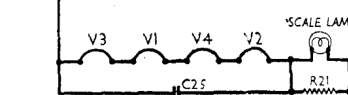
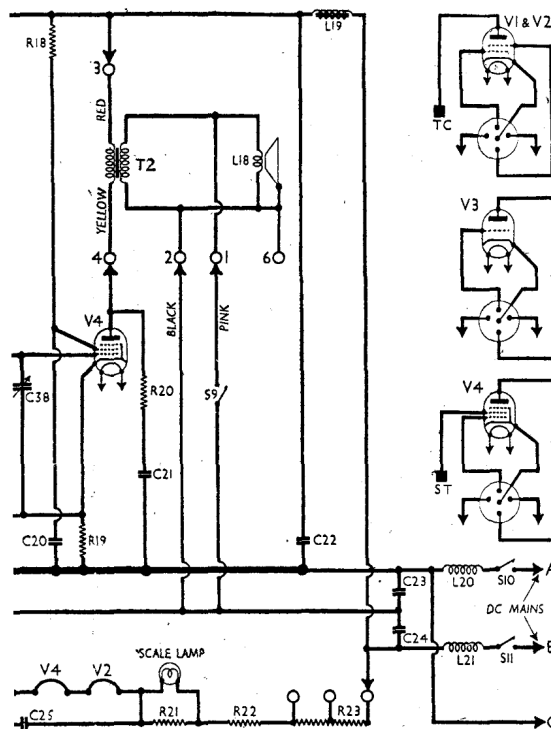


CONDENSERS		Values ( $\mu$ F)
C1	Aerial isolating condenser	0.001
C2	Aerial coupling condenser	0.0005
C3	V1 CG condenser	0.00005
C4	V1 osc. anode coupling	0.0001
C5	V1, V2 SG decoupling	1.0
C6	V1, V2 anodes' decoupling	1.0
C7	V2 cathode by-pass	0.1
C8	PU isolating condensers	0.5
C9		0.5
C10	V3 CG condenser	0.01
C11		0.00005
C12	V3 CG decoupling	1.0
C13	V3 anode IF by-pass	0.002
C14	condensers	0.002
C15	V3 anode decoupling	2.0
C16	Tone corrector tuning	1.0
C17		0.0003
C18	AF coupling to T1	0.1
C19	V4 CG decoupling	2.0
C20	V4 SG decoupling	1.0
C21	Part fixed tone corrector	0.004
C22	HT smoothing condenser	5.0*
C23	Mains R.F. by-pass condensers	0.005
C24	Heater circuit by-pass	0.005
C25		4.0§
C26	B-P pri. MW trimmer	—
C27	Band-pass pri. tuning	—
C28	Image suppressor	—
C29	Band-pass sec. tuning	—
C30	B-P sec. MW trimmer	—
C31	Osc. circuit LW trimmer	—
C32	Oscillator circuit tuning	—
C33	Osc. circuit MW trimmer	—
C34	1st IF trans. pri. tuning	—
C35	1st IF trans. sec. tuning	—
C36	2nd IF trans. pri. tuning	—
C37	2nd IF trans. sec. tuning	—
C38	Variable tone control	0.00065

† Variable. ‡ Pre-set.

\* Made up of 2 $\mu$ F and 3 $\mu$ F connected in parallel.

§ Made up of two 2 $\mu$ F condensers in parallel.



#### VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 DSB	140	1.0	60	0.25
V2 VDS	140	4.0	50	0.75
V3 DH	60	2.5	—	—
V4 DPT	160	24.0	127	4.0

**Condenser Block.**—This is mounted beneath the chassis deck, and is concealed from view in our under-chassis illustration by its connecting panel and an assembly of resistances, but its position is indicated by an arrow. It contains twelve condensers, whose connections are shown in the diagram below, where the numbers of the tags to which they are connected are seen. The diagram is drawn as seen when viewed from the rear of the underside of the chassis.

It should be noted that C18, which is the AF coupling condenser, is enclosed in a screened container of its own. Replacements should also be screened, the screen being connected to chassis.

In two cases, also, two condensers are joined in parallel. One of these is C22,

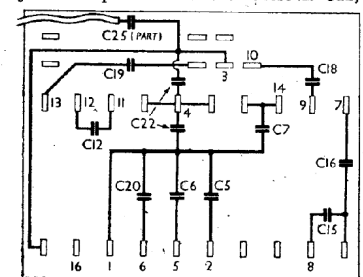


Diagram of the condenser block, as seen from the rear of the underside of the chassis. The tag numbers correspond with those in our under-chassis

view which consists of two condensers, both in the block, as indicated in the block diagram. The other case is C25, for which one 2 $\mu$ F in the block is used in parallel with a second 2 $\mu$ F condenser on the chassis deck. This is indicated in our chassis illustrations and block diagram by marking each part "C25 (Part)."

RESISTANCES		Values (ohms)
R1	Aerial input potentiometer	25,200
R2	V1 grid leak	2,000,000
R3	V1, V2 SG's potential divider	35,000
R4	V2 fixed GB resistance	20,000
R5		350
R6	V2 gain control	18,000
R7	V1, V2 anodes HT feed	5,000
R8	Pick-up shunt	10,000
R9	V3 CG decoupling	100,000
R10	V3 CG resistance	230,000
R11	V3 anode decoupling resistances	10,000
R12	V3 anode load	10,000
R13		23,000
R14	Hum control	3,000
R15	V3 PU GB resistance	500
R16	V4 CG decoupling	230,000
R17	V4 grid stopper	230,000
R18	V4 SG HT feed	10,000
R19	V4 GB resistance	230
R20	Part fixed tone corrector	10,000
R21	Scale lamp shunt	100
R22	Heater circuit ballast	500
R23	Mains voltage adjustment	160*

\* Tapped at 0+80+80 ohms.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial LW coupling coil	72.0
L2	Band-pass primary coils	3.5
L3		13.0
L4	Image suppressor coil	0.1
L5	Band-pass secondary coils	3.5
L6		13.0
L7	Oscillator reaction coils	0.25
L8		0.5
L9	Osc. circ. MW tuning coil	5.0
L10	Osc. circ. LW tuning coil	5.0
L11	1st IF trans.	100.0
L12		100.0
L13	2nd IF trans.	100.0
L14		100.0
L15	V1 osc. coupling coil	95.0
L16	Part of tone filter	1,000.0
L17	V1 anode IF filter coil	240.0
L18	Speaker speech coil	9.0
L19	HT smoothing choke	1,200.0
L20	Mains filter chokes	2.5
L21		2.5
T1	Intervalve trans.	400.0
T2	Speaker input trans.	2,350.0
S1-S5	Waveband switches	2.0
S6-S8	Radio/gram. change switches	—
S9	Wave-change muting switch	—
S10, S11	Mains circuit switches	—

H.M.V. - 404, 440  
504, 540

H.M.V. - 404, 440  
504, 540

## CIRCUIT ALIGNMENT

**IF Stages.**—Short-circuit **L7**, **L8** by connecting **V1** cathode (centre pin) to chassis, and loosely couple the signal generator output to **V1** control grid circuit via the leads associated with **C28**. Feed in a 128 KC/S (2,340 m) signal, and adjust **C34** and **C36** for maximum output. Feed in a 123 KC/S (2,440 m) signal, and adjust **C35** for maximum output. Feed in a 125.5 KC/S (2,390 m) signal, and adjust **C37** for maximum output. Repeat these adjustments, always in the same order.

**RF and Oscillator Stages.**—Transfer signal generator leads to **A** and **E** sockets via a suitable dummy aerial. If the scale pointer does not register correctly, it may be adjusted after freeing its drive drum (cheese-head screw).

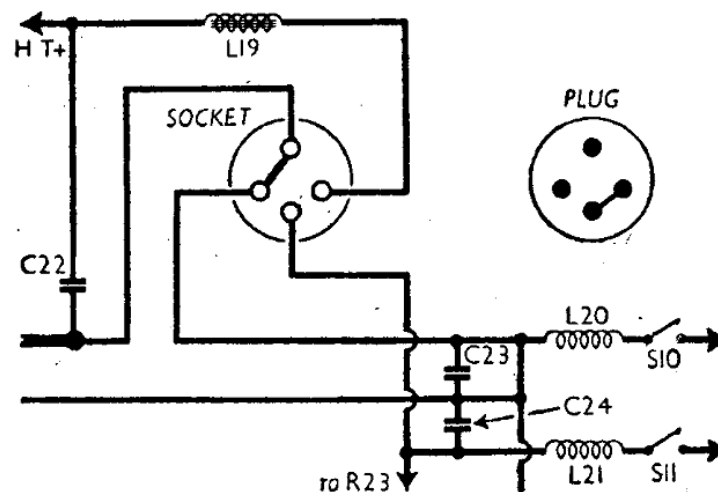
**MW.**—Switch set to MW, tune to 210 m on scale. Unscrew **C28** several turns, and screw up **C30** fully. Feed in a 210 m (1,430 KC/S) signal, and adjust **C33**, then **C26** (near aerial socket), for maximum output. Now adjust **C30** for maximum output, and check whether receiver is "lively" below 240 m. If it is not, **C30** has been unscrewed too far, and must be tightened up a little.

**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** for maximum output.

Any subsequent disturbance of the wiring is liable to throw the receiver out of alignment.

**Image Suppressor.**—Switch set to MW, tune to 315 m on scale, feed in a strong 250 m (1,200 KC/S) signal. Find the image point by slight adjustment of the tuning control if necessary, and adjust **C28**, with a non-metallic screwdriver, for minimum output. Feed in a 350 m (860 KC/S) signal, tune in its image at about 496 m, and adjust **L4** on its slotted bracket for minimum output.

Care should be exercised with the wiring of **C28**, as its capacity is very small, and disturbance may carry the adjustment beyond the range of the condenser.



Section of the circuit diagram overleaf redrawn to show the inclusion of the AC/DC adaptor in models so fitted. The plug may be replaced by a rectifier and condenser adaptor.