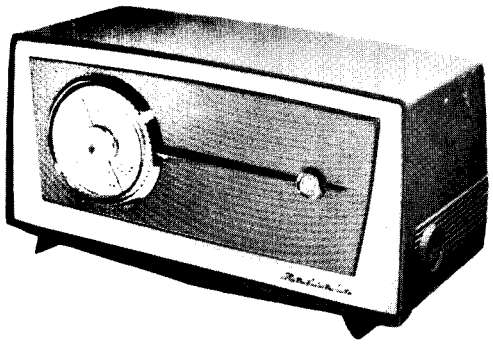
TECHNICAL INFORMATION AND SERVICE DATA



Radiola
Mantel Receiver
Model 586-MA

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

MODEL 586-MA is a five valve, A.C. operated super-heterodyne receiver designed for the reception of the Medium Wave Band.

Features of the design include: Ferrite Rod aerial with provision for external aerial; high gain I.F. transformers; wide range tone control; negative feedback over audio stages; high sensitivity 7" x 5" elliptical speaker; all components readily accessible on chassis.

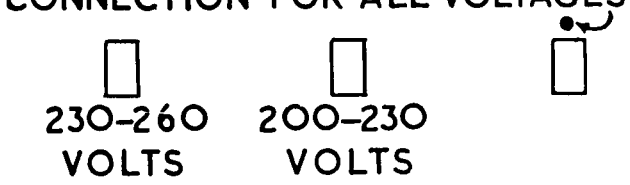
ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range	540-1600 Kc/s (555-187.5 metres)
Intermediate Frequency	455 Kc/s
Power Supply Rating	200—260 volts A.C. 50 C.P.S.
Power Consumption	36 watts
Undistorted Power Output	3 watts
Loudspeaker: 7" x 5" Permanent Magnet 36671.	
Loudspeaker Transformer	21204E
V.C. Impedance—15 ohms at 400 C.P.S.	

CONNECTION TO POWER SUPPLY:

The receiver should not be connected to any circuit supplying other than 200-260 volts A.C. at a frequency of 50 C.P.S.

Connections on the power transformer are shown below.



VALVE COMPLEMENT:

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

CHASSIS REMOVAL:

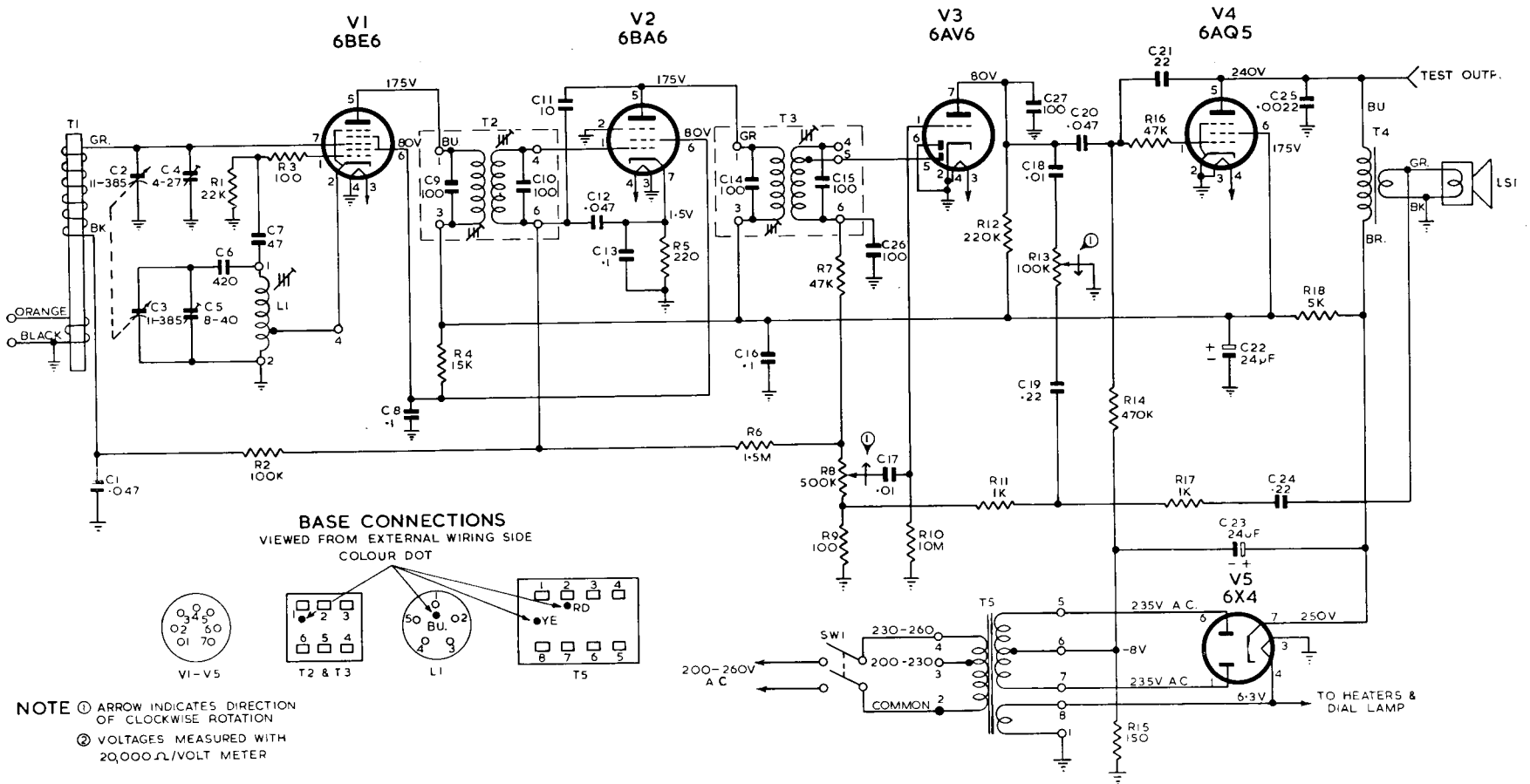
Remove all control knobs; these are only push on fits, however, in the case of the tuning control, forcing the knob past its limit of free travel with a twisting action is necessary to overcome friction between the knob and the gang spindle.

Loosen the two screws underneath the cabinet closest to the front fret.

Using the clearance hole in the fret around the gang spindle for gripping purposes, pull the bottom of the fret outward to clear the cabinet, then slide it downwards and free of the cabinet.

Remove the four screws holding the chassis in the cabinet, two at the back and two underneath the cabinet near the fret clamping screws. The chassis should then slide freely out of the cabinet.

Replacing the chassis is the reversal of the above procedure. When replacing the fret, make sure that the four rubber buffers are seating correctly around the edge. After replacing the tuning control the pointer should be lined up on the State Monograms on either side of the dial scale when the gang is in its full clockwise position. Check the calibration on some known stations and correct for any calibration error by forcing the knob past its limit of free travel in the appropriate direction.


V1
6BE6
V2
6BA6
V3
6AV6
V4
6AQ5
V5
6X4
T1
T2
T3
T4
T5
175V
80V
240V
235V A.C.
250V
-8V
6·3V
1·5V
TEST OUTP.
LSI
TO HEATERS & DIAL LAMP
ORANGE
BLACK
GR.
BK
BU
BR.
YE
RD
C1 ·047
C2 11-385
C3 11-385
C4 4-27
C5 8-40
C6 420
C7 47
C8 ·1
C9 100
C10 100
C11 10
C12 ·047
C13 ·1
C14 100
C15 100
C16 ·1
C17 ·01
C18 ·01
C19 ·22
C20 ·047
C21 22
C22 24μF
C23 24μF
C24 ·22
C25 ·0022
C26 100
C27 100
R1 22K
R2 100K
R3 100
R4 15K
R5 220
R6 1·5M
R7 47K
R8 500K
R9 100
R10 10M
R11 1K
R12 220K
R13 100K
R14 470K
R15 150
R16 47K
R17 1K
R18 5K
SW1
230-260
200-230
COMMON
200-260V A.C.
BASE CONNECTIONS
VIEWED FROM EXTERNAL WIRING SIDE
COLOUR DOT
V1-V5
T2 & T3
L1
T5
NOTE ① ARROW INDICATES DIRECTION OF CLOCKWISE ROTATION
② VOLTAGES MEASURED WITH 20,000Ω/VOLT METER

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 can only be re-adjusted by skilled operators using special equipment.

For all alignment operations, keep the generator output as low as possible to avoid A.V.C. action and set the volume control in the maximum clockwise position.

Testing Instruments:

(1) A.W.A. Junior Signal Generator, type 2R7003; or

(2) A.W.A. Modulated Oscillator, series J6726.

If the modulated oscillator is used, connect a .22 megohms 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	455 Kc/s.	Gang fully closed	Cores in T2 and T3
Repeat adjustment until maximum output is obtained.				
2	Inductively Coupled to Rod Aerial*	600 Kc/s.	600 Kc/s.	L.F. Osc. Core Adj. (L1)†
3	Inductively Coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C5)
4	Inductively Coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Aerial Adj. (C4)

* A coil comprising 3 turns of 16 gauge D.C.C. wire and about 12 inches in diameter should be connected between the output terminals of the test instrument, placed concentric with the rod aerial and distant not less than 1 foot from it.

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

SOCKET VOLTAGES

Volts	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6 Converter	—	80	175	2	6.3
6BA6 I.F. Amp.	1.5	80	175	4.5	6.3
6AV6 A.F. Amp., Det., A.V.C.	—	—	80	1	6.3
6AQ5 Output	- -	175	240	29	6.3
6X4 Rectifier	250	—	235/235 A.C. R.M.S.	—	6.3

Volts across back—bias resistor R15 = −8 volts.

Total H.T. Current = 50 mA.

Measured at 240 volts A.C. Supply. No signal input.

Volume Control maximum clockwise. Voltmeter 20,000 ohms per volt; measurements taken on highest scale giving accurate readable deflection.

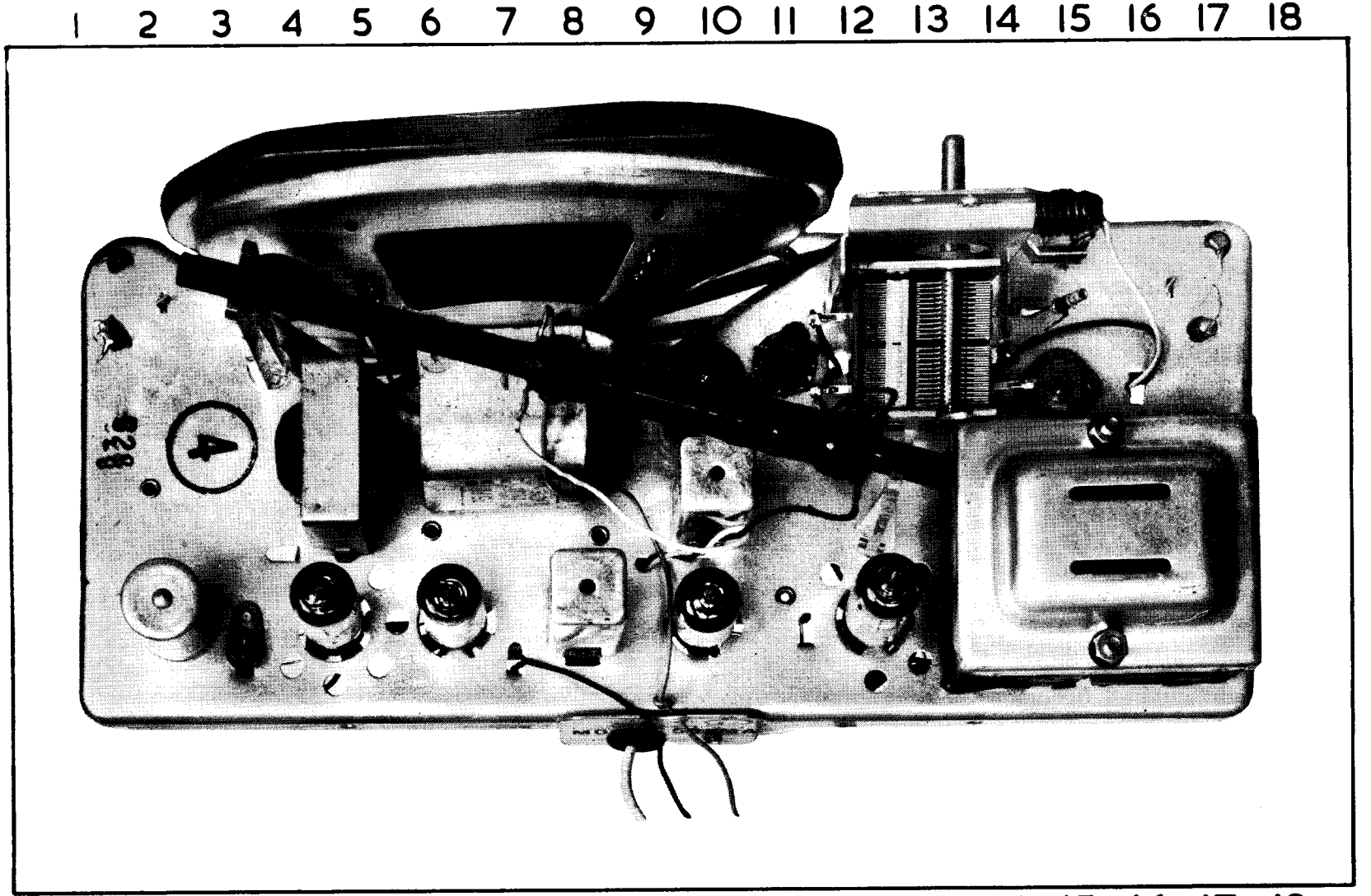


FIG. 2

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Ferrite Rod Assembly T1:	
Primary	*
Secondary	1.5
Oscillator Coil L1	3.5
I.F. Transformer Windings T2 and T3	18
Output Transformer T4:	
Primary	380
Secondary	2
Power Transformer T5:	
Primary	50
H.T. Secondary	330
L.T. Secondary	*

* 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.

MECHANICAL REPLACEMENT PARTS

Item	Part No.
CABINET FITTING:	
Book, Instructions	36676
Cabinet	37763
Clamp, Fret Strap	36675
Dial Scales:	
N.S.W.	32281
VIC.	32282
Q'LAND	32283
S.A.	32284
W.A.	32285
TAS.	32286
Fret Assembly	36673
Knob Assembly, Tone and Volume	36667
Knob Assembly, Tuning	35944A
Label, Valve Location	37673
CHASSIS ASSEMBLY:	
Bracket, Gang Mounting	36665
Clamp, Power Cable	17651
Clip, I.F. Mounting	27780
Cover, Power Transformer	20150
Grommet, Gang Mounting	36826/2
Holder, Pilot Lamp	36802
Screws, Osc. Coil Mounting	34147
Support, Rod Aerial	36403

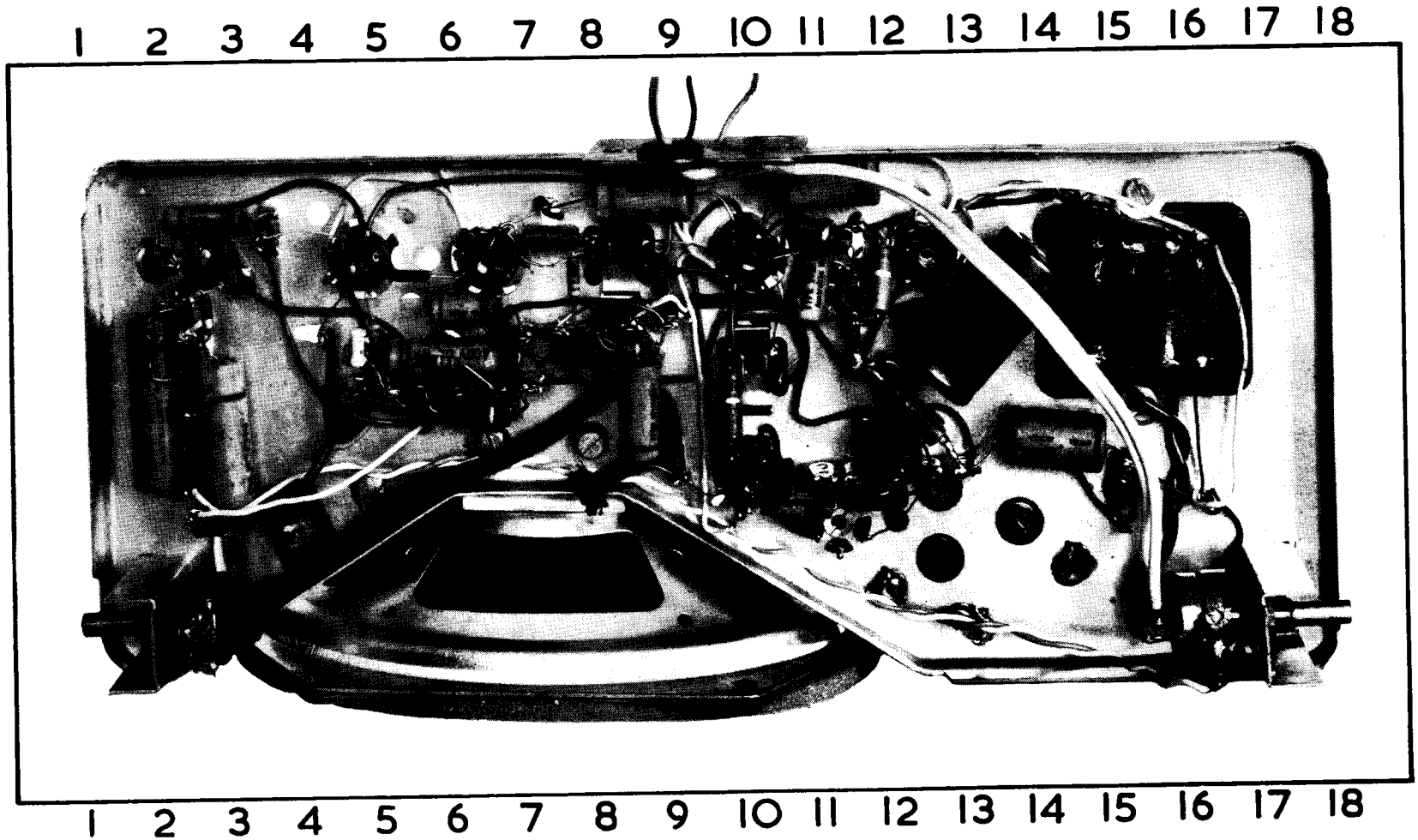


FIG. 1

CIRCUIT CODE — RADIOLA 586-MA

Code No.	Description	Part No.	Fig. No	Location
	RESISTORS			
	All Resistors ± 20% unless otherwise stated			
R1	22K ohms	½ watt	1	F12
R2	100K ohms	½ watt	1	D9
R3	100 ohms ± 10%	½ watt	1	F11
R4	15K ohms ± 10%	1 watt	1	E10
R5	220 ohms ± 10%	1 watt	1	B11
R6	1.5 Megohms	½ watt	1	D8
R7	47K ohms	½ watt	1	C9
R8	500K ohms Volume Control	37201	1	H3
R9	100 ohms ± 10%	½ watt	1	D3
R10	10 Megohms	½ watt	1	C5
R11	1K ohm ± 10%	½ watt	1	C3
R12	220K ohms	1 watt	1	E6
R13	100K ohms Tone Control	37200	1	H16
R14	470K ohms	½ watt	1	D6
R15	150 ohms ± 10%	1 watt	1	C12
R16	47K ohms	½ watt	1	D5
R17	1K ohms ± 10%	½ watt	1	D2
R18	5K ohms	2 watts	1	E12
	CAPACITORS			
	All Capacitors ± 20% unless otherwise stated.			
C1	0.047 μf 200 volt working paper		1	E9
C2	11-385 pf tuning Aerial		2	E13
C3	11-385 pf tuning Osc.		2	D13
C4	4-27 pf trimmer Aerial	33304	1	F15
C5	8-40 pf spiral trimmer Osc.	231185	2	D15
C6	420 pf ± 2½% padder		1	E12
C7	47 pf ± 10% silvered mica		1	F12
C8	0.1 μf 400 volt working paper		1	B9
C9	100 pf ± 5% silvered mica (In 1st I.F.)		1	D10
C10	100 pf ± 5% silvered mica (In 1st I.F.)		1	D10
C11	10 pf ± 10% N750 tubular ceramic		1	C9
C12	0.047 μf 200 volt working paper		1	C11
C13	0.1 μf 200 volt working paper		1	B11
C14	100 pf ± 5% silvered mica (In 2nd I.F.)		1	C8
C15	100 pf ± 5% silvered mica (In 2nd I.F.)		1	C8
C16	0.1 μf 400 volt working paper		1	E14
C17	0.01 μf 400 volt working paper		1	C6
C18	0.01 μf 400 volt working paper		1	E6
C19	0.22 μf 200 volt working paper		1	E2
C20	0.047 μf 400 volt working paper		1	D6
C21	22 pf ± 10% N750 tubular ceramic		1	D5
C22	24 μf 300 volts working Electrolytic		1	C2
C23	24 μf 300 volts working Electrolytic		1	D13
C24	0.22 μf 200 volt working paper		1	E3
C25	0.0022 μf 600 volt working paper		1	B3
C26	100 pf ± 10% silvered mica		1	C7
C27	100 pf ± 10% silvered mica		1	D8
	TRANSFORMERS			
T1	Ferrite Rod Aerial	36946B	2	E8
T2	1st I.F. Transformer	27351	1	D10
T3	2nd I.F. Transformer	27353	1	C8
T4	Audio Output	21204E	2	F4
T5	Power Transformer	25807	1	C15
	INDUCTORS			
L1	Osc. Coil	32406	1	F11
	VALVES			
V1	Radiotron 6BE6		1	F10
V2	Radiotron 6BA6		1	C10
V3	Radiotron 6AV6		1	C7
V4	Radiotron 6AQ5		1	C5
V5	Radiotron 6X4		1	C12
	MISCELLANEOUS			
SW1	On/Off Switch (on R13)		1	H16
LS1	7" x 5" P.M. Loudspeaker	36671		