

# MASTERRADIO - D110

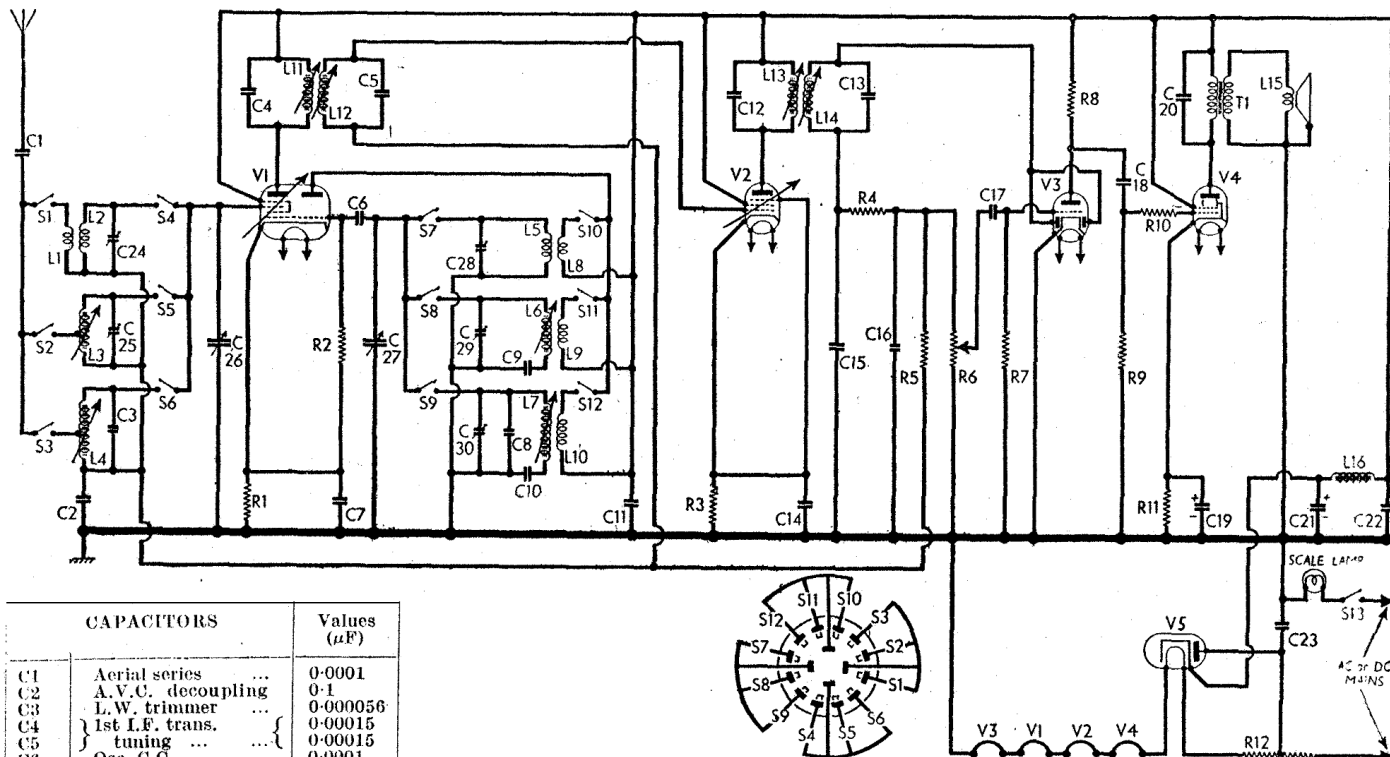
Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 12K8 GT	100	2.1	100	7.3
V2 12K 7GT	100	4.3	100	1.4
V3 12Q 7GT	18	0.14	—	—
V4 35L 6GT	97	35.0	100	3.3
V5 35Z 4GT†	—	—	—	—

RESISTORS		Values (ohms)	Location
R1	V1 fixed G.B. ...	180	N7
R2	V1 osc. C.G. ...	27,000	N6
R3	V2 fixed G.B. ...	470	M8
R4	I.F. stopper ...	10,000	J7
R5	A.V.C. decoupling ...	1,000,000	J6
R6	Volume control ...	500,000	H5
R7	V3 triode C.G. ...	2,000,000	J6
R8	Anode load ...	470,000	K7
R9	V4 C.G. ...	470,000	J7
R10	Grid stopper ...	4,700	I7
R11	V4 G.B. ...	180	J8
R12	Line cord ...	600†	H8

Intermediate frequency 465 kc/s.

† Cathode to chassis, 107 V.D.C.

† Tapped 210Ω from V5 heater.

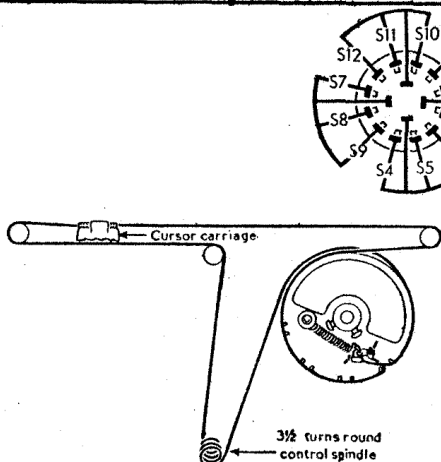


CAPACITORS		Values (μF)
C1	Aerial series ...	0.0001
C2	A.V.C. decoupling ...	0.1
C3	L.W. trimmer ...	0.000056
C4	1st L.F. trans. ...	0.00015
C5	tuning ...	0.00015
C6	Osc. C.G. ...	0.0001
C7	Cath. by-pass ...	0.1
C8	L.W. trimmer ...	0.000033
C9	M.W. tracker ...	0.0006
C10	L.W. tracker ...	0.0001
C11	R.F. by-pass ...	0.01
C12	2nd L.F. trans. ...	0.00015
C13	tuning ...	0.00015
C14	Cath. by-pass ...	0.1
C15	I.F. by-pass capacitors ...	0.00068
C16	A.F. coupling ...	0.000082
C17	capacitors ...	0.01
C18	A.F. coupling ...	0.01
C19*	Cath. by-pass ...	25.0
C20	Tone corrector ...	0.01
C21*	H.T. smoothing ...	16.0
C22*	... ...	24.0
C23	R.F. by-pass ...	0.01
C24†	Aerial S.W. trim. ...	0.00007
C25†	Aerial M.W. trim. ...	0.00007
C26†	Aerial tuning ...	—
C27†	Oscillator tuning ...	—
C28†	Osc. S.W. trim. ...	0.00007
C29†	Osc. M.W. trim. ...	0.00007
C30†	Osc. L.W. trim. ...	0.00007

\* Electrolytic. † Variable.

‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Coupling coil ...	0.4
L2	Aerial ...	Very low
L3	tuning coils ...	3.0
L4	... ...	17.0
L5	Oscillator ...	Very low
L6	tuning coils ...	1.6
L7	... ...	6.5
L8	Oscillator ...	0.2
L9	reaction coils ...	1.0
L10	... ...	1.7
L11	1st I.F. { Pri. ...	10.0
L12	trans. { Sec. ...	10.0
L13	2nd I.F. { Pri. ...	10.0
L14	trans. { Sec. ...	10.0
L15	Speech coil ...	3.0
L16	H.T. choke ...	130.0
T1	Output { Pri. ...	100.0
	trans. { Sec. ...	0.4
S1-S12	Waveband switches ...	—
S13	Mains switch, ganged R6 ...	—



The drive cord system, as seen from the front.

**Drive Cord Replacement.**—Four feet of cord is ample for replacement, and it follows a simple course which can be seen in the sketch above, where it is drawn as seen from the front (neglecting obstructions) when the gang is at maximum. The cord makes  $3\frac{1}{2}$  turns round the control spindle, and both ends of it, which in production are terminated in metal tags, are hooked on to the tension spring.

The cursor carriage is clamped on to the correct point on the cord as the final operation, and should be sealed with a little cement. It should be carefully noted that if the scale and its backing plate are removed the drive system will collapse.

## CIRCUIT ALIGNMENT

**I.F. Stages.**—Connect signal generator, with an  $0.1\mu\text{F}$  capacitor in each lead, to control grid (top cap) of V1 and chassis, leaving existing connector in position. Switch set to M.W., and turn volume control to maximum and gang to minimum capacitance. Feed in a 465 kc/s (645.16 m) signal and adjust the cores of L11, L12, L13 and L14 for maximum output. Repeat these adjustments.

**R.F. and Oscillator Stages.**—Instead of the normal practice of adjusting the oscillator and then the R.F. circuits of each band in turn, the manufacturers recommend that the oscillator adjustments for all bands should be carried out first, and then all the aerial circuit adjustments, as described below.

**Oscillator Stages.**—With the gang at maximum capacitance the left-hand edge of the cursor should coincide with the right-hand vertical white line on the scale, adjacent to the word "Masteradio." It may be adjusted in position if the drive drum fixing screws are slackened. Leave the signal generator leads connected as previously described.

**M.W.**—With set still switched to M.W., tune to 550 m on scale, feed in a 550 m (545 kc/s) signal, and adjust the core of L6 for maximum output. Tune to 200 m on scale, feed in a 200 m (1,500 kc/s) signal, and adjust C29 for maximum output. Repeat these adjustments until correct calibration is maintained.

**L.W.**—Switch set to L.W., tune to 2,000 m on scale, feed in a 2,000 m (150 kc/s) signal, and adjust the core of L7 for maximum output. Tune to 1,000 m on scale, feed in a 1,000 m (800 kc/s) signal, and adjust C30 for maximum output. Repeat these adjustments until correct calibration is maintained.

**S.W.**—Switch set to S.W., tune to 16 m on scale, feed in a 16 m (18.75 Mc/s) signal, and adjust C28 for maximum output, choosing the peak involving the lesser trimmer capacitance.

**R.F. Stages.**—Transfer "live" signal generator lead to receiver end of attached aerial, replacing the  $0.1\mu\text{F}$  isolating capacitor by one of  $50\text{pf}$  ( $0.00005\mu\text{F}$ ).

**M.W.**—Switch set to M.W., tune to 230 m on scale, feed in a 230 m (1,300 kc/s) signal, and adjust C25 for maximum output. Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the core of L3 for maximum output. Repeat these adjustments until no increase in sensitivity can be obtained.

**L.W.**—Switch set to L.W., tune to 1,600 m on scale, feed in a 1,600 m (187.5 kc/s) signal and adjust the core of L4 for maximum output.

**S.W.**—Switch set to S.W., tune to 16 m on scale, feed in a 16 m signal, and adjust C24 for maximum output, choosing the peak involving the greater trimmer capacitance.

Finally seal all adjustments with a cellulose fixative.