

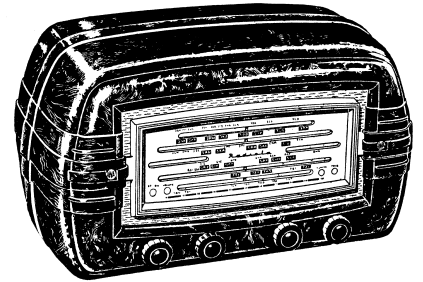
TECHNICAL INFORMATION  
AND  
SERVICE DATA

**RADIOLA**

Model 540-MA

FIVE VALVE, TWO BAND,  
A.C. OPERATED SUPERHETERODYNE

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



ELECTRICAL SPECIFICATIONS

Frequency Ranges:—

Medium Wave ..... 540-1600 Kc/s  
(555-187.5 Metres)

Short Wave ..... 6-18 Mc/s  
(50-16 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

Valve Complement:

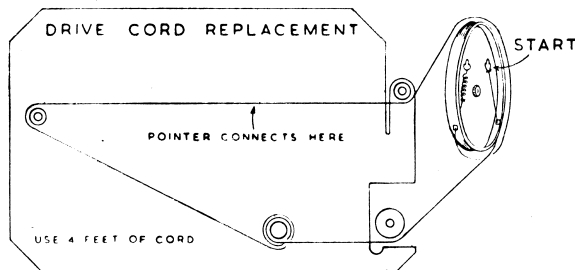
- (1) 6BE6 Converter
- (2) 6BA6 I.F. Amplifier
- (3) 6AV6 A.F. Amplifier, Detector, A.V.C.
- (4) 6AQ5 Output
- (5) 6X4 Rectifier.

Loudspeaker (Permanent Magnet):

5 inch — Code number AC58  
Transformer — XA2  
V.C. Impedance — 3 ohms at 400 C.P.S.  
Undistorted Power Output — 3 watts.

Drive Cord Replacement.

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



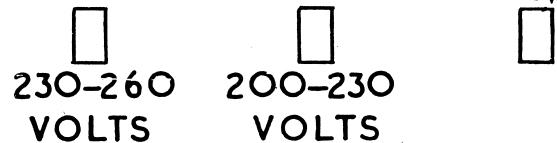
Chassis Removal.

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 Removal of these enables the chassis to be withdrawn.

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES



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.

## CIRCUIT CODE — RADIOLA 540-MA

Code No.	Description.	Part No.	Code No.	Description.	Part No.
	<b>INDUCTORS.</b>				
L1	I.F. Filter (including C1) .....	9382	C7	2-20 $\mu$ F air trimmer .....	19659
L2, L3	Aerial Coil 540-1600 Kc/s .....	15454	C8	9 $\mu$ F mica .....	
L4, L5	Aerial Coil 6-18 Mc/s .....	28228	C9	2-20 $\mu$ F air trimmer .....	19659
L6	Oscillator Coil 540-1600 Kc/s .....	15949	C10	440 $\mu$ F padder $\pm$ 2½% .....	
L7, L8	Oscillator Coil 6-18 Mc/s .....	28229	C11	12-430 $\mu$ F tuning .....	18222
L9, L10	1st I.F. Transformer .....	26673	C12	12-430 $\mu$ F tuning .....	18222
L11, L12	2nd I.F. Transformer .....	25197	C13	50 $\mu$ F mica .....	
			C14	0.05 $\mu$ F paper 400V working .....	
	<b>RESISTORS.</b>		C15	100 $\mu$ F silvered mica .....	
R1	0.1 megohm $\frac{1}{2}$ watt .....		C16	100 $\mu$ F silvered mica .....	
R2	100 ohms $\frac{1}{2}$ " .....		C17	100 $\mu$ F silvered mica .....	
R3	20,000 ohms $\frac{1}{2}$ " .....		C18	100 $\mu$ F silvered mica .....	
R4	10,000 ohms 1 " .....		C19	200 $\mu$ F mica .....	
R5	200 ohms $\frac{1}{2}$ " .....		C20	0.01 $\mu$ F paper 600V working .....	
R6	2.5 megohms $\frac{1}{2}$ " .....		C21	0.4 $\mu$ F paper 200 V working .....	
R7	1.0 megohm volume control .....	27949	C22	0.05 $\mu$ F paper 400V working .....	
R8	100 ohms $\frac{1}{2}$ watt .....		C23	100 $\mu$ F mica .....	
R9	1,000 ohms $\frac{1}{2}$ " .....		C24	0.025 $\mu$ F paper 400V working .....	
R10	10 megohms 1 " .....		C25	25 $\mu$ F 40 P.V. electrolytic .....	
R11	0.25 megohm 1 " .....		C26	0.0025 $\mu$ F paper 600 V working .....	
R12	0.5 megohm 1 " .....		C27	0.05 $\mu$ F paper 400V working .....	
R13	50,000 ohms $\frac{1}{2}$ " .....		C28	16 $\mu$ F 525 P.V. electrolytic .....	
R14	200 ohms 1 " .....		C29	16 $\mu$ F 525 P.V. electrolytic .....	
R15	0.1 megohm tone control .....			<b>TRANSFORMERS.</b>	
	(including S2) .....	26441	T1	Loudspeaker Transformer .....	XA2
R16	5,000 ohms 2 watt .....		T2	Power Transformer 50-60 C.P.S. .....	25807
				40 C.P.S. ....	25809
	<b>CAPACITORS.</b>			<b>LOUDSPEAKER.</b>	
C1	50 $\mu$ F silvered mica .....			5 inch Permanent Magnet .....	AC58
C2	4 $\mu$ F mica .....			<b>SWITCHES.</b>	
C3	2-20 $\mu$ F air trimmer .....	19659	S1	Range Switch .....	27906
C4	0.05 $\mu$ F paper 200V working .....		S2	Power Switch (on R15) .....	
C5	2-20 $\mu$ F air trimmer .....	19659			
C6	4,000 $\mu$ F padder $\pm$ 2½% .....				

# 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 readjusted 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, and, for short wave alignment, an additional 400 ohms non-inductive resistor in series with the "high" output lead of the instrument.

(3) A.W.A. Output Meter, type 2M8832.

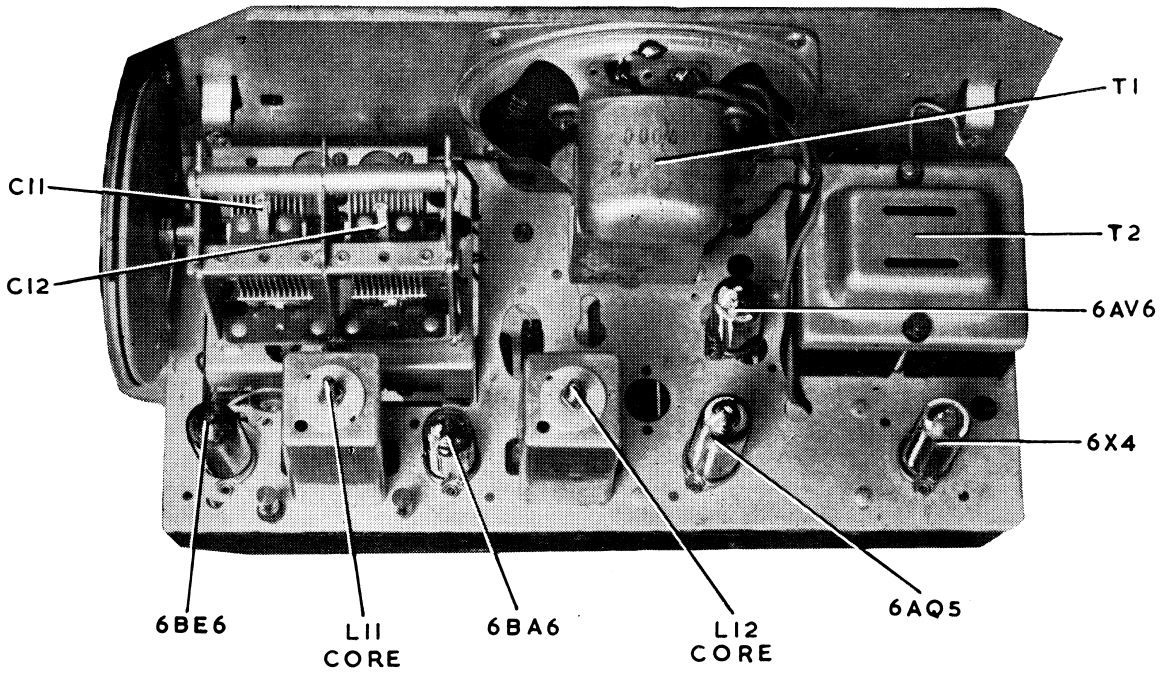
NOTE: On the short wave band the oscillator is working on the low side of the signal frequency; therefore, the image will now be heard if the receiver is tuned to a higher frequency than the signal. For example, if the set is tuned to receive a 16 Mc. signal, the image will be heard at 16.91 Mc. instead of the usual 15.91 Mc.

## ALIGNMENT TABLE

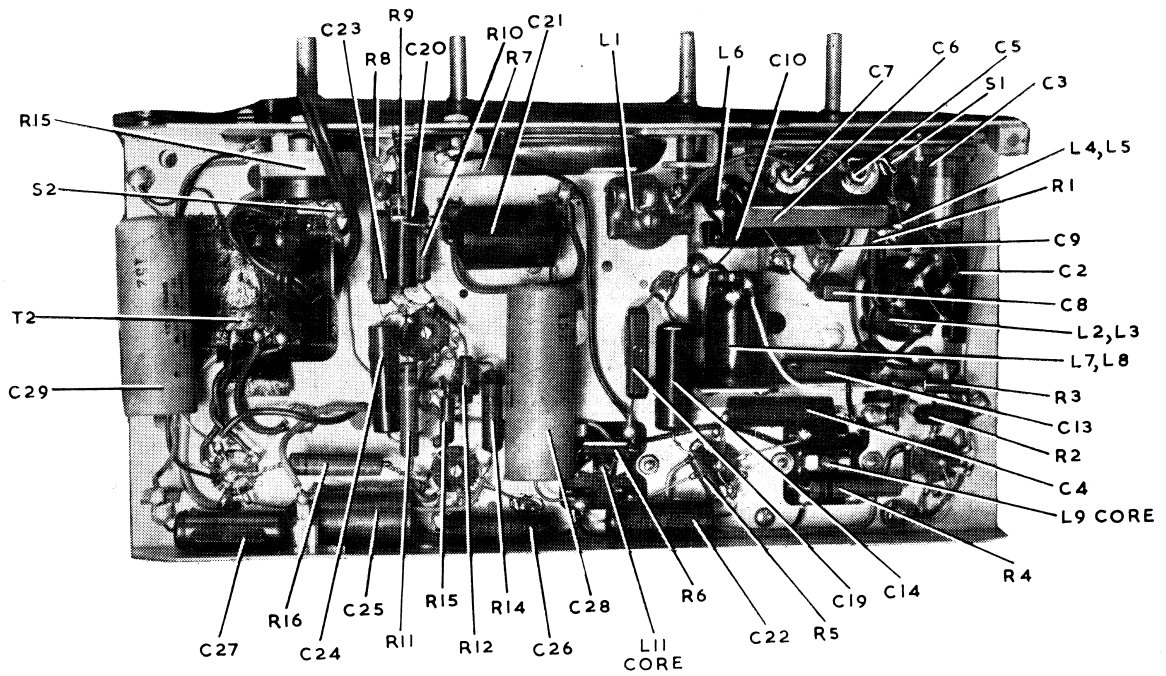
Order	Connect "High" Side of Generator to:	Tune Generator to:	Tune Receiver Dial to:	Adjust for Maximum Peak Output
1	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L12 Core
2	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L11 Core
3	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L10 Core
4	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L9 Core
Repeat the above adjustments until the maximum output is obtained.				
5	Aerial Terminal	600 Kc/s	600 Kc/s	L.F. Osc. Core Adj. (L6)*
6	Aerial Terminal	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C9)
7	Aerial Terminal	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C3)
Repeat adjustments 5, 6 and 7.				
8	Aerial Terminal	16 Mc/s	16 Mc/s	H.F. Osc. Adj. (C7) †
9	Aerial Terminal	16 Mc/s	16 Mc/s	H.F. Aer. Adj. (C5)

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

† Use maximum capacity peak if two can be obtained. Check to determine that the trimmer has been adjusted to correct peak by tuning the receiver to approximately 16.91 Mc/s. where a weaker signal should be obtained.



CHASSIS TOP VIEW MODEL 540-MA



UNDERNEATH VIEW MODEL 540-MA

## D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Aerial Coil (M.W.):	
Primary (L2) .....	20
Secondary (L3) .....	5
Aerial Coil (S.W.):	
Primary (L4) .....	3
Secondary (L5) .....	*
Oscillator Coil (M.W.) (L6) .....	5
Oscillator Coil (S.W.):	
Primary (L7) .....	*
Secondary (L8) .....	*
I.F. Transformer Windings .....	10
I.F. Filter (L1) .....	17.5†
Power Transformer (T2):	
Primary .....	50
Secondary .....	450
Transformer (T1):	
Loudspeaker Input:	
Primary .....	525 or 430
Secondary .....	*

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.

\* Less than 1 ohm.

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

## SOCKET VOLTAGES

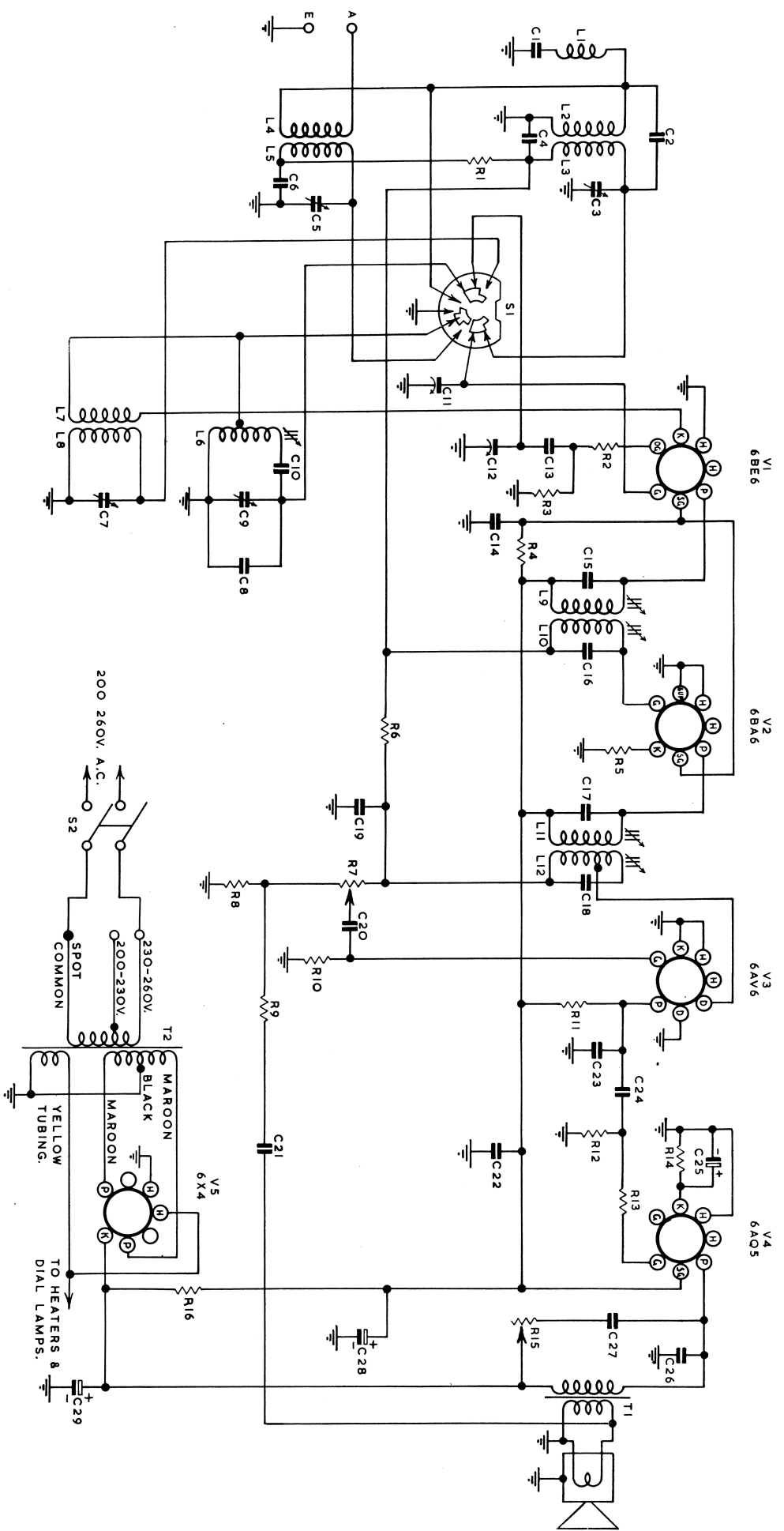
VALVES	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6 Converter .....	—	75	165	1.8	6.3
6BA6 I.F. Amp. ....	1.3	75	165	5.7	6.3
6AV6 A.F. Amp., Det., A.V.C. ...	—	—	60*	0.3	6.3
6AQ5 Output .....	7.0	165	250	29	6.3
6X4 Rectifier .....	250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

\* This reading may vary depending on the voltmeter used.



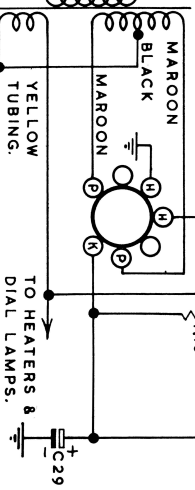
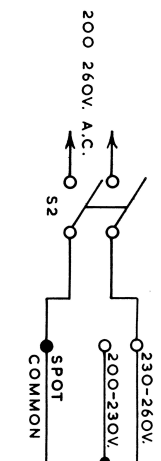
V1  
6BE6

V2  
6BA6

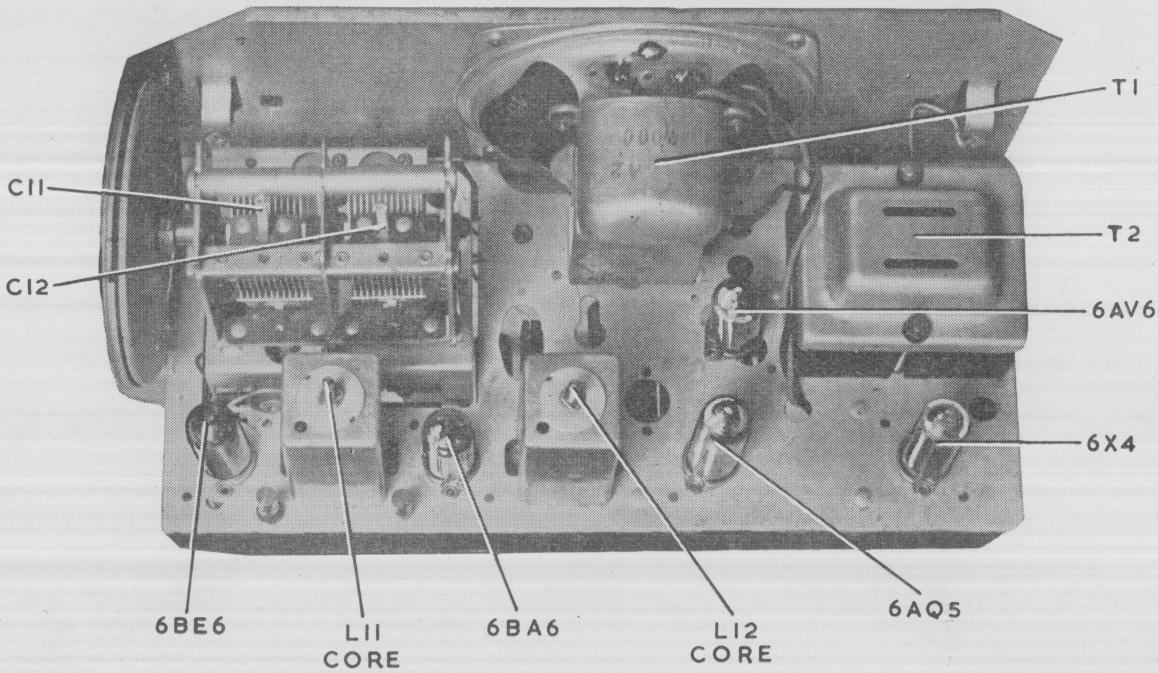
V3  
6AV6

V4  
6X4

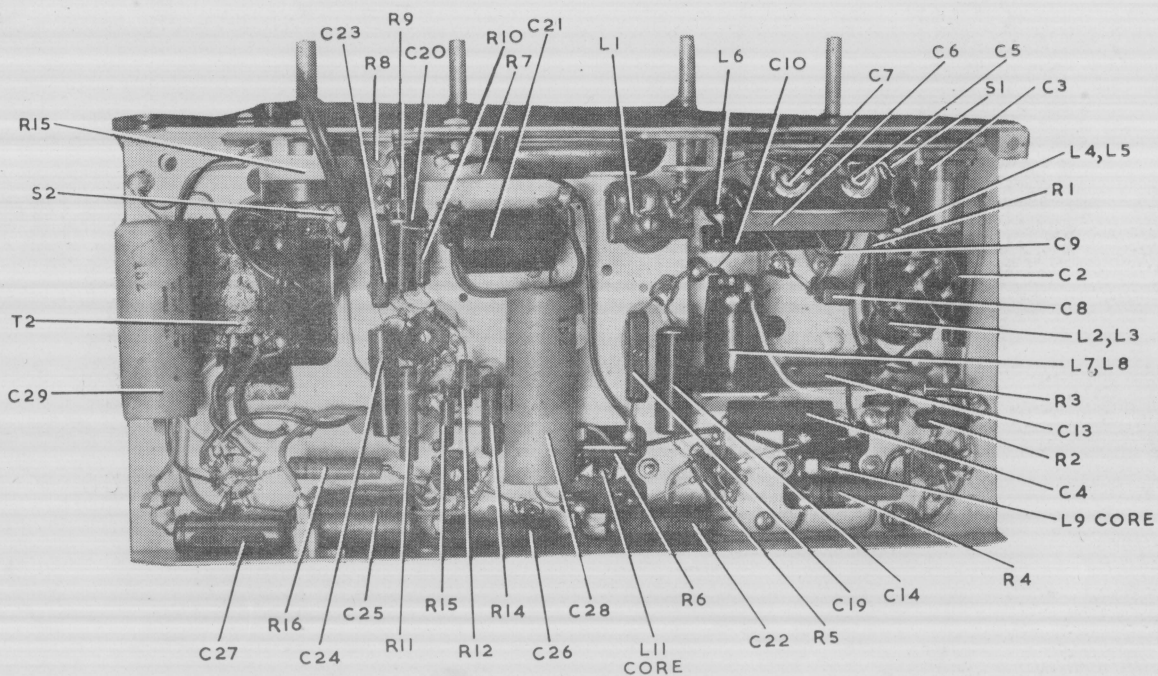
V5  
6X4



TO HEATERS &  
DIAL LAMPS.



CHASSIS TOP VIEW MODEL 540-MA



UNDERNEATH VIEW MODEL 540-MA

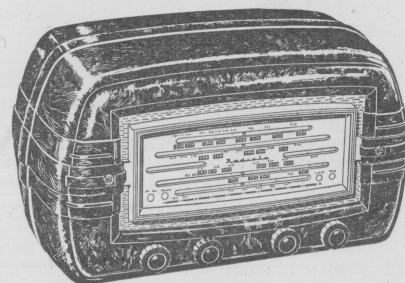
TECHNICAL INFORMATION  
AND  
SERVICE DATA

**AWA** **RADIOLA**

**Model 540-MA**

FIVE VALVE, TWO BAND,  
A.C. OPERATED SUPERHETERODYNE

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



**ELECTRICAL SPECIFICATIONS**

**Frequency Ranges:—**

Medium Wave ..... 540-1600 Kc/s  
(555-187.5 Metres)

Short Wave ..... 6-18 Mc/s  
(50-16 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

**Valve Complement:**

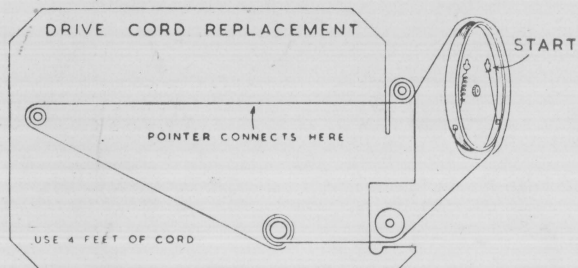
- (1) 6BE6 Converter
- (2) 6BA6 I.F. Amplifier
- (3) 6AV6 A.F. Amplifier, Detector, A.V.C.
- (4) 6AQ5 Output
- (5) 6X4 Rectifier.

**Loudspeaker (Permanent Magnet):**

- 5 inch — Code number AC58
- Transformer — XA2
- V.C. Impedance — 3 ohms at 400 C.P.S.
- Undistorted Power Output — 3 watts.

**Drive Cord Replacement.**

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



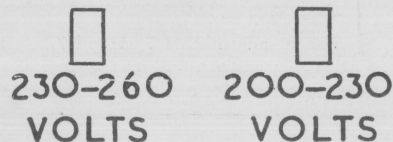
**Chassis Removal.**

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.

**RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES**



**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.