuning coil ... Very low
L7	Osc. circuit MW tuning coil ... 5.0
L8	Osc. circuit LW tuning coil ... 16.0
L9	Oscillator SW reaction coil ... 0.5
L10	1st IF trans. { Prl. ... 7.5
L11	1st IF trans. { Sec. ... 7.5
L12	2nd IF trans. { Prl. ... 7.5
L13	2nd IF trans. { Sec. ... 7.5
L14	Speaker speech coil ... 2.5
L15	Hum neutralizing coil ... 0.2
L16	Speaker field coil ... 280.0
L17	Main filter chokes ... 2.8
L18	Speaker { Prl. ... 540.0
L19	Speaker { Sec. ... 0.3
S1-S10	waviband switches ... —
S11-S13	Tone control switches ... —
S14	Main switch, gang ... —

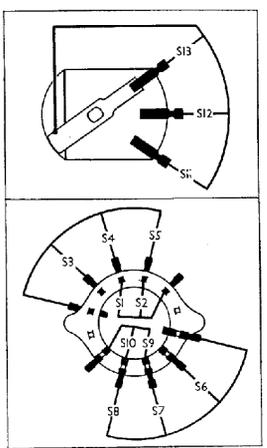
**VALVE ANALYSIS**

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on AC mains of 235 V, using the 250 V tapping on the mains resistance.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6AS6	170	3.4	74	2.9
V2 6T7G	102	2.2	74	1.6
V3 6Q7G	85	0.25	74	1.6
V4 25A6G	150	35.0	120	6.5
V5 25Z6G	220	—	—	—

† Cathode to chassis, DC.

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. If valve adaptors are used to obtain current readings, the valve screens should be slipped over the valves and earthed while the reading is taken.



Diagrams of the two switch units: Above: The tone control unit. Below: The waveband unit.

**CIRCUIT ALIGNMENT**

**IF Stages.**—Short-circuit C31, turn volume control to maximum. Connect signal generator, via a 0.1 μF non-inductive condenser, to control grid (top cap) of V1 and chassis. Feed in a 464 KC/S (546.55 m) signal, and adjust C36, C37 and C38, C39 in turn for maximum output. Re-check these settings. Remove short-circuit from C31.

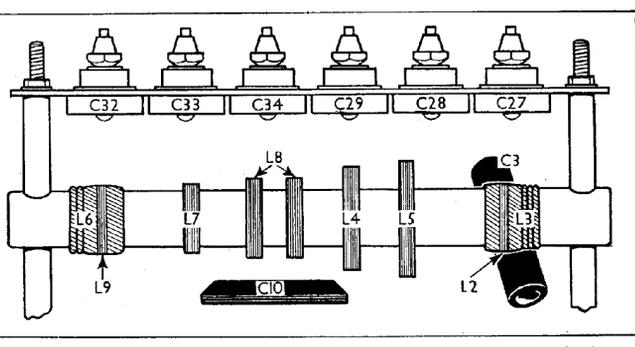
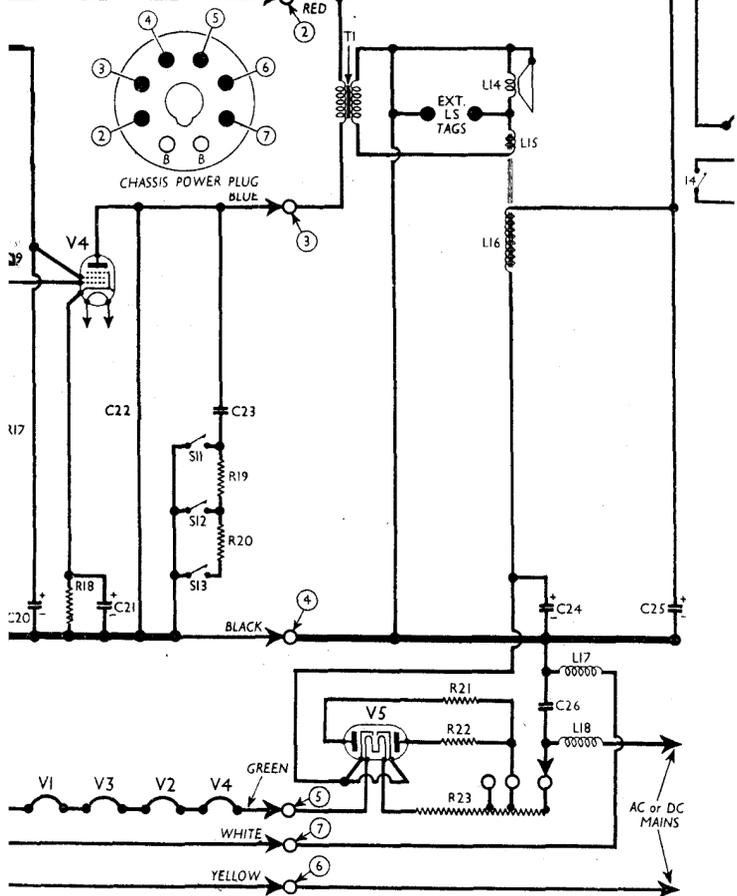
**RF and Oscillator Stages.**—With the gang at maximum, the pointer should cover the lines at the high-wavelength ends of the scales. Connect signal generator, via a suitable dummy aerial, to A and E sockets, and keep volume control at maximum.

**MW.**—Before commencing the MW alignment, it is necessary first to bring the LW oscillator circuit roughly into line. Therefore, switch set to LW, tune to 1,200 m (white mark on scale), feed in a 1,200 m (250 KC/S) signal, and adjust C34 roughly for maximum output. Then tune to 1,714 m (white mark on scale), feed in a 1,714 m (175 KC/S) signal, and adjust C35 roughly for maximum output.

Switch set to MW, tune to 214 m (white mark on scale), feed in a 214 m (1,400 KC/S) signal, and adjust C33, then C26, for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C35 for maximum output, while rocking the gang for optimum results. Repeat the 214 m adjustment as a check.

**LW.**—Switch set to LW, tune to 1,200 m (white mark on scale), feed in a 1,200 m (250 KC/S) signal, and adjust C34, then C29, for maximum output. There is no variable tracker on this band, but the setting should be checked at 2,000 m (150 KC/S).

**SW.**—Switch set to SW, replace dummy aerial with a 400 Ω resistance, tune to 20 m (white mark on scale), feed in a 20 m (15 MC/S) signal, and adjust C32 for maximum output. Two peaks will be found: use that involving the lesser trimmer capacity (nearer the fully unscrewed position). Now adjust C27 for maximum output.



Detailed sketch of the coil and trimmer assembly, drawn as seen looking in the direction of the arrow in the plan view.

**Switch Table**

Switch	LW	MW	SW
S1	—	—	—
S2	—	—	—
S3	—	—	—
S4	—	—	—
S5	—	—	—
S6	—	—	—
S7	—	—	—
S8	—	—	—
S9	—	—	—
S10	—	—	—