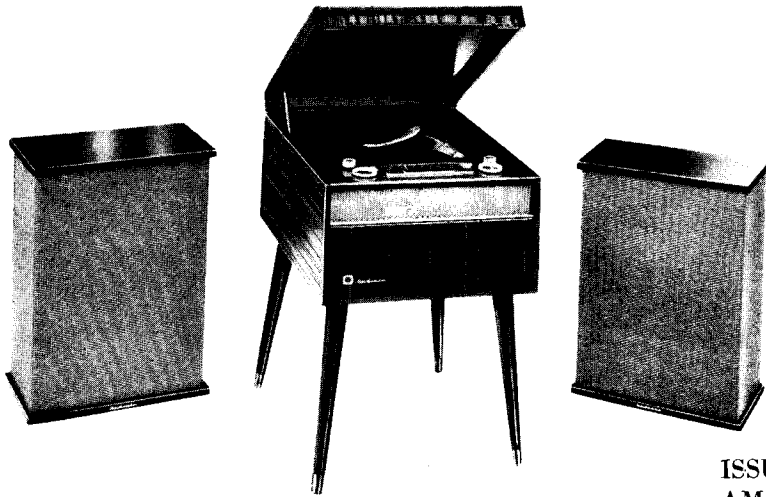




SUPERVISED SERVICE

TECHNICAL INFORMATION AND SERVICE DATA



STEREOPHONIC RADIOLAGRAM Model 699-GA

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD

GENERAL DESCRIPTION

Model 699-GA is a six valve AC operated stereophonic radiogram designed for the reception of the Medium Wave Band and for the reproduction of both monophonic and stereophonic recordings.

Features of the design include:

Dual loudspeaker network on each sound channel; matched audio amplifiers; tandem volume control with closely matched resistive elements; negative feedback balance control; single chassis construction.

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:

Receiver 50 watts
Record changer 20 watts

Undistorted power output 3 watts per channel

Loudspeakers (per channel):

12" Permanent Magnet No. 21603
4" Permanent Magnet No. 21605

Loudspeaker Transformer 38121

V.C. Impedance of combination 15 ohms.

Dimensions:

Control Unit (less legs): Height—10"; Depth—19";
Width—16". Weight—48lbs.

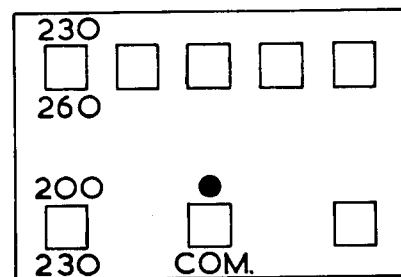
Speaker Cabinet: Height—21"; Depth—9", Width—15",
Weight—15lbs.

Valve Complement:

Radiotron 6BE6 — Converter.
Radiotron 6N8 — I.F. Amp., Detector, A.V.C.
Radiotron 12AX7 — Two Channel Audio Amp.
Radiotron 6AQ5 — Audio Output.
Radiotron 6AQ5 — Audio Output.
Radiotron 6X4 — Rectifier.

Connection to Power Supply:

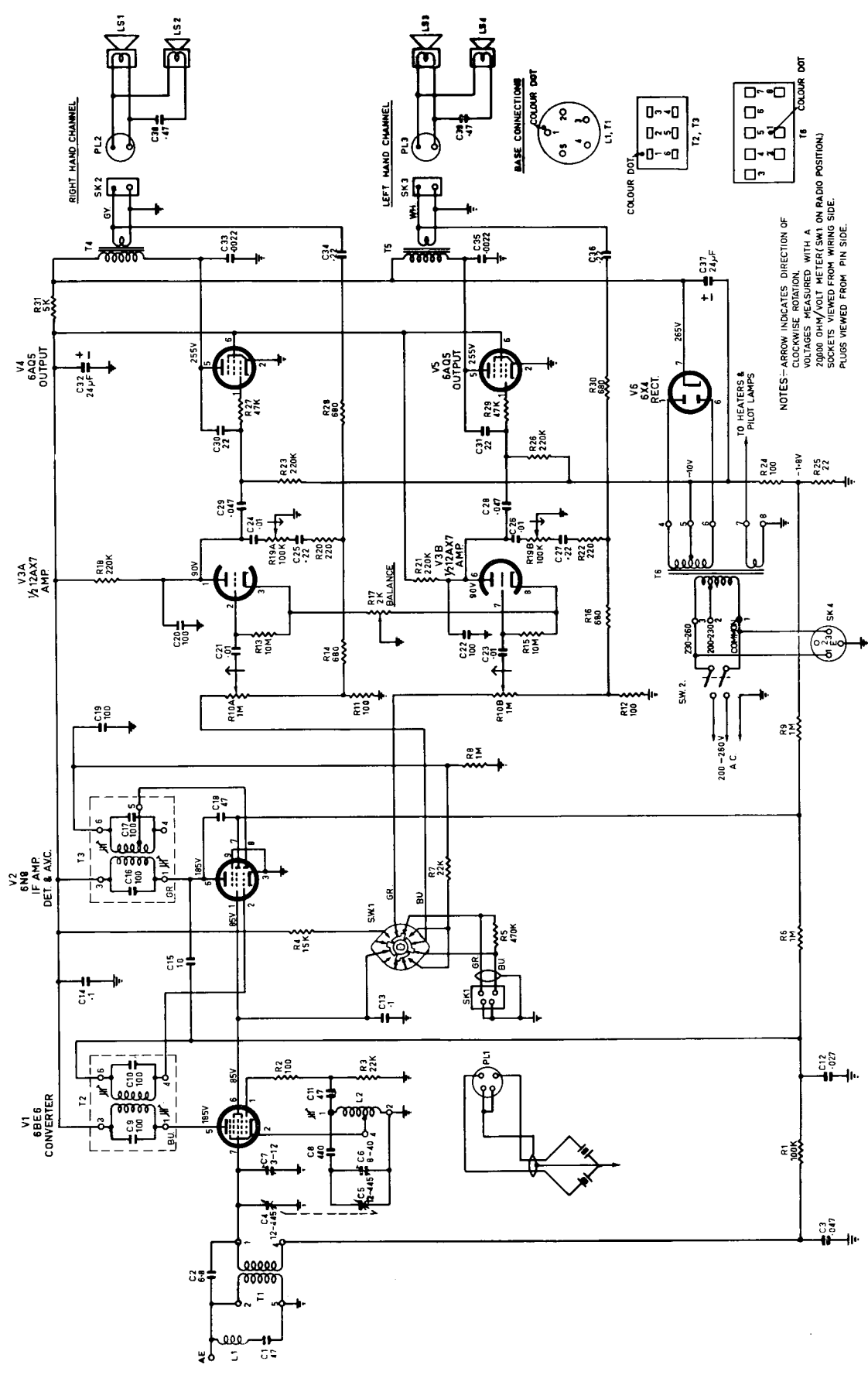
The receiver should not be connected to any circuit supplying other than 200-260 volts A.C. at a frequency of 50 c.p.s. Connections to the power transformer are shown below.



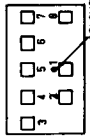
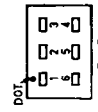
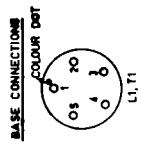
POWER CONNECTION

Chassis Removal:

Remove the speaker cable plugs.
Remove the four screws securing the cabinet base and lift the cabinet free.
Remove the control knobs by pulling them off their spindles. Unplug the Changer power and pick up leads.
Remove the speaker socket terminal panel which is attached to the cabinet back with 2 screws.
Remove the four chassis retaining screws and slide the chassis free of the cabinet.
Chassis installation is the reverse of the above procedure.



NOTES--ARROW INDICATES DIRECTION OF CLOCKWISE ROTATION. VOLTAGES MEASURED WITH A 20000 OHM/VOLT METER (SW1 ON RADIO POSITION). SOCKETS VIEWED FROM WIRING SIDE. PLUGS VIEWED FROM PIN SIDE.



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 specially 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.

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 0.22 megohm non-inductive resistor across the output terminals.
- (3) A.W.A. Output Meter type 2M8832.

In order to avoid damage to output valves and associated circuitry when the chassis is being tested it is necessary to provide A.C. loading on both audio amplifiers. Hence a 15 ohm 3 watt resistor should be connected to the voice coil terminals of the amplifier which is not loaded with the output meter.

Set the balance control to the position which gives maximum audio output on the output meter.

Set the volume and tone controls to the maximum clockwise position.

ALIGNMENT TABLE

Alignment Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Maximum Peak Output:
1	Grid of 6BE6 Rear Section of Gang	455 Kc/s.	Gang fully closed	Top and bottom Cores in T3 and T2
Repeat adjustments until maximum output is obtained. Then, using dummy aerial:				
2	Aerial lead	600 Kc/s.	600 Kc/s.	L.F. Osc. Core Adj. (L2)*
3	Aerial lead	1650 Kc/s.	Gang fully open	H.F. Osc. Adj. (C7)
4	Aerial lead	1500 Kc/s.	1500 Kc/s.	H.F. Aer. Adj. (C6)

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

SOCKET VOLTAGES

Valves	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6 Converter	—	85	185	1.5	6.3
6N8 I.F. Amp. Det. A.V.C.	—	85	185	5.0	6.3
12AX7 A.F. Amp.	0.1*	—	90	1.0	6.3
6AQ5 Output	—	185	255	27	6.3
6AQ5 Output	—	185	255	27	6.3
6X4 Rectifier	265	—	255 A.C. R.M.S.		6.3

* Varies with balance control setting.

Back bias across R25 = 1.8 volts.

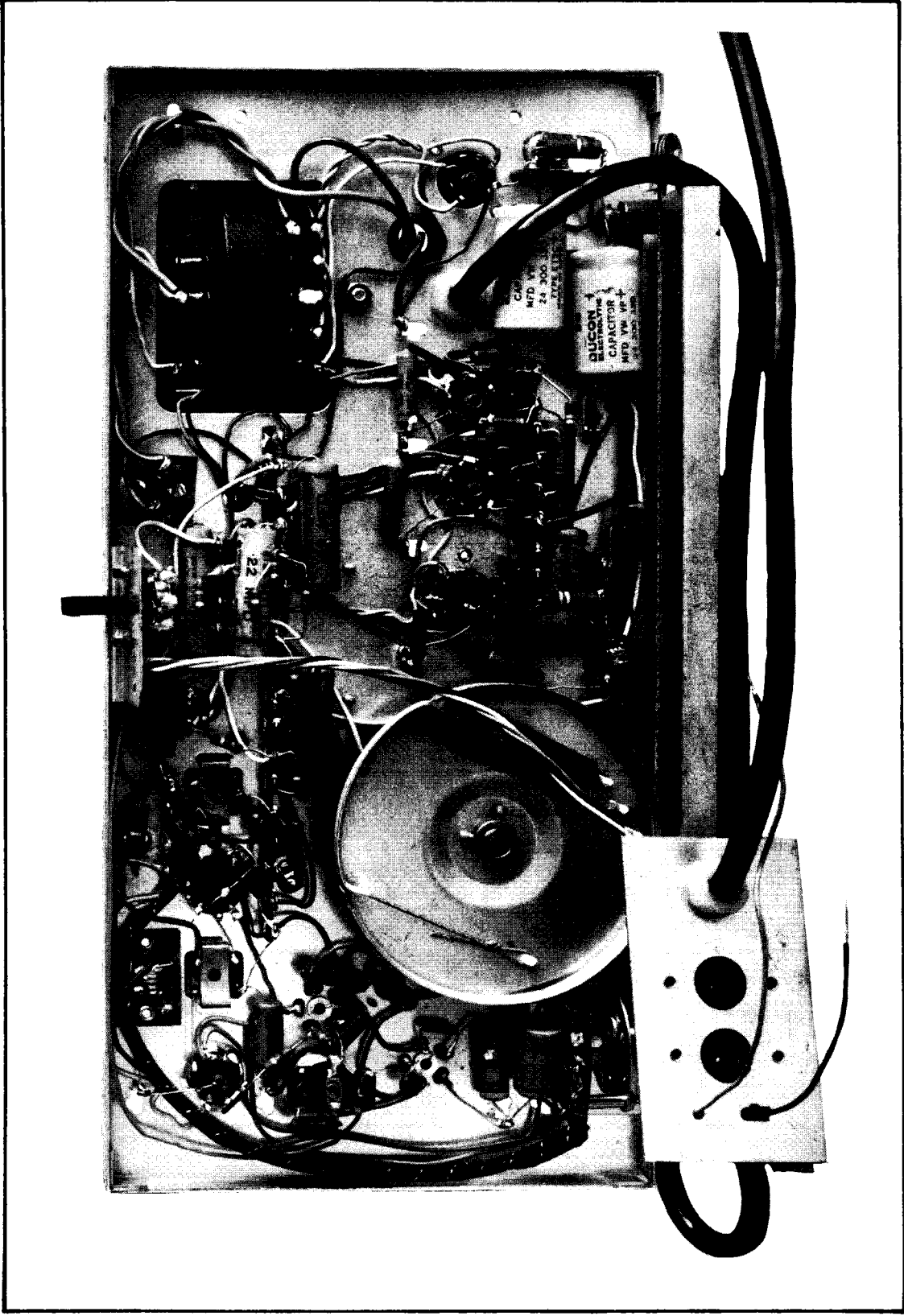
Back bias across R25 + R24 = 10 volts.

Total H.T. Current = 80 mA.

Measured with 240 volts A.C. supply (with P.U.—Radio Switch in Radio position). no signal input; Volume Control maximum clockwise; voltmeter 20,000 ohms/volt; measurements taken on highest scale giving accurate readable deflection.

A B C D E F G H J K L M

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



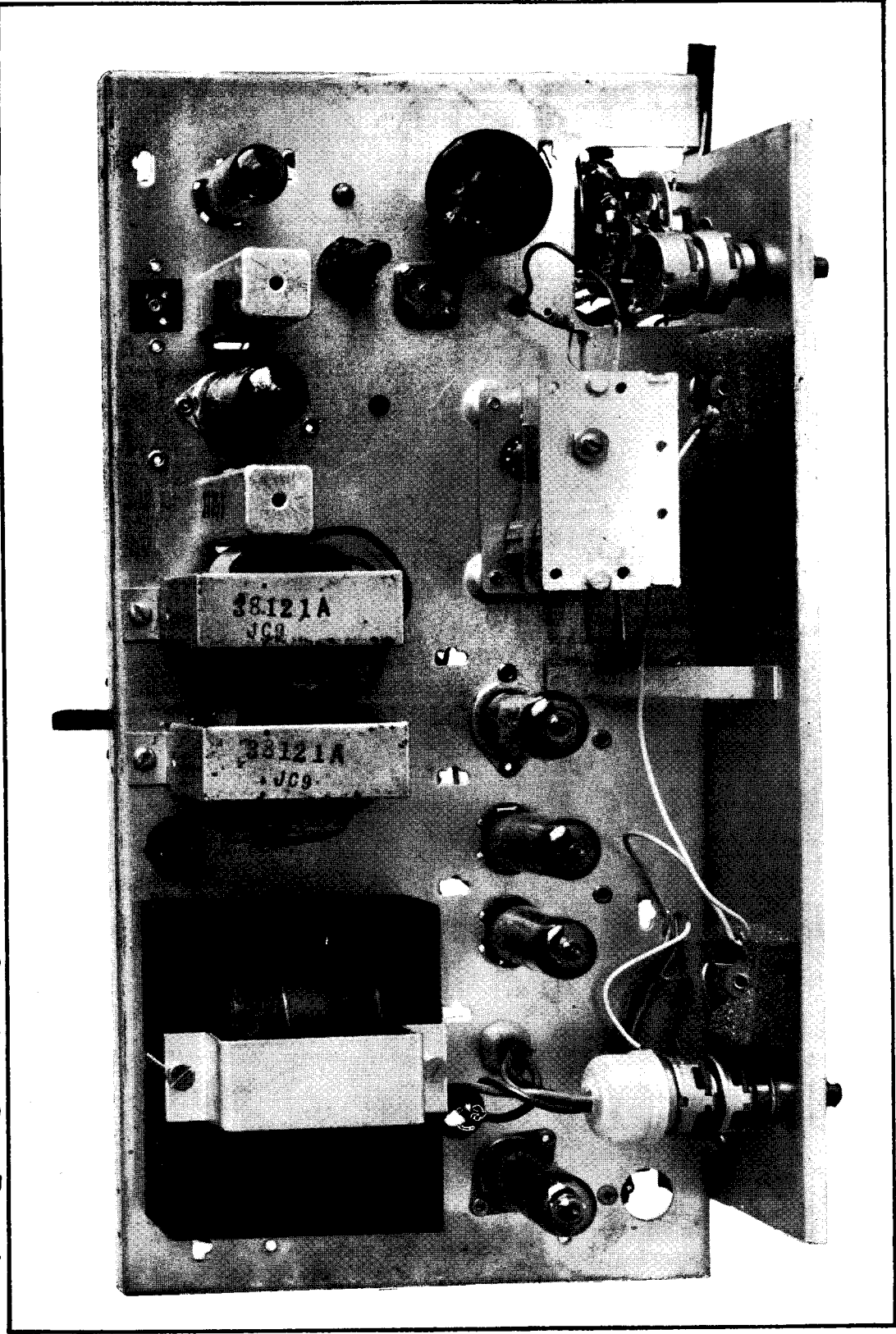
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A B C D E F G H J K L M

FIG. 2

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



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

A B C D E F G H J K L

FIG.1

MECHANICAL REPLACEMENT PARTS

Item	Part No.
Chassis Assembly:	
Bracket, Chassis Mounting	38447
Bracket, Transformer Mounting	38458
Clamp Body, Power Cable	41397
Clamp Lock, Power Cable	41398
Cowl Light	38470
Dial Scale	37912
Insulator, Power Switch	38469
Lamp Holder Assembly	4194
Pointer Assembly	38457
Screw, Coil Mounting	34147
Socket, 9 Pin	794591
Socket, 7 Pin	794579
Socket, 7 Pin (Rectifier)	794620
Socket, 4 Pin Moulded	28313
Socket, 4 Pin Wafer	40180
 Cabinet Assembly:	
Buffer Rubber, Lid	37379
Cabinet	37769
Knob Assembly, Large	38449
Knob Assembly, P.U.-Rad.	38466
Knob Assembly, Tuning	38448
Label Component Layout	37690
Leg, Cabinet	41573
Spacer, Moulded	41565

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 Numbers.

D.C. RESISTANCE OF WINDINGS

Winding	Resistance in ohms
I.F. Filter L1	23
Oscillator Coil L2	3.7
Aerial Transformer T1:	
Primary	13.5
Secondary	1.9
I.F. Transformer Windings T2 and T3 ...	
Output Transformers T4 and T5:	18
Primary	360
Secondary	1.3
Power Transformer T6:	
Primary	19
H.T. Secondary	250
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.

CIRCUIT CODE — RADIOLA 699-GA

Code No.	Description	Part No.	Fig No.	Location	Code No.	Description	Part No.	Fig No.	Location
RESISTORS									
All Resistors ± 20% unless otherwise stated									
R1	100K ohms	1/2 watt	2	F4	C14	0.1 μF 400 volt working paper		2	B9
R2	100 ohms	1/2 watt	2	D4	C15	10 pF ± 10% N750 tubular		2	C7
R3	22K ohms	1/2 watt	2	E4	C16	100 pF ± 5% silvered mica (In 2nd I.F.)		2	C8
R4	1.5K ohms	1 watt	2	B7	C17	100 pF ± 5% silvered mica (In 2nd I.F.)		2	C8
R5	470K ohms	1/2 watt	2	B5	C18	47 pF ± 10% N750 tubular		2	C7
R6	1M ohm	1/2 watt	2	D6	C19	100 pF ± 10% N750 tubular		2	D7
R7	22K ohms	1/2 watt	2	D7	C20	100 pF ± 10% N750 tubular		2	F10
R8	1M ohm	1/2 watt	2	D7	C21	0.01 μF 400 volt working paper		2	G9
R9	1M ohm	1/2 watt	2	D6	C22	100 pF 10% N750 tubular		2	G10
R10A	1M ohm	1/2 watt	2	D6	C23	0.01 μF 400 volt working paper		2	H10
R10B	1M ohm	1/2 watt	2	D6	C24	0.01 μF 400 volt working paper		2	H11
R11	100 ohms	1/2 watt	2	K14	C25	0.22 μF 200 volt working paper		2	D10
R12	100 ohms	1/2 watt	2	J14	C26	0.01 μF 400 volt working paper		2	G10
R13	10M ohms	1/2 watt	2	D9	C27	0.22 μF 200 volt working paper		2	D8
R14	680 ohms	1/2 watt	2	C9	C28	0.047 μF 400 volt working paper		2	H11
R15	10M ohms	1/2 watt	2	F10	C29	0.047 μF 400 volt working paper		2	H12
R16	680 ohms	1/2 watt	2	D10	C30	22 pF ± 10% N750 tubular		2	G14
R17	2K ohms	1/2 watt	2	G10	C31	22 pF ± 10% N750 tubular		2	G13
R18	220K ohms	1/2 watt	2	C8	C32	24 μF 350 volt peak electrolytic		2	J15
R19A	100K ohms	1 watt	2	B10	C33	0.0022 μF 600 volt working paper		2	F13
R19B	100K ohms	1 watt	2	G12	C34	0.22 μF 200 volt working paper		2	E11
R20	220 ohms	1/2 watt	2	K3	C35	0.0022 μF 600 volt working paper		2	F12
R21	220K ohms	1/2 watt	2	J3	C36	0.22 μF 200 volt working paper		2	C10
R22	220 ohms	1/2 watt	2	D10	C37	24 μF 350 volt peak electrolytic		2	H15
R23	220K ohms	1/2 watt	2	H10	C39	TRANSFORMERS			
R24	100 ohms	1/2 watt	2	D8	T1	Aerial Transformer	30768	2	F4
R25	22 ohms	1/2 watt	2	H13	T2	1st I.F. Transformer	27351	2	C5
R26	220K ohms	1/2 watt	2	H12	T3	2nd I.F. Transformer	27353	2	C8
R27	47K ohms	1/2 watt	2	H13	T4	Audio Output Transformer	38121	1	D8
R28	680 ohms	1/2 watt	2	G13	T5	Audio Output Transformer	38121	1	D10
R29	47K ohms	1/2 watt	2	D11	T6	Power Transformer	38124	1	D3
R30	680 ohms	1/2 watt	2	G12		INDUCTORS			
R31	5K ohms	2 watts	2	C10	L1	I.F. Filter Coil (Incl. C1)	9382	2	E3
			2	H17	L2	Oscillator Coil	32406	2	E4
CAPACITORS									
C1	47 pF ± 5% 500 volt working silvered mica		2	D3	SW1	Phono — Radio Switch	38462	2	H4
C2	6.8 pF ± 10% N750 bead		2	F3	SW2	ON-OFF Switch (On R19)		1	J3
C3	0.047 μF 200 volt working paper		2	G4	LS1	12" PM Loudspeaker	21603		
C4	12-445 pF tuning Aerial	18674	1	H12	LS2	4" PM Loudspeaker	21605		
C5	12-445 pF tuning Osc.	18674	1	H12	LS3	12" PM Loudspeaker	21603		
C6	8-40 pF trimmer Osc.	231185	1	H14	LS4	4" PM Loudspeaker	21605		
C7	3-12 pF trimmer Aerial	33155	1	F14		VALVES			
C8	440 pF ± 2% padder		2	E5	V1	Radiotron 6BE6		1	C15
C9	100 pF ± 5% silvered mica (In 1st I.F.)		2	C5	V2	Radiotron 6N8		1	C13
C10	100 pF ± 5% silvered mica (In 1st I.F.)		2	C5	V3	Radiotron 12AX7		1	G8
C11	47 pF ± 10% 500 volt working silvered mica		2	E4	V4	Radiotron 6AQ5		1	G5
C12	0.027 μF 400 volt working paper		2	D4	V5	Radiotron 6AQ5		1	G7
C13	0.1 μF 400 volt working paper		2	H4	V6	Radiotron 6X4		1	G2