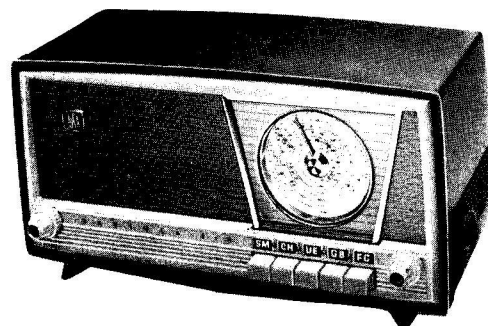




TECHNICAL INFORMATION AND SERVICE DATA

**PRESSMATIC
MANTEL RECEIVER
Model 690-MA**



ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model 690-MA is a six valve, A.C. operated superheterodyne receiver designed for the reception of the Medium Wave Band. Features of the design include: Press-button and manual permeability tuning, high gain I.F. transformers, inverse feed-back tone control circuit, high degree of mechanical and electrical stability, high sensitivity 7" x 5" elliptical speaker, all components readily accessible on the chassis.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

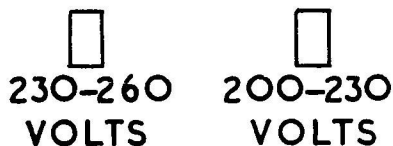
Frequency Range 540-1650 Kc/s. (555-182 metres)
 Intermediate Frequency 455 Kc/s.
 Power Supply Rating 200-260 volts A.C. 50 C.P.S.
 Power Consumption 35 watts
 Undistorted Power Output 3 watts
 Loudspeaker: 7" x 5" Permanent Magnet 36671
 Loudspeaker Transformer 21204F
 V.C. Impedance 15 ohms at 400 C.P.S.
 Dimensions: Height 7½", Width 13½", Depth 7".
 Weight approximately 10½ pounds.

Connection to Power Supply:

The receiver may be connected to any circuit supplying A.C. voltages between 200 to 230 or 230 to 260 at a frequency of 50 C.P.S.

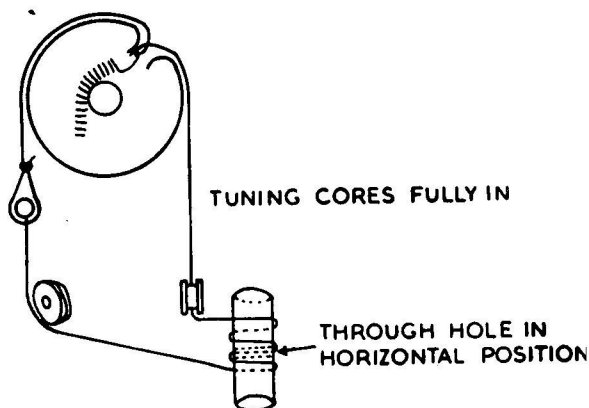
Connections on the power transformer are shown below.

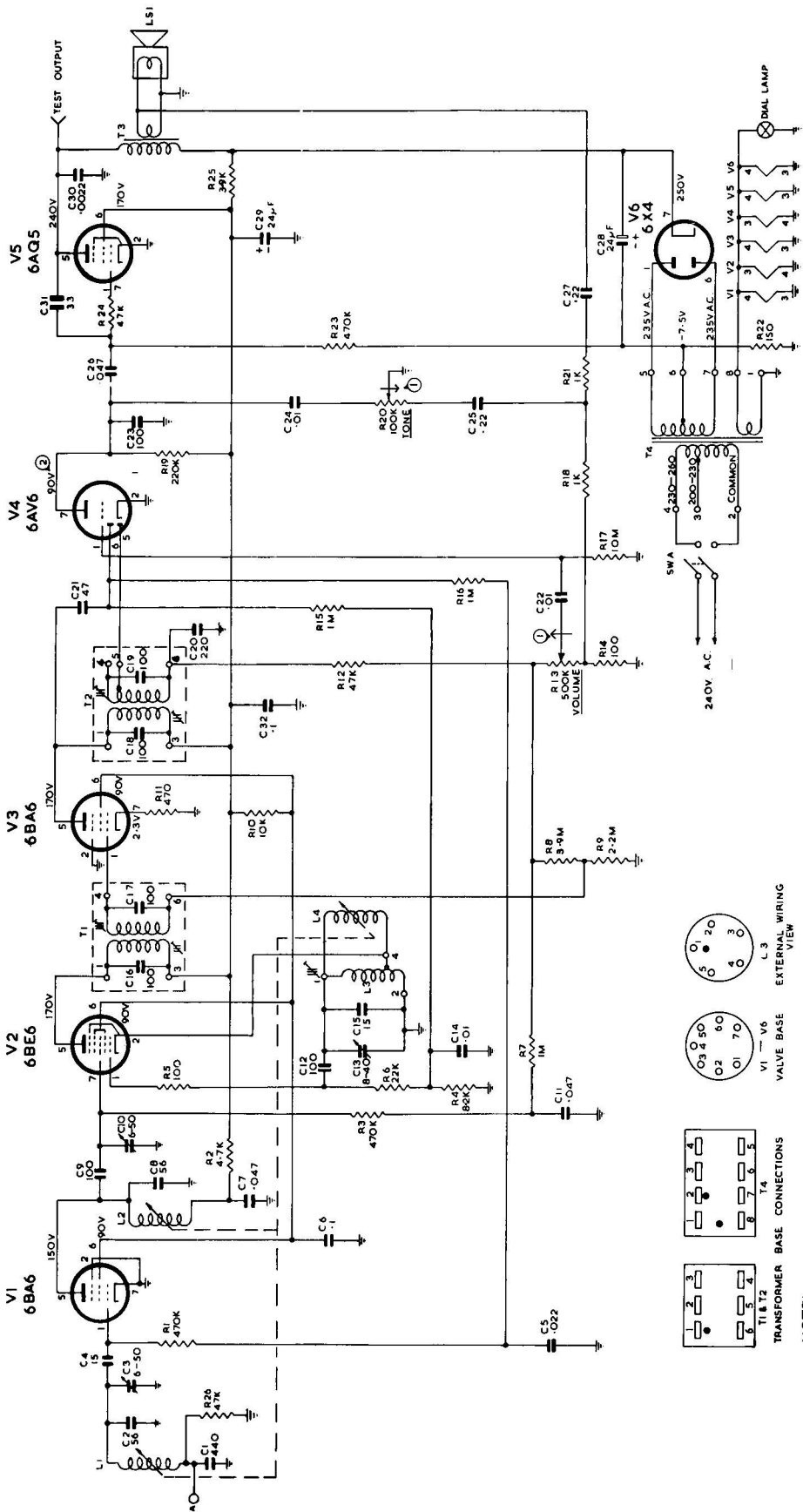
RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES



Valve Complement:

- (1) Radiotron 6BA6 — R.F. Amplifier.
- (2) Radiotron 6BE6 — Converter.
- (3) Radiotron 6BA6 — I.F. Amplifier.
- (4) Radiotron 6AV6 — Audio Amplifier, Detector and A.V.C.
- (5) Radiotron 6AQ5 — Audio Output.
- (6) Radiotron 6x4 — Rectifier.





1. ARROW INDICATES DIRECTION OF CLOCKWISE ROTATION.
 2. VARIES WITH VOLTMETER SENSITIVITY.

Chassis Removal:

Remove the Tone, Volume and Manual Tuning knobs.

Loosen the two screws closest to the front beneath the cabinet and remove the other three screws.

Remove the fret by pulling outwards at the bottom while lifting the front of the chassis by means of the tuning spindle

so that the press buttons clear the slot in the fret.

Remove the two screws in the back of the cabinet and slide out the chassis lifting slightly to clear the fret clamping plate on the bottom of the cabinet.

Installation of 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.

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.

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.

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 220,000 ohm non-inductive resistor across the output terminals.

- (3) A.W.A. Output Meter, type 2M8832 or
- (4) Marconi Receiver Tester, type TF888/3 (combined Signal Generator and Output Meter).

NOTE: The replacement of any valve in the receiver will not affect the alignment of the tuned circuits in any way providing the recommended Radiotron type is used.

ALIGNMENT TABLE

A General:

Alignment Order	Connect "High" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for maximum Peak Output:
1	6BE6 Pin 7*	455 Kc/s.	L.F. Limit	T2 Sec. Core (Top)
2	6BE6 Pin 7*	455 Kc/s.	L.F. Limit	T2 Prim. Core (Bottom)
3	6BE6 Pin 7*	455 Kc/s.	L.F. Limit	T1 Sec. Core (Top)
4	6BE6 Pin 7*	455 Kc/s.	L.F. Limit	T1 Prim. Core (Bottom)
Repeat the above adjustments until maximum output is obtained.				
5	Aerial Lead	1650 Kc/s.	H.F. Limit	H.F. Osc. Adj. (C13)
6	Aerial Lead	1500 Kc/s.	1500 Kc/s.	H.F. R.F. Adj. (C10)
7	Aerial Lead	1500 Kc/s.	1500 Kc/s.	H.F. Aer. Adj. (C3)
8	Aerial Lead	600 Kc/s.	600 Kc/s.	L.F. Osc. Padder Adj. (L3)†
Repeat adjustments 5, 6, 7 and 8 until no further adjustment is possible.				
9	Calibration Alignment: With the receiver connected to an aerial, the dial scale calibration should now be checked and corrected if necessary. To move the pointer, pull it straight off its spindle and replace it in correct position.			

* A 0.01 μ F capacitor should be connected in series with the high side of the test instrument.

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

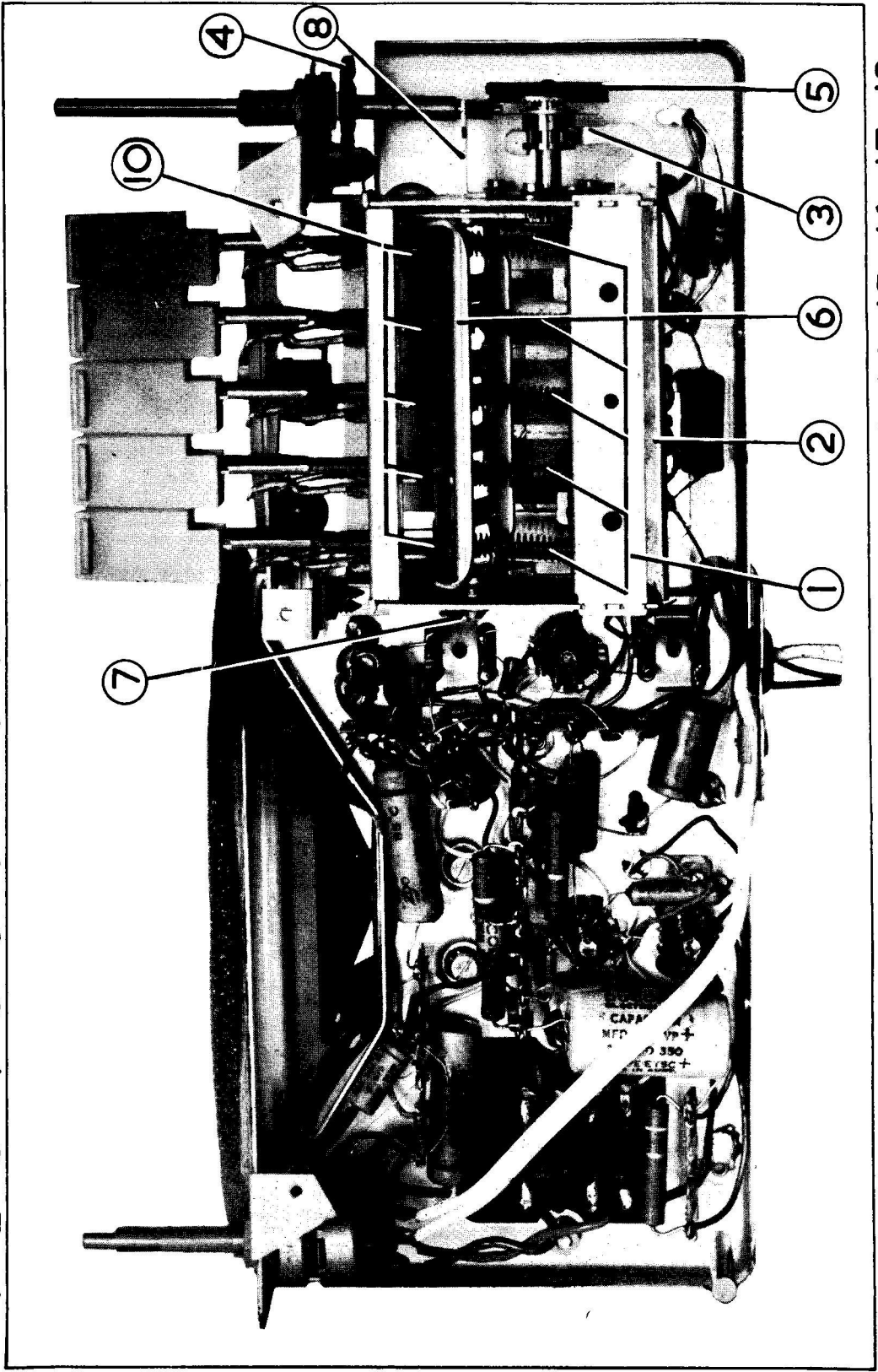
B Tuner Alignment:

The adjustment of the three tuning cores will be necessary only if a tuning core or coil has been replaced. To make this adjustment proceed as follows:

- (1) Adjust the manual drive control until a 0.560" gauge can be slipped into the left rear slot in front of the carriage lug. Use the 0.560" gauge in the manner of a feeler gauge.
- (2) Tune the signal generator to 1000 Kc/s. and connect it to the aerial terminal.
- (3) Adjust the oscillator core, then the aerial and R.F. cores until the maximum output is obtained.
- (4) Proceed with adjustments 5, 6, 7 and 8 in Table A, and then repeat adjustments 1, 2, 3, above, if necessary.
- (5) Seal the tuning core studs.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A B C D E F G H J K L



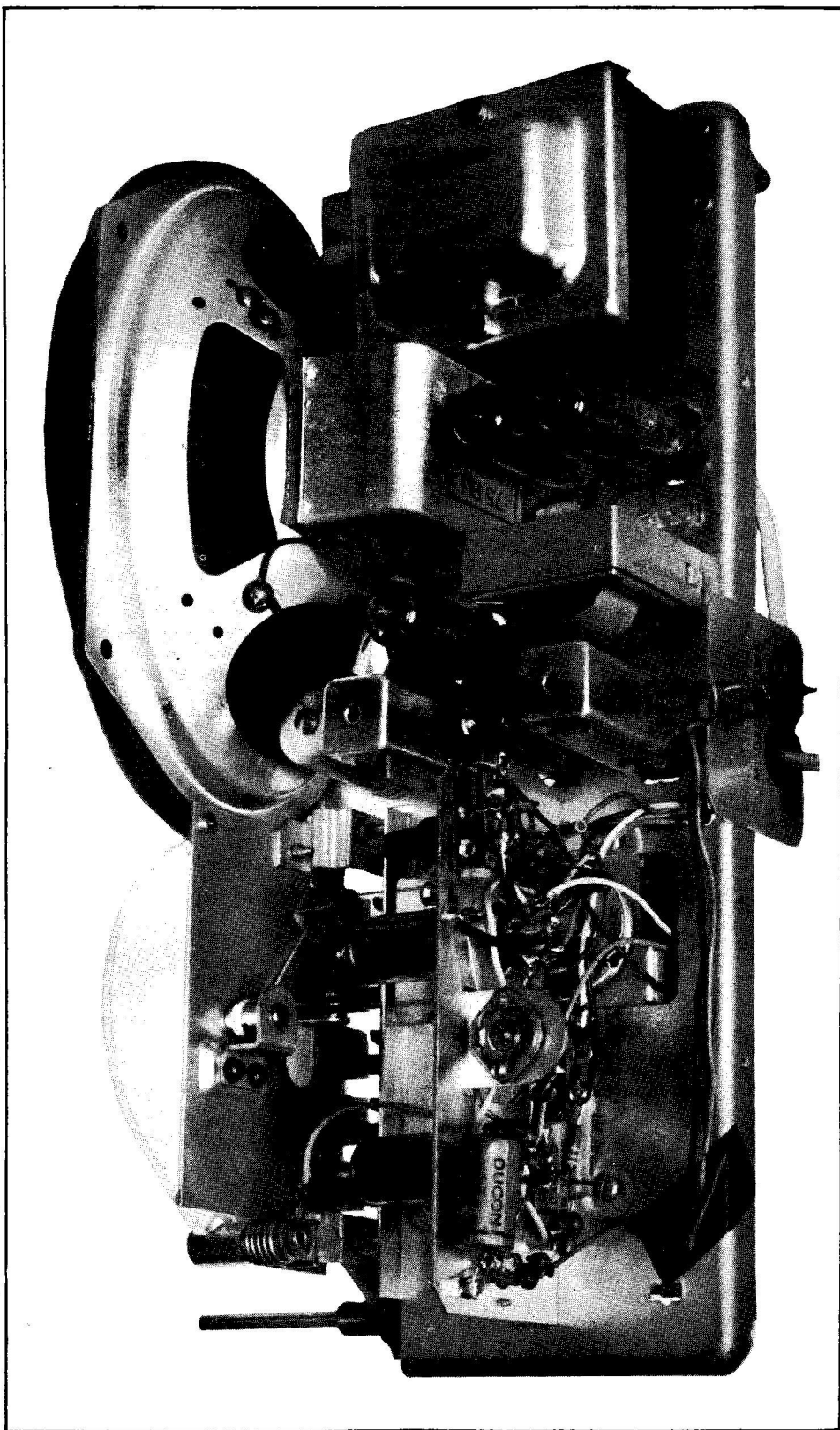
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A B C D E F G H J K L

FIG. 2

A B C D E F G H J K

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



A B C D E F G H J K

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

FIG. 1

MECHANICAL REPLACEMENT PARTS

Item	Part Number	Code Number
Tuning Unit:		
Clutch Gear Bush Assembly	34688	
Drive Shaft Bushing	34665	
Drive Spindle Assembly	36682	
Manual Drive Bracket	35106	
Pointer Assembly	36691	
Tuning Unit Assembly	36685	
Slug, Tuning	35102	
Spring, Dial Cord	1741	
Switch Assy., Muting	35101	
Chassis Assembly:		
Cable, Power	15940	
Clamp, Cable	17658	
Clip, I.F. Mounting	27780	
Cover, Power Transformer	20150	
Dial Scale	32295	cr 32295A
Lamp Holder Assy., L.H.	4194	
Pointer Assembly	36691	
Screw, Coil Mounting	34147	
Shield, Dial Lamp		
Cabinet Assembly:		
Bezel, (Stations)	36649	
Cabinet Body	36679	
Clamp Strap	36675	
Dial Window	36646	
Fret Assembly	36658	
Dial Trim	36645	
Fret	36642	
Gasket, Dial Scale	36687	
Speaker Trim (large)	36643	
Trim (small)	36644	
Knob Ass'y, Power — Tone	36653	
Knob Assy, Tuning	36681	
Knob Assy, Volume	36652	
Label, Valve Layout	37678	
Rubber Buffer	36406	
Screw, Bezel Mounting		760167
Station Log:		
N.S.W.	37900	
Vic.	37901	
Qld.	37902	
S.A.	37903	
W.A.	37904	
Tas.	37905	

When ordering, always quote the above Part Numbers and in the case of coloured parts such as cabinets, knobs etc. the colour plus the Part Number.

D. C. RESISTANCE WINDINGS

Winding	D.C. Resistance in ohms.
Tuning Coils L1, L2, and L4	9.5
Oscillator Padder L3	20
I.F. Transformer Windings T1 and T2 .	18
Output Transformer T3:	
Primary	400
Secondary	2
Power Transformer T4:	
Primary	50
H.T. Secondary	350
L.T. 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.

SOCKET VOLTAGES

Valve	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BA6 (R.F.)	0	90	150	3.8	6.3
6BE6	0	90	170	2.3	6.3
6BA6 (I.F.)	2.3	90	170	3.5	6.3
6AV6	0	—	90*	0.4	6.3
6AQ5	0	170	240	26	6.3
6X4	250	—	235/235 AC R.M.S.		6.3

Oscillator Grid Current = 220-240 microamps over tuning range.

Total H.T. Current = 47 mA.

Voltage across back bias resistor R22 = -7.5.

The above measurements were taken with an A.V.O. model 8 meter (20,000 ohms per volt), the receiver operating from a 240 volts A.C. supply, no signal input and volume control maximum clockwise. These measurements may vary slightly if a different type of meter is used. This applies particularly to the voltage marked *.

CIRCUIT CODE — RADIOLA 690-MA

Code No.	Description	Part No.	Fig. No.	Location
RESISTORS				
R1	470K ohms		1	G4
R2	4.7K ohms		2	K11
R3	470K ohms		1	G6
R4	8.2K ohms		1	F9
R5	100 ohms		1	G7
R6	22K ohms		1	G8
R7	1 Megohm		2	F9
R8	3.9 Megohms		2	G9
R9	2.2 Megohms		2	H8
R10	10K ohms		2	H7
R11	470 ohms		2	H10
R12	47K ohms		2	F10
R13	500K ohms	Volume Control	37205	D2
R14	100 ohms		2	F3
R15	1 Megohm		2	H9
R16	1 Megohm		2	H8
R17	10 Megohms		2	F8
R18	1K ohm		2	F4
R19	220K ohms		2	G7
R20	100K ohms	Tone Control	37205	E2
R21	1K ohm	Switch		E5
R22	150 ohms		2	G5
R23	470K ohms		2	G5
R24	47K ohms		2	H5
R25	3.9K ohms		2	J3
R26	47K ohms		2	K16
CAPACITORS				
C1	440 pF ± 2½% silvered mica		2	K16
C2	56 pF ± 5% N750 tubular		1	G2
C3	6-50 pF trimmer Aerial		31954	F2
C4	15 pF ± 10% N750 tubular		1	G3
C5	0.022 μF ± 20% 400 volt working paper		1	G3
C6	0.1 μF ± 20% 400 volt working paper		1	F3
C7	0.047 μF ± 20% 400 volt working paper		2	K13
C8	56 pF ± 5% N750 tubular		1	F3
C9	100 pF ± 20% K1200 tubular		1	G5
C10	6-50 pF trimmer R.F.		31954	G5
C11	0.047 μF ± 20% 200 volt working paper		1	H4
C12	100 pF ± 10% 500 volt working mica		1	G8
TRANSFORMERS				
T1	1st I.F. Transformer	35483	2	J10
T2	2nd I.F. Transformer	27353	2	F10
T3	Audio Output Transformer	21204F	1	H12
T4	Power Transformer	25807	2	H3
INDUCTORS				
L1	Tuning Coil Aerial	34383	2	H15
L2	Tuning Coil R.F.	34383	2	H13
L3	Oscillator Padder Coil	36987	1	F8
L4	Tuning Coil Oscillator	34383	2	H14
VALVES				
V1	Radiotron 6BA6		1	E3
V2	Radiotron 6BE6		1	E6
V3	Radiotron 6BA6		1	G9
V4	Radiotron 6AV6		1	F11
V5	Radiotron 6AQ5		1	G13
V6	Radiotron 6X4		1	J13

PUSH BUTTON TUNER ASSEMBLY

Possible faults and adjustment procedure (refer to Fig. 2).

FAULT	CAUSE	REMEDY
Manual Drive slipping	<ol style="list-style-type: none">1. Lack of clearance between slide (1) and clutch gate (2).2. Loose riveting of universal coupling (4) or clutch plate (5) to pinion shaft.	<p>Bend tang (3) of clutch gate outwards to give minimum clearance of .010" on all slides. Avoid bending too far as this will result in clutch not disengaging when button is depressed.</p> <p>Replace manual drive shaft assembly. Replace clutch assembly.</p>
station is detuned when Locking button	Paddle plate (6) loose.	Loosen locknut and tighten adjusting screw (7). Retighten locknut.
Button Sticking in	<ol style="list-style-type: none">1. Insufficient clearance of manual drive shaft in forked bracket (8).2. Button touching front fret moulding.3. Muting switch pressure too high when button is fully depressed.	<p>Adjust by bending bracket slightly to widen the slot.</p> <p>Adjust tuner position and chassis height to give clearance.</p> <p>Adjust switch setting.</p>
Backlash in manual drive	Excessive clearance of manual drive shaft in forked bracket.	Bend the bracket to reduce the clearance in the slot.
Pointer backlash or rough movement	<ol style="list-style-type: none">1. Pointer spindle or pulleys insufficiently lubricated.2. Drive cord too tight.	<p>Lubricate with light grease.</p> <p>Slacken cord so that it is lightly tensioned by the spring only.</p>
Station setting moves after button is used a few times.	Cam (10) on slide (1) not locking securely.	Replace tuner. It is not possible to repair in the field.