

CONDENSERS	Values (uF)
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 fixed trimmer ... 0.00025
C6	V1 cathode by-pass ... 0.1
C7	V1 osc. CG condenser ... 0.001
C8	Osc. circ. LW fixed trimmer ... 0.00005
C9	V1 osc. anode decoupling ... 2.0
C10	Osc. circuit LW tracker ... 0.00025
C11	V1 osc. anode decoupling ... 0.1
C12	V2 CG decoupling ... 0.1
C13	V1, V2 80's decoupling ... 0.1
C14	V2 cathode by-pass ... 0.1
C15	IF by-pass ... 0.0005
C16	Coupling to V3 AVC diode ... 0.00025
C17	AF coupling to V3 triode ... 0.01
C18	V3 cathode by-pass ... 25.0
C19	V3 triode to V4 AF coupling ... 0.02
C20	V4 80 decoupling ... 2.0
C21	V4 cathode by-pass ... 25.0
C22	Fixed tone corrector ... 0.005
C23	Part of tone control ... 0.05
C24	HT smoothing condenser ... 10.0
C25	Main R.F. 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	Aerial 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. pt. tuning ... 0.00025
C36	1st IF trans. sec. tuning ... 0.00025
C37	2nd IF trans. pt. tuning ... 0.00025
C38	2nd IF trans. sec. tuning ... 0.00025

RESISTANCES	Values (ohms)
R1	V1 pentode CG decoupling ... 500,000
R2	V1 fixed GB resistance ... 800
R3	V1 osc. CG resistance ... 50,000
R4	V1 oscillator anode HT feed resistance ... 5,000
R5	V1 feed resistance ... 15,000
R6	V1, V2 and V4 80's HT feed potential divider ... 5,000
R7	V2 fixed GB resistance ... 50,000
R8	IF amplifier ... 50,000
R9	Manual volume control ... 500,000
R10	V3 signal diode load ... 500,000
R11	V3 triode GB; AVC delay ... 5,000
R12	V3 triode anode load ... 250,000
R13	V3 AVC line decoupling ... 500,000
R14	V3 AVC diode load ... 300,000
R15	V4 CG resistance ... 250,000
R16	V4 GB resistance ... 400
R17	Parts of tone control ... 5,000
R18	V5 anodes surge limiters ... 100
R19	Heater circuit ballast ... 885*

* Tapped at 430 V + 85 V + 70 V 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 ... Very low
L6	Osc. circuit SW tuning coil ... 5.0
L7	Osc. circuit MW tuning coil ... 16.0
L8	Oscillator SW reaction ... 0.5
L9	1st IF trans. Pri. ... 7.5
L10	1st IF trans. Sec. ... 7.5
L11	2nd IF trans. Pri. ... 7.5
L12	2nd IF trans. Sec. ... 7.5
L13	Speaker speech coil ... 2.5
L14	Hum neutralizing coil ... 0.2
L15	Speaker field coil ... 300.0
L16	Main filter chokes ... 2.8
L17	Speaker (Pri.) ... 640.0
L18	Speaker (Sec.) ... 0.3
S1-S10	Waveband switches ... —
S11-S13	Tone control switches ... —
S14	Main switch, gang ... —

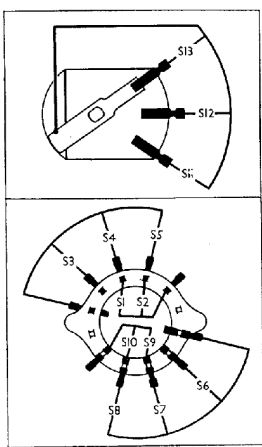
VALVE ANALYSIS

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	8.4	74	2.9
V2 6U7G	102	2.2	74	1.6
V3 6Q7G	170	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 (646.55 m) signal, and adjust C36, C37 and C38, C39 in turn for maximum output. Re-check these settings. Remove short-circuit from C31.

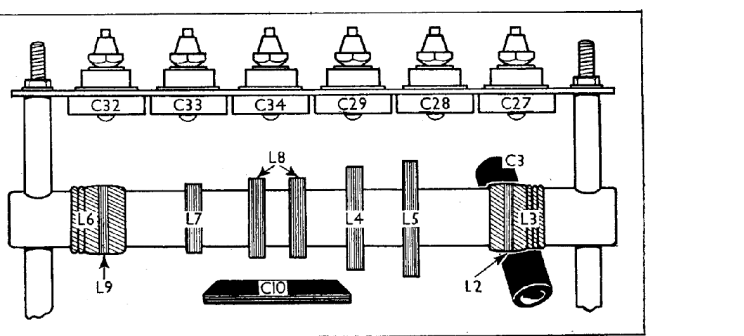
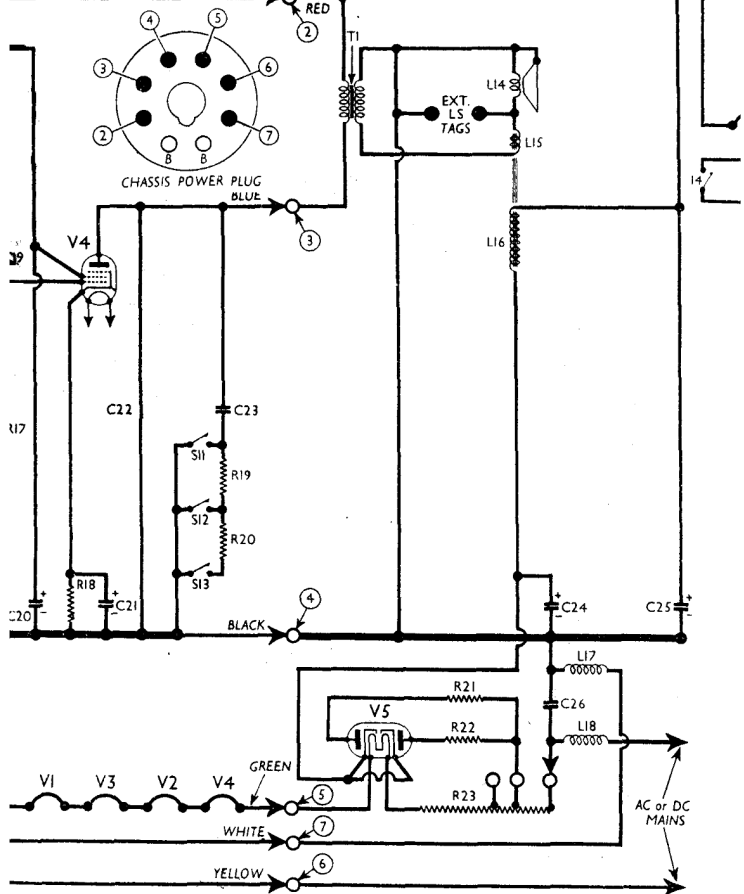
RF and Oscillator Stages.—With the gang at maximum, the pointer should cover the lines at the high-wavelength ends of the scales. Connect signal generator, via a suitable dummy aerial, to A and E sockets, and keep volume control at maximum.

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 C28, 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	—	—	—