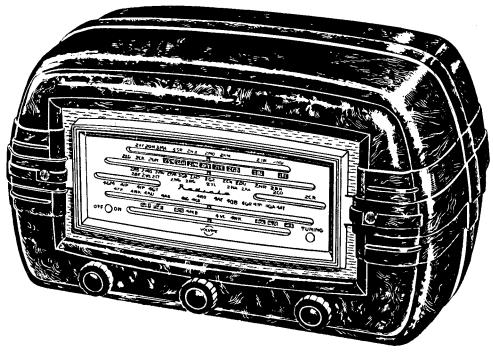
TECHNICAL INFORMATION AND SERVICE DATA

AWA RADIOLA

Model 539-MA

FIVE VALVE, BROADCAST,
A.C. OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (A/SIA) LTD.



ELECTRICAL SPECIFICATIONS

Frequency Range ..... 540-1600 Kc/s
(555-187.5 Metres)
Intermediate Frequency ..... 455 Kc/s
Power Supply Rating ..... 200-260 volts
50-60 C.P.S.
(Models are produced with other voltage and frequency ratings)
Power Consumption ..... 40 watts.
Loudspeaker (Permanent Magnet)
5 inch — Code number AC53
Transformer — XA2
V.C. Impedance — 3 ohms at 400 C.P.S.
Undistorted Power Output ..... 3 watts.
Valve Complement:
(1) 6BE6 Converter
(2) 6BA6 I.F. Amplifier
(3) 6AV6 A.F. Amplifier, Detector, A.V.C.
(4) 6AQ5 Output
(5) 6X4 Rectifier
Controls: Tone/Power — left-hand
Volume — centre
Tuning — right-hand.

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments.

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws have been broken.

It is especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

Under no circumstances should the plates of the ganged tuning capacitor be bent, as the unit is accurately aligned during manufacture and cannot be re-adjusted unless by skilled operators using special equipment.

For all alignment operations connect the "low" side of the signal generator to the receiver chassis, and keep the generator output as low as possible to avoid A.V.C. action. Also, keep the volume control in the maximum clockwise position.

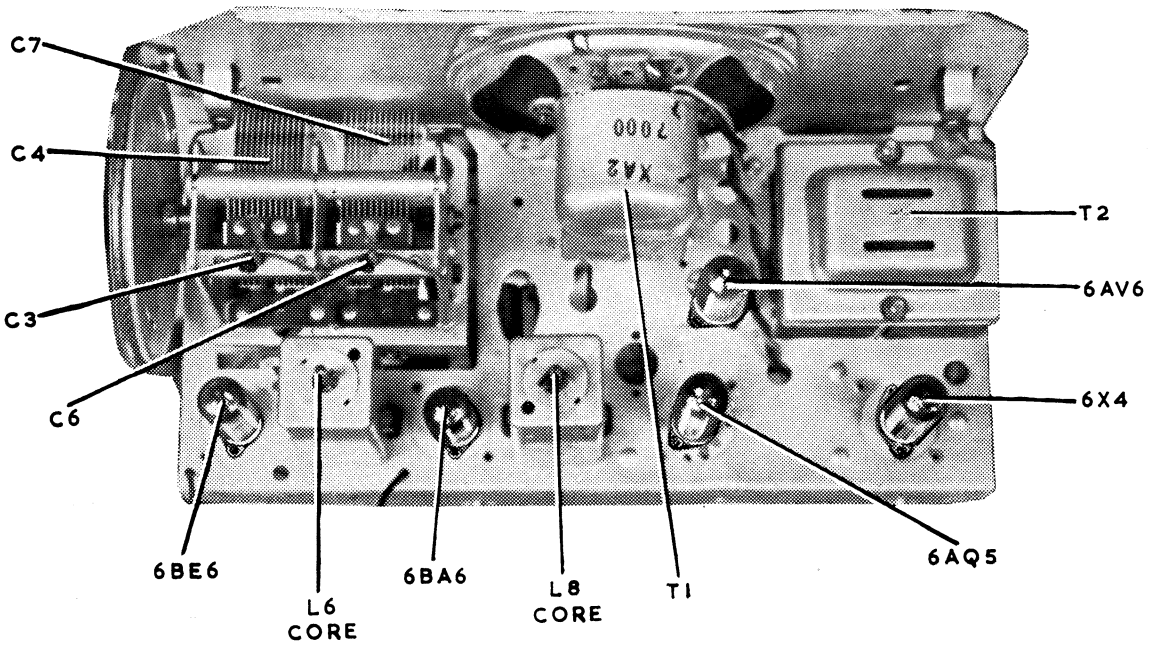
Testing Instruments.

(1) A.W.A. Junior Signal Generator, type 2R3911, or
(2) A.W.A. Modulated Oscillator, type J6726.
If the modulated oscillator is used, connect a 0.25 megohm non-inductive resistor across the output terminals.
(3) A.W.A. Output Meter, type 2M8832.

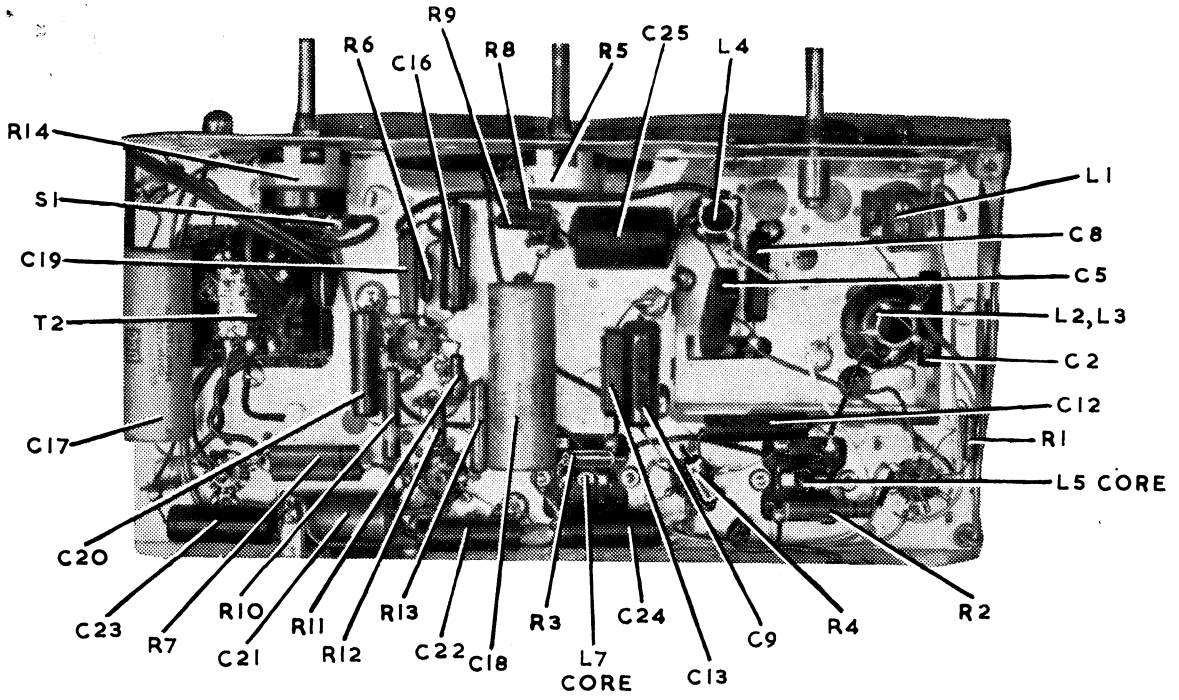
ALIGNMENT TABLE

Alignment Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Maximum Peak Output.
1	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L8 Core
2	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L7 Core
3	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L6 Core
4	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L5 Core
	Repeat the above adjustments until the maximum output is obtained.			
5	Aerial Lead	600 Kc/s	600 Kc/s	L.F. Osc. Core Adj. (L4)*
6	Aerial Lead	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C6)
7	Aerial Lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C3)
	Repeat adjustments 5, 6 and 7.			

* Rock the tuning control back and forth through the signal.



CHASSIS TOP VIEW MODEL 539-MA



CHASSIS UNDERNEATH VIEW MODEL 539-MA

Chassis Removal.

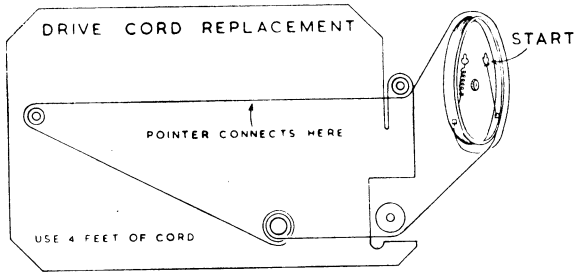
First remove the control knobs by pulling them straight off their spindles.

Remove two recessed nuts from the top of the cabinet back, two screws from underneath the cabinet back and withdraw it.

The chassis is held to the cabinet front by two screws situated under it. Removal of these enables the chassis to be withdrawn. When replacing the chassis in ivory cabinets, make sure that the dial lamps slide correctly into their respective light cowls.

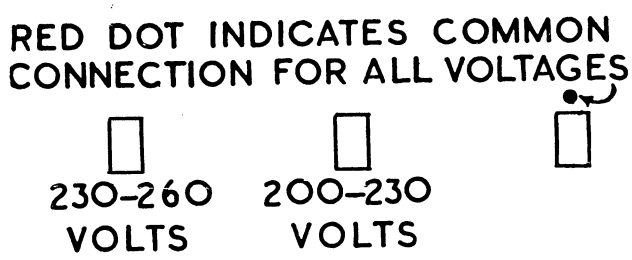
Tuning Drive Cord Replacement.

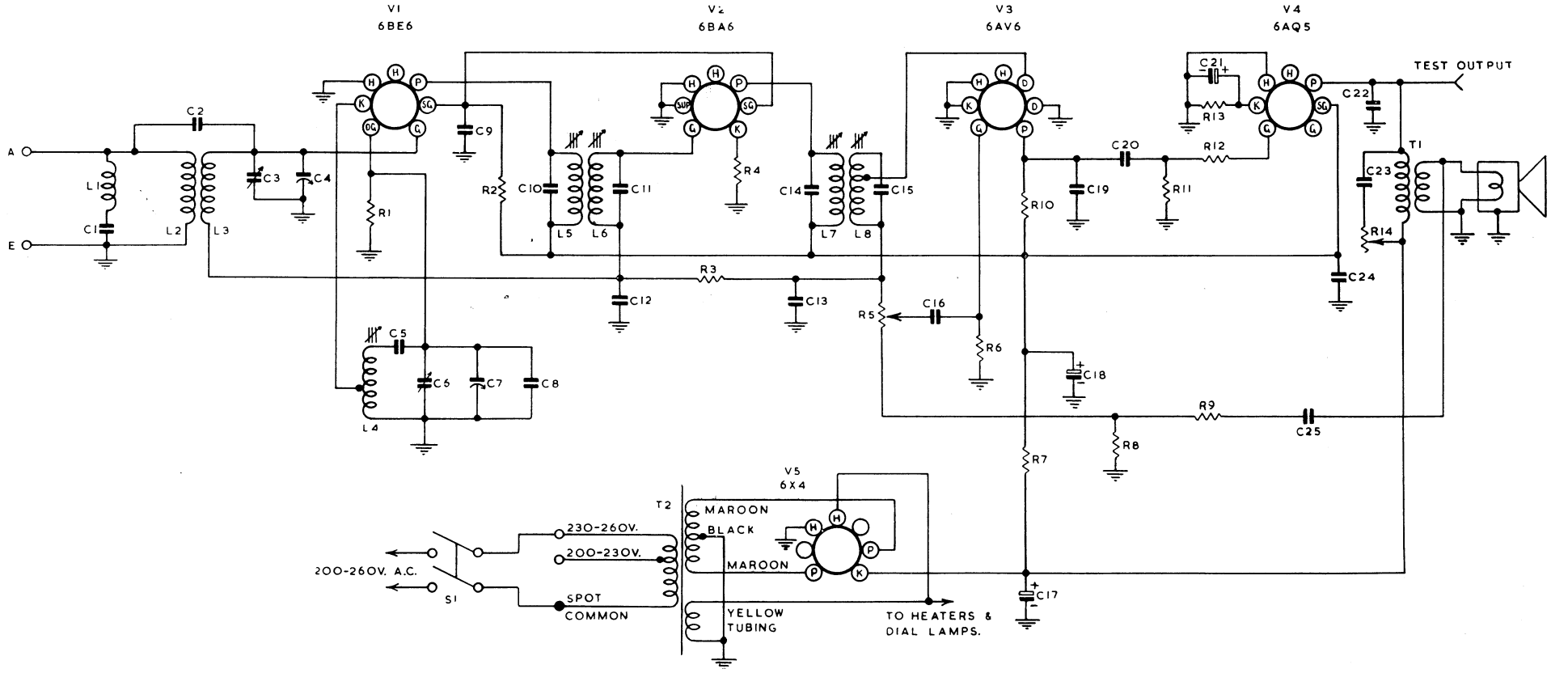
The accompanying diagram shows the route of the cord and the method of attachment.



Connection to Power Supply.

The receiver should not be connected to any circuit supplying other than alternating current from 200-260 volts, and at the frequency stated on the label within the cabinet. The power supply connections are shown in the accompanying diagram.




V1
6BE6
V2
6BA6
V3
6AV6
V4
6AQ5
V5
6X4
A
E
L1
C1
C2
L2
L3
C3
C4
R1
C9
R2
C10
L5
L6
C11
R4
C14
L7
L8
C15
C12
R3
C13
C5
C6
C7
C8
L4
R5
C16
R6
R10
C19
C20
R12
R11
C21
R13
C22
TEST OUTPUT
T1
C23
R14
C24
C18
R9
C25
R8
R7
C17
T2
MAROON
BLACK
MAROON
YELLOW
TUBING
230-260V.
200-230V.
SPOT
COMMON
200-260V. A.C.
S1
TO HEATERS &
DIAL LAMPS.

CIRCUIT CODE — RADIOLA 539-MA

Code No.	Description	Part No.
	INDUCTORS	
L1	I.F. Filter (Including C1)	9382
L2, L3	Aerial Coil 540-1600 Kc/s.	15454
L4	Oscillator Coil 540-1600 Kc/s.	15949
L5, L6	1st I.F. Transformer	26673A
L7, L8	2nd I.F. Transformer	25197A
	RESISTORS	
R1	20,000 ohms ½ watt	
R2	10,000 ohms 1 ,,	
R3	2.5 megohms ½ ,,	
R4	200 ohms ½ ,,	
R5	1.0 megohm volume control	27949
R6	10 megohms ½ watt	
R7	5,000 ohms 2 ,,	
R8	100 ohms ½ ,,	
R9	1,000 ohms ½ ,,	
R10	0.25 megohm 1 ,,	
R11	0.5 megohm ½ ,,	
R12	50,000 ohms ½ ,,	
R13	200 ohms 1 ,,	
R14	0.1 megohm tone control (including S1)	26441
	CAPACITORS	
C1	50 $\mu\mu$F silvered mica	
C2	4 $\mu\mu$F mica	
C3	2-20 $\mu\mu$F trimmer (on gang)	
C4	12-430 $\mu\mu$F tuning	26646
C5	440 $\mu\mu$F padder $\pm$ 2½%	
C6	2-20 $\mu\mu$F trimmer (on gang)	
C7	12-430 $\mu\mu$F tuning	26646
C8	9 $\mu\mu$F mica	
C9	0.05 μF paper 400V working	
C10	100 $\mu\mu$F silvered mica	
C11	100 $\mu\mu$F silvered mica	
C12	0.05 μF paper 200V working	
C13	200 $\mu\mu$F mica	
C14	100 $\mu\mu$F silvered mica	
C15	100 $\mu\mu$F silvered mica	
C16	0.01 μF paper 600V working	
C17	16 μF 525 P.V. Electrolytic	
C18	16 μF 525 P.V. Electrolytic	
C19	100 $\mu\mu$F mica	
C20	0.025 μF paper 400V working	
C21	25 μF 40 P.V. Electrolytic	
C22	0.0025 μF paper 600V working	
C23	0.05 μF paper 400V working	
C24	0.05 μF paper 400V working	
C25	0.4 μF paper 200V working	
	TRANSFORMERS	
T1	Loudspeaker Transformer	XA2
T2	Power Transformer 50-60 C.P.S.	25807
	40 C.P.S. ..	25809
	LOUDSPEAKER	
	5 inch permanent magnet	AC53
	SWITCH	
S1	Power Switch (on R14)	

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Aerial Coil:	
Primary (L2)	30
Secondary (L3)	4
Oscillator Coil (L4)	5
I.F. Filter (L1)	17.5 *
I.F. Transformer Windings	10
Power Transformer (T2)	
Primary	50
Secondary	450
Loudspeaker Input Transformer (T1)	
Primary	525 or 430
Secondary	†

* In some receivers this reading may be as high as 60 ohms.

† Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations, and it should not be assumed that a component is faulty if a slightly different reading is obtained.

SOCKET VOLTAGES

VALVES	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6 Converter	—	75	165	1.8	6.3
6BA6 I.F. Amp.	1.3	75	165	5.7	6.3
6AV6 A.F. Amp., Det., A.V.C.	—	—	60	0.3	6.3
6AQ5 Output	7.0	165	250	29	6.3
6X4 Rectifier	250	—	235/235 A.C. R.M.S.		6.3

Total H.T. Current = 50 mA.

Measured at 240 volts A.C. supply. No signal input. Volume Control maximum clockwise. Voltmeter 1000 ohms per volt; measurements taken on highest scale giving accurate readable deflection.