

VALVE ANALYSIS

Voltages and currents given in the table below are those measured in our MLD/5 when it was operating with a new 100 V HT battery reading 100 V on load. The gang was turned to minimum, the volume control was at maximum, and the receiver was switched to MW, but the frame aerials were disconnected. Voltages were measured on the 400 V scale of a Model 7 Universal Avometer, chassis being negative.

If V2 should become unstable when its screen current is being measured, it can be stabilised by a condenser of about 0.1 μ F connected between the grid (top cap) and chassis.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 1A7G	90	0.52	39	0.6
	90	1.56		
V2 1N5G	90	1.2	90	0.26
V3 1H5G	13	0.025	—	—
V4 1C5G	86	5.5	90	0.4

The values in the following table are those taken in a model MLD/3 receiver fitted with Mazda valves, under the same conditions as those in the table above, except that the 90 V section of the battery was reading 95 V on load.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 FC141	88	0.3	35	0.6
	88	1.7		
V2 SP141	88	1.2	88	0.6
V3 H141D	15	0.025	—	—
V4 Pen141	85	5.0	88	1.5

CIRCUIT ALIGNMENT

NOTE.—Alignment may be performed without removing the chassis from the cabinet.

IF Stages.—In the case of the MLD/3, turn the receiver on its side so that the speaker is above the scale. Remove the back of the receiver (with frame aerials), and the battery, and lay them down outside the set, leaving them connected up, of course.

In the case of the MLD/5, remove the back of the receiver and take out the batteries. Turn the receiver on its side so that the speaker is above the scale.

In the case of both models, switch set to LW and short the oscillator grid circuit by connecting to chassis the tag of C6 nearest end of chassis. Switch on set, and turn volume control to maximum. Connect signal generator to end of C2 (on chassis deck) which is connected to top cap of V1, and chassis.

SWITCH	MW	LW
S1	C	—
S2	C	—
S3	—	C
S4	C	C
S5	—	C

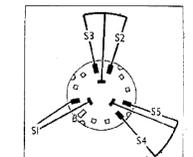
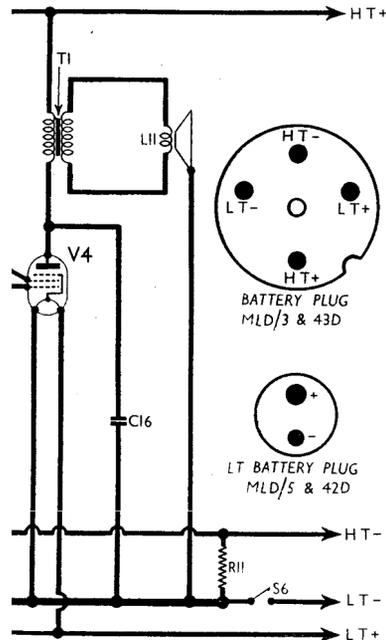


Diagram of the S1-S5 switch unit, seen from the rear of the underside of the chassis.



Feed in a 370 KC/S signal. Adjust C23, C24 and C25 for maximum output. Remove short from oscillator grid circuit.

RF and Oscillator Stages.—With gang at maximum, pointer should be vertical. Connect signal generator as for IF alignment.

MW.—Switch set to MW, tune to 215.4 m. on scale (Radio Lyons' wavelength), feed in a 215.4 m. (1,393 KC/S) signal, and adjust C21 for maximum output (reached through a hole in the base of the cabinet in the case of the MLD/5). Remove signal generator lead, tune to a broadcast signal at the lower wavelength end of the MW scale, and adjust C17 for maximum output. In the case of the MLD/3, this is reached through the left hand or the upper hole in the back of the cabinet, according to whether the holes are horizontally or vertically disposed. In the MLD/5, C17 is across the left-hand frame aerial looking into the back of the cabinet.

LW.—Switch set to LW, connect signal generator as before, and feed in a 1,293 m. (232 KC/S) signal. Tune to 1,293 m. on scale, and adjust C22 for maximum output (reached through a hole in the base of the cabinet of the MLD/5). Remove signal generator lead, tune to a broadcast signal at lower wavelength end of LW scale, and adjust C18 (either or both of the two condensers in parallel in the case of the MLD/3).

RESISTANCES		Values (ohms)
R1	V1 pentode CG resistance...	500,000
R2	V1 osc. CG resistance ...	100,000
R3	V1 SG HT feed ...	75,000
R4	AVC feed potential divider	8,000,000
R5	resistances ...	3,000,000
R6	IF stopper ...	100,000
R7	Manual volume control; V3 signal diode load ...	500,000
R8	V3 triode CG resistance ...	8,000,000
R9	V3 triode anode load ...	1,000,000
R10	V4 CG resistance ...	2,000,000
R11	V4 auto GB resistance ...	850

CONDENSERS		Values (μ F)
C1	Frame aerial LW fixed trimmer ...	0.000025
C2	V1 pentode CG condenser ...	0.0001
C3	V1 osc. CG condenser ...	0.0002
C4	Osc. circuit MW tracker	0.000641
C5	Osc. circuit LW tracker	0.000445
C6	Osc. circuit LW fixed trimmer	0.0002
C7	Oscillator LW reaction shunt ...	0.0002
C8*	HT reservoir condenser ...	8.0
C9	V1 SG decoupling ...	0.1
C10	AVC line decoupling ...	0.1
C11	IF by-pass condensers ...	0.00005
C12	AF coupling to V3 triode ...	0.001
C13	V3 triode to V4 AF coupling	0.006
C14	V4 CG decoupling ...	50.0
C15*	Fixed tone corrector ...	0.001
C16	Frame aerial LW trimmer...	—
C17†	Frame aerial MW trimmer...	—
C18†	Frame aerial LW trimmer...	—
C19†	Frame aerial tuning ...	—
C20†	Oscillator circuit tuning	—
C21†	Osc. circuit MW trimmer ...	—
C22†	Osc. circuit LW trimmer ...	—
C23†	1st IF trans. sec. tuning ...	—
C24†	2nd IF trans. pri. tuning ...	—
C25†	2nd IF trans. sec. tuning ...	—

* Electrolytic. † Variable. ‡ Pre-set

OTHER COMPONENTS		Approx. Values (ohms)
L1	Frame aerial coils ...	2.0
L2	—	30.0
L3	Osc. circuit MW tuning coil ...	2.0
L4	Osc. circuit LW tuning coil ...	3.4
L5	Oscillator MW reaction	0.5
L6	Oscillator LW reaction	6.5
L7	1st IF trans. { Pri. ...	18.0
L8	{ Sec. ...	6.5
L9	2nd IF trans. { Pri. ...	9.0
L10	{ Sec. ...	9.0
L11	Speaker speech coil	2.5
T1	Speaker input trans. { Pri. ...	650.0
	{ Sec. ...	0.3
S1-S5	Waveband switches	—
S6	LT circuit switch	—