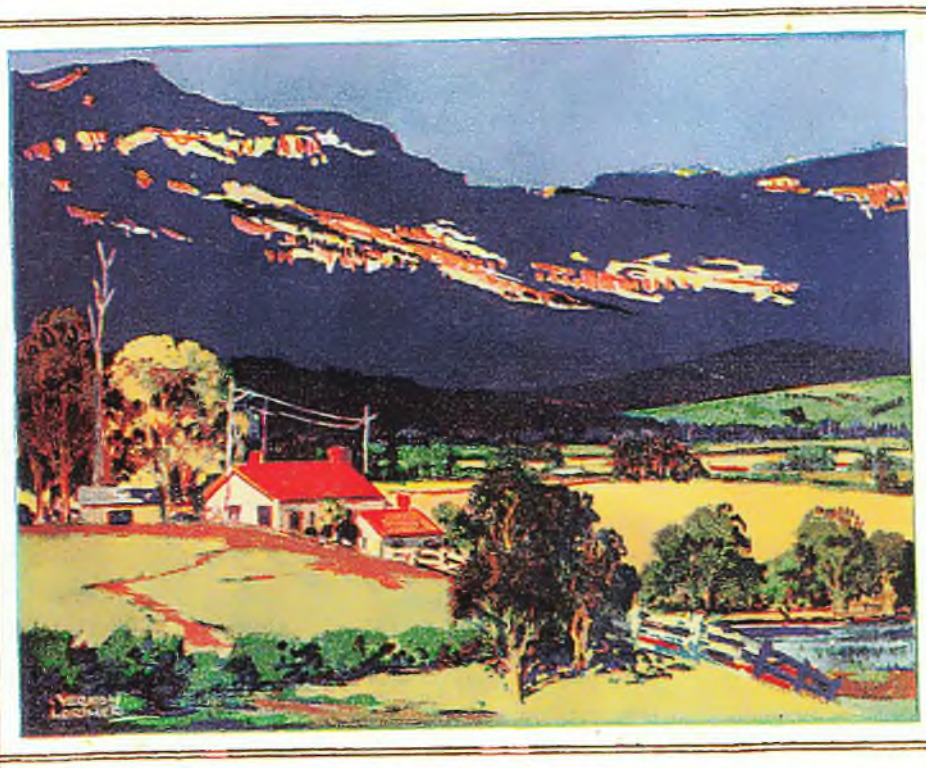
A.W.A, Admiral Electrosound & G.E.

Radio Service Manual, 1956-60



AWA The Seal of Quality

AWA The Seal of Quality

Where'er You are the Wonders of the Air are Yours with a RADIOLA

This manual has been compiled by Ray Kelly for the assistance of H.R.S.A. members in the restoration of valve radios of the period 1956-60, and is Volume 2 in a projected series of 5.

INDEX to Volume 2, Radio Service manuals 1956-60

Healing ,H.M.V. and Kriesler circuits are planned for inclusion in Volume 3 of this series of circuits of the period 1956-60.

Complied by Ray Kelly for the benefit of interested members of the H.R.S.A,
January 2001

Admiral

SERVICE DOCUMENT

Model 4AZ

Colour Range: Burgundy, Beige, Forest Green, Light Grey, Tan. All with gold trim.

SPECIFICATIONS

Circuit: Superheterodyne receiver with 4 miniature valves.

Frequency Range: 535 Kc/s to 1620 Kc/s covering broadcast band.

Intermediate Frequency: 455 Kc/s.

Power Supply: This receiver operates on one 90 Volt "B" Battery and one 7½ Volt "A" Battery. Alternatively, A will operate from normal 240 volt 50 cycle alternating current supply.

Power Consumption: Approximately 20 watts.

Antenna: Built in Ferroscope antenna.

Speaker: 4" P.M. Voice Coil impedance 6.5 ohms, Transformer primary 10,000 ohms.

BATTERY REPLACEMENT

Run-down batteries should be removed from the set. Corrosive material may leak from a run-down battery and parts of the chassis or the cabinet are likely to be damaged.

In normal use batteries for this set should furnish about 40 operating hours. Batteries listed below, or an equivalent substitute may be used in this set.

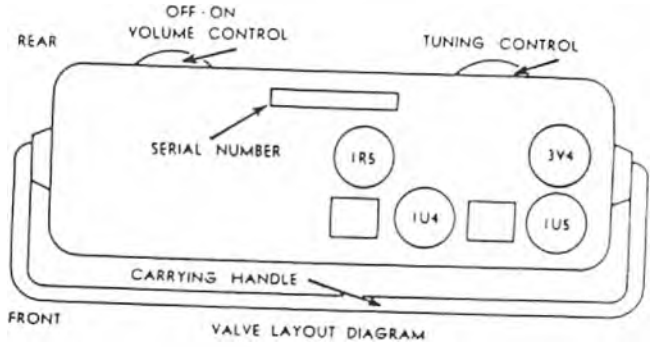
"A" Battery (7½ Volts): Eveready 717 or equivalent.

"B" Battery (90 Volts): Eveready 490-P or equivalent

REPLACING VALVES

All valves may be inspected by opening the cabinet. The case is opened by applying a gentle pressure either side of the dial scale at the top and swinging the rear section back.

No attempt should be made to replace the valves with the chassis attached to the cabinet.



VALVE LAYOUT DIAGRAM

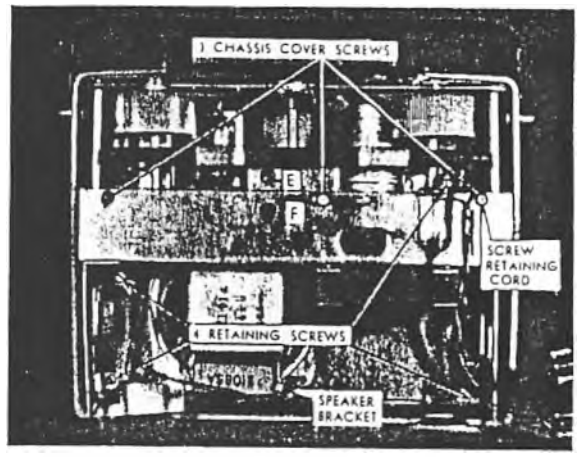
REMOVING THE CHASSIS

The chassis should be removed from the cabinet on all occasions of servicing other than for battery replacement or visual inspection.

The high gloss surface of the cabinet can be scratched very easily when in contact with a roughened service bench. It is important that all operations be conducted on a grit-free felt pad to avoid this.

To remove the chassis proceed as follows:—

1. Open the cabinet and lie it face down on the pad.
2. Remove the screw retaining the cord which is fastened to the cabinet cover.
3. Disconnect and remove the "A" and "B" batteries.
4. Remove the FOUR retaining screws indicated (x) on the following diagram. Loosen the screw securing the speaker bracket.



The complete chassis may now be lifted clear of the cabinet.

The chassis cover must be removed to align the receiver or check voltages. Remove the remaining two screws which hold the cover on the chassis.

When replacing the chassis cover, ensure that the three tabs fit into slots along the edge of the chassis at either side of the speaker. Make sure the lead wires from the output transformer fitted to the speaker are not caught between the chassis and the cover

RESISTORS

Symbol	Description	Part No.
R1	2.2 megohms ½ watt	A60A10-225-4
R2	100,000 ohms ½ watt	A60A10-104-4
R3	270 ohms ½ watt	A60A10-271-4
R4	18,000 ohms 1 watt	A60A12-183-4
R5	10 megohms ½ watt	A60A10-106-4
R6	390 ohms ½ watt	A60A10-391-4
R7	3.3 megohms ½ watt	A60A10-335-4
R8	1 meg. Vol. Control with on-off Switch	A75-03
R9	180 ohms ½ watt	A60A10-181-4
R10	10 megohms ½ watt	A60A10-106-4
R11, R12, R13	Part of Couplate	A63A4-3
R14	1200 ohms 1 watt	A60A12-122-4
R15	8200 ohms 1 watt	A60A12-822-4
R16	2200 ohms 1 watt	A60A12-222-4
R17	2400 ohms 1 watt	A61A15-242-4

CAPACITORS

Symbol	Description	Part No.
C1A, C1B	Twin Gang Condenser	68B57-2
C2	250 uuid AEE	A64A24-77-3
C3	.25 uid 100V Miniseal	A64A25-177-3
C4	.005 uid 200V AEE	A64A22-122-4
C5	100 uuid 10% Simplex	A65A10-67-4
C6	.01 uid 200V AEE	A64A22-134-4
C7	.01 uid 200V AEE	A64A22-134-4
C8	Electrolytic 100 uid 12V	
C9	.005 uid 200V AEE	A64A22-122-4
C10	Part of Couplate	A63A4-3
C11	250 uuid 10% Simplex	A65A10-77-4
C12, C13	Part of Couplate	A63A4-3
C14	.001 uid 400V AEE	A63A23-101-4
C15	25 uid 40V ETI	
C16A	30 uid 200V	
C16B	20 uid 200V	A67-05
C16C	100 uid 12V	

COILS, TRANSFORMERS, ETC.

Symbol	Description	Part No.
L1	Aerial Rod Assembly	A71-04
L2	Coil, Oscillator	A69-03
T1	Transformer, 1st I.F.	A72-02
T2	Transformer, 2nd I.F.	A72-02
M1	Speaker M.S.P. 4" No. 8	A78-05
S1	Switch ON-OFF—Part of R8. Couplate (includes R11, 12, 13, C10, 12, 13)	A63A4-3
T3	Power Transformer	A80B03
S2	Switch AC/Battery Oak 78	A77-01

MISCELLANEOUS PARTS

Description	Part No.
Bracket Antenna Support	15A932
Insulator Antenna Support	32A195
Chassis Cover	A14B05
Bracket for "B" Battery	15B08

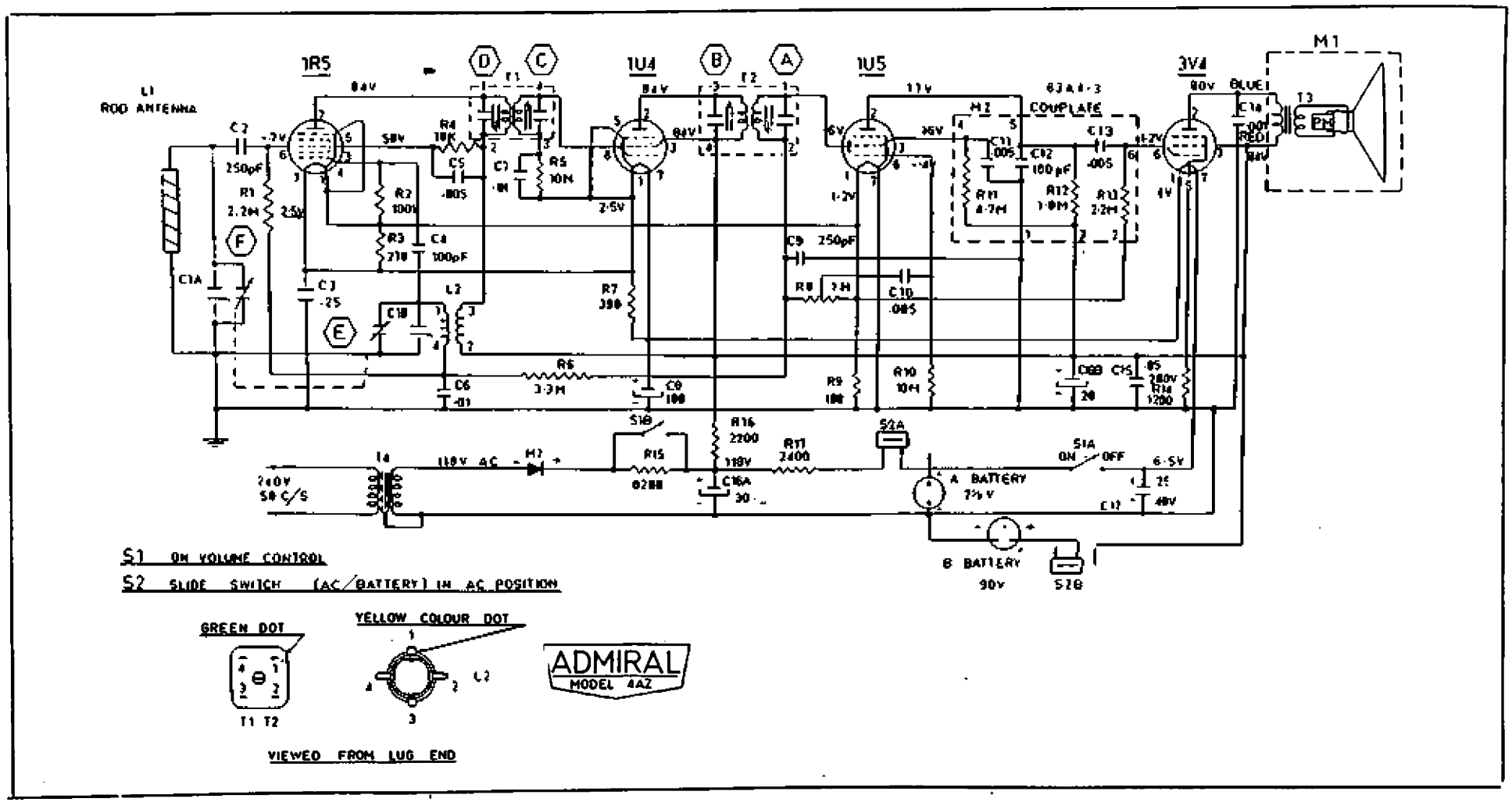
Description	Part No.
Shaft, Tuning	A29A01
I.F. Clips	A19-05
Pointer Assembly	A25-03
Spring—Dial Cord	A19-07
Drum—Dial	A17B-03
Terminal Strip	A10-02
Chassis Base	A14B04-1
Dial Cord	A50-01
Socket Valve Cinch 733-2-15	A87-09
Plug—Lead Assembly 90 Volt Battery	A89-07
Plug—Lead Assembly 7½ Volt Battery	A89-08
Rectifier, West. 18RA1-1-8-1	A93-01
Plug—Lead Assembly—Power	A89-09

VALVES

Converter	1R5
I.F. Amplifier	1U4
2nd Detector, A.V.C. Driver	1U5
Power Output	3V4

CABINET PARTS

Description	Part No.
Baffle Board, Speaker	A43-B01
Button, Handle Ornament	20A18
Cabinet Front	
Grey	A34-20-8
Burgundy	A34-20-9
Beige	A34-20-11
Tan	A34-20-12
Green	A34-20-13
Cabinet Rear:	
Grey	A34-21-8
Burgundy	A34-21-9
Beige	A34-21-11
Tan	A34-21-12
Green	A34-21-13
Handle:	
Grey	33A106-5-8
Burgundy	33A106-5-9
Beige	33A106-5-11
Tan	33A106-5-12
Green	33A106-5-13
Metal Grille	23B173
Medallion	23B167
Metal Bezel	23C147-2
Back Plate—Dial	A21A02
Dial Scale	A21A06
Knob Tuning Type 2:	
Grey	A33B03-8
Burgundy	A33B03-9
Beige	A33B03-11
Tan	A33B03-12
Green	A33B03-13
Knob Tuning Type 3:	
Grey	A33B15-8
Burgundy	A33B15-9
Beige	A33B15-11
Tan	A33B15-12
Green	A33B15-13



S1 ON VOLUME CONTROL

S2 SLIDE SWITCH (AC/BATTERY) IN AC POSITION

GREEN DOT

T1 T2

YELLOW COLOUR DOT

L2

VIEWED FROM LUG END

ADMIRAL
MODEL 4A2

Admiral

ALIGNMENT PROCEDURE

- Battery Power is preferable for alignment. Use FRESH batteries for this operation. If the set is to be aligned when power is supplied via the mains, an isolating transformer is advised to limit external interference.
- The chassis cover must be removed to reach adjustment points A and C.
- Set volume control full on.
- Connect output meter to primary of speaker transformer.
- Use lowest setting of signal generator capable of producing indication on lowest scale of output meter.
- Use a non metallic alignment tool for I.F. transformer.
- Repeat adjustments to ensure good results.

STEP	CONNECTION OF SIGNAL GEN.	SIGNAL GEN. FREQUENCY	RECEIVER GANG	ADJUSTMENT & REMARKS
1	Stator of antenna tuning capacitor	455 Kc/s	Gang fully open	A*, B, C*, D, in this order for maximum output
2	Stator of antenna tuning capacitor	1700 Kc/s	Gang fully open	E Oscillator trimmer on gang for maximum output
3	Place signal lead of generator close to aerial rod	1400 Kc/s	Tune in generator signal	F Aerial trimmer on gang for maximum output

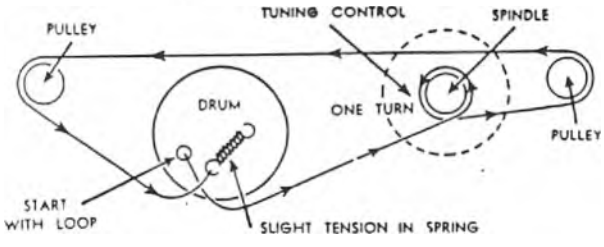
* Adjustments A and C are made from underside of chassis

Voltage Data:

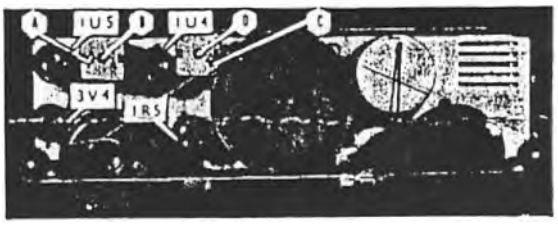
Voltages are shown at relevant points on circuit diagram. All voltages are taken between valve socket terminals and B minus, which is chassis connection.

Dial set at low frequency end (gang fully meshed) volume control at minimum.

TO REPLACE DIAL CORD



Location of Valves and Adjustment Positions



Adjustments A and C are made from underside of chassis.

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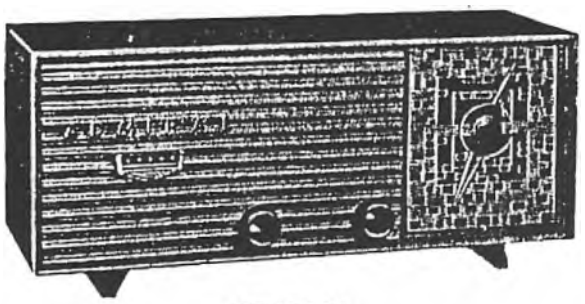
SERVICE DOCUMENT for MANTEL RADIO MODEL 5AW



GENERAL

This receiver employs the latest radio circuitry including the "printed" circuit wiring technique. This process eliminates the hook up wiring which has been in common use in the past. Figure 1 shows the lower view of this 5 valve receiver chassis. The "printed" circuit wiring is permanently bonded to the underside of the plastic chassis base. This results in uniformity of chassis wiring, fewer wiring troubles and simplified circuit tracing and trouble shooting. All circuit components are of standard size and design and readily available from normal sources. They are mounted on the upper side of the chassis board as shown in figure 2. Audio circuit components are contained in a couplate, which may be obtained through the Admiral Service Department.

Trouble shooting and parts replacement will, in general be along the same lines as for receivers wired with hook-up wire. However, when servicing, it is important to read the service information given in this manual with respect to the technique of servicing printed circuit receivers.

SERVICING THE SET

Servicing "printed" circuit sets is, in general, much the same as servicing ordinary receivers. However, certain tools and techniques are well suited for this type of work. It is particularly advised that good quality tools be purchased as these have greater durability and ensure more reliable service.

The following will be found most useful:

1. Pair of long-nose pliers.
2. Pair of flat-nose pliers.
3. Pair of diagonal side cutters.
4. $\frac{3}{8}$in. "Spintite" socket spanner.
5. Pencil type soldering iron, 35 watt rating with fine angled tip.
6. 6in. screwdriver, $\frac{1}{4}$in. head.
7. 10in. tuning tool with $\frac{1}{8}$in. flat head, to be made of a non ferrous, preferably non metallic, material.
8. Small still brush for removal of solder.

NOTE: Always use a multi-core low temperature solder for work on the chassis board, and do not use an iron in excess of a 35 watt rating. All operations can be suitably conducted within this limit, and damage to the board during component replacement is thereby avoided.

TEST EQUIPMENT

(a) Signal Generator.
(b) Multimeter (A.C.-D.C. Volts, Ohms, Amps)
(c) Output Meter.
(d) 3.2 ohm Speaker fitted with lead and 2 pin male plug.
(e) Valve tester.

COMPONENT REPLACEMENT

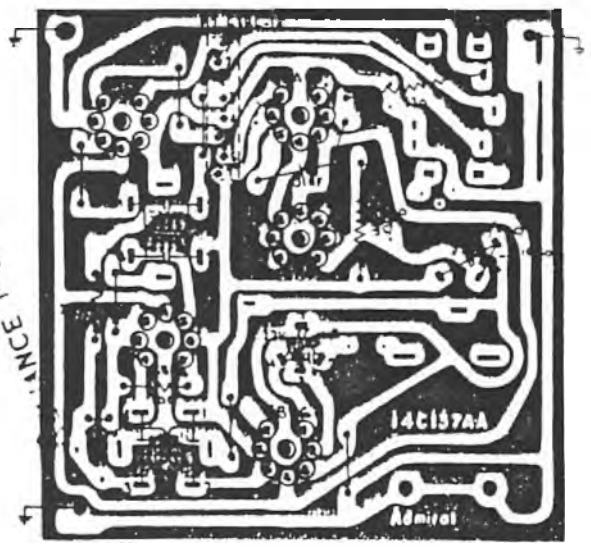
Resistors and capacitors should be replaced by clipping out the defective part and neatly soldering the new part to the connecting leads remaining from the original part. This precaution will eliminate any damage to under chassis wiring.

Should a unit such as the oscillator coil or an I.F. transformer have to be removed, the following procedure is to be adopted. Heat each mounting lug in turn with the soldering iron, and remove excess solder with a brush. Straighten each lug with long-nose pliers whilst the solder is molten, and remove the defective unit by lifting it off the chassis. CAUTION: After removal, ensure that the lug holes are open and free from solder before endeavouring to insert the replacement item. Failure to observe this precaution may result in serious damage to the chassis board.

An open or damaged section of the "printed" circuitry can be replaced by soldering a short jumper wire across the points to be connected. Pigtail trimmings from capacitors and resistors are ideal for this purpose.

(To avoid the necessity of replacing a complete valve socket, defective pin clips may be replaced individually. Tube socket pin clips are a standard item and readily available through suppliers.)

If a complete socket has to be replaced, the central tubular shield at the bottom of each tube socket must be securely soldered to the "printed" circuit wiring, otherwise hum or oscillation will result.

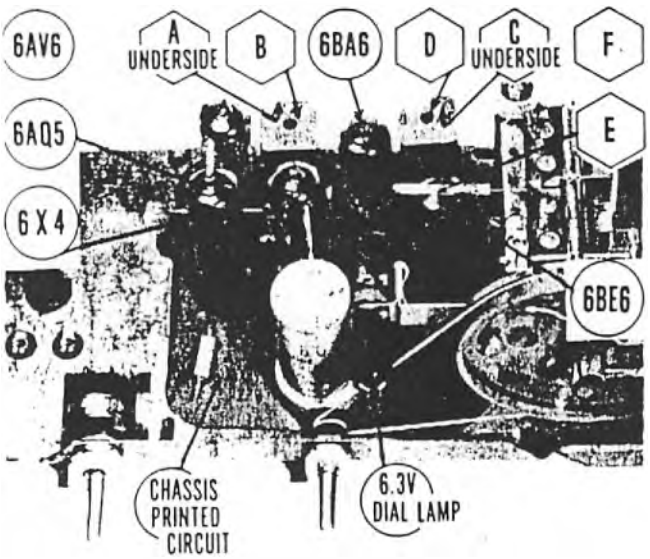


ALIGNMENT PROCEDURE

1. Connect the earth clip of the signal generator to the chassis.
2. Set volume control full on.
3. Connect output meter across speaker voice coil.
4. Use lowest setting of signal generator capable of producing indication on lowest scale of output meter. (This should be no greater than 320 μVolts.
5. Use a non-magnetic, preferably non-metallic tool with ¼in. flat tip for aligning I.F. transformers.
6. Repeat sequence of following adjustments to ensure best results.

Step	Connection of Signal Generator	Signal Gen. Frequency	Receiver Gang Setting	Adjustment and Remarks
1	To stator of tuning condenser at aerial input	455Kc/s.	Fully open	A*, B, C*, D in this order for maximum output
2	To stator of tuning condenser at aerial input	1700Kc/s.	Fully open	E Oscillator tuner on gang for maximum output
3	Place signal lead of generator close to aerial rod	1400Kc/s.	Tune in generator signal	F Aerial tuner on gang for maximum output

*Adjustments A and C are made on underside of Chassis.



COLOUR RANGE

Beige	with	Canyon Copper Trim.
Burgundy	„	Gold Trim.
Grey	„	White Trim.
Ivory	„	Gold Trim.
Primrose	„	Black Trim.
Tan	„	Canyon Copper Trim.

SPECIFICATIONS

Circuit. Superheterodyne receiver with five miniature tubes.

Frequency Range. Standard broadcast band, 535 to 1700 Kc/Sec.

Intermediate Frequency. 455 Kc/Sec.

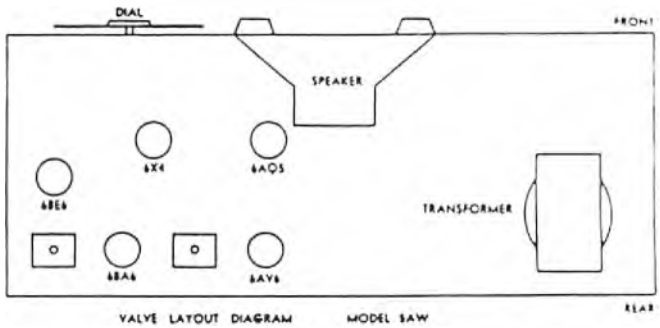
Power Supply. This receiver operates from the mains supply of 230 volts, 50 cycle alternating current.

Power Consumption. Approximately 30 watts.

Antenna. Built in Ferro. Scope Antenna.

Speaker. 4in. Permanent Magnet Voice Coil impedance 3.2 ohms.

REPLACING VALVES

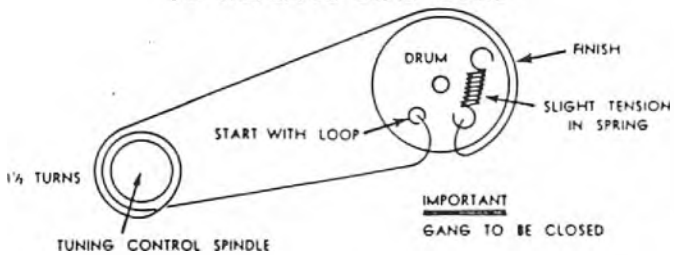


VALVE LAYOUT DIAGRAM MODEL 5AW

This set uses the following valves:—One 6BE6, one 6BA6, one 6AV6, one 6AQ5 and one 6X4. To reach valves for checking or replacement remove the four screws securing the back plate of the cabinet, and lift it clear of the set. A valve layout diagram is attached underneath the radio.

When replacing valves, make sure each valve is inserted in its correct socket or damage will result. The correct marking is engraved on the side of each valve and the positions must correspond with the markings shown in the illustration above.

TO REPLACE DIAL CORD



Cord length 21in.

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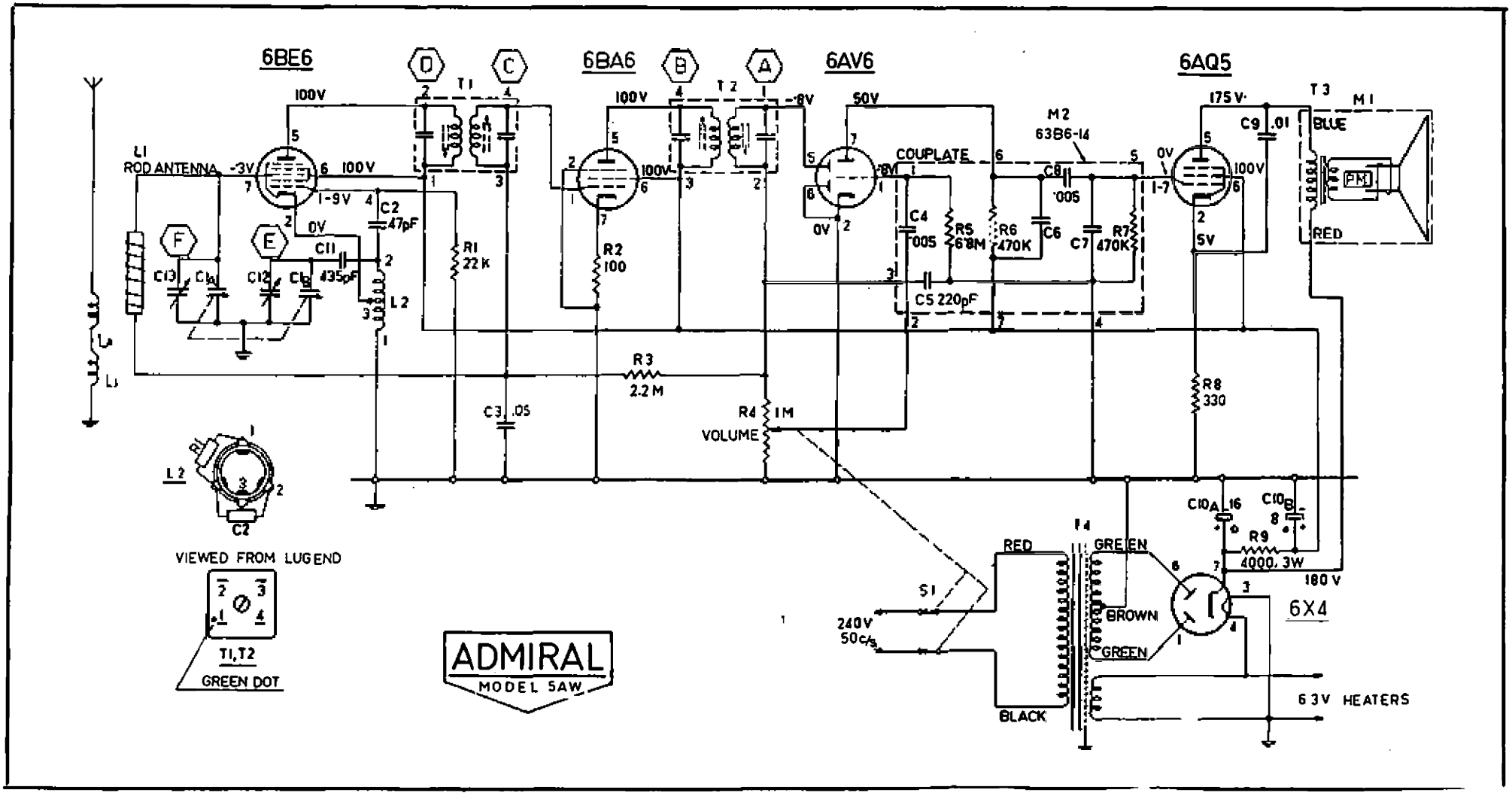

6BE6
6BA6
6AV6
6AQ5
T1
T2
T3
M1
M2
63B6-14
L1
ROD ANTENNA
L2
C1
C2 47pF
C3 .05
C4 005
C5 220pF
C6
C7
C8 005
C9 .01
C10A 16
C10B
C11 435pF
C12
C13
R1 22K
R2 100
R3 2.2M
R4 1M
VOLUME
R5 6.8M
R6 470K
R7 470K
R8 330
R9 4000, 3W
100V
-3V
-9V
0V
-8V
50V
175V
180V
5V
COUPLATE
BLUE
RED
PM
S1
240V 50c/s
BROWN
GREEN
BLACK
6.3V HEATERS
6X4
VIEWED FROM LUGEND
T1,T2
GREEN DOT
ADMIRAL
MODEL 5AW

TO REMOVE CHASSIS FROM CABINET

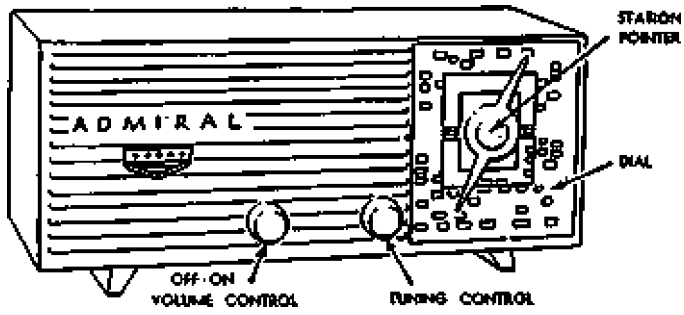
First ensure that the radio is disconnected from the power mains by removing the plug from the A.C. outlet. Pull the spring-clip control knobs off their spindles and unscrew the two brass hexagonal retaining bushes.

Gently remove the escutcheon by first lifting away from the spindles at the lower edge. The station pointer may now be drawn clear and the dial scale and gold card backing will now be free for removal.

Using the "Spintite" or equivalent tool, undo the hexagonal screw in the lower central front of the cabinet. By gripping the back plate of the cabinet the set may now be drawn clear. Next unplug the two loudspeaker connections to the chassis. These are the only wires retaining the chassis in position. They are blue and brown in colour, and are twisted together.

The chassis is now completely separate from the cabinet assembly, and is in a suitable condition for examination and repair.

OPERATING CONTROLS



CABINET PARTS

Description	Part No.
CABINET BODY:—	
Primrose	A34D01-7
Grey	-8
Burgundy	-9
Ivory	-10
Beige	-11
Tan	-12
CABINET FRONT:—	
Black	A34C06-15
White	-16
Gold	-17
Canyon Copper	-18
CABINET BACK:—	
Primrose	A34C07-7
Grey	-8
Burgundy	-9
Ivory	-10
Beige	-11
Tan	-12
KNOB (CONTROL):—	
Grey	A33B01-8
Burgundy	-9
Ivory	-10
Beige	-11
Tan	-12
Black	-15

RESISTORS

Symbol	Description	Part No.
R1	22 K ohms ½ watt 10% (on oscillator coil)	A60-02-223
R2	100 ohms ½ watt 10%	A61A10-101-4
R3	2.2 meg ohm ½ watt 10%	A60A11-225-4
R4	1 meg ohm volume control with D.P. switch	A75A05
*R5	6.8 meg ohm ½ watt 10% (Part of couplate .63B6-14.)	
*R6	470 K ohms ½ watt 10% (Part of couplate .63B6-14.)	
*R7	470 K ohms ½ watt 10% (Part of couplate .63B6-14.)	
R8	330 ohms ½ watt 10%	A61A10-331-4
R9	4000 ohms 3 watt W.W. 5%	A61A17-402-5

CAPACITORS

Symbol	Description	Part No.
C1A, C1B	2 gang condenser M.S.P. Miniature 18621	A68-01
C2	47 uuf. N750 Ceramicon 10% (On oscillator coil)	A65A27-54-4
C3	.05 uf 200V Upright	A84A26-155-4
*C4	.005 uf 450V.	
*C5	.220 uuf 450V.	
*C6, *C7	Together total 250 uuf. When replacing with individual components use combinations totalling 250 uuf or use 250 uuf across R6 in place of C7 and C8	Part of couplate 63B6-14
*C8	.005 uf 450V	
C9	.01 uf H1K Disc	A65A31-134-1
C10		
C11A	16 uf Dual Electrolytic 200 V.W.	A67-04
C11B	8 uf	
C12	435 uuf ± 2½%	A65A13-87-6
C13	Wire Trimmer	A66-02
C14	Compression Trimmer	A66-03

COILS TRANSFORMERS, ETC.

Symbol	Description	Part No.
L1	Ferroscope Rod Antenna, F214	A71B03
L2	Oscillator Coil	A69-02
T1	1st I.F. Transformer	A72-01
T2	2nd I.F. Transformer	
T3	Speaker Transformer 16000/3 ohms	79A04
T4	Power Transformer	A80B05-1
M1	Speaker with Transformer T3 M.S.P. 4in. 16000 ohms	A78-03
M2	Couplate (includes R5, R6, R7, C5, C6, C7, C8, C9)	63B6-14
	Socket—valve 7 pin minature printed circuit type	A87-06
	Socket—valve 7 pin minature printed circuit type with earth tag	A87-07

VALVES

Valve Converter	6BE6
Valve I.F. Amplifier	6BA6
Valve 2nd Detector A.V.C. & A.F. Amplifier	6AV6
Valve Audio Output	6AQ5
Valve Rectifier	6X4

Admiral

SERVICE MANUAL FOR MODEL 5AK

DE-LUXE

A/C BATTERY PORTABLE

Colour Range: Forest Green, Burgundy, Beige, Grey, London Tan.

SPECIFICATIONS

Circuit: Superheterodyne receiver with 5 miniature tubes and a selenium rectifier.

Frequency Range: Standard broadcast band, 535 to 1620 KC.

Intermediate Frequency: 455 KC.

Power Supply: This receiver is designed to operate on either 90V battery pack or the normal main supply of 240V, 50 cycle alternating current.
supply of 240V, 50 cycle ultimating current.

Power Consumption: Approximately 20W on 240V, 50 cycle, A.C. supply.

Antenna: Detachable 3-way Aeroscope (iron core) antenna.

Speaker: 4in. x 6in. PM Rola model F. Voice coil impedance 3.2 ohms.

BATTERY REPLACEMENT

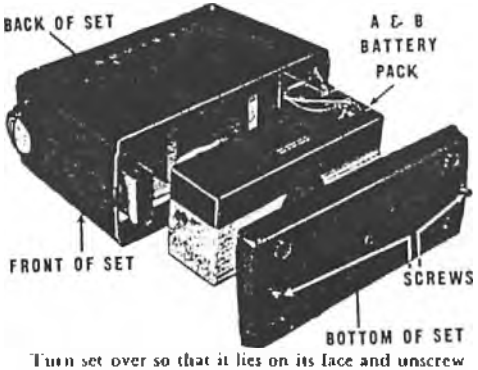
A combined battery pack is used in this portable radio. Only one connecting plug is used and this can be inserted ONE WAY only. Do not endeavour to force it in position if it does not fit easily.

Under normal conditions the battery life is about 180 operating hours. Batteries deteriorate more rapidly in excessive heat. Therefore, do not leave this set on or near a radiator or other source of heat. Also note that all batteries will run down with age even when not in use.

It is important that a run-down battery pack be removed IMMEDIATELY because the chemical action inside the cells will cause some of them to leak when they are worn out. The electrolyte which leaks from a run down battery may damage parts of the set or the cabinet because of its corrosive action.

Replacement battery packs of the following type may be used:—Eveready No. 753 or equivalent.

TO INSTAL BATTERY PACK



Turn set over so that it lies on its face and unscrew the two captive screws in base. The bottom of the cabinet may now be lifted clear to expose the battery pack. Remove the connection plug, and the battery may now be lifted clear of the set. Replace with a new battery pack and insert it in the space provided. Secure the bottom by means of the locating screws.

Admiral

ALIGNMENT PROCEDURE

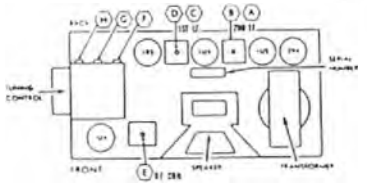
- Battery Power is preferable for alignment. Use FRESH batteries for this operation.
- Set volume control full on.
- Connect output meter to primary of speaker transformer.
- Use lowest setting of signal generator capable of producing indication on lowest scale of output meter.
- Use a non-metallic alignment tool for I.F. transformers.
- Repeat adjustments to ensure good results.

STEP	CONNECTION OF SIGNAL GENERATOR	SIGNAL GENERATOR FREQUENCY	RECEIVER GANG	ADJUSTMENT & REMARKS
1	Through a .1 mfd capacitor to Centre tap of R/F coil secondary	455 Kc/s	Gang fully open	*A, B, *C, D in this order for maximum output
2	Through a .1 mfd capacitor to Centre tap of R/F coil secondary	1620 Kc/s	Gang fully open	F oscillator trimmer on gang for maximum output
3	Through a .1 mfd capacitor to pin 6 of the 1U4 RF amplifier tube	600 Kc/s	Tune to generator signal	Rock gang while adjusting *E for maximum output
4	Through a .1 mfd capacitor to pin 6 of the 1U4 RF amplifier tube	1400 Kc/s	Tune to generator signal	G for maximum output
5	Through a .1 mfd capacitor to pin 6 of the 1U4 RF amplifier tube	600 Kc/s	600 Kc/s (DO NOT rock gang)	*E for maximum output
†6	Radiated Signal	1400-1620 Kc/s	1400-1620 Kc/s	H for maximum output

Adjustments marked * are from underside of chassis.

† Operation 6 is effected with the chassis in the cabinet. Tune receiver to a weak station at the high frequency end of the broadcast band.

Adjustment H is made through a hole in the cabinet. See illustration "Back of set" on inside page.



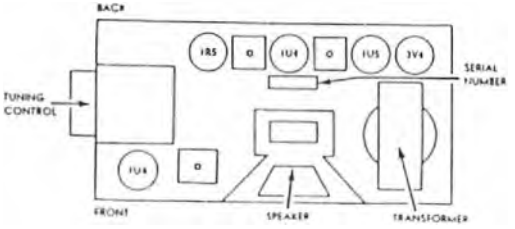
Adjustments A, C and F are made from underside of chassis

VOLTAGE DATA

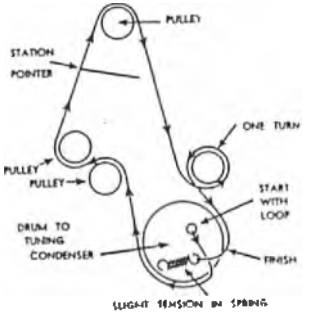
Voltages are shown at relevant points on circuit diagram.

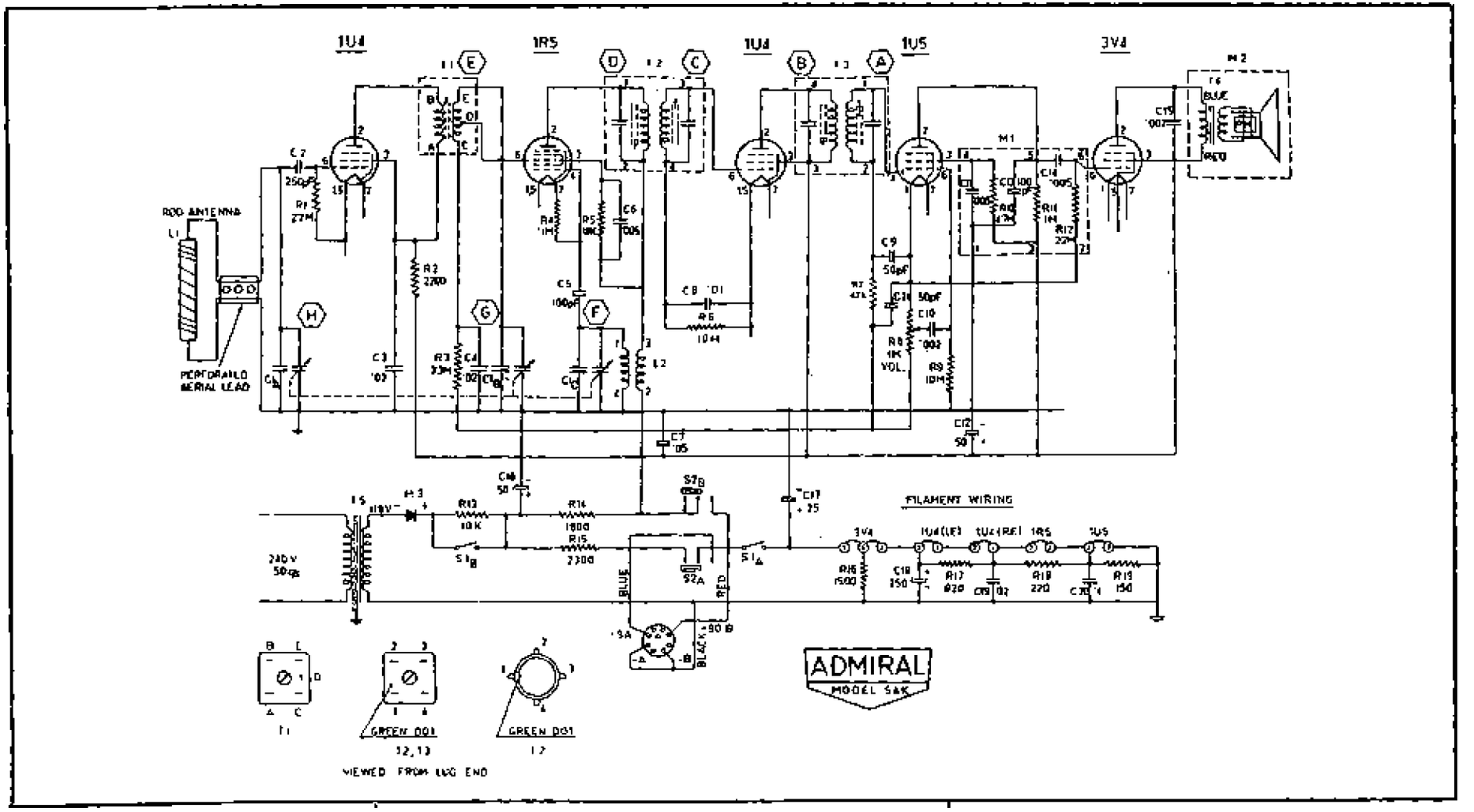
- All voltages are taken between valve socket terminals and B minus.
- Dial set at low frequency end (gang fully meshed) volume control at minimum.
- Voltages measured with a vacuum-tube voltmeter, using 240 volts A.C.

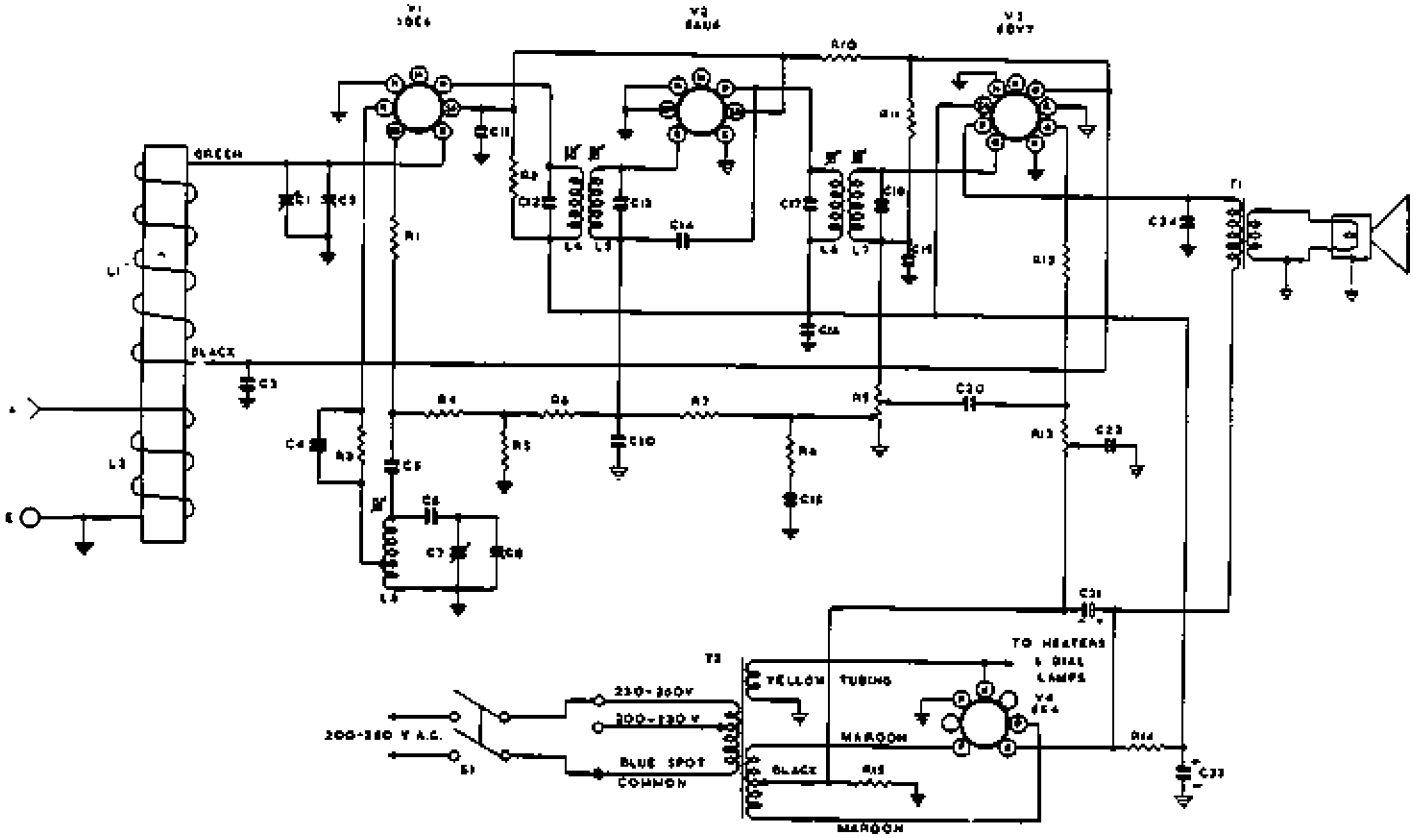
REPLACING VALVES



REPLACE DIAL CORD




1U4
1R5
1U4
1U5
3V4
ROD ANTENNA
PERFORATED AERIAL LEAD
FILAMENT WIRING
ADMIRAL
MODEL 54K
GREEN DOT
12,13
GREEN DOT
17
VIEWED FROM LUG END



CIRCUIT CODE—RADIOLA 467-MA

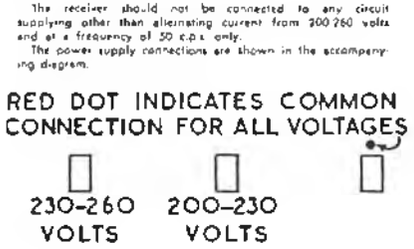
Code No.	Description	Part No.
	INDUCTORS	
L1, L2	Ferrite Aerial Assy.	34327
L3	Oscillator Coil 540-1600 Kc/s	32406
L4, L5	1st I.F. Transformer	27351
L6, L7	2nd I.F. Transformer	27351
	RESISTORS	
R1	100 ohms ½ watt	
R2	10,000 ohms 1 "	
R3	180 ohms ½ "	
R4	15,000 ohms ½ "	
R5	4,700 ohms ½ "	
R6	1.0 megohm ½ "	
R7	1.0 megohm ½ "	
R8	10,000 ohms ½ "	
R9	0.5 megohm Volume Control (Tapped at 0.1 megohm)	26890
R10	10.0 megohms ½ watt	
R11	1.0 megohm ½ "	
R12	4,700 ohms ½ "	
R13	1.0 megohm Tone Control (including S1)	26444
R14	1000 ohms 1 watt	
R15	100 ohms ½ "	
	CAPACITORS	
C1	4-27 μμF trimmer	33304
C2	12-455 μμF tuning	18685
C3	0.05 μF paper 200V working	
C4	0.005 μF paper 600V working	

Code No.	Description	Part No.
C5	47 μμF Silvered Mica	
C6	440 μμF padder ± 2½%	
C7	8-40 μμF spiral trimmer	
C8	12-445 μμF tuning	18685
C9	Not used.	
C10	0.035 μF paper 600V working	
C11	0.05 μF papr 400V working	
C12	100 μμF silvered mica (in 1st I.F.)	
C13	100 μμF silvered mica (in 1st I.F.)	
C14	10 μμF ceramic	
C15	0.025 μF paper 400V working	
C16	0.1 μF paper 400V working	
C17	100 μμF silvered mica (in 2nd I.F.)	
C18	100 μμF silvered mica (in 2nd I.F.)	
C19	200 μμF mica	
C20	0.05 μF paper 200V working	
C21	24 μF 350 P.V. Electrolytic	
C22	24 μF 350 P.V. Electrolytic	
C23	0.005 μF paper 600V working	
C24	0.01 μF paper 600V working	
	TRANSFORMERS	
T1	Loudspeaker Transformer	31772A
T2	Power Transformer, 50-60 C.P.S.	25831
	40 C.P.S.	25833
	LOUDSPEAKER	
	5 inch Permanent Magnet	AC 63
	SWITCHES	
S1	Power Switch (on R13)	

Connection to Power Supply.

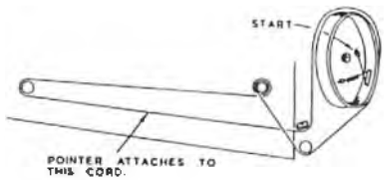
The receiver should not be connected to any circuit supplying other than alternating current from 200-260 volts and at a frequency of 50 c.p.s. only.

The power supply connections are shown in the accompanying diagram.



Drive Cord Replacement:

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



A.W.A. CLOCK-CONTROLLED-RADIO

Model 469-MA

FOUR VALVE, BROADCAST, A.C. OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

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 2R7003, or

(2) A.W.A. Modulated Oscillator, Series 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 JM8832.

ALIGNMENT TABLE

Alignment 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.	L7 Core
2	Aerial Section of Gang (Drive End)	455 Kc/s.	540 Kc/s.	L6 Core
3	Aerial Section of Gang (Drive End)	455 Kc/s.	540 Kc/s.	L5 Core
4	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L4 Core
Repeat the above adjustments until the maximum output is obtained.				
5	Inductively Coupled to Rod Aerial *	600 Kc/s	600 Kc/s.	I.F. Osc. Core Adj. (L3) †
6	Inductively Coupled to Rod Aerial *	1500 Kc/s	1500 Kc/s	H.F. Osc Adj. (C7)
7	Inductively Coupled to Rod Aerial *	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C7)

* 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

ELECTRICAL SPECIFICATIONS

Frequency Range	540-1600 Kc/s. (555-187.5 Metres)
Intermediate Frequency	455 Kc/s.
Power Supply Rating	200-260 volts 50 C.P.S. only
Power Consumption:	
Clock	2.5 watts
Clock and Radio	37.5 watts

Loudspeaker

4 inch permanent magnet
Part No. 26846
Transformer 317720
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output- 1.5 watts

Valve Complement-

(1) 6BE6 — Converter
(2) 6AU6 — I.F. Amplifier
(3) 6BV7 — Detector, A.V.C., High Gain Output
(4) 6X4 — Rectifier

Chassis Removal.

(1) Remove the Clock Alarm Knob by unscrewing it clockwise and the remainder of the Clock and Radio knobs by pulling them straight off their spindles. Also remove the "Hand-set" knob and spindle by pulling it from the back of the cabinet.

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

(3) The chassis is held to the cabinet by two screws situated under it. Removal of these enables the chassis to be withdrawn.

Clock Removal

(1) Remove the complete chassis from the cabinet.

(2) Remove two screws holding the plastic shield to the metal spacers and withdraw the shield.

(3) Unscrew the two metal spacers holding the top of the clock to the front panel.

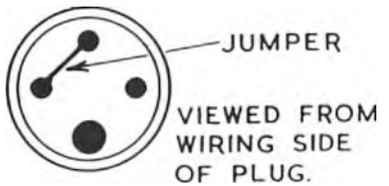
(4) Remove the clock plug from the socket on the receiver chassis. The clock may now be lifted from the chassis.

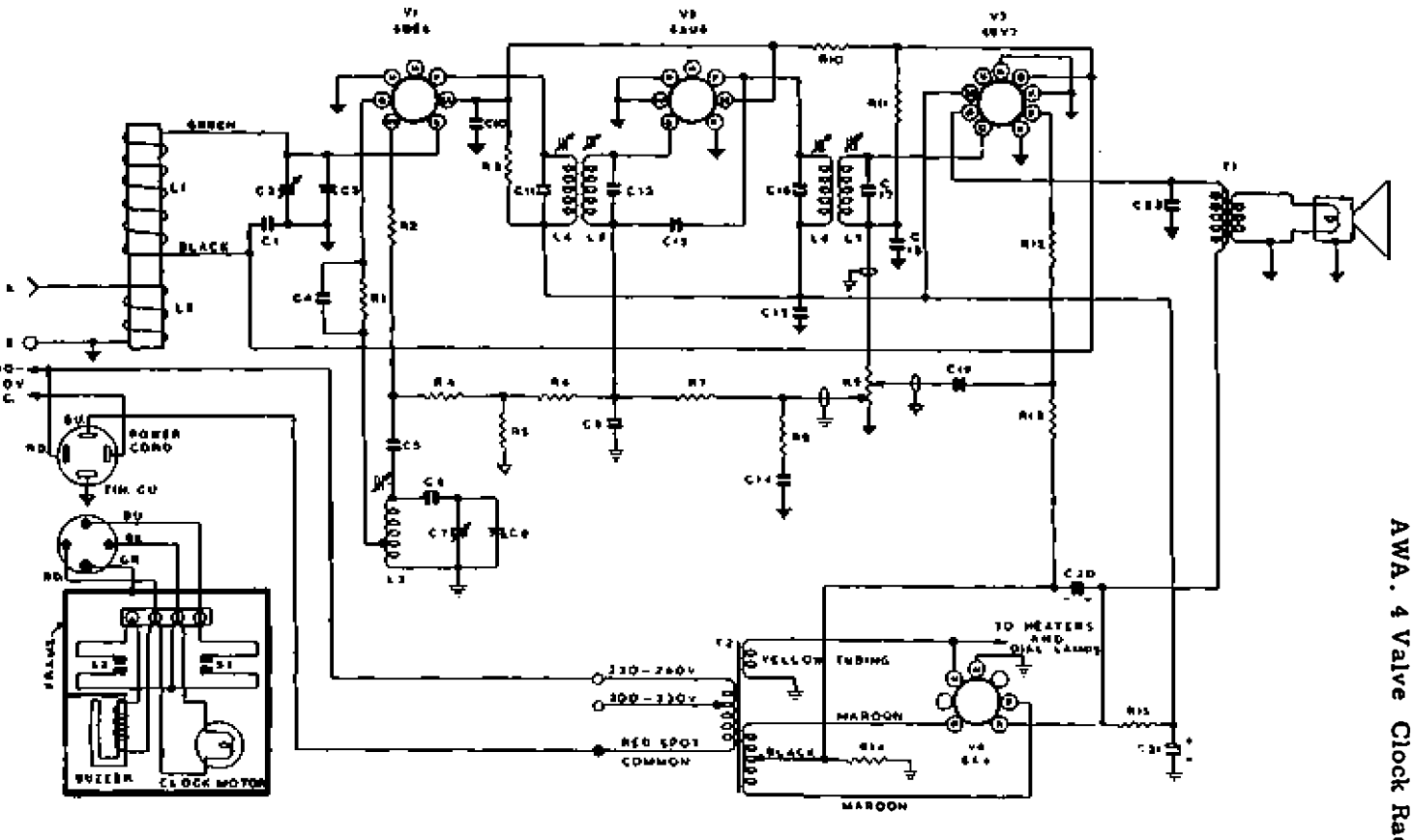
When replacing the clock, make sure that the bottom of the clock face engages in the clips on the receiver front panel. Then replace the metal spacers.

Important: As repairs to the clock will require the use of special equipment, it is recommended that a spare be kept in stock and the faulty unit be returned to the A.W.A. Service Department, 152 Parramatta Road, Stanmore, for repair.

Operation of Receiver Without Clock:

If it is desired to operate the receiver for either the servicemens or client's use whilst a faulty clock is being repaired Plug A.W.A. No. 29696 may be obtained from the A.W.A. Service Department and wired with a jumper as shown in the accompanying diagram. The plug is inserted in the socket on the receiver chassis.





SOCKET VOLTAGES

VALVES		Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Heater Volts
6BE6	Converter	1.8	90	170	2.3	6.3
6AU6	I.F. Amp.	—	90	170	5	6.3
6BV7	Det., A.V.C., Output	—	170	210	28	6.3
6X4	Rectifier	210	—	190/190 A.C. R.M.S.	—	6.3

Volts across Back-bias resistor R14, 2.3V.
Total H.T. Current = 48 mA.
Measured at 240 volts A.C. supply. No signal input. Volume Control maximum clockwise. Voltmeter 1,000 ohms per volt; measurements taken on highest scale giving accurate readable deflection.

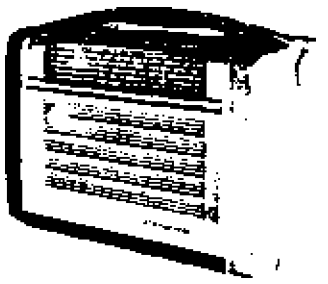
CIRCUIT CODE—RADIOLA 469-MA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1, L2	Ferrite Aerial Assembly	34327A	1	F10
L3	Oscillator Coil 540-1600 Kc/s	32406	2	E11
L4, L5	1st I.F. Transformer	27351	1	G5
L6, L7	2nd I.F. Transformer	27351	1	G8
	RESISTORS			
R1	180 ohms ½ watt		2	E12
R2	100 ohms ½ "		2	G14
R3	10,000 ohms 1 "		2	H14
R4	15,000 ohms ½ "		2	F13
R5	4,700 ohms ½ "		2	F11
R6	1.0 megohm ½ "		2	F12
R7	1.0 megohm ½ "		2	G11
R8	10,000 ohms ½ "		2	E10
R9	0.5 megohm Volume Control (Tapped at 0.1 megohm)	26890	2	C2
R10	10 megohms ½ watt		2	G10
R11	1.0 megohm ½ "		2	G10
R12	4,700 ohms ½ "		2	G7
R13	1.0 megohm ½ "		2	F8
R14	100 ohms ½ "		2	F9
R15	1,000 ohms 1 "		2	C11
	CAPACITORS			
C1	0.05 μF paper 200V working		2	D10
C2	4-27 μμF Trimmer (on gang)	33304	1	F3
C3	12-445 μμF Tuning	18624	1	F3
C4	0.005 μF paper 600V working		2	F13
C5	47 μμF silvered mica		2	E13
C6	440 μμF padder ± 2½%		2	E13
C7	8-40 μμF spiral Trimmer (on gang)		2	G4
C8	12-445 μμF Tuning	18624	2	F4
C9	0.035 μF paper 600V working		2	G12
C10	0.05 μF paper 400V working		2	H12
C11	100 μμF silvered mica (In 1st I.F.)		1	G5
C12	100 μμF silvered mica (In 1st I.F.)		1	G5
C13	10 μμF ceramic		2	H10
C14	0.025 μF paper 400V working		2	E9
C15	0.1 μF paper 400V working		2	H8
C16	100 μμF silvered mica (In 2nd I.F.)		1	G8
C17	100 μμF silvered mica (In 2nd I.F.)		1	G8
C18	220 μμF ceramic		2	H10
C19	0.05 μF paper 200V working		2	G9
C20	24 μF 350 P.V. Electrolytic		2	E3
C21	24 μF 350 P.V. Electrolytic		2	D13
C22	0.01 μF paper 600V working		2	F5
	TRANSFORMERS			
T1	Loudspeaker Transformer	31772D	1	E8
T2	Power Transformer 50 C.P.S.	25831	1	G15
	LOUDSPEAKER			
	4" Permanent Magnet	26846	1	B15
	SWITCHES			
S1	Radio Contacts		1	B9
S2	Buzzer-Alarm Contacts		1	B9

RADIOLA

Portable Model 471-P

FOUR VALVE, BROADCAST, DRY-CELL BATTERY OPERATED SUPERHETERODYNE



ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL SPECIFICATIONS

Frequency Range ... 540-1600 Kc/s (555-187.5 metres)

Intermediate Frequency ... 455 Kc/s

Battery Complement:

"A" Battery:—One 1.5V, type 745
"B" Battery:—Two 45V, type 482

Battery Consumption:

Model 471-P	"A" Battery =	250 mA
	"B" Battery =	13 mA ("Full")
		8 mA ("Save")
Model 577-P	"A" Battery =	300 mA
	"B" Battery =	13 mA ("Full")
		8 mA ("Save")

Loudspeaker (Permanent Magnet).

4 inch — Code No. 6H4
Transformer — 317278
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output ... 200 milliwatts

Valve Complement:

1T4 R.F. Amplifier (577-P only)
1R5 Converter
1T4 I.F. Amplifier
1S5 Detector, A.F. Amplifier, A.V.C.
3V4 Output

Controls:

ON-OFF — Volume — left-hand end of cabinet
Tuning—right-hand end of cabinet
Battery "Save"/"Full"—rear of chassis

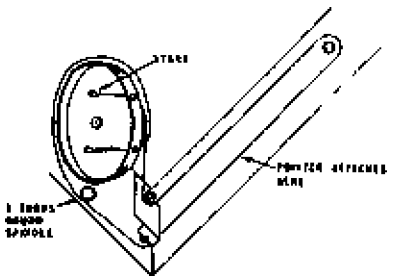
Chassis Removal:

To remove the chassis from the cabinet open the back and disconnect the speaker cable and batteries. Unsolder the loop aerial leads and pull them back through the guides on the side of the cabinet.

Remove the knobs by pulling them straight off their spindles. Remove a screw under each knob when the cream link covers may be lifted off. The screw under each cover on being removed allows the chassis to be withdrawn.

When replacing the chassis pass the loop leads through the guides, keeping the green lead separate from the black and white, and solder the green lead to the panel so that it connects to the inside of the loop winding.

Note that the link covers are slightly different and must be replaced on the correct side, the one marked "TUNE" on the tuning spindle side and the one marked "VOL" on the volume control side.



Drive Cord Replacement:

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

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 are 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, 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 16726.
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 2M6832.

ALIGNMENT TABLE—MODEL 471-P

Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for maximum peak output:
	NOTE: If loop leads protruding from the chassis are disconnected, connect a 1 megohm resistor across them.			
1	Grid of 1T4*	455 Kc/s	Gang in full mesh	L7 and L6 Cores
2	Aerial Section of Gang* (Drive End)	455 Kc/s	Gang in full mesh	L5 and L4 Cores
	Repeat adjustments 1 and 2 until the maximum output is obtained. With gang in full mesh, set the pointer to the setting mark at the right-hand end of the dial scale. Replace the cover over the receiver chassis which should then be fitted in the cabinet, the resistor removed from the loop leads and the leads then connected to the aerial in the back lid, the green lead to the inside of the loop. The batteries must be in place in the cabinet and the back closed before remainder of alignment is proceeded with.			
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7Z1)	L.F. Osc. Core Adj. (L2)‡§
4	Inductively coupled to loop†	1640 Kc/s	Gang fully open	H.F. Osc. Adj. (C4)§
5	Inductively coupled to loop†	1500 Kc/s (3AK)	1500 Kc/s (3AK)	H.F. Aer. Adj. (C8)§
	Repeat adjustments 3 and 5 until the maximum output is obtained.			

* A 0.001 μF capacitor should be connected in series with the high side of the test instrument.

† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed co-axial with the loop and distant not less than 1 foot from it.

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

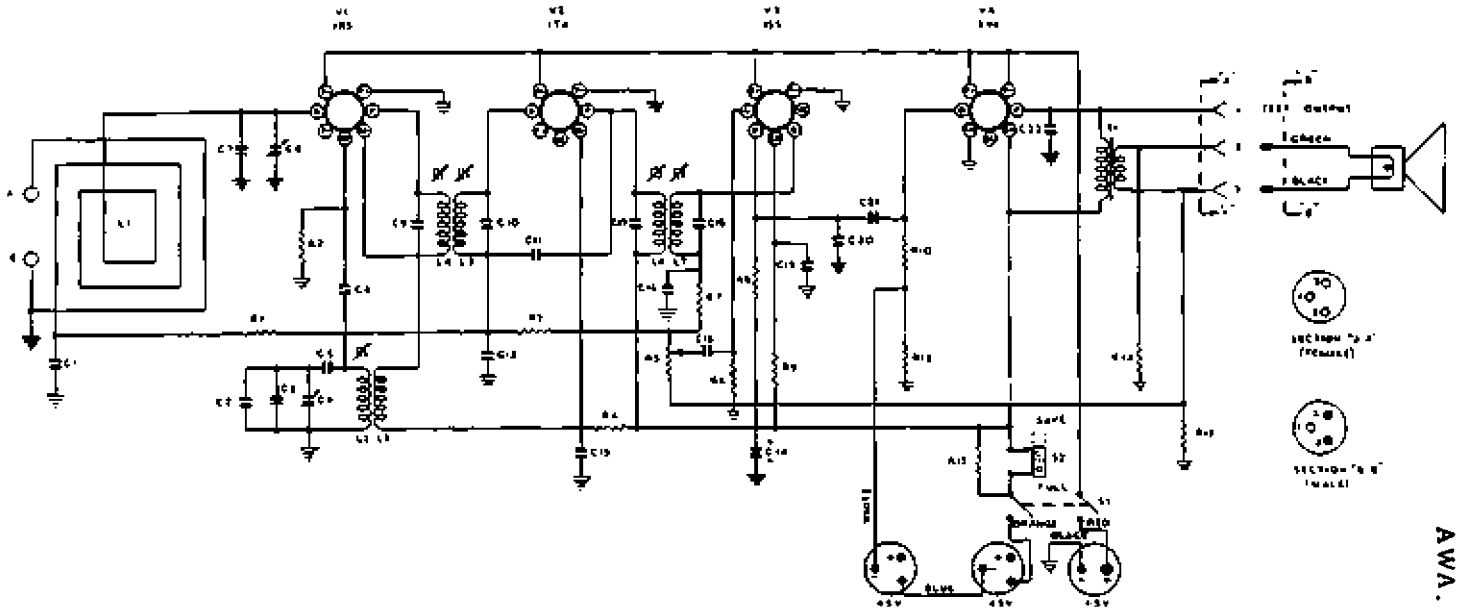
§ These adjustments are accessible through 3 holes in the cabinet back.

D.C. RESISTANCE OF WINDINGS
MODEL 471-P

Winding	D.C. Resistance in ohms
Oscillator Coil:	
Primary (L3)	1
Secondary (L2)	4
I.F. Transformer Windings	25
Loudspeaker Input Transformer (T1)	
Primary	450
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.



SOCKET VOLTAGES—MODEL 471-P

	VALVE	Bias Volts	Screen to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts
1R5	Converter	0	45	45	0.7	1.5
1T4	I.F. Amp.	0	45	85	1.5	1.5
1S5	Det., A.F. Amp., A.V.C.	0	20*	30*	0.1	1.5
3V4	Output	-5	85	82	6.5	1.5

Measured with no signal input. Volume Control maximum clockwise.

* Cannot be measured with an ordinary voltmeter.

CIRCUIT CODE — MODEL 471-P

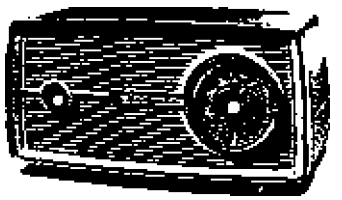
Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Loop Aerial Coil	31841		
L2, L3	Oscillator Coil 540-1600 Kc/s	30777	2	C13
L4, L5	1st I.F. Transformer	27324	1	F6
L6, L7	2nd I.F. Transformer	27324	1	C7
	RESISTORS			
R1	0.1 megohm ½ watt		2	B13
R2	0.1 megohm ½ "		2	F13
R3	3.3 megohms ½ "		2	B12
R4	13,000 ohms ½ " ± 5%		2	C10
R5	1.0 megohm Volume Control (including S1)	27530	2	D2
R6	10.0 megohms ½ watt		2	F7
R7	47,000 ohms ½ "		2	B11
R8	0.47 megohms ½ "		2	C7
R9	3.3 megohms ½ "		2	C9
R10	1.0 megohm ½ "		2	D6
R11	Not Used			
R12	390 ohms ½ " ± 5%		2	E7
R13	1,800 ohms ½ "		2	C5
R14	330 ohms ½ "		2	C3
R15	30 ohms ½ "		2	C5
	CAPACITORS			
C1	0.05 μF paper 200V working		2	D15
C2	9 μμF mica		1	A3
C3	12-445 μμF Tuning	18621	1	C4
C4	3-25 μμF Trimmer	27526	2	B14
C5	470 μμF padder ± 2½%		2	C14
C6	68 μμF silvered mica		2	E13
C7	12-445 μμF Tuning	18621	1	C3
C8	3-25 μμF Trimmer	27526	2	C16
C9	47 μμF silvered mica (in 1st I.F.)		1	F6
C10	47 μμF silvered mica (in 1st I.F.)		1	F6
C11	6.8 μμF Ceramic		2	C11
C12	0.01 μF paper 600V working		2	E9
C13	0.05 μF paper 200V working		2	D12
C14	20 μF 200 P.V. electrolytic		1	E12
C15	0.01 μF paper 600V working		2	F4
C16	200 μμF mica		2	C11
C17	47 μμF silvered mica (in 2nd I.F.)		1	C7
C18	47 μμF silvered mica (in 2nd I.F.)		1	C7
C19	0.05 μF Paper 200V working		2	E10
C20	100 μμF silvered mica		2	C7
C21	0.01 μF paper 600V working		2	D8
C22	0.005 μF paper 600V working		2	C5
	TRANSFORMERS			
T1	Loudspeaker Transformer	31727B	1	D14
	LOUDSPEAKER			
	4" Permanent Magnet	BH4		
	SWITCHES			
S1	Power Switch (on R5)		1	D3
S2	Battery Save Switch	22775	1	A5

AWA RADIOLA

MODEL 495-MA

FOUR VALVE, BROADCAST, A.C. OPERATED SUPERHETERODYNE

Issued by:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.



ELECTRICAL SPECIFICATIONS

Frequency Range	540-1600 Kc/s (555-187.5 Meters)
Intermediate Frequency	455 Kc/s
Power Supply Rating	200-260 volts A.C. 50 C.P.S.
Power Consumption	35 watts
Undistorted Power Output	1.5 watts

Loudspeaker: 4" Permanent Magnet

Transformer No. 21472A

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.

The connections on the power transformer are shown below.

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

Valve Complement

6BE6 Converter

6AU6 I.F. Amplifier

6BV7 Detector, A.V.C. High Gain Output

6X4 Rectifier

CHASSIS REMOVAL:

The chassis together with the fret is removed by removing the two screws at the back of the cabinet. This allows complete accessibility to the top and bottom of the chassis and to the pilot lamp.

Should it ever be necessary to remove the front fret, first remove the tuning and volume control knobs. These are only push on fits; however in the case of the tuning control, forcing the knob past its free travel with a twisting action is necessary to overcome friction between the knob and the gang spindle.

Remove the dial scale.

The fret is held to the chassis by three screws, one under the volume Control spindle and two in vertical line with the gang spindle.

NOTE: On removing the dial scale, two other screws are accessible through the fret. These hold the gang onto its mounting bracket and may be loosened off for centering the gang spindle with relation to the fret.

Reassembly is the reverse of the above. After replacing the tuning control the pointer should be lined up on the State Monograms on either side of the dial scale. Check the calibration on some known stations and correct for any tracking error by forcing the knob past its free travel in the appropriate direction.

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignments 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 modulator 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.	I.F. Osc. Core Adj. (L1)†
3	Inductively Coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C4)
4	Inductively Coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Aerial Adj. (C5)

* 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

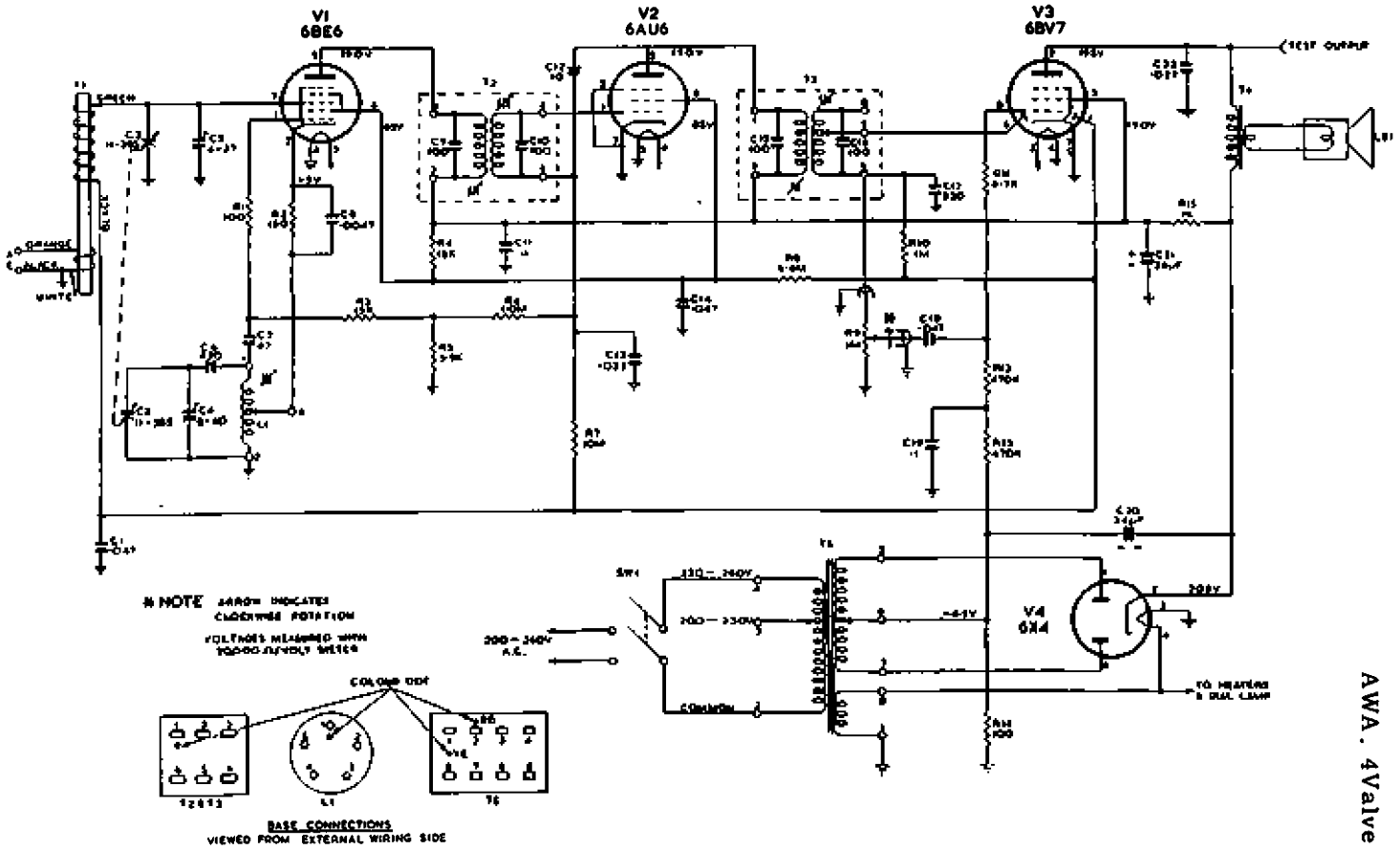
Valves	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6 Converter	1.5	85	190	3.3	6.3
6AU6 I.F. Amp.	—	85	190	5	6.3
6BV7 Det., A.V.C., Output	—	190	195	28	6.3
6X4 Rectifier	205	—	190/190 A.C. R.M.S	—	6.3

Volts across Back-bias resistor R14 — —4.5V

Total H.T. Current — 42 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.



CIRCUIT CODE — RADIOLA MODEL 495-MA

Code No.	Description	Part No.	Fig. No.	Location
	RESISTORS			
R1	100 ohms ± 10% ½ watt		1	F7
R2	150 ohms ± 10% 1 watt		1	F8
R3	15 K ohms ± 10% ½ watt		1	G6
R4	15 K ohms ± 10% 1 watt		1	E9
R5	3.9 K ohms ± 10% ½ watt		1	F5
R6	1 Megohm ± 10% ½ watt		1	G5
R7	10 Megohms ± 10% ½ watt		1	E4
R8	6.8 Megohms ± 10% ½ watt		1	D3
R9	1 Megohm Volume Control	36417	2	C16
R10	1 Megohm ± 10% ½ watt		1	D3
R11	4.7 K ohms ± 20% ½ watt		1	C3
R12	470 K ohms ± 10% ½ watt		1	C4
R13	470 K ohms ± 10% ½ watt		1	C5
R14	100 ohms ± 10% ½ watt		1	C7
R15	1 K ohms ± 20% 1 watt		1	D8
	CAPACITORS			
C1	0.047 μF ± 20% 200V. working paper		1	C3
C2	11-385 pF tuning (Osc.)	21209	2	C4
C3	11-385 pF tuning (Aerial)	21209	2	D4
C4	8-40 pF spiral trimmer (Osc.)	231185	2	C2
C5	4-27 pF trimmer (Aerial)	33304	2	C2
C6	420 pF ± 2½% padder		1	G6
C7	47 pF ± 10% silvered mica		1	G7
C8	0.0047 μF ± 20% 600V. working paper		1	F8
C9	100 pF ± 5% silvered mica (In 1st I.F.)		1	F6
C10	100 pF ± 5% silvered mica (In 1st I.F.)		1	E6
C11	0.1 μF ± 20% 400V. working paper		1	E10
C12	10 pF ± 10% N750 tubular		1	G3
C13	0.033 μF ± 20% 600V. working paper		1	G3

Code No.	Description	Part No.	Fig. No.	Location
C14	0.047 μF ± 20% 400V. working paper		1	E8
C15	100 pF ± 5% silvered mica (In 2nd I.F.)		1	F3
C16	100 pF ± 5% silvered mica (In 2nd I.F.)		1	E3
C17	220 pF ± 10% silvered mica		1	E3
C18	0.047 μF ± 20% 200V. working paper		1	D5
C19	0.1 μF ± 20% 200V. working paper		1	C6
C20	24 μF 350 P.V. Electrolytic		1	D7
C21	24 μF 350 P.V. Electrolytic		1	D9
C22	0.022 μF ± 20% 600V. working paper		1	C9
	TRANSFORMERS			
T1	Ferrite Rod Aerial	36946A	2	F9
T2	1st I.F. Transformer	27351	2	F6
T3	2nd I.F. Transformer	27353	2	
T4	Audio Output Transformer	21472A	2	
T5	Power Transformer	25831	2	
	INDUCTOR			
L1	Oscillator Coil 540-1600 Kc/s.	32406	2	
	VALVES			
V1	6BE6		1	
V2	6AU6		1	
V3	6BV7		1	
V4	6X4		1	
	LOUDSPEAKER			
LS1	4" Permanent Magnet (Incl. T4)	21182	2	
	MISCELLANEOUS			
SW1	Power ON/OFF (on R9)		2	

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 2R7003

or

(2) A.W.A. Modulated Oscillator, series 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 receiver is tuned to receive a 16 Mc/s signal, the image will be heard at 18.91 Mc/s instead of the usual 15.09 Mc/s.

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 (MQL)	L11 Core
2	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (MQL)	L10 Core
3	Aerial Section of Gang (Driven End)	455 Kc/s	540 Kc/s (MQL)	L9 Core
4	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (MQL)	L8 Core
Repeat the above adjustments until the maximum output is obtained				
5	Aerial lead	600 Kc/s	600 Kc/s (PZL)	L7 Osc Core Adj. (17)*
6	Aerial lead	1500 Kc/s	1500 Kc/s (1AR)	M.F. Osc. Adj. (C8)
7	Aerial lead	1500 Kc/s	1500 Kc/s (1AR)	M.F. Aer. Adj. (C2)
Repeat adjustments 5 & 6 and 3				
8	Aerial lead	16 Mc/s	16 Mc/s	H.F. Osc. Adj. (C6)†
9	Aerial lead	16 Mc/s	16 Mc/s	H.F. Aer. Adj. (C1)

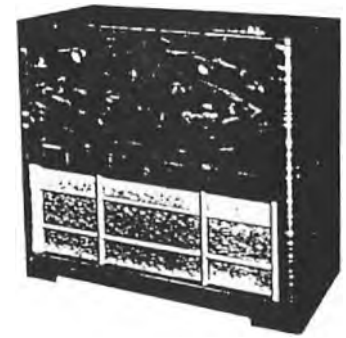
* Rock the tuning control back and forth through the signal.

† Use maximum capacity peak if two can be obtained. Check to determine the trimmer has been adjusted to correct peak by tuning the receiver to approximately 18.91 where a weaker signal should be obtained.

A.W.A. RADIOLAGRAMS
Models 554-GA and 560-GA

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

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) 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:
Receiver — 40 watts.
Record Changer — 17 watts.

Dial Lamps:
6.3 volts, 0.25 Amp. M.E.S.

Valve Complement:

(1)	6BE6	Converter.
(2)	6BA6	I.F. Amplifier.
(3)	6AV6	Detector, A.F. Amplifier, A.V.C.
(4)	6BV7	Output.
(5)	6X4	Rectifier.

Loudspeaker:
12 inch permanent magnet AU78
Transformer RA302
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output: 2.5 watts.

Chassis Removal.

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

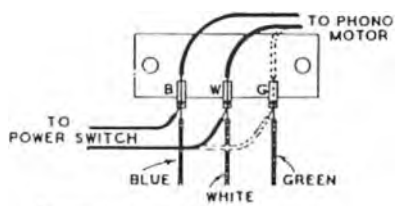
Remove the cabinet back which is held by wood screws.

Disconnect the loudspeaker cable, pick up cable and phono motor plug from the sockets on the rear of the chassis.

The chassis is held to the receiver compartment base board by four screws. Removal of these enables the receiver to be withdrawn.

To remove the record changer first remove two clamps securing the pick up and phono-motor cables.

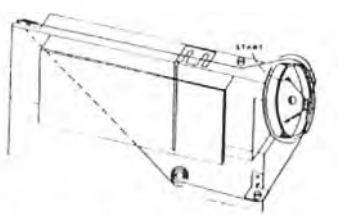
Then remove the three mounting screws holding the record changer to the base board and the changer will be free to lift out.



Connection to Power Supply.

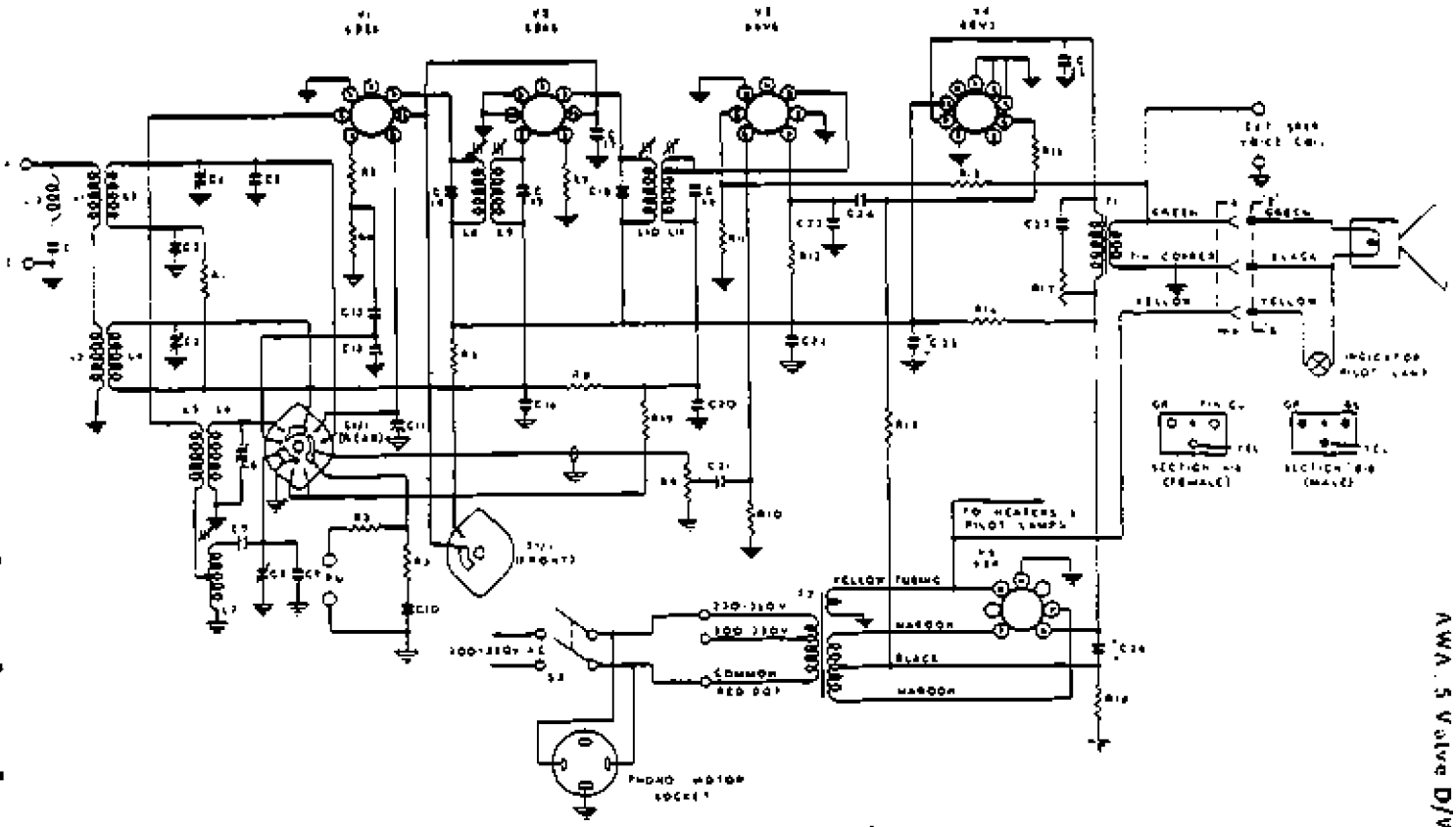
The receiver should not be connected to any circuit supplying other than alternating current from 200-260 volts and at the frequency on the label within the cabinet.

The power supply connections are shown in the accompanying diagram.



Drive Cord Replacement.

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



SOCKET VOLTAGES

	VALVES	Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6	Converter	–	95	200	2	6.3
6BA6	I.F. Amp.	2.3	95	200	4.5	6.3
6AV6	Det., A.F. Amp., A.V.C.	–	–	140*	1.3	6.3
6BV7	Output	–	200	240	24	6.3
6X4	Rectifier	250	–	230/230 A.C. R.M.S.	–	6.3

Total H.T. Current = 42 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.

CIRCUIT CODE – RADIOLA 554-GA, 560-GA

Code No.	Description	Part No.	Fig. No	Location
	INDUCTORS			
L1, L2	Aerial Coil 6-18 Mc/s.	28228	2	D16
L3, L4	Aerial Coil 540-1,600 Kc/s.	30768	2	E11
L5, L6	Oscillator Coil 6-18 Mc/s.	28229	2	F12
L7	Oscillator Coil 540-1,600 Kc/s.	32406	2	G16
L8, L9	1st I.F. Transformer	27351	1	J5
L10, L11	2nd I.F. Transformer	27353	1	J9
L12	I.F. Filter (including C1)	9382	2	C10
	RESISTORS			
R1	0.1 megohm ½ watt		2	E12
R2	0.47 megohms ½ "		2	K13
R3	0.39 megohms ½ "		2	J14
R4	22,000 ohms ½ "		2	H16
R5	100 ohms ½ "		2	H16
R6	11,000 ohms 2 "		2	E8
R7	330 ohms ½ "		2	J13
R8	2.2 megohms ½ "		2	G11
R9	0.5 megohm Volume Control	26442	2	B7
R10	10.0 megohms ½ watt		2	J9
R11	30 ohms ½ "		2	H9
R12	47,000 ohms 1 "		2	G8
R13	0.22 megohm ½ "		2	E7
R14	2,350 ohms 2 "		2	D4
R15	1,000 ohms ½ "		2	H9
R16	4,700 ohms ½ "		2	D7
R17	0.1 megohm Tone Control (incl. S2)	26441	2	B5
R18	100 ohms 1 watt		2	D8
R19	47,000 ohms ½ "		2	H11
	CAPACITORS			
C1	47 μμF silvered mica		2	C11
C2	3-25 μμF trimmer	27526	2	B12
C3	4,000 μμF padder ± 2½%		2	E17
C4	2-20 μμF air trimmer	19659	2	C16
C5	9 μμF mica		2	D15
C6	2-20 μμF air trimmer	19659	2	G13
C7	440 μμF padder ± 2½%		2	F14
C8	3-25 μμF trimmer	27526	2	B13
C9	9 μμF mica		2	F13
C10	1,000 μμF mica		2	K13
C11	12-445 μμF tuning	18222	1	F4
C12	12-445 μμF tuning	18222	1	F6
C13	47 μμF silvered mica		2	G14
C14	100 μμF silvered mica (in 1st I.F.)		2	J14
C15	100 μμF silvered mica (in 1st I.F.)		2	J14
C16	0.05 μF paper 200V working		2	H14
C17	0.05 μF paper 400V working		2	G12
C18	100 μμF silvered mica (in 2nd I.F.)		2	J11
C19	100 μμF silvered mica (in 2nd I.F.)		2	J11
C20	220 μμF ceramic		2	J12
C21	0.01 μF paper 600V working		2	G8
C22	0.1 μF paper 400V working		2	H10
C23	100 μμF mica		2	J8
C24	0.025 μF paper 400V working		2	F7
C25	24 μF 350 P.V. Electrolytic		2	E9
C26	0.005 μF paper 600V working		2	G6
C27	0.05 μF paper 400V working		2	D4
C29	24 μF 350 P.V. Electrolytic		2	G5
	TRANSFORMERS			
T1	Loudspeaker Transformer	XA302	1	J13
T2	Power Transformer, 50-60 C.P.S	25807C	1	J16
	40 C.P.S	25809C		
	SWITCHES			
S1	Phono-Radio Switch	33092	2	E14
S2	Power Switch (on R17)		2	C4
	LOUDSPEAKER			
	12 inch Permanent Magnet	20755		

A 1105

TECHNICAL INFORMATION AND SERVICE DATA

A.W.A. RADIOLA
Model 558-TC

FIVE VALVE, TWO BAND, BATTERY VIBRATOR OPERATED SUPERHETERODYNE

ISSUED BY:

AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL SPECIFICATIONS

Frequency Ranges:

Medium Wave	540-1,600 Kc/s (555.187.5 Metres)
Short Wave	6-18 Mc/s (50-16 Metres)

Intermediate Frequency: 455 Kc/s

Battery Complement:

2 — 45 volt "B" Batteries | Cable No
1 — 1.5 volt "A" Battery | 19801

1 — 2 volt Cycle Lamp battery for Dial Illumination

Vibrator Power Unit Operation:

Unit No. 19190 1 — 4 volt accumulator
Unit No. 22770. 1 — 6 volt accumulator

Battery Consumption:

1.5 volt "A" Battery, 0.2 Amp
90 volts "B" Battery, 16 mA "FULL"
9 mA "SAVE".
4 volt vibrator operation, 0.8 Amp
6 volt vibrator operation, 0.7 Amp

Dial Lamps:

2.5 volt, 0.25 Amp M.E.S.

Fuses:

Battery Operation, 1/4 3/8 Amp.
Vibrator Operation, 3 Amp

Valve Complement:

(1)	1T4	R.F. Amplifier.
(2)	1R5	Converter.
(3)	1T4	I.F. Amplifier.
(4)	1S5	Detector, A.F. Amplifier, A.V.C.
(5)	3V4	Output

Vibrator Cartridge:

4 volt operation, Vo804
6 volt operation, VS231

Loudspeaker (Permanent Magnet)

9" x 6" Part No. 21515
Transformer XA20
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output:

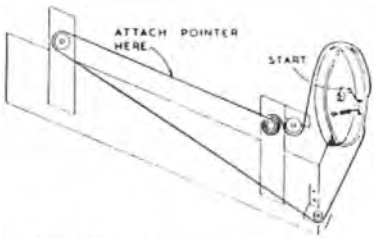
200 milliwatts

Chassis Removal

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

Then disconnect the loudspeaker cable and Battery or Vibrator plug.

The chassis is held in the cabinet by four screws through the base of the cabinet. Removal of these enables the cabinet to be withdrawn.



Drive Cord Replacement:

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

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Realignment 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 3R7003 or,

(2) A.W.A. Modulated Oscillator, series 36726.

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 2MB832.

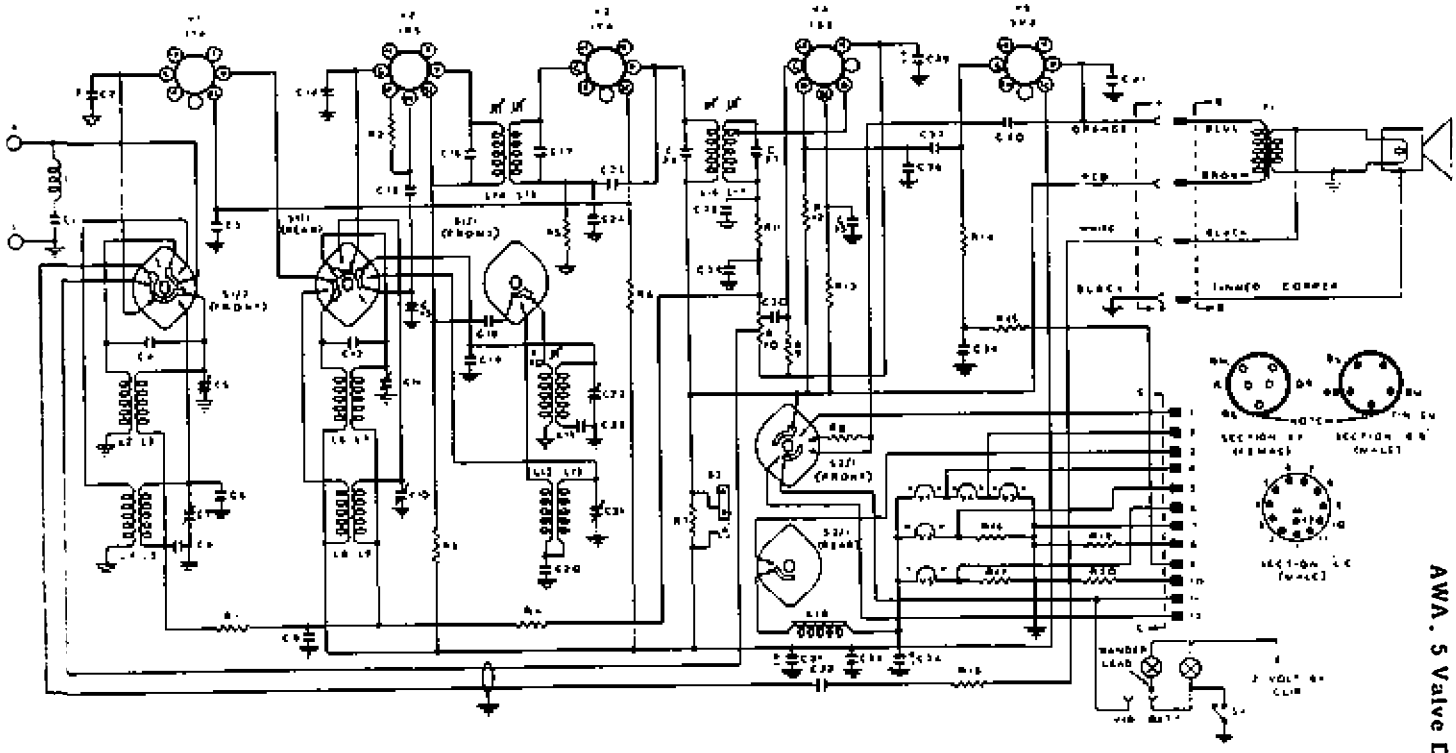
ALIGNMENT TABLE

Order	Connect "high" side of Generator to	Tune Generator to:	Tune Receiver Dial to.	Adjust for maximum peak output
1	R.F. Section of Gang (Centre Section)	455 Kc/s	540 Kc/s. (4G1)	L17 Core
2	R.F. Section of Gang (Centre Section)	455 Kc/s	540 Kc/s (4G1)	L16 Core
3	R.F. Section of Gang (Centre Section)	455 Kc/s.	540 Kc/s (4G1)	L15 Core
4	R.F. Section of Gang (Centre Section)	455 Kc/s	540 Kc/s. (4G1)	L14 Core
Repeat the above adjustments until the maximum output is obtained				
5	Aerial Terminal	600 Kc/s.	600 Kc/s. (7Z1)	Osc. Core Adj. (L11)*
6	Aerial Terminal	1500 Kc/s.	1500 Kc/s. (3AK)	Osc. Adj. (C23)
7	Aerial Terminal	1500 Kc/s.	1500 Kc/s (3AK)	R.F. Adj. (C11)
8	Aerial Terminal	1500 Kc/s	1500 Kc/s (3AK)	Aer. Adj. (C5)
Repeat adjustments 5, 6, 7, and 8				
9	Aerial Terminal	16 Mc/s.	16 Mc/s.	Osc. Adj. (C21)†
10	Aerial Terminal	16 Mc/s.	16 Mc/s	R.F. Adj. (C10)‡
11	Aerial Terminal	16 Mc/s	16 Mc/s.	Aer. Adj. (C7)‡

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

† Use minimum capacity peak if two can be obtained. Check to determine that C21 has been adjusted to correct peak by tuning the receiver to approximately 15.09 Mc/s. where a weaker signal should be received.

‡ Use maximum capacity peak if two can be obtained.



AWA. 5 Valve D/W. Battery, Vib. Radiola MODEL 558 TC.

CIRCUIT CODE — RADIOLA 558-TC

Code No.	Description	Part. No.	Fig. No.	Location
	INDUCTORS			
L1	Filter Unit (including C1)	9382	2	L15
L2, L3	Aerial Coil 540-1600 Kc/s	15454	2	J16
L4, L5	Aerial Coil 6-18 Mc/s	15456	2	E16
L6, L7	R.F. Coil 540-1600 Kc/s	23891	2	E13
L8, L9	R.F. Coil 6-18 Mc/s	26060	2	J13
L10, L11	Oscillators Coil 540-1600 Kc/s	3206A	2	H10
L12, L13	Oscillator Coil 6-18 Mc/s	32484	2	E10
L14, L15	1st I.F. Transformer	32700	1	J6
L16, L17	2nd I.F. Transformer	22703	1	J10
L18	Filament Choke	26066	2	D6
	RESISTORS			
R1	0.1 megohm ½ watt		2	E13
R2	0.1 megohm ½ "		2	K14
R3	10,000 ohms ½ "		2	K12
R4	2.7 megohms ½ "		2	J10
R5	2.7 megohms ½ "		2	K13
R6	40,000 ohms 1 "		2	K11
R7	10,000 ohms ½ "		2	L6
R8	10,000 ohms ½ "		2	D4
R9	10.0 megohms ½ "		2	H7
R10	0.5 megohms Volume Control (Tapped 40,000 ohms)	26890	1	C16
R11	22,000 ohms ½ watt		2	J9
R12	0.68 megohms ½ "		2	H6
R13	3.3 megohms ½ "		2	H5
R14	0.47 megohms ½ "		2	J3
R15	0.47 megohms ½ "		2	J4
R16	50 ohms 1 "		2	L4
R17	25 ohms 1 "		2	L4
R18	0.27 megohms ½ "		2	E6
R19	330 ohms ½ "		2	L5
R20	330 ohms ½ "		2	L5
	CAPACITORS			
C1	47 μμF Mica		2	K16
C2	12-430 μμF tuning	18321	1	G3
C3	0.1 μF paper 200V working		2	H10
C4	6.8 μμF ceramic		2	J17
C5	2-20 μμF air trimmer	19659	2	H15
C6	14 μμF mica		2	E16
C7	2-20 μμF air trimmer	19659	2	F16
C8	0.05 μF paper 200V working		2	J16
C9	0.05 μF paper 200V working		2	F14
C10	2-20 μμF air trimmer	19659	2	H14

Code No.	Description	Part. No.	Fig. No.	Location
C11	2-20 μμF air trimmer	19659	2	F14
C12	6.8 μμF ceramic		2	D13
C13	12-430 μμF tuning	18321	1	G7
C14	12-430 μμF tuning	18321	1	G5
C15	47 μμF moulded mica		2	G13
C16	100 μμF silvered mica (in 1st I.F.)		2	K12
C17	100 μμF silvered mica (in 1st I.F.)		2	K12
C18	0.05 μF paper 200V working		2	J12
C19	9 μμF mica		2	H11
C20	4,000 μμF ± 2½% padder		2	F10
C21	2-20 μμF air trimmer	19659	2	D11
C22	490 μμF ± 2½% padder		2	G10
C23	2-20 μμF air trimmer	19659	2	D13
C24	0.02 μF paper 600V working		2	J12
C25	9 μμF mica		2	K10
C26	100 μμF silvered mica (in 2nd I.F.)		2	K9
C27	100 μμF silvered mica (in 2nd I.F.)		2	K9
C28	100 μμF mica		2	H9
C29	100 μμF mica		2	K8
C30	0.01 μF paper 600V working		2	G7
C31	20 μF 200 P.V. electrolytic		1	H17
C32	0.01 μF paper 600V working		2	E5
C33	0.1 μF paper 200V working		2	F2
C34	400 μF 12 P.V. Electrolytic		2	F3
C35	0.05 μF paper 200V working		2	G5
C36	200 μμF mica		2	G6
C37	0.05 μF paper 200V working		2	J4
C38	400 μF 12 P.V. Electrolytic		2	F8
C39	0.4 μF paper 200V working		2	G4
C40	0.05 μF paper 200V working		2	D3
C41	0.0025 μF paper 600V working		2	K3
	TRANSFORMERS			
T1	Loudspeaker Transformer	XA20		
	LOUDSPEAKER			
	9" x 6" Permanent Magnet	21515		
	SWITCHES			
S1	Range Switch	27094	2	G16
S2	Battery-Tone Switch	33070	2	D3
S3	Battery-Save Switch	22775	2	L7
S4	Pilot Lamp Switch (on Tuning Spindle)	33071	1	D4
	VIBRATOR POWER UNIT			
	6 Volt Power Unit	22770		
	4 Volt Power Unit	19190		

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance In ohms
Aerial Coil (M.W.)	
Primary (L2)	12
Secondary (L3)	5
Aerial Coil (S.W.):	
Primary (L4)	3
Secondary (L5)	*
R.F. Coil (M.W.):	
Primary (L6)	40
Secondary (L7)	5
R.F. Coil (S.W.):	
Primary (L8)	*
Secondary (L9)	*
Oscillator Coil (M.W.):	
Primary (L10)	1.5
Secondary (L11)	6
Oscillator Coil (S.W.):	
Primary (L12)	*
Secondary (L13)	*
I.F. Filter (L1)	17.5†
I.T. Choke (L18)	*
1st I.F. Transformer Windings	10
2nd I.F. Transformer Windings	7.5
Smoothing Choke (L75)	200
R.F. Filter Chokes (L73, L74)	*
R.F. Filter Chokes (L71, L72)	9
Loudspeaker Input Transformer (T1):	
Primary	500
Secondary	*
Vibrator Transformer (T71):	
17568 Primary	*
17568 Secondary	330
17892 Primary	*
17892 Secondary	150

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

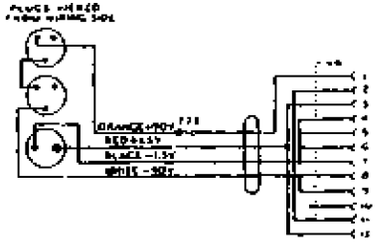
VALVE		Bias Volts. B	Bias Volts. V	Screen to Chassis Volts B	Screen to Chassis Volts V	Anode to Chassis Volts B	Anode to Chassis Volts V	Anode Current mA B	Anode Current mA V	Filament Volts.
1T4 R.F. Amp	F‡			47*	47*	90	90	1.3	1.3	1.3–1.4
	S			25*		48*		0.7		
1R5 Converter	F	–		59*	59*	59*	59*	0.9	0.9	1.3–1.4
	S			34*		34*		0.1		
1T4 I.F. Amp.	F			47*	47*	90	90	1.7	1.7	1.3–1.4
	S			25*		90		1.0		
1S5 Det., A.F. Amp. A.V.C.	F			241	241	271	271	0.3	0.1	1.3–1.4
	S			241		271		0.1		
3V4 Output	F	4.5	4.5	90	90	96	86	6.3	6.3	1.3–1.4
	S	2.5		48		88		3.8		

* These readings may vary depending on the resistance of the voltmeter used.

† Calculated from measured current. An ordinary voltmeter will register a lower value.

‡ F = "Full" position of Battery/Saving Switch.
S = "Save" position of Battery/Saving Switch.

NOTE: Battery Saving should not be used on vibrator operation.

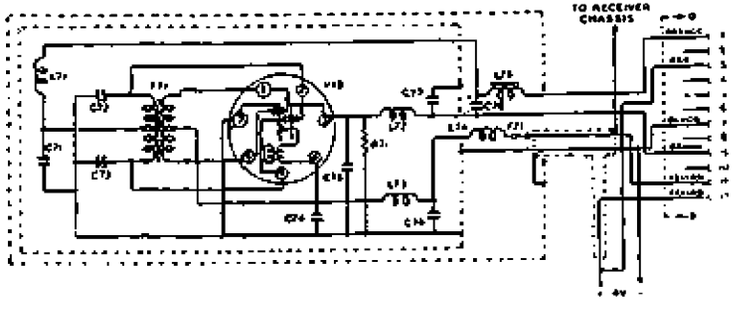


BATTERY CABLE No. 19801

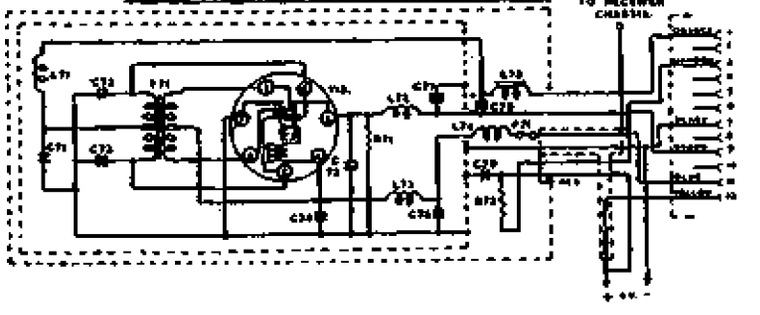
VIBRATOR POWER UNITS 19190, 22770 — CIRCUIT CODE.

Code No.	Description	Part No
	INDUCTORS	
L71	R.F. Choke	13809
L72	R.F. Choke	13809
L73	R.F. Choke	3149
L74	R.F. Choke	3149
L75	L.F. Choke	8321
	RESISTORS	
R71	150 ohms, 1 watt (wire-wound)	
R72	12 ohms, ± 5%, 1 watt (22770 only)	
C71	0.01 μF Paper, 600v working	
C72	0.02 μF Paper, 600v. working	
C73	0.02 μF Paper, 600v. working	
C74	0.1 μF Paper, 400v. working	
C75	0.01 μF Paper, 600v. working	
C76	0.1 μF Paper, 400v working	
C77	0.01 μF Paper, 600v. working	
	CAPACITORS	
C78	20 μF 200, P.V. Electrolytic	
C79	0.1 μF Paper, 200v. working (22770 only)	
	TRANSFORMERS	
T71	Vibrator Transformer (19190)	17568
	(22770)	17892
	Vibrator Cartridge (19190)	V6804
	Vibrator Cartridge (22770)	V5211

VIBRATOR POWER UNIT No. 19190



6 VOLT VIBRATOR POWER UNIT NO. 22770



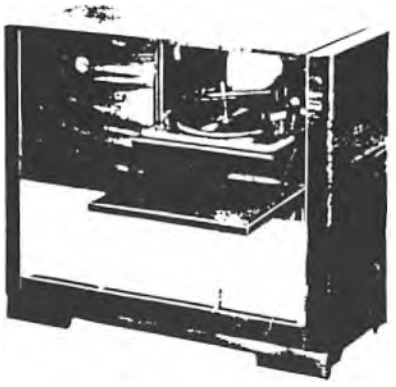
TECHNICAL INFORMATION AND SERVICE DATA

RADIOLA

Model 562-GF

FIVE VALVE, TWO BAND,
32 VOLTS D.C. OPERATED SUPERHETERODYNE

INSCRIBED
AMALGAMATED WIRELESS (AUSTRALASIA) 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

Dial Lamps 6.3 volts, 0.25 Amp. M.E.S.

Fuses 5 Amp. Cartridge

Valve Complement

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

Vibrator Power Unit 26671

Vibrator Cartridge V6732

Loudspeaker

12 inch permanent magnet
Part No. 20767
Transformer 1U301
V.C. Impedance 6.5 ohms at 400 C.P.S.

Undistorted Power Output 2.5 watts

General Description

The model 562-GF is a 5 valve two band, 32 volts D.C. operated Phono Radio superheterodyne and features of its design include ... circuit construction, automatic volume control, magnetite ... I.F. transformers and broadcast oscillator coil, air-dielectric ... tuning capacitors, straight-line edge lighted perspex dial scale.

The model also incorporates the Garrard RC75A which is designed to play 33⅓, 45 and 78 r.p.m. records. The record changer features a D.C. motor and simple construction with minimum of working parts ensuring trouble-free service.

Connection to Power Supply

The receiver will not operate unless it is connected to the power point in the correct polarity. It is necessary, therefore, that all power points to which the receiver may be connected are wired with the same polarity. The plug should be wired to the receiver power cable so that the red wire connects to the positive side of the supply and the black wire to the negative side.

A warning is given on the use of "Double Adaptors" which normally have one outlet in the reverse polarity to the other. If the use of a "Double Adaptor" is essential the outlet with the correct polarity only should be used for the receiver.

Interference Suppression

If the receiver is in operation whilst the motor generator is running some form of suppression will generally be necessary to reduce interference which is radiated from the generator and picked up by the receiver aerial.

It is recommended that the following be carried out:

To each generator brush connect one end of a 0.5 μf capacitor. Then connect the other ends of the capacitors to the generator housing.

The generator housing should be earthed using a wire as short as possible and of not less than 7/.029 insulated cable.

Chassis Removal

(1) Remove the control knobs by pulling them straight off their spindles. The Phono Radio knob is situated inside the record changer compartment.

(2) Disconnect the loudspeaker, phono-motor and pick-up cables.

(3) The chassis is held in the cabinet by four screws through the receiver baseboard. Removal of these screws enables the chassis to be withdrawn.

CIRCUIT CODE — RADIOLA 562-GF

Code No.	Description			Part No.
	INDUCTORS			
L1	I.F. Filter (including C2)			9302
L2,L3	Aerial Coil 540-1600 Kc/s			15454
L4, L5	R.F. Coil 540-1600 Kc/s			23891
L6	Oscillator Coil 540-1600 Kc/s			15949
L7, L8	Aerial Coil 6-18 Mc/s			15456
L9, L10	R.F. Coil 6-18 Mc/s			26060
L11	Oscillator Coil 6-18 Mc/s			26678
L12, L13	1st I.F. Transformer			26673
L14, L15	2nd I.F. Transformer			25197
L16	Filter Choke			15317
L17	R.F. Choke			3149
L18	R.F. Choke			13809
L19	R.F. Choke			27936
L20	R.F. Choke			27936
	RESISTORS			
R1	200 ohms	½	watt	
R2	0.1 megohm	½	,,	
R3	20,000 ohms	½	,,	
R4	100 ohms	½	,,	
R5	0.1 megohm	½	,,	
R6	20,000 ohms	1	,,	
R7	0.1 megohm	½	,,	
R8	200 ohms	½	,,	
R9	1.5 megohms	½	,,	
R10	100 ohms	½	,,	
R11	50,000 ohms	½	,,	
R12	1,000 ohms	½	,,	
R13	0.5 megohm Volume Control (Tapped at 40,000 ohms)			27145
R14	22,000 ohms	½	watt	
R15	5 ohms	5	,, (wire wound)	
R16	65 ohms	5	,, (wire wound)	
R17	160 ohms	5	,, (wire wound)	
R18	13,000 ohms	3	,,	
R19	1,000 ohms	1	,,	
R20	50,000 ohms	1	,,	
R21	0.25 megohm	1	,,	
R22	3,000 ohms	½	,,	
R23	250 ohms	3	,, (wire wound)	
R24	50,000 ohms	½	,,	
R25	0.5 megohm	½	,,	
R26	5 ohms	25	,, (wire wound)	
R27	10 megohms	½	,,	
	CAPACITORS			
C1	.01 μf paper 600V working			
C2	47 μμf silvered mica			
C3	4 μμf mica			
C4	12-430 μμf tuning			18321
C5	2-20 μμf air trimmer			19659
C6	2-20 μμf air trimmer			19659
C7	0.05 μf paper 200V working			
C8	9 μμf mica			
C9	2-20 μμf air trimmer			19659
C10	0.05 μf paper 200V working			

Code No.	Description	Part No.
C11	2-20 μμf air trimmer	19659
C12	12-430 μμf tuning	18321
C13	9 μμf mica	
C14	12-430 μμf tuning	18321
C15	70 μμf mica	
C16	100 μμf silvered mica	
C17	100 μμf silvered mica	
C18	0.05 μf paper 200V working	
C19	470 μμf paddler ± 2½%	
C20	2-20 μμf air trimmer	19659
C21	4,000 μμf paddler ± 2½%	
C22	2-20 μμf air trimmer	19659
C23	0.1 μf paper 400V working	
C24	50 μμf mica	
C25	100 μμf silvered mica	
C26	100 μμf silvered mica	
C27	100 μμf mica	
C28	100 μμf mica	
C29	0.01 μf paper 600V working	
C30	0.1 μf paper 400V working	
C31	8.0 μf 400V working (2X0.5 μf paper in parallel)	
C32	8 μF 525 P.V. electrolytic	
C33	0.02 μf paper 600V working	
C34	0.1 μf paper 400V working	
C35	50 μμf mica	
C36	0.05 μf paper 400V working	
C37	500 μμf mica	
C38	200 μμf mica	
C39	0.1 μf paper 200V working	
C40	0.4 μf paper 200V working	
C41	0.01 μf paper 600V working	
C42	16 μF 525 P.V. Electrolytic	
C43	100 μμf mica	
C44	0.1 μf paper 400V working	
C45	0.5 μf paper 400V working	
C46	20 μF 200 P.V. Electrolytic	
C47	16 μF 525 P.V. Electrolytic	
C48	0.4 μf paper 200V working	
C49	14 μμf mica	
C50	0.005 μf paper 600V working	
C51	25 μF 40 P.V. Electrolytic	
	TRANSFORMERS	
T1	Loudspeaker Transformer	1U201
T2	Vibrator Transformer	17894
	LOUDSPEAKER	
	12 inch permanent magnet	20767
	SWITCHES	
S1	Range Switch	27084
S2	Power/Tone Switch	23149
S3	Phono/Radio Switch	33152
	FUSES	
F1	3 amp cartridge	
F2	3 amp cartridge	

AWA. 5 Valve D/W. Vib. 32V. Radiogram MODEL 562 GF.

Vibrator Cartridge Replacement

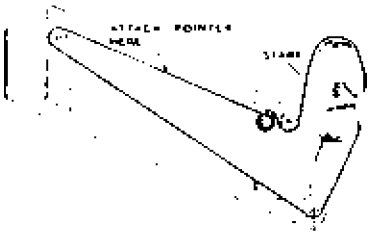
Remove the chassis from the cabinet, the lid from the outer case of the vibrator unit and the lid from the inner case. The cartridge is then accessible.

Vibrator Unit Replacement.

Remove the chassis from the cabinet and remove the lid from the vibrator unit outer case. Beneath the chassis disconnect three leads, red, yellow and black, which come from the vibrator unit. The unit may then be lifted out of the case.

Drive Cord Replacement:

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



ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed.

Realignment 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 287003, or

(2) A.W.A. Modulated Oscillator, Series 16726.

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.

ALIGNMENT TABLE

Alignment Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver Dial to:	Adjust for Maximum Peak Output:
1	R.F. Section of Gang (Centre portion)	455 Kc/s	540 Kc/s (4QI)	L15 Core
2	R.F. Section of Gang (Centre portion)	455 Kc/s.	540 Kc/s (4QI)	L14 Core
3	R.F. Section of Gang (Centre portion)	455 Kc/s.	540 Kc/s (4QI)	L13 Core
4	R.F. Section of Gang (Centre portion)	455 Kc/s	540 Kc/s (4QI)	L12 Core
Repeat the above adjustments until the maximum output is obtained				
5	Aerial Terminal	600 Kc/s	600 Kc/s (7Z1)	Osc Core Adj. (L6)*
6	Aerial Terminal	1500 Kc/s.	1500 Kc/s (3AK)	Osc Adj. (C20)
7	Aerial Terminal	1500 Kc/s.	1500 Kc/s (3AK)	R.F. Adj. (C31)
8	Aerial Terminal	1500 Kc/s.	1500 Kc/s (3AK)	Aer Adj. (C5)
Repeat adjustments 5, 6, 7 and 8				
9	Aerial Terminal	16 Mc/s.	16 Mc/s.	Osc Adj. (C22)†
10	Aerial Terminal	16 Mc/s.	16 Mc/s.	R.F. Adj. (C9)†
11	Aerial Terminal	16 Mc/s.	16 Mc/s	Aer. Adj. (C6)†

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

† Use minimum capacity peak if two can be obtained. Check to determine if C22 has been adjusted to correct peak by tuning the receiver to approximately 15.09 Mc/s where a weaker signal should be received.

‡ Use maximum capacity peak if two can be received.

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Aerial Coil (M.W.)	
Primary (L2)	16
Secondary (L3)	5
Aerial Coil (S.W.)	
Primary (L7)	3
Secondary (L8)	*
R.F. Coil (M.W.)	
Primary (L4)	35
Secondary (L5)	4
R.F. Coil (S.W.)	
Primary (L9)	*
Secondary (L10)	*
Oscillator Coil (M.W.) (L6)	5
Oscillator Coil (S.W.) (L11)	*
I.F. Filter (L1)	17.51
I.F. Transformer Windings	10
R.F. Choke (L17, L19, L20)	*
H.T. Filter Choke (L16)	200
R.F. Choke (L18)	18
Loudspeaker Input Transformer (T1)	
Primary	430 or 525
Secondary	*
Vibrator Transformer (T2)	
Primary	3
Secondary	900

* Less than 1 ohm

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

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

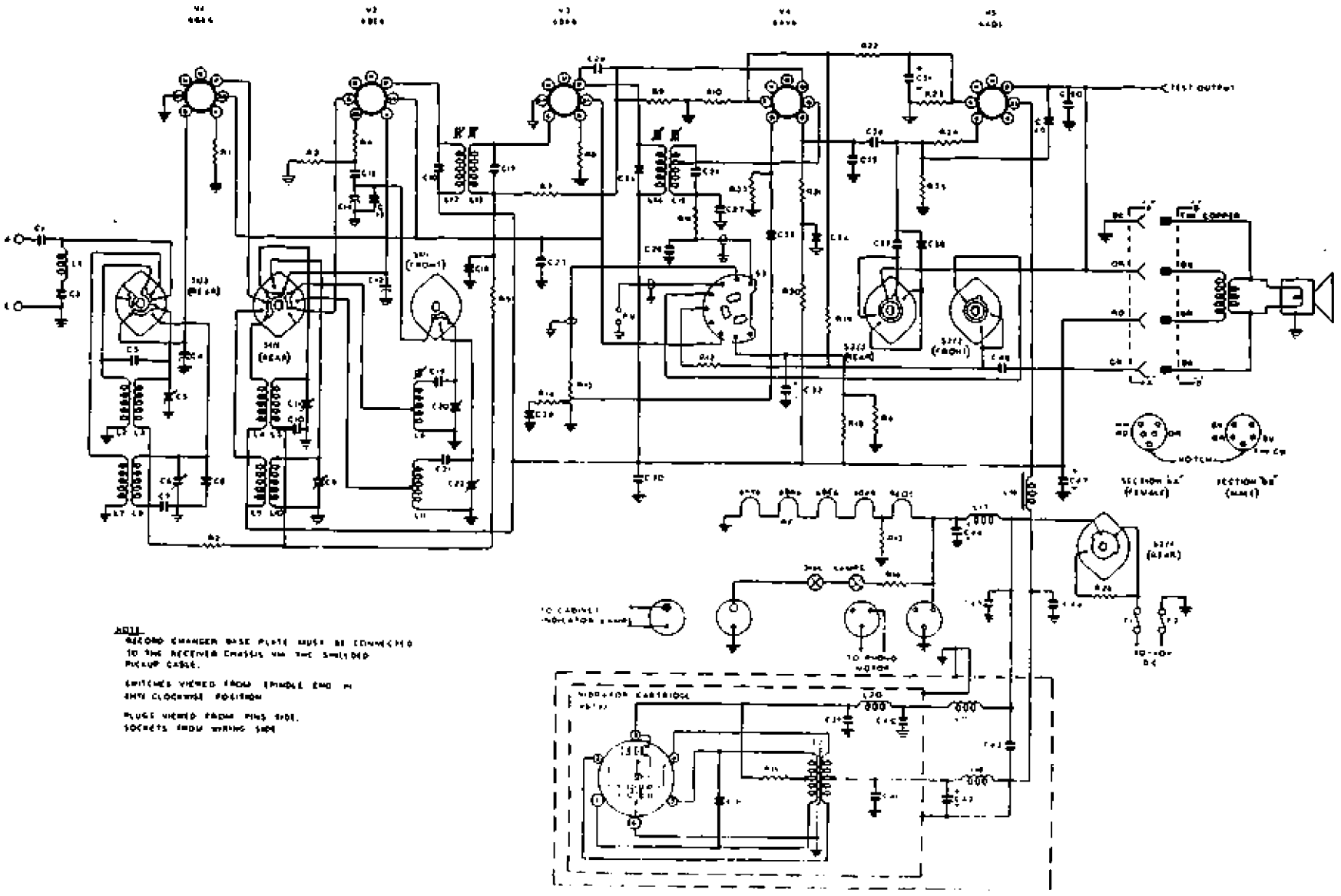
VALVES		Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA	Heater Volts‡
6BA6 R.F. Amp	M.W.	1.7	70	200	2.75	6.3
	S.W.	1.8	70	200	2.85	6.3
6BE6 Converter	M.W.		70	200	1.25	6.3
	S.W.		70	200	1.25	6.3
6BA6 I.F. Amp		1.8	70	200	3.1	6.3
6AV6 Det., A.F. Amp., A.V.C		.05		70*	0.5	6.3
6AQ5 Output		9.0	200	190	34	6.3

Total H.T. Current = 50 mA.
Measured with receiver connected to 32V. D.C. Supply.
Total Input Current = Radio 1.3 Amp., Phono 1.8 Amp.
Volume Control maximum clockwise. Power/Tone Switch on "Speech" anti-clockwise position. No signal input. Voltmeter 1000 ohms per volt; measurement taken on highest scale giving accurate readable deflection.

* Cannot be measured with an ordinary voltmeter.

‡ These readings are nominal and will vary due to the Series Heater connections.

AWA. 5 Valve D/W. Vib. 32V. Radiogram MODEL 562 GF.



TECHNICAL INFORMATION
AND
SERVICE DATA

A.W.A. CLOCK-CONTROLLED-RADIO

563-MA, 563-MAY and 563-MAZ.

FIVE VALVE, BROADCAST, A.C. OPERATED
SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) 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 C.P.S. only
Power Consumption	Clock 2.5 watts Clock and Radio 42.5 watts

Loudspeaker

4 inch permanent magnet
Part No. 26846
Transformer 31772D
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 Detector, A.F. Amplifier, A.V.C.
(4) 6AQ5 Output
(5) 6X4 Rectifier.

Chassis Removal:

(1) Remove the Clock Alarm Knob by unscrewing it clockwise and the remainder of the Clock and Radio knobs by pulling them straight off their spindles. Also remove the "Hand-set" knob and spindle by pulling it from the back of the cabinet.

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

(3) The chassis is held to the cabinet front by two screws situated under it. Removal of these enables the chassis to be withdrawn from the cabinet.

Clock Removal:

(1) Remove the complete chassis from the cabinet.

(2) Remove two screws holding the plastic shield to the metal spacers and withdraw the shield.

(3) Unscrew the two metal spacers holding the top of the clock to the front panel.

(4) Remove the clock plug from the socket on the receiver chassis.

The clock may now be lifted from the chassis.

When replacing the clock make sure that the bottom of the clock face engages in the clips on the receiver front panel. Then replace the metal spacers.

IMPORTANT:

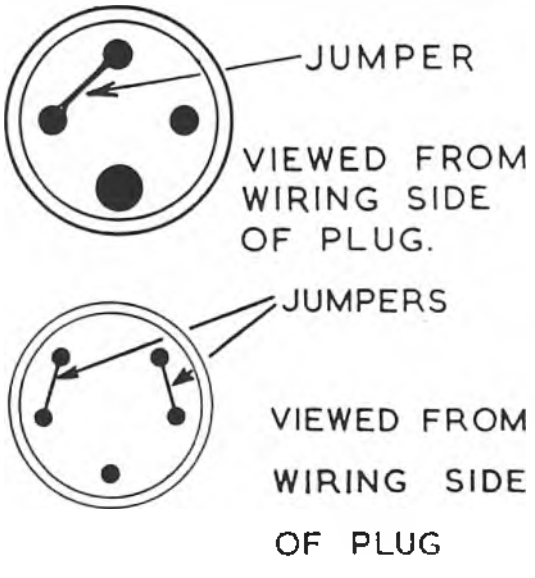
As repairs to the clock will require the use of special equipment it is recommended that a spare be kept in stock and the faulty unit returned to the A.W.A. Service Department, 152 Parramatta Road, Stanmore, for repair.

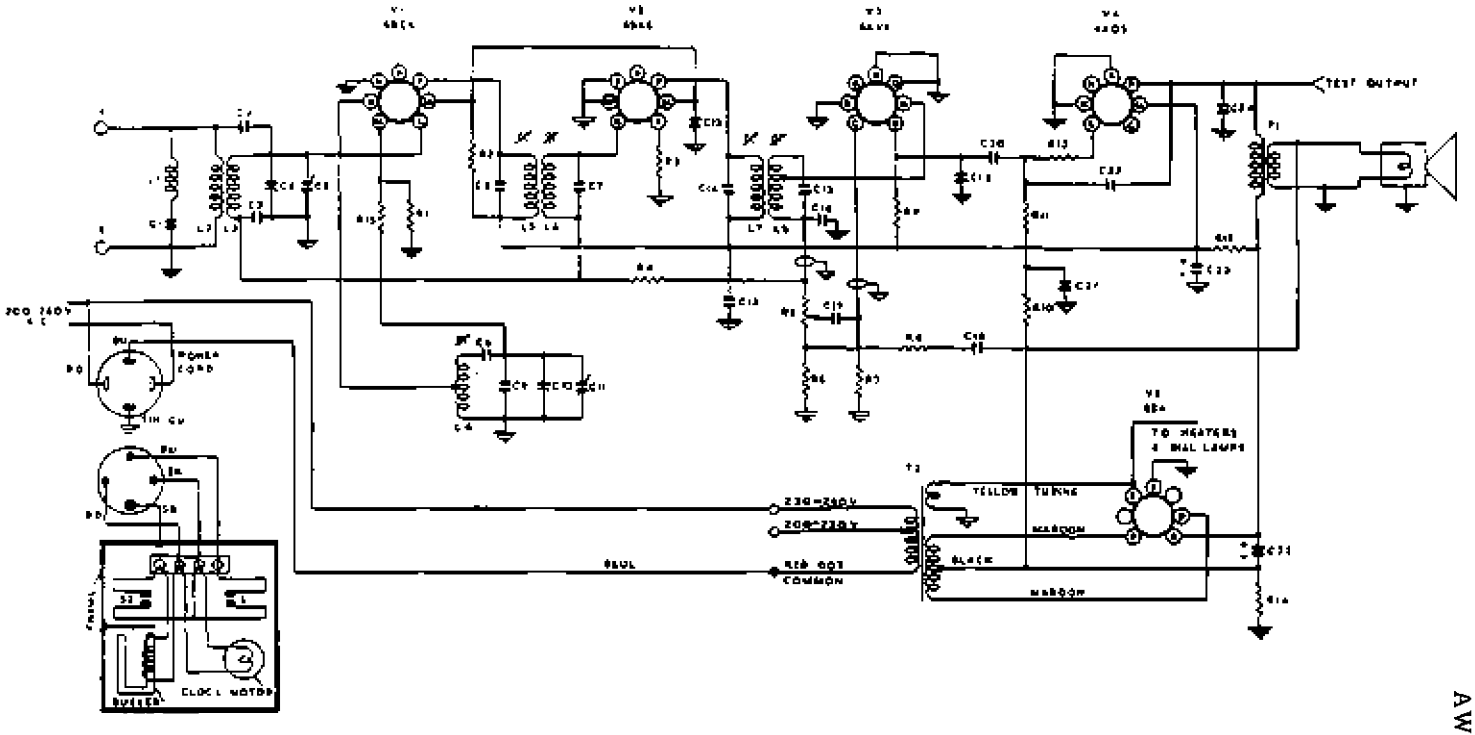
Operation of Receiver Without Clock:

If it is desired to operate the receiver for either the serviceman's or client's use whilst a faulty clock is being repaired, the following plugs may be obtained from the A.W.A. Service Department:

Model 563-MA, 563-MAY Plug No. 29696.
Model 563-MAZ Plug Code No. 581050.

Wire the plugs with jumpers as shown in the accompanying diagrams and insert in the socket on the receiver chassis.

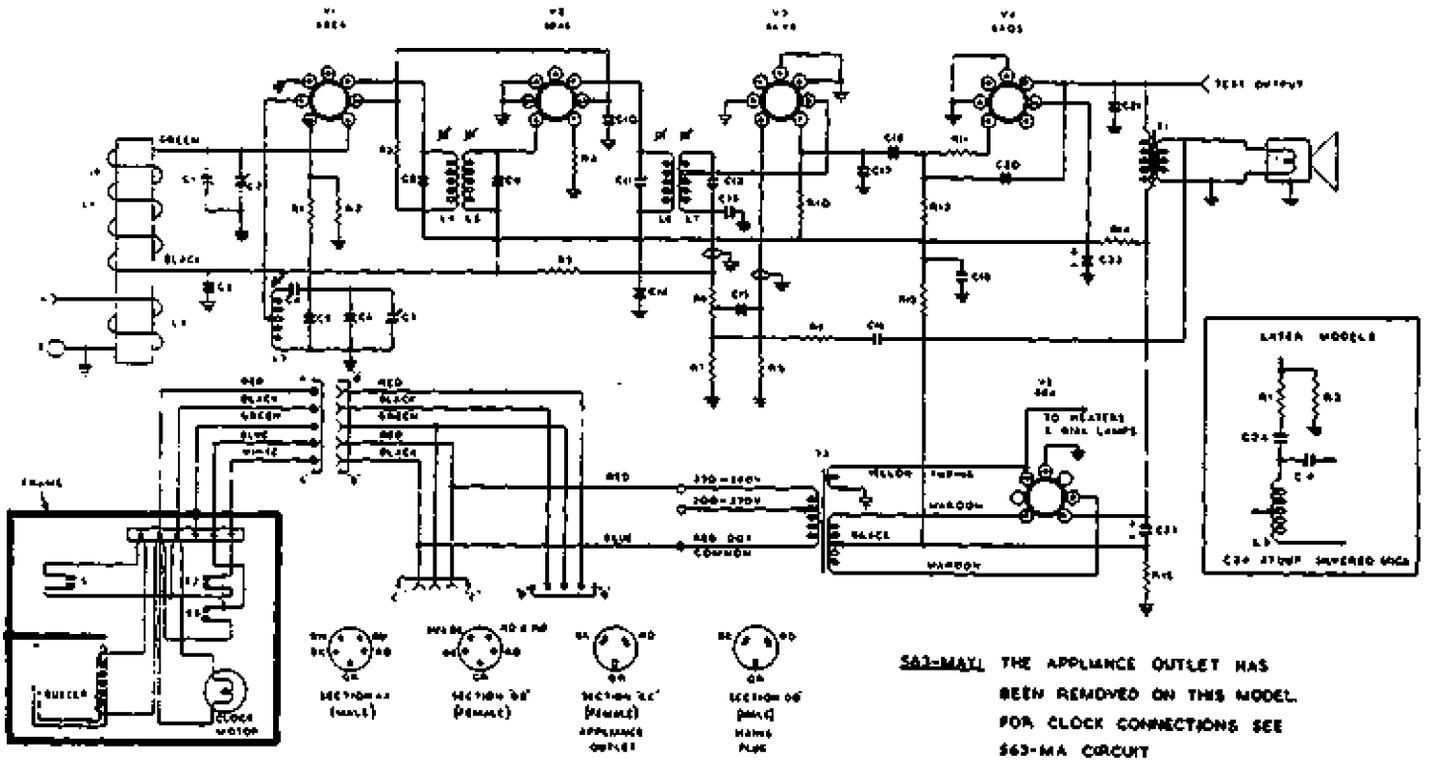




CIRCUIT CODE—RADIOLA 563-MA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	I.F. Filter (including C1)	9382	2	D12
L2, L3	Aerial Coil 540-1600 Kc/s	30768	2	D14
L4	Oscillator Coil 540-1600 Kc/s	32406	2	F12
L5, L6	1st I.F. Transformer	27351	2	H14
L7, L8	2nd I.F. Transformer	27353	2	H10
	RESISTORS			
R1	22,000 ohms ½ watt		2	H16
R2	10,000 ohms 1 "		2	J15
R3	220 ohms ½ "		2	H12
R4	1.5 megohms ½ "		2	H10
R5	0.5 megohm Volume Control	26442	2	D3
R6	50 ohms ½ watt		2	F10
R7	10 megohms ½ "		2	J7
R8	1,000 ohms ½ "		2	G11
R9	0.27 megohms 1 "		2	J9
R10	0.47 megohm ½ "		2	G4
R11	0.47 megohm ½ "		2	G5
R12	47,000 ohms ½ "		2	G6
R13	5,000 ohms 2 "		2	D5
R14	150 ohms 1 watt ± 5%		2	F3
R15	100 ohms ½ "		2	G15
	CAPACITORS			
C1	47 μμF Silvered Mica		2	D12
C2	6.8 μμF Ceramic		2	F14
C3	0.05 μF Paper 200V working		2	H13
C4	12-445 μμF Tuning	18624	1	F4
C5	2-20 μμF Trimmer (on gang)		1	F4

Code No.	Description	Part No.	Fig. No.	Location
C6	100 μμF Silvered Mica (I.F. Assy)		2	H14
C7	100 μμF Silvered Mica (I.F. Assy)		2	H14
C8	440 μμF Padder ± 2½%		2	G14
C9	9 μμF Mica		1	E5
C10	12-445 μμF Tuning	18624	1	F5
C11	2-20 μμF Trimmer (on gang)		1	F5
C12	0.05 μF Paper 400V working		2	E6
C13	0.05 μF Paper 400V working		2	J13
C14	100 μμF Silvered Mica (I.F. Assy)		2	H10
C15	100 μμF Silvered Mica (I.F. Assy)		2	H10
C16	220 μμF Ceramic		2	H11
C17	0.01 μF Paper 600V working		2	J9
C18	0.25 μF Paper 200V working		2	F10
C19	100 μμF Mica		2	J8
C20	0.025 μF Paper 400V working		2	H8
C21	0.1 μF paper 200V working		2	F3
C22	12 μμF Mica		2	H5
C23	24 μF 350 P.V. Electrolytic		2	C7
C24	0.0025 μF Paper 600V working		2	J4
C25	24 μF 350 P.V. Electrolytic		2	F4
	TRANSFORMERS			
T1	Loudspeaker Transformer	31772D	1	G9
	Power Transformer 50 C.P.S.	25807	1	G15
	LOUDSPEAKERS			
	4" permanent magnet	26846	1	C15
	SWITCHES			
S1	Radio Contacts			
S2	Buzzer — Alarm Contacts			



563-MAY. THE APPLIANCE OUTLET HAS BEEN REMOVED ON THIS MODEL. FOR CLOCK CONNECTIONS SEE 563-MA CIRCUIT

CIRCUIT CODE, RADIOLA 563-MAY, AND 563-MAZ

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1, L2	Ferrite Aerial Assembly	34327	3	G11
L3	Oscillator Coil 540-1600 Kc/s	32406*	4	F13
L4, L5	1st I.F. Transformer	27351	3	H5
L6, L7	2nd I.F. Transformer	27353	3	H8
	RESISTORS			
R1	100 ohms ; watt		4	G15
R2	22,000 ohms ½ "		4	H16
R3	10,000 ohms ½ "		4	H15
R4	220 ohms ½ "		4	H12
R5	1.5 megohms ½ "		4	G10
R6	0.5 megohm Volume Control	26442	4	D3
R7	50 ohms ½ watt		4	F10
R8	10 megohms ½ "		4	J8
R9	1,000 ohms ½ "		4	G11
R10	0.22 megohm 1 "		4	J9
R11	47,000 ohms ½ "		4	G6
R12	0.47 megohms ½ "		4	F6
R13	0.47 megohms ½ "		4	F4
R14	5,000 ohms 2 watts		4	D12
R15	150 ohms 1 watt ± 5%		4	F2
	CAPACITORS			
C1	12-445 μμF Tuning	18684	3	F3
C2	2-20 μμF Trimmer (on gang)		3	G3
C3	0.05 μF paper 200V working		4	G13
C4	440 μμF Padder ± 2½%		3	F14
C5	9 μμF mica		3	F4

Code No.	Description	Part No.	Fig. No.	Location
C6	12-445 μμF Tuning	18684	3	F4
C7	2-20 μμF Trimmer (on gang)		3	G4
C8	100 μμF silvered mica (in 1st I.F.)		3	H5
C9	100 μμF silvered mica (in 1st I.F.)		3	H6
C10	0.05 μF paper 400V working		4	J13
C11	100 μμF silvered mica (in 2nd I.F.)		3	H8
C12	100 μμF silvered mica (in 2nd I.F.)		3	H8
C13	220 μμF ceramic		4	H11
C14	0.05 μF paper 400V working		4	D14
C15	0.01 μF paper 600V working		4	J10
C16	0.25 μF paper 200V working		4	F10
C17	100 μμF mica		4	G9
C18	0.025 μF paper 400V working		4	G8
C19	0.1 μF paper 200V working		4	H6
C20	12 μμF mica		4	G6
C21	0.0025 μF paper 600V working		4	J4
C22	24 μF 350 P.V. Electrolytic		4	C14
C23	24 μF 350 P.V. Electrolytic		4	E4
	TRANSFORMERS			
T1	Loudspeaker Transformer	317720	3	G8
T2	Power Transformer 50 c.p.s.	25807	3	G15
	LOUDSPEAKER			
	4" Permanent Magnet	26846	3	C14
	SWITCHES			
S1	Buzzer Contacts		3	C9
S2, S3	Radio and Appliance Outlet Contacts		3	C9

* Later models use Oscillator Coil No. 35403.

SERVICE DATA

RADIOLA

Model 550-GA

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

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

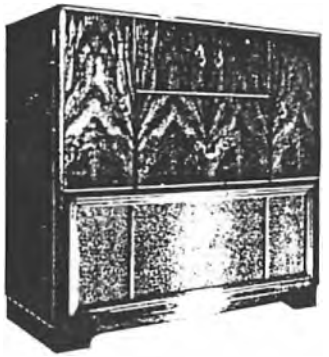
TECHNICAL INFORMATION
AND
SERVICE DATA SHEET

RADIOLA

Model 564-GA

TO BE READ IN CONJUNCTION WITH
SERVICE MANUAL FOR MODEL 550-GA.

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) 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	60 watts Receiver 20 watts Record Changer

Dial Lamps 6.3 volt 0.25 Amp. M.E.S.

Valve Complement:

(1)	6AE8	Converter
(2)	6BA6	I.F. Amplifier or Magnetic Pick-up Pre-amplifier
(3)	6AR7G1	A.F. Amplifier Detector, A.V.C.
(4)	6BV7	Output
(5)	SY3GT	Rectifier

Loudspeaker:
12 inch Permanent Magnet
Code No. – AU29
Transformer TU202
V.C. Impedance – 6.5 ohms at 400 C.P.S.

Undistorted Power Output 4 watts

GENERAL DESCRIPTION

The Model 550-GA is a five valve, two band, A.C. operated Phono/Radio Superheterodyne and features of its design include – Tropic proof construction, automatic volume control, magnetite cores in I.F. transformers and broadcast oscillator coil, air dielectric trimming capacitors, straight line edge lighted perspex dial scale, 3 speed automatic record changer fitted with the A.W.A. Twin Jewel Magnetic pick-up head.

The record changer is the RC 7542 and is designed to play 33⅓, 45 and 78 R.P.M. records. The record changer features a synchronous motor and simple construction with minimum of working parts ensuring trouble free service.

NOTE – On Phono operation, the 6BA6 is used as a Magnetic Pick-up Preamplifier.

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 are 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 operatives 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 280931, or

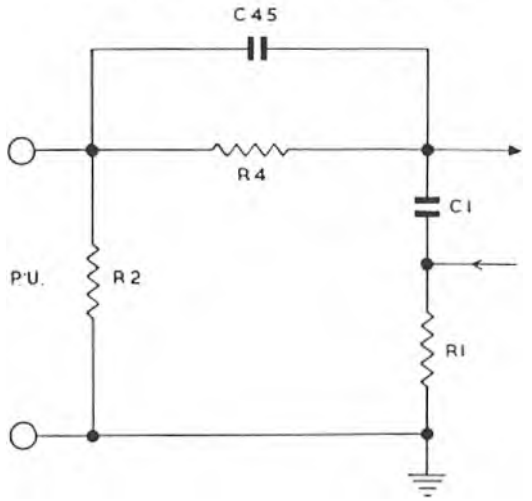
(2) A.W.A. Modulated Oscillator, Type 36726
If the modulated oscillator is used, connect a 0.25 megohm non-inductive resistor across the output terminals, and, for short wave alignment, an additional 400 ohms non-inductive resistor in series with the "high" output lead of the instrument.

(3) A.W.A. Output Meter, Type 2MB832.

Circuit Changes:

(1) Capacitor C37 changed to 0.005 paper 600V working.

(2) Resistor R4 is paralleled with C45 – 1000 µµF mica.



Loudspeaker:

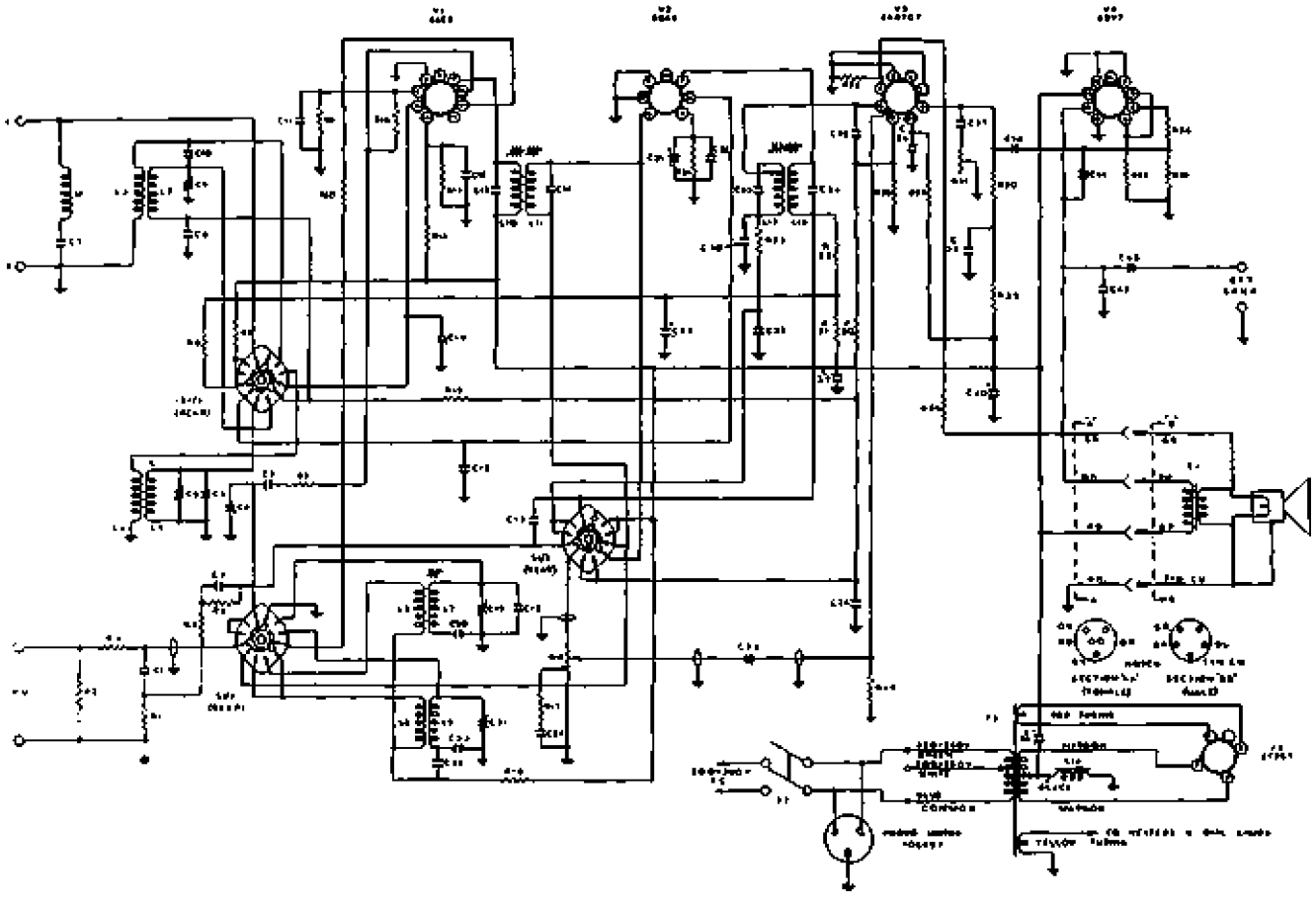
12 inch permanent magnet and 2 1/2 inch permanent magnet

Assembly Part No. 20917

Transformer TX2

V.C. Impedance of combination

12.5 ohms at 400 c.p.s.



CIRCUIT CODE—RADIOLA 550-GA

Code No.	Description	Part No.
	INDUCTORS	
L1	I.F. Filter (including C7)	9382
L2, L3	Aerial Coil 540-1,600 Kc/s	15454
L4, L5	Aerial Coil 6-18 Mc/s	15456
L6, L7	Oscillator Coil 540-1,600 Kc/s	7638A
L8, L9	Oscillator Coil 6-18 Mc/s	15458
L10, L11	1st I.F. Transformer	26673
L12, L13	2nd I.F. Transformer	25197
L14	Filter Choke	TU17
	RESISTORS	
R1	22,000 ohms 1 watt	
R2	4,700 ohms ½ "	
R3	Not Used	
R4	39,000 ohms ½ "	
R5	0.22 megohm ½ "	
R6	1.0 megohm ½ "	
R7	100 ohms ½ "	
R8	0.47 megohm 1 "	
R9	0.22 megohm 1 "	
R10	200 ohms ½ "	
R11	200 ohms ½ "	
R12	39,000 ohms ½ "	
R13	33,000 ohms 1 "	
R14	27,000 ohms 1 "	
R15	0.1 megohm ½ "	
R16	0.5 megohm Volume Control (Tapped at 40,000 ohms)	27145
R17	39,000 ohms ½ watt	
R18	33,000 ohms 1 "	
R19	10.0 megohms ½ "	
R20	1.5 megohms ½ "	
R21	39,000 ohms 1 "	
R22	0.1 megohm 1 "	
R23	47,000 ohms ½ "	
R24	820 ohms ½ "	
R25	2 ohms ½ "	
R26	0.47 megohm ½ "	
R27	1.0 megohm 1 "	
R28	470 ohms ½ "	
R29	39,000 ohms 1 "	
R30	0.22 megohm 1 "	
R31	1.0 megohm Tone Control (including S2)	26444
R32	150 ohms 1 watt	
R33	0.47 megohm ½ "	
R34	4,700 ohms ½ "	
	CAPACITORS	
C1	0.025 μF paper 400V working	
C2	0.005 μF paper 600V working	
C3	70 μμF mica	
C4	12-430 μμF Tuning	18230
C5	9 μμF mica	
C6	2-20 μμF air trimmer	19659
C7	50 μμF silvered mica	
C8	0.05 μF paper 200V working	
C9	2-20 μμF air trimmer	19659
C10	4 μμF mica	
C11	0.05 μF paper 200V working	
C12	0.05 μF paper 400V working	
C13	100 μμF silvered mica	
C14	100 μμF silvered mica	
C15	12-430 μμF tuning	18230
C16	0.5 μF paper 400V working	
C17	0.03 μF paper 600V working	
C18	9 μμF mica	
C19	2-20 μμF air trimmer	19659
C20	440 μμF padder ± 2½%	
C21	2-20 μμF air trimmer	19659
C22	4,000 μμF padder ± 2½%	
C23	0.05 μF paper 400V working	
C24	0.05 μF paper 200V working	
C25	0.05 μF paper 200V working	
C26	0.05 μF paper 200V working	
C27	0.1 μF paper 400V working	
C28	16 μF 525 P.V. Electrolytic	
C29	100 μμF mica	
C30	100 μμF mica	
C31	400 μF 12 P.V. Electrolytic	
C32	0.0025 μF paper 600V working	
C33	100 μμF silvered mica	
C34	100 μμF silvered mica	
C35	47 μμF mica	
C36	0.1 μF paper 400V working	
C37	0.0025 μF paper 600V working	
C38	0.01 μF paper 600V working	
C39	0.5 μF paper 400V working	
C40	16 μF 525 P.V. Electrolytic	
C41	8 μF 525 P.V. Electrolytic	
C42	0.0025 μF paper 600V working	
C43	0.5 μF paper 400V working	
C44	9 μμF mica	
	TRANSFORMERS	
T1	Loudspeaker Transformer	TU202
T2	Power Transformer 50-60 C.P.S.	258298
	40 C.P.S.	178778
	LOUDSPEAKER	
	12 Inch Permanent Magnet	AU79
	SWITCHES	
S1	Phono/Radio/Range Switch	31388
S2	Power Switch (on R31)	

ALIGNMENT TABLE

Alignment 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	L13 Core
2	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L12 Core
3	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L11 Core
4	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L10 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. (L7)*
6	Aerial Lead	1,500 Kc/s	1,500 Kc/s	H.F. Osc. Adj. (C19)
7	Aerial Lead	1,500 Kc/s	1,500 Kc/s	H.F Aer. Adj. (C9)
	Repeat adjustments 5, 6 and 7.			
8	Aerial Lead	16 Mc/s	16 Mc/s	H.F. Osc. Adj. (C21)†
9	Aerial Lead	16 Mc/s	16 Mc/s	H.F. Aer. Adj. (C6)‡

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

† Use minimum 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 15.09 Mc/s. where a weaker signal should be received.

‡ Use maximum capacity peak if two can be obtained.

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Aerial Coil (M.W.):	
Primary (L2)	20
Secondary (L3)	4
Aerial Coil (S.W.):	
Primary (L4)	4
Secondary (L5)	*
Oscillator Coil (M.W.):	
Primary (L6)	1.5
Secondary (L7)	6
Oscillator Coil (S.W.):	
Primary (L8)	*
Secondary (L9)	*
I.F. Filter (L1)	17.5†
I.F. Transformer Windings	10
Filter Choke (L14)	1,000
Power Transformer (T2):	
Primary	23
Secondary	300
Loudspeaker Input Transformer (T1):	
Primary	345
Secondary	*

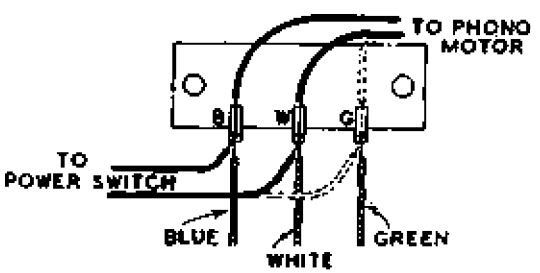
* Less than 1 ohm.

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

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.

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.



Chassis Removal

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

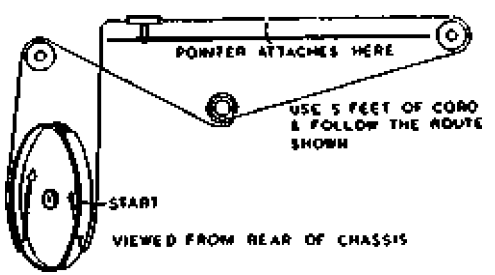
Then, disconnect the loudspeaker cable, pick-up cable, phono-motor plug from the socket on the rear of the chassis and the dial lamp leads from the top of the chassis.

Pull the Record Changer Drawer out and from the rear of the cabinet remove two bolts situated under the receiver shelf. Two other bolts holding the chassis are accessible from the front of the cabinet under the receiver shelf with the Record Changer Drawer open.

With these bolts removed, the chassis may be withdrawn from the cabinet.

Drive Cord Replacement.

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



Dial Lamp Replacement.

First remove the chassis from the cabinet. The Dial Lamps and Record Compartment Lamp may now be removed from their brackets and the faulty lamps replaced.

SOCKET VOLTAGES

VALVE		Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Heater Volts:
6AE8	Converter &C	2.4	90	270	2.0	6.3
	SW	2.8	95	270	2.6	6.3
6BA6	I.F. Amp. Radio	2.5	65	270	2.5	6.3
	Pre-Amp. Phono	1.0	25*	90*	1.0	6.3
6AR7GT	A.F. Amp. Det., A.V.C.	–	20*	25*	0.8	6.3
6BV7	Output	6	270	260	33	6.3
SY3GT	Rectifier	–	–	300/300 A.C. R.M.S.	–	5.0

Total H.T. Current = 60mA.

Volts across L14 = 60 volts.

Measured at 240 volts A.C. supply. No signal input. Volume Control maximum clockwise. Voltmeter 1,000 ohms per volt; measurements taken on highest scale giving accurate readable deflection.

* This reading may vary depending on the resistance of the voltmeter used.

TECHNICAL INFORMATION AND SERVICE DATA

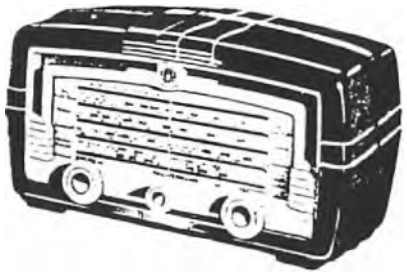
RADIOLA

Model 565-MA

FIVE VALVE, BROADCAST, A.C. OPERATED SUPERHETERODYNE

ISSUED BY:

AMALGAMATED WIRELESS (AUSTRALASIA) LTD.



ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Realignment 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 2R7003, or

(2) A.W.A. Modulated Oscillator, series 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 Dial to	Adjust for Maximum Peak Output
1	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (4Q1)	I.B Core
2	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (4Q1)	I.F Core
3	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (4Q1)	I.G Core
4	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (4Q1)	I.S Core
Repeat the above adjustments until the maximum output is obtained.				
5	Aerial Lead	600 Kc/s	600 Kc/s (7Z1)	I.F. Osc. Core Adj. (I.4)*
6	Aerial Lead	1500 Kc/s	1500 Kc/s (3AK)	H.F. Osc. Adj. (C.7)
7	Aerial Lead	1500 Kc/s	1500 Kc/s (3AK)	H.F. Aer. Adj. (C.4)
Repeat adjustments 5, 6 and 7.				

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

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:

5 inch permanent magnet.
Part No. 20874
Transformer Part No. 31772E
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 Detector, A.F. Amplifier, A.V.C.
(4) 6AQ5 Output
(5) 6X4 Rectifier

Chassis Removal:

(1) Remove the control knobs by pulling them straight off their spindles.

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

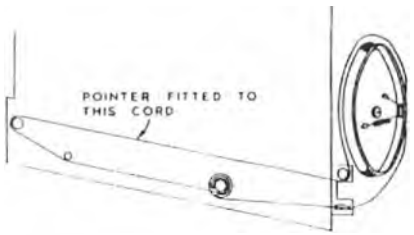
(3) The chassis is held to the cabinet front by two screws situated under it. Removal of these enables the chassis to be withdrawn.

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 inside the cabinet.

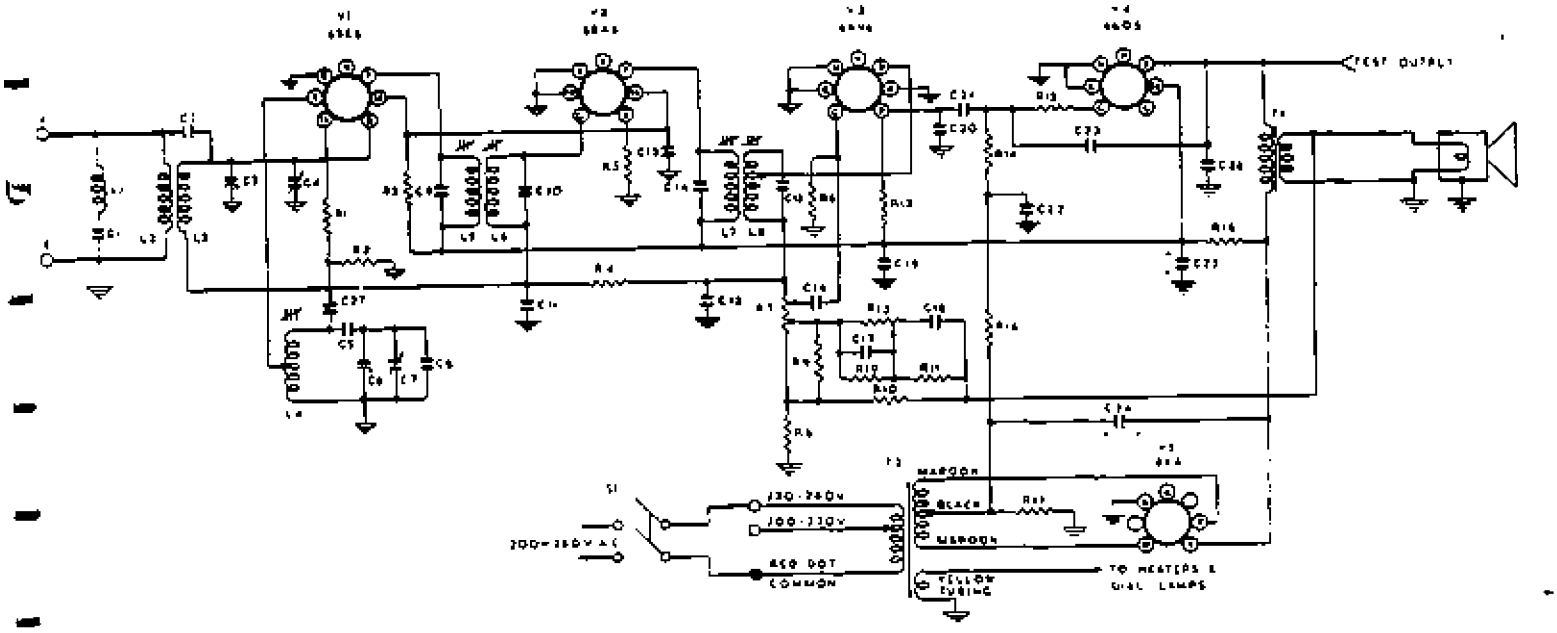
RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

The power supply connections are shown in the accompanying diagram.



Tuning Drive Cord Replacement:

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



SOCKET VOLTAGES

VALVES	Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Heater Volts:
6BE6 Converter	—	85	165	1.8	6.3
6BA6 I.F. Amp.	1.6	85	165	5.5	6.3
6AV6 Det., A.F. Amp., A.V.C.	—	—	80*	0.3	6.3
6AQ5 Output	—	165	250	28	6.3
6X4 Rectifier	255	—	245/245 A.C. R.M.S.	—	6.3

Volts across back-bias resistor R14 = 8 volts

Total H.T. Current = 48 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 resistance of the voltmeter used.

CIRCUIT CODE — RADIOLA 565MA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	I.F. Filter (including C1)	9382	2	E14
L2, L3	Aerial Coil 540-1600 Kc/s.	30768	2	D16
L4	Oscillator Coil 540-1600 Kc/s.	32406	2	E13
L5, L6	1st I.F. Transformer	27351	1	J5
L7, L8	2nd I.F. Transformer	27353	1	J9
	RESISTORS			
R1	100 ohms ½ watt		2	H16
R2	22,000 ohms ½ ,,		2	H17
R3	10,000 ohms 1 ,,		2	J15
R4	2.2 megohms ½ ,,		2	D12
R5	220 ohms ½ ,,		2	J12
R6	10.0 megohms ½ ,,		2	G12
R7	0.5 megohms Volume Control (Tapped at 40,000 ohms)	27145	2	D9
R8	50 ohms ½ watt		2	C9
R9	2,200 ohms ½ ,,		2	D9
R10	1,000 ohms ½ ,,		2	F7
R11	2,200 ohms ½ ,,		2	G7
R12	0.1 megohm Tone Control (including S1)	26441	2	C5
R13	0.27 megohms 1 watt		2	G9
R14	0.47 megohms ½ ,,		2	G7
R15	47,000 ohms ½ ,,		2	G6
R16	0.47 megohms ½ ,,		2	F7
R17	150 ohms 1 ,,		2	H2
R18	5,000 ohms 2 ,,		2	H4
R19	10,000 ohms ½ ,,		2	E8
	CAPACITORS			
C1	47 μμF Silvered Mica		2	E14
C2	6.8 μμF Ceramic		2	F15
C3	12-445 μμF Tuning	18679	1	G4

Code No.	Description	Part No.	Fig No	Location
C4	2-20 μμF Trimmer (on gang)		1	G3
C5	440 μμF padder ± 2½%		2	G13
C6	12-445 μμF Tuning	18679	1	G6
C7	2-20 μμF Trimmer (on gang)		1	G5
C8	9 μμF mica (not used in later models)		1	G5
C9	100 μμF Silvered Mica (in 1st I.F.)		1	J5
C10	100 μμF Silvered Mica (in 1st I.F.)		1	J5
C11	0.05 μF paper 200V working		2	H13
C12	220 μμF ceramic		2	H11
C13	0.05 μF paper 400V working		2	G11
C14	100 μμF Silvered Mica (in 2nd I.F.)		1	J9
C15	100 μμF Silvered Mica (in 2nd I.F.)		1	J9
C16	0.01 μF paper 600V working		2	D11
C17	0.1 μF paper 200V working		2	C7
C18	0.1 μF paper 200V working		2	D7
C19	0.05 μF paper 400V working		2	J8
C20	100 μμF mica		2	F11
C21	0.025 μF paper 400 V working		2	G8
C22	0.1 μF paper 200 V working		2	E8
C23	9 μμF mica		2	H6
C24	24 μF 350 P.V. Electrolytic		1	E12
C25	24 μF 350 P.V. Electrolytic		1	G9
C26	0.0025 μF paper 600 V working		2	J3
C27	47 μμF Silvered Mica (added in later models)			
	TRANSFORMERS			
T1	Loudspeaker transformer	XA2	1	H12
T2	Power Transformer 50-60 C.P.S	25807	1	F15
	40 C.P.S	25809		
	LOUDSPEAKERS			
	5" permanent magnet	20675	1	C10
	SWITCHES			
S1	Power switch (on R12)		2	C5

TECHNICAL INFORMATION AND SERVICE DATA

RADIOLA

Model 566-MA

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

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

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 have been 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 2R7003, or

(2) A.W.A. Modulated Oscillator, series J672a.

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.

ALIGNMENT TABLE

Alignment Order	Connect "High" side of Generator to:	Tune Generator to:	Tune Receiver Dial to:	Adjust for Maximum Peak Output
1	Aerial Section of Gang (Centre Section)	455 Kc/s.	540 Kc/s	L15 Core
2	Aerial Section of Gang (Centre Section)	455 Kc/s	540 Kc/s	L14 Core
3	Aerial Section of Gang (Centre Section)	455 Kc/s	540 Kc/s	L13 Core
4	Aerial Section of Gang (Centre Section)	455 Kc/s	540 Kc/s	L12 Core
5	Aerial Section of Gang (Centre Section)	455 Kc/s.	540 Kc/s	L11 Core
6	Aerial Section of Gang (Centre Section)	455 Kc/s.	540 Kc/s	L10 Core
	Repeat the above adjustments until the maximum output is obtained			
7	Aerial Lead	600 Kc/s.	600 Kc/s	L.F. Osc. Core Adj. (L6)*
8	Aerial Lead	1500 Kc/s.	1500 Kc/s	H.F. Osc. Adj. (C10)
9	Aerial Lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C4)
10	Aerial Lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C2)
	Repeat adjustments 7, 8, 9, and 10			
11	Aerial Lead	15 Mc/s	15 Mc/s	H.F. Osc. Adj. (C15)†
12	Aerial Lead	15 Mc/s.	15 Mc/s	H.F. Aer. Adj. (C6)†

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

† Use minimum 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 15.09 Mc/s where a weaker signal should be received.

‡ Use maximum capacity peak if two can be obtained.

ELECTRICAL SPECIFICATIONS

Frequency Range:—

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

Dial Lamps . . 6.3 volts, 0.25 Amp. M.E.S.

Loudspeaker:

7 inch x 5 inch permanent magnet
Part No. 20920.
Transformer — XA2
V.C. Impedance — 3 ohms at 400 C.P.S.

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.

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

Valve Complement:

(1) 6AE8 — Converter.
(2) 6BA6 — I.F. Amplifier.
(3) 6BA6 — I.F. Amplifier.
(4) 6BY7 — Detector, A.F. Amplifier, A.V.C., Output.
(5) 6X4 — Rectifier.

Undistorted Power Output 1.5 watts.

Chassis Removal:

(1) Remove the knobs by pulling them straight off their spindles.

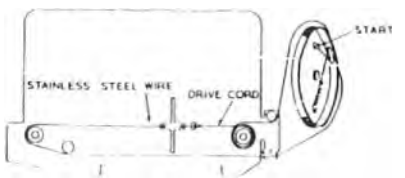
(2) Release two screws accessible through two holes in the rear of the cabinet back.

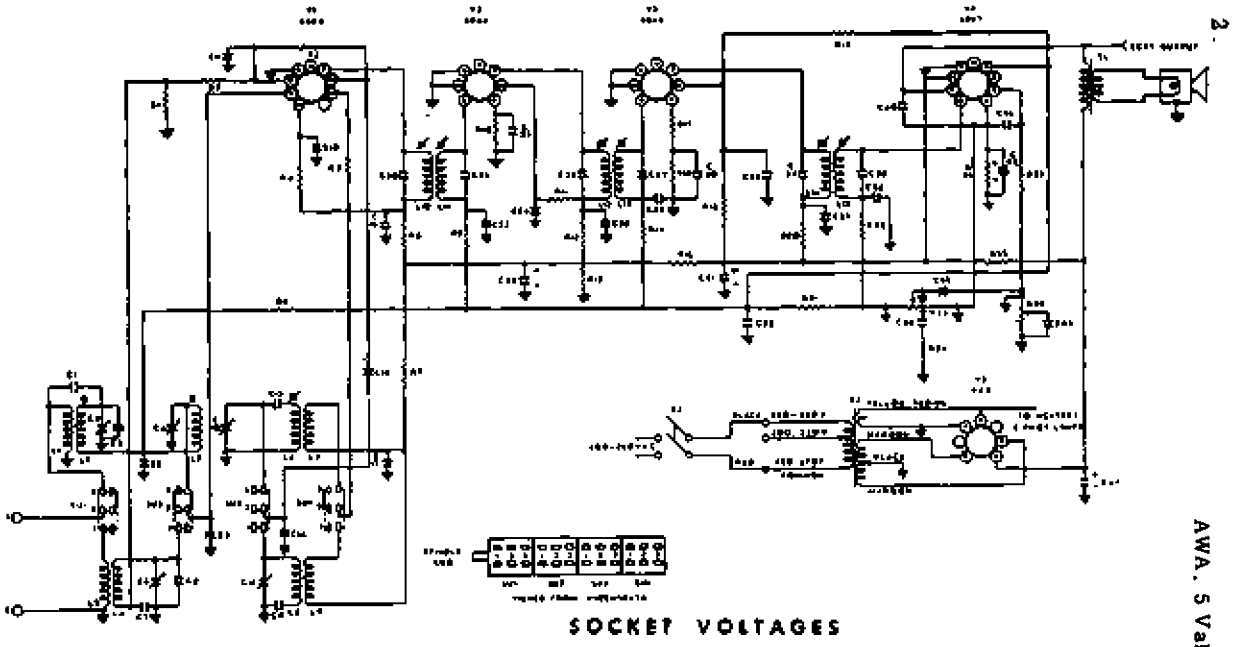
(3) Remove two screws from underneath the cabinet back and withdraw it.

(4) The chassis is held in the cabinet front by two screws situated under it. Removal of these enables the chassis to be withdrawn.

Tuning Drive Cord Replacement:

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





SOCKET VOLTAGES

VALVES		Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Heater Volts:
6AE8	Converter	4.5	80	76	1.4	6.3
6BA6	I.F. Amp.	4.5	62	72	2.0	6.3
6BA6	I.F. Amp.	4.5	95	138	5.8	6.3
6BV7	A.F. Amp., Det., A.V.C., Output	2.0	150	240	17	6.3
6X4	Rectifier	240	—	240/240 A.C. R.M.S.	—	6.3

Total H.T. Current = 42mA.

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.

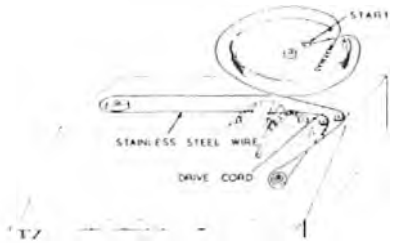
CIRCUIT CODE—RADIOLA 566-MA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1, L2	Aerial Coil 540-1600 Kc/s	30768	2	D15
L3, L4	Aerial Coil 6-18 Mc/s	15456	2	J15
L5	Aerial Coil 540-1600 Kc/s	33598	1	C5
L6, L7	Oscillator Coil 540-1600 Kc/s	7638A	2	G12
L8, L9	Oscillator Coil 6-18 Mc/s	15458	2	D10
L10, L11	1st I.F. Transformer	33594	1	H5
L12, L13	2nd I.F. Transformer	33596	1	H8
L14, L15	3rd I.F. Transformer	33596	1	H11
	RESISTORS			
R1	1,000 ohms ½ watt		2	G15
R2	470 ohms 1 "		2	H14
R3	47,000 ohms ½ "		2	J13
R4	22,000 ohms ½ "		2	H13
R5	220 ohms 1 "		2	G13
R6	0.1 megohm ½ "		2	D12
R7	39,000 ohms ½ "		2	D9
R8	2,200 ohms ½ "		2	F8
R9	0.1 megohm ½ "		2	H12
R10	1,500 ohms ½ "		2	J11
R11	10,000 ohms ½ "		2	J9
R12	2,200 ohms ½ "		2	H9
R13	15,000 ohms 1 "		2	G9
R14	0.1 megohm ½ "		2	H9
R15	6,000 ohms 2 "		2	F10
R16	390 ohms 1 "		2	F8
R17	220 ohms 1 "		2	H8
R18	22,000 ohms ½ "		2	G7
R19	10 megohms ½ "		2	H8
R20	2,200 ohms ½ "		2	H7
R21	1.8 megohms ½ "		2	H6
R22	47,000 ohms ½ "		2	H7
R23	0.5 megohm Volume Control	32815	2	C2
R24	33,000 ohms ½ watt		2	D1
R25	5,000 ohms 2 "		2	J4
R26	150 ohms 1 "		2	G4
R27	47,000 ohms ½ "		2	J6
R28	1 megohm Tone Control (Incl. S2)	32815	2	D2
	CAPACITORS			
C1	6.8 μμF ceramic		2	D15
C2	4-27 μμF trimmer	33304	2	D18
C3	12-445 μμF tuning	18631	1	F3
C4	4-27 μμF trimmer	33304	2	D11
C5	0.05 μF paper 200V working		2	D12
C6	2-20 μμF air trimmer	19659	2	J15
C7	0.05 μF paper 200V working		2	H16

Code No.	Description	Part No.	Fig. No.	Location
C8	10 μμF mica		2	G14
C9	12-445 μμF tuning	18631	1	F4
C10	8-40 μμF trimmer Simplex General		2	F13
C11	0.025 μF paper 400V working		2	G15
C12	0.025 μF paper 400V working		2	G14
C13	470 μμ padder ± 2½%		2	F12
C14	12-445 μμF tuning	18631	1	F6
C15	2-20 μμF air trimmer	19659	2	F10
C16	4,000 μμF padder ± 2½%		2	D8
C17	0.025 μF paper 400V working		2	C9
C18	47 μμF mica		2	H13
C19	0.025 μF paper 400V working		2	K13
C20	150 μμF silvered mica (in 1st I.F.)		1	H5
C21	150 μμF silvered mica (in 1st I.F.)		1	H5
C22	0.025 μF paper 400V working		2	G11
C23	8 μF 525 P.V. electrolytic		1	G8
C24	0.025 μF paper 400V working		2	H11
C25	0.025 μF paper 400V working		2	G13
C26	150 μμF silvered mica (in 2nd I.F.)		1	H8
C27	150 μμF silvered mica (in 2nd I.F.)		1	H8
C28	0.025 μF paper 400V working		2	K10
C29	0.025 μF paper 400V working		2	G10
C30	0.025 μF paper 400V working		2	F8
C31	24 μF 350 P.V. electrolytic		1	E9
C32	0.025 μF paper 400V working		2	F6
C33	0.025 μF paper 400V working		2	F9
C34	220 μμF silvered mica (in 3rd I.F.)		1	H11
C35	220 μμF silvered mica (in 3rd I.F.)		1	H11
C36	100 μμF ceramic		2	H6
C37	0.025 μF paper 400V working		2	K8
C38	0.025 μF paper 400V working		2	G1
C39	0.05 μF paper 200V working		2	F6
C40	0.0025 μF paper 600V working		2	H6
C41	100 μμF ceramic		2	H6
C42	25 μF 40 P.V. electrolytic		2	G4
C43	0.01 μF paper 600V working		2	D5
C44	24 μF 350 P.V. electrolytic		1	E13
	TRANSFORMERS			
T1	Loudspeaker Transformer	XA2	1	D11
T2	Power Transformer 50-60 C.P.S.	25807G	1	F15
	40 C.P.S.	25809G		
	LOUDSPEAKER			
	7" x 5" Permanent Magnet	20920	1	C11
	SWITCHES			
S1	Range Switch	34167	2	F14
S2	Power-Tone Switch (on R28)		2	C2

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.

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

230–260 VOLTS

200–230 VOLTS

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 2R7003, or

(2) A.W.A. Modulated Oscillator, series J8726
If the modulated oscillator is used, connect a 0.25 meg ohm 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 receiver is tuned to receive a 16 Mc/s signal, the image will be heard at 16.9 Mc/s instead of the usual 15.09 Mc/s.

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 (4QI)	L12 Core
2	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (4QI)	L11 Core
3	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s (4QI)	L10 Core
4	Aerial Section of Gang (Drive End)	455 Kc/s.	540 Kc/s (4QI)	19 Core
Repeat the above adjustments until the maximum output is obtained				
5	Aerial Lead	600 Kc/s	600 Kc/s (7Z1)	I.F. Osc. Core Adj. (B8)*
6	Aerial Lead	1500 Kc/s	1500 Kc/s (3AK)	H.F. Osc. Adj. (C9)
7	Aerial Lead	1500 Kc/s	1500 Kc/s (3AK)	H.F. Acc. Adj. (C6)
Repeat adjustments 5, 6 and 7.				
8	Aerial Lead	16 Mc/s	16 Mc/s	H.F. Osc. Adj. (C7)†
9	Aerial Lead	16 Mc/s	16 Mc/s	H.F. Acc. Adj. (C2)†

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

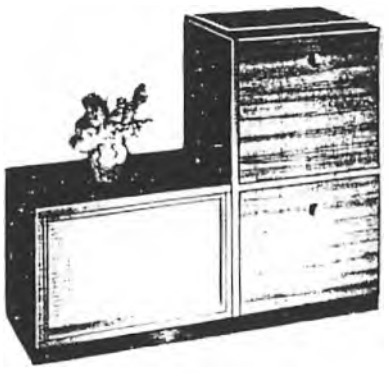
† Use maximum capacity peak if two can be obtained. Check to determine that the receiver has been adjusted to correct peak by tuning the receiver to approximately 16.91 Mc/s where a weaker signal should be obtained.

RADIOLA

Models 570-GA (Z) and 572-GA (Z)

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

ISSUED BY: AMALGAMATED WIRELESS (AUSTRALASIA) LTD.



572 GA

570 GA

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

Receiver	40 watts
Record Player	17 watts

Dial Lamps

6.3 volts, 0.25 amp. M.E.S.

Valve Complement.

1. 6B16 Converter
2. 6BA6 I.F. Amplifier
3. 6AV8 Detector, A.F. Amplifier, A.V.C.
4. 6BV7 Output
5. 6X4 Rectifier

Loudspeakers:

(Model 570-GA
5 inch permanent magnet No. 20931
and
12 inch permanent magnet No. 20929
Transformer No. 31722H
V.C. Impedance 3 ohms at 400 C.P.S.

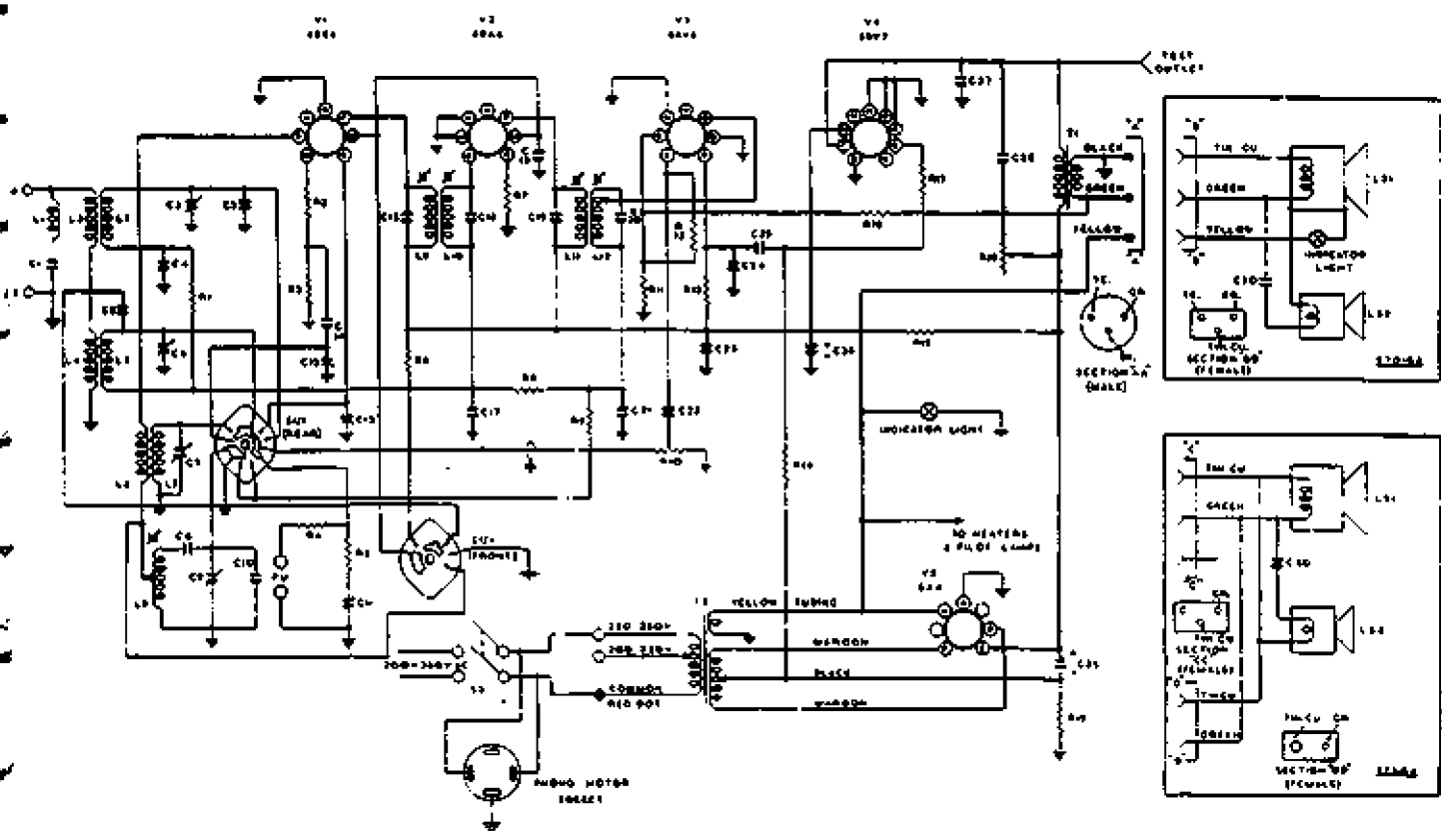
Model 572-GA
5 inch permanent magnet No. 20931
and
12 inch permanent magnet No. 20930
Transformer No. 31722H
V.C. Impedance 3 ohms at 400 C.P.S.

NOTE On later models of 570-GA(J) and 572-GA(J) the 12 inch permanent magnet speakers are changed to No. 21009 and No. 21010 respectively. The transformer used is No. 20996A and the V.C. impedance is 6 ohms in both cases.

Undistorted Power Output 2.5 Watts

Chassis Removal

(1) Remove the cabinet back.
(2) Disconnect the loudspeaker, Pick-up and Phono-motor cables.
(3) Remove two bolts holding the chassis to the wood blocks supporting it.
(4) the chassis is now free to lift out.



SOCKET VOLTAGES

VALVES		Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Heater Volts:
6BE6	Converter		90	185	2	6.3
6BA6	I.F. Amp.	2	90	185	4.5	6.3
6AV6	Det., A.F. Amp., A.V.C.	–	–	130	1	6.3
6BV7	Output	–	185	245	24	6.3
6X4	Rectifier	250	–	235/235		6.3

Total H.T. Current = 45 mA. Back Bias across R6 = 4.5V.

Measured at 240 volts A.C. supply. No signal input. Volume Control maximum clockwise.

Voltmeter 1,000 ohms per volt; measurements taken on highest scale giving accurate readable deflection.

CIRCUIT CODE—RADIOLAS 570-GA, 572-GA

Code No.	Description	Part No.	Location
	INDUCTORS		
L1	I.F. Filter (Including C1)	9382	D2
L2, L3	Aerial Coil 6-18 Mc/s	30710	E6
L4, L5	Aerial Coil 540-1600 Kc/s	30768	E5
L6, L7	Oscillator Coil 6-18 Mc/s	28229	E3
L8	Oscillator Coil 540-1600 Kc/s	32406	F3
L9, L10	1st I.F. Transformer	27351	B7
L11, L12	2nd I.F. Transformer	27353	B10
	RESISTORS		
R1	0.1 megohm ½ watt		D5
R2	100 ohms ½ "		D5
R3	22,000 ohms ½ "		D5
R4	0.47 megohm ½ "		E10
R5	0.39 megohm ½ "		E10
R6	11,000 ohms 2 "		E8
R7	330 ohms ½ "		D9
R8	2.2 megohms ½ "		D10
R9	47,000 ohms ½ "		D10
R10	0.5 megohm volume control	32809/1	H14
R11	30 ohms ½ watt		F10
R12	10 megohms ½ "		E10
R13	47,000 ohms 1 "		E11
R14	0.22 megohm ½ "		E12
R15	3,400 ohms 2 "		F12
R16	1,000 ohms ½ "		E10
R17	4,700 ohms ½ "		D12
R18	0.1 megohm tone control (incl. S2)	32809/1	G14
R19	100 ohms 1 watt		F11
	CAPACITORS		
C1	47 μμF silvered mica		D2
C2	2-20 μμF air trimmer	19659	E7
C3	9 μμF silvered mica		F6
C4	4,000 μμF padder ± 2½%		F6
C5	6.8 μμF ceramic		E4
C6	1-12 μμF trimmer	16347	D2
C7	2-20 μμF air trimmer	19659	G2

Code No.	Description	Part No.	Location
C8	440 μμF padder ± 2½%		F2
C9	4-27 μμF trimmer	33304	E2
C10	9 μμF silvered mica		F2
C11	1,000 μμF silvered mica		F10
C12	12-445 μμF tuning	18674	C5
C13	12-445 μμF tuning	18674	C4
C14	47 μμF silvered mica		D4
C15	100 μμF silvered mica (in 1st I.F.)		B7
C16	100 μμF silvered mica (in 1st I.F.)		B7
C17	0.05 μF paper 200V working		D8
C18	0.05 μF paper 400V working		D7
C19	100 μμF silvered mica (in 2nd I.F.)		B10
C20	100 μμF silvered mica (in 2nd I.F.)		B10
C21	220 μμF ceramic		D10
C22	0.01 μF paper 600V working		E11
C23	0.1 μF paper 400V working		E9
C24	100 μμF silvered mica		E11
C25	0.025 μF paper 400V working		D11
C26	24 μF 350 P.V. electrolytic		C8
C27	0.005 μF paper 600V working		E14
C28	0.05 μF paper 400V working		F13
C29	24 μF 350 P.V. electrolytic		E14
C30	2 μF paper 200V working		On Loudspeaker
	TRANSFORMERS.		
T1	Loudspeaker transformer	31772H	F10
T2	Power transformer 50-60 C.P.S	25807F	B15
	40 C.P.S.	25809F	
	SWITCHES.		
S1	Phono/Radio Switch		G3
S2	Power Switch (on R18)		F14
	LOUDSPEAKERS		
LS1	5 inch permanent magnet	20931	
LS2	12 inch permanent magnet (570-GA)	20929	
LS2	12 inch permanent magnet (572-GA)	20930	

TECHNICAL INFORMATION
AND
SERVICE DATA

AWA RADIOLA

Model 573–MA

FIVE VALVE, BROADCAST, A.C. OPERATED
SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

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 be re-adjusted only 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 2R7003 or
(2) A.W.A. Modulated Oscillator, series 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 Dial to	Adjust for Maximum Peak Output:
1	Aerial Section of Gang (Rear End)	455 Kc/s	540 Kc/s	L7 Core
2	Aerial Section of Gang (Rear End)	455 Kc/s	540 Kc/s	L6 Core
3	Aerial Section of Gang (Rear End)	455 Kc/s	540 Kc/s	L5 Core
4	Aerial Section of Gang (Rear End)	455 Kc/s	540 Kc/s	L4 Core
	Repeat the above adjustments until the maximum output is obtained			
5	Inductively coupled to Rod Aerial*	600 Kc/s.	600 Kc/s	L.F. Osc. Core Adj. (L3)†
6	Inductively coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C8)
7	Inductively coupled to Rod Aerial*	1500 Kc/s.	1500 Kc/s	H.F. Aer. Adj. (C3)
	Repeat adjustments 5, 6 and 7			

*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.

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	7" x 5" Permanent Magnet
Part No. 20922	
Transformer 20976	
V.C. Impedance 3 ohms at 400 C.P.S.	
Undistorted Power Output	3 watts
Valve Complement	
(1) 6B16 Converter	
(2) 6BA6 I.F. Amplifier	
(3) 6AV6 A.F. Amplifier, Detector, A.V.C.	
(4) 6AQ5 Output	
(5) 6X4 Rectifier	
Dial Lamps	6.3 volt 0.25 Amp. M.E.S.

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 inside the cabinet.

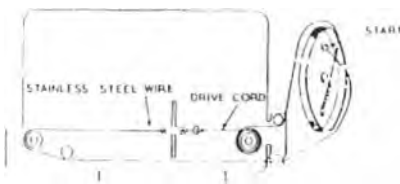
The power supply connections are shown in the accompanying diagram.

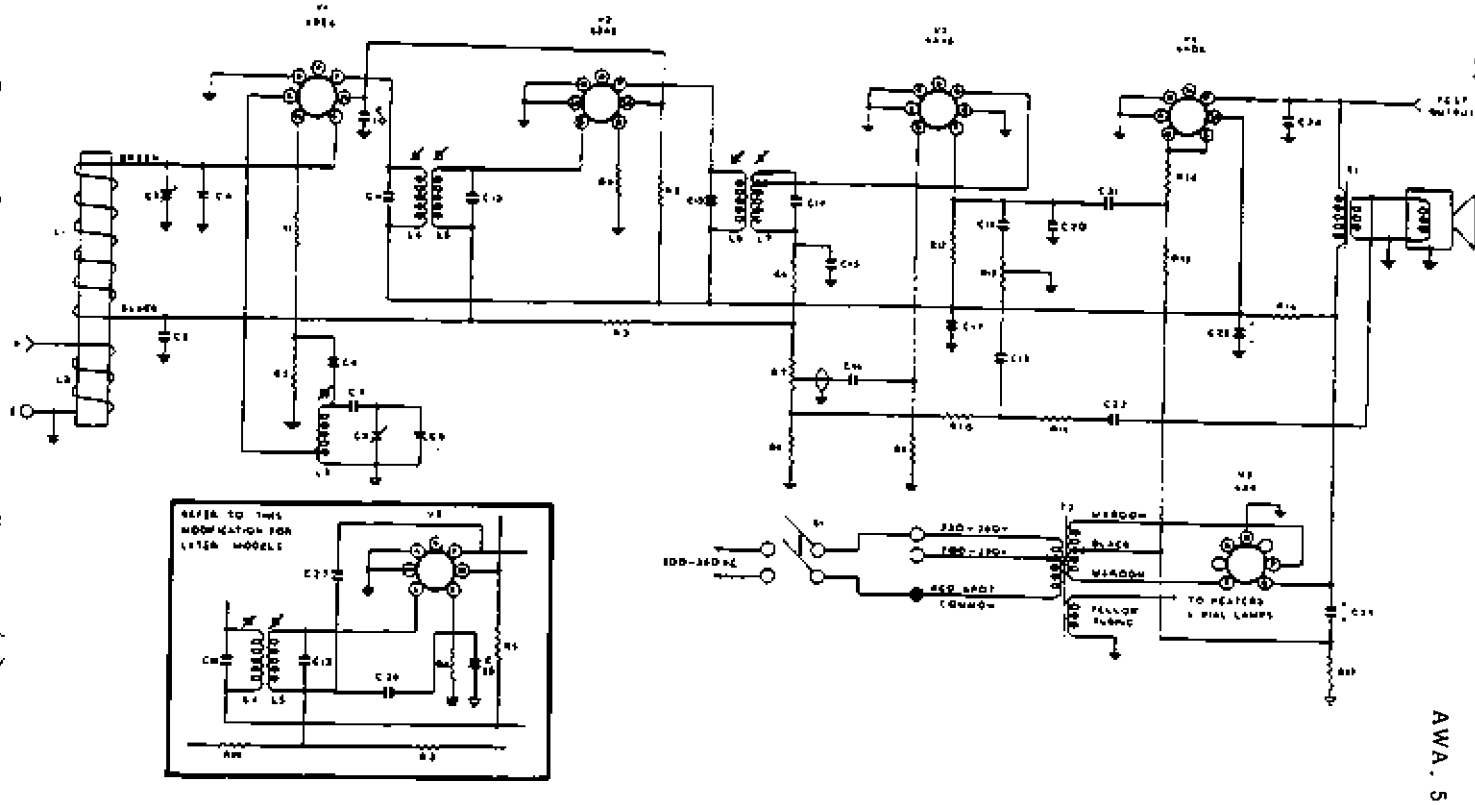
RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

230–260 VOLTS | 200–230 VOLTS

Tuning Drive Cord Replacement.

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





SOCKET VOLTAGES

Valves	Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis: Volts:	Anode Current mA:	Volts: Heater
6B6 Converter	—	85	165	2	6.3
6BA6 I.F. Amp.	1.5	85	165	4.5	6.3
6AV6 Det., A.F. Amp., A.V.C.	—	—	80	1	6.3
6AQ5 Output	—	165	240	29	6.3
6X4 Rectifier	250	—	235/235 A.C. R.M.S.		6.3

Volts across Back-bias resistor R17 = 7.5.

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.

CIRCUIT CODE, RADIOLA 573-MA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1, L2	Ferrite Aerial Assembly	34327B	1	C7
L3	Oscillator Coil 540-1600 Kc/s	32406	2	J16
L4, L5	1st I.F. Transformer	27351	1	H6
L6, L7	2nd I.F. Transformer	27353	1	H8
	RESISTORS			
R1	100 ohms ½ watt		2	H16
R2	22,000 ohms ½ "		2	F15
R3	1.5 megohms ½ "		2	G9
R4	220 ohms 1 "		2	G12
R5	10,000 ohms 1 "		2	H11
R6	47,000 ohms ½ "		2	H10
R7	0.5 megohm Volume Control	32809/3	2	C3
R8	100 ohms ½ watt		2	H9
R9	10 megohms ½ "		2	J9
R10	680 ohms ½ "		2	D5
R11	680 ohms ½ "		2	E7
R12	0.22 megohm 1 "		2	K10
R13	0.1 megohm Tone Control (incl. S1)	32809/3	2	D3
R14	47,000 ohms ½ watt		2	J7
R15	0.47 megohm ½ "		2	G6
R16	5,000 ohms 2 watts		2	J5
R17	150 ohms 1 watt		2	H2
	CAPACITORS			
C1	Not Used			
C2	Not Used			
C3	4-27 μμF trimmer	33304	1	F5
C4	12-445 μμF tuning	18685	1	F5
C5	0.05 μF paper 200V working		2	G13
C6	47 μμF mica		2	H16
C7	440 μμF padder ± 2½%		2	H16
C8	8-40 μμF trimmer		1	G3
C9	12-445 μμF tuning	18685	1	F3
C10	0.1 μF paper 400V working		2	G13
C11	100 μμF silvered mica (in 1st I.F.)		1	H6
C12	100 μμF silvered mica (in 1st I.F.)		1	H6
C13	100 μμF silvered mica (in 2nd I.F.)		1	H8
C14	100 μμF silvered mica (in 2nd I.F.)		1	H8
C15	220 μμF ceramic		2	H10
C16	.01 μF paper 600V working		2	G9
C17	0.1 μF paper 400V working		2	E10
C18	0.25 μF paper 200V working		2	D5
C19	0.01 μF paper 600V working		2	E5
C20	100 μμF mica		2	J8
C21	0.05 μF paper 400V working		2	G7
C22	0.4 μF paper 200V working		2	G8
C23	24 μF 350 P.V. Electrolytic		1	F8
C24	0.0025 μF paper 600V working		2	H5
C25	24 μF 350 P.V. Electrolytic		1	E13
	TRANSFORMERS			
T1	Loudspeaker Transformer	20976	1	G11
T2	Power Transformer, 50 C.P.S.	25807G	1	F15
	40 C.P.S.	25809G		
	LOUDSPEAKER			
	7 x 5 inches Permanent Magnet	20922	1	B11
	SWITCHES			
S1	Power Switch (on R13)		7	D3

hassis Removal

To remove the chassis from the cabinet open the back nd disconnect the speaker cable and batteries. Unsolder e loop aerial leads and pull them back through the gu des n the side of the cabinet.

Remove the knobs by pulling them straight off their pindles. Remove a screw under each knob when the crown nk covers may be lifted off. The screw under each cover n being removed allows the chassis to be withdrawn.

When replacing the chassis pass the loop leads through the guides, keeping the green lead separate from the black and white, and solder the green lead to the panel so that it connects to the inside of the loop winding.

Note that the link covers are slightly different and must be replaced on the correct side, the one marked "TUNE" on the tuning spindle side and the one marked "VOL" on the volume control side.

ALIGNMENT PROCEDURE

anufacturer's Setting of Adjustments:

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

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

Under no circumstances should the plates of the ganged uning capacitor be bent, as the unit is accurately aligned luring manufacture and cannot be re-adjusted unless by killed 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 2R7001.

(2) A.W.A. Modulated Oscillator, series 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 2M6832.

ALIGNMENT TABLE—MODEL 575-P

Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for maximum peak output
	NOTE: If loop leads protruding from the chassis are disconnected, connect a 1 megohm resistor across them.			
1	Grid of 1T4* (I.F. Amp.)	455 Kc/s	Gang in full mesh	I.F. and I.F. Cores
2	Aerial Section of Gang* (Drive End)	455 Kc/s	Gang in full mesh	H.F. and H.F. Cores
	Repeat adjustments 1 and 2 until the maximum output is obtained. With gang in full mesh, set the pointer to the setting mark at the right-hand end of the dial scale. Replace the cover over the receiver chassis which should then be fitted in the cabinet, the resistor removed from the loop leads and the leads then connected to the aerial in the back lid, the green lead to the inside of the loop. The batteries must be in place in the cabinet and the back closed before remainder of alignment is proceeded with.			
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7Z1)	I.F. Osc. Core Adj. (L2)§1
4	Inductively coupled to loop†	1640 Kc/s	Gang fully open	H.F. Osc. Adj. (C3)§
5	Inductively coupled to loop†	1500 Kc/s (3AK)	1500 Kc/s (3AK)	H.F. Aer. Adj. (C8)§
	Repeat adjustments 3 and 5 until the maximum output is obtained.			

* A 0.001 µF capacitor should be connected in series with the high side of the test instrument.

† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed coaxial with the loop and distant not less than 1 foot from it.

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

§ These adjustments are accessible through 3 holes in the cabinet back.

TECHNICAL INFORMATION AND SERVICE DATA

RADIOLA

Portable Model 575-P

FIVE VALVE, BROADCAST, DRY-CELL BATTERY or A.C. POWER UNIT OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD

ELECTRICAL SPECIFICATIONS

Frequency Range — 540-1600 Kc/s (555-187.5 Metres)

Intermediate Frequency — 455 Kc/s

Battery Complement

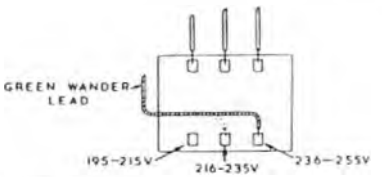
Model 575 P — "A" Battery—One 7.5 volt, type 719; "B" Battery—One 90 volt, type 490P

Model 679 P — "A" Battery—One 9.0 volt, type 765; "B" Battery—One 90 volt, type 490P

Battery Consumption

Model 575 P — "A" Battery = 50 mA; "B" Battery = 13 mA ("Full"), = 8 mA ("Save")

Model 679 P — "A" Battery = 50 mA; "B" Battery = 13 mA ("Full"), = 8 mA ("Save")



Power Unit Operation

The receiver may be operated on the following voltage ranges by altering the transformer tappings:

195-215 volts
216-235 volts
236-255 volts

With the switch in the A.C. position the 6X4 is operated as a half wave rectifier with both plates connected to the chassis, which is negative for both "A" and "B" circuits. The transformer secondary voltage is applied between cathode and load.

With the switch in the "ACTIVATE" position, one rectifier plate and "A" battery negative are disconnected from the chassis and connected together, thus isolating the "A" and "B" circuits. The 6X4 is then used as two half wave rectifiers with a common cathode.

Power Unit Frequency Range
50-60 C.P.S. and 40 C.P.S.

A.C. Power Consumption — 17 watts

- 1T4 R.F. Amplifier (679 P only)
- 1R5 Converter
- 1T4 I.F. Amplifier
- 1S5 Detector, A.F. Amplifier, A.V.C.
- 3V4 Output
- 6X4 Rectifier

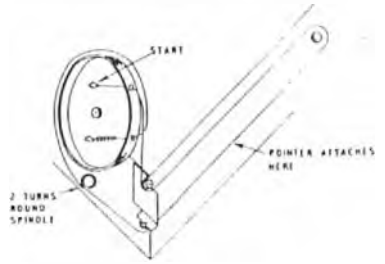
Loudspeaker (Permanent Magnet)

8 inch — Code No. AG52
Transformer — 31222A
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output — 200 milliwatts

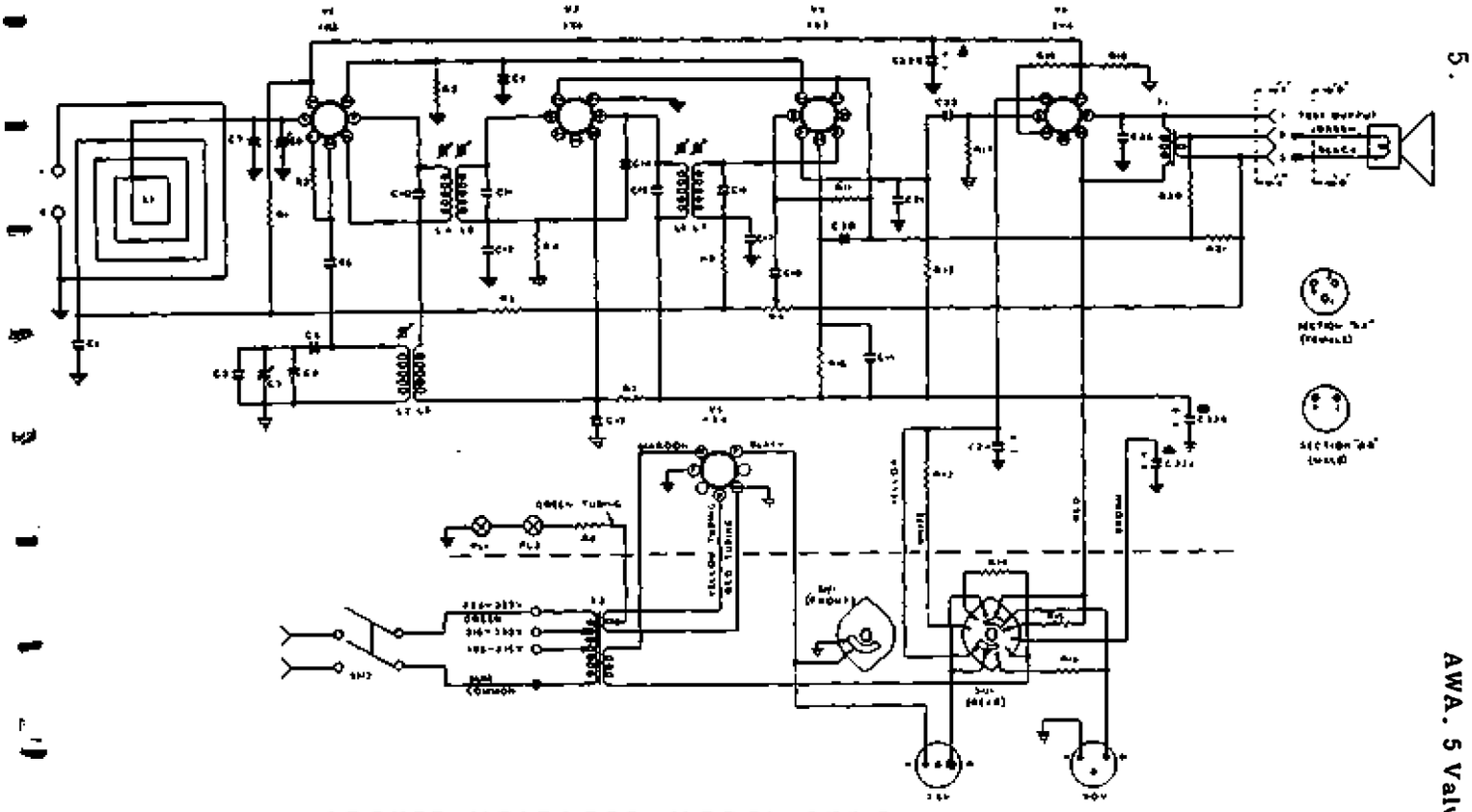
Controls

Tuning Control—right hand end of cabinet
Volume Control—top left hand end of cabinet
Power Selector Switch—bottom left hand end of cabinet



Drive Cord Replacement

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



SOCKET VOLTAGES—MODEL 575-P

VALVES		Bias Volts	Screen to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Filament Volts:
1R5	Converter	*	48	48	0.5	1.3-1.4
1T4	I.F. Amp.	*	48	90	2.0	1.3-1.4
1S5	Det., A.F. Amp., A.V.C.	*	25*	35*	0.1	1.3-1.4
3V4	Output	-4.5	90	88	6.5	2.6-2.8

* Cannot be measured with an ordinary voltmeter.
Measured with no signal input. Volume Control maximum clockwise.
A.C. Power Unit Operation:—
H.T. Secondary Volts = 130V A.C.
6X4 Cathode to Chassis Volts = 120V D.C.
Heater Volts = 6.3V A.C.

CIRCUIT CODE — MODEL 575-P

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Loop Aerial Coil	31841		
L2, L3	Oscillator Coil 540-1600 Kc/s	30777	2	B13
L4, L5	1st I.F. Transformer	27324	1	H7
L6, L7	2nd I.F. Transformer	27324	1	G7
	RESISTORS			
R1	3.3 megohms ½ watt ± 10%		2	D14
R2	0.1 megohm ½ " " "		2	E13
R3	820 ohms ½ " " "		2	F14
R4	4.7 megohms ½ " " "		2	D12
R5	3.3 megohms ½ " " "		2	B12
R6	4 ohms ½ " " "		2	D5
R7	13,000 ohms ½ " " 5%		2	C11
R8	47,000 ohms ½ " " 10%		2	B12
R9	1.0 megohm Volume Control	28311	2	C3
R10	3.3 megohms ½ watt ± 10%		2	C10
R11	10 megohms ½ " " "		2	D7
R12	0.47 megohm ½ " " "		2	B8
R13	1,100 ohms 3 " (Wirewound ± 5%)		2	F6
R14	1,200 ohms 3 " (Wirewound ± 5%)		1	E13
R15	1,800 ohms 1 " " 10%		1	C14
R16	470 ohms ½ " " "		1	C13
R17	1.0 megohm ½ " " "		2	C6
R18	470 ohms ½ " " "		2	B7
R19	820 ohms ½ " " "		2	E5
R20	330 ohms ½ " " "		2	C4
R21	30 ohms ½ " " "		2	C4
	CAPACITORS			
C1	0.05 μF paper 200V working		2	C13
C2	9 μμF mica		1	E3
C3	3-25 μμF trimmer	27526	2	B14
C4	12-445 μμF tuning	18621	1	G4
C5	470 μμF padder ± 2½%		2	B14
C6	68 μμF silvered mica		2	D13
C7	12-445 μμF tuning	18621	1	G3
C8	3-25 μμF trimmer	27526	2	B15
C9	0.1 μF paper 200V working		2	E15
C10	47 μμF silvered mica (in 1st I.F.)		1	H7
C11	47 μμF silvered mica (in 1st I.F.)		1	H7
C12	0.01 μF paper 600V working		2	D10
C13	0.05 μF paper 200V working		2	D14
C14	6.8 μμF ceramic		2	C12
C15	47 μμF silvered mica (in 2nd I.F.)		1	G7
C16	47 μμF silvered mica (in 2nd I.F.)		1	G7
C17	200 μμF mica		2	B2
C18	0.01 μF paper 600V working		2	E5
C19	0.01 μF paper 600V working		2	A8
C20	0.05 μF paper 200V working		2	D8
C21	100 μμF silvered mica		2	C8
C22A	50 μF 150 W.V. electrolytic		1	G12
C22B	40 μF 150 W.V. electrolytic		1	G12
C22C	40 μF 25 W.V. electrolytic		1	G12
C23	0.01 μF paper 600V working		2	D8
C24	400 μF 12 P.V. electrolytic		2	E9
C25	0.0025 μF paper 600V working		2	D4
	TRANSFORMERS			
T1	Loudspeaker Transformer	31727A	1	H10
T2	Power Transformer, 50 c.p.s.	25835	1	F13
	40 c.p.s.	25837		
	LOUDSPEAKER			
	6" permanent magnet	AG52		
	SWITCHES			
S1	Power Selector	31835	1	D13
	PILOT LAMP			
PL1	2.5V 0.2 Amp. M.E.S.		2	E1
PL2	2.5V 0.2 Amp. M.E.S.		2	E17

5. SERVICE DATA

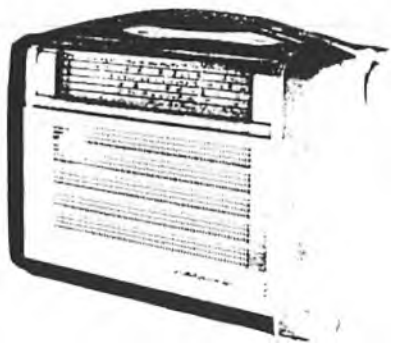
RADIOLA

AND

Portable Model 577-P

FIVE VALVE, BROADCAST, DRY-CELL BATTERY OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.



ELECTRICAL SPECIFICATIONS

Frequency Range ..... 540-1600 Kc/s (555-187.5 metres)

Intermediate Frequency ..... 455 Kc/s

Battery Complement:
"A" Battery:—One 1.5V, type 745
"B" Battery.—Two 45V, type 482

Battery Consumption:

Model 471-P	"A" Battery =	250 mA	
	"B" Battery =	13 mA	("Full")
		8 mA	("Save")
Model 577-P	"A" Battery =	300 mA	
	"B" Battery =	13 mA	("Full")
		8 mA	("Save")

Loudspeaker (Permanent Magnet).
4 inch — Code No BH4
Transformer 31727B
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output ..... 200 milliwatts

Valve Complement:
6T4 R.F. Amplifier (577-P only)
1R5 Converter
1T4 I.F. Amplifier
1S5 Detector, A.F. Amplifier, A.V.C
3V4 Output

Controls:
ON-OFF — Volume — left-hand end of cabinet
Tuning—right-hand end of cabinet
Battery "Save"/"Full"—rear of chassis

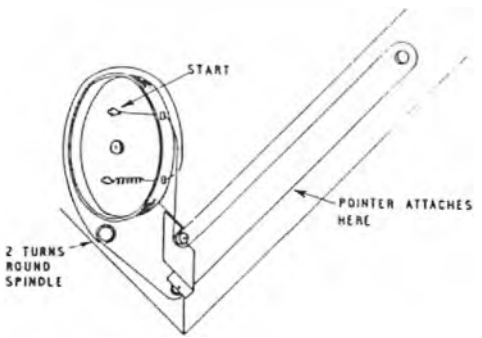
Chassis Removal:

To remove the chassis from the cabinet open the back and disconnect the speaker cable and batteries. Unsolder the loop aerial leads and pull them back through the guides on the side of the cabinet.

Remove the knobs by pulling them straight off their spindles. Remove a screw under each knob when the cream link covers may be lifted off. The screw under each cover on being removed allows the chassis to be withdrawn.

When replacing the chassis pass the loop leads through the guides, keeping the green lead separate from the black and white, and solder the green lead to the panel so that it connects to the inside of the loop winding.

Note that the link covers are slightly different and must be replaced on the correct side, the one marked "TUNE" on the tuning spindle side and the one marked "VOL" on the volume control side.



Drive Cord Replacement:

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

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 are 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, 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 J6776.
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 2M6832

D.C. RESISTANCE OF WINDINGS

MODEL 577-P

Winding	D.C. Resistance in ohms
R.F. Coil	
Primary (L2)	100
Secondary (L3)	4
Oscillator Coil	
Primary (L5)	1
Secondary (L4)	4
1st I.F. Transformer Windings	25
2nd I.F. Transformer Windings	20
Loudspeaker Input Transformer (T1)	
Primary	450
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

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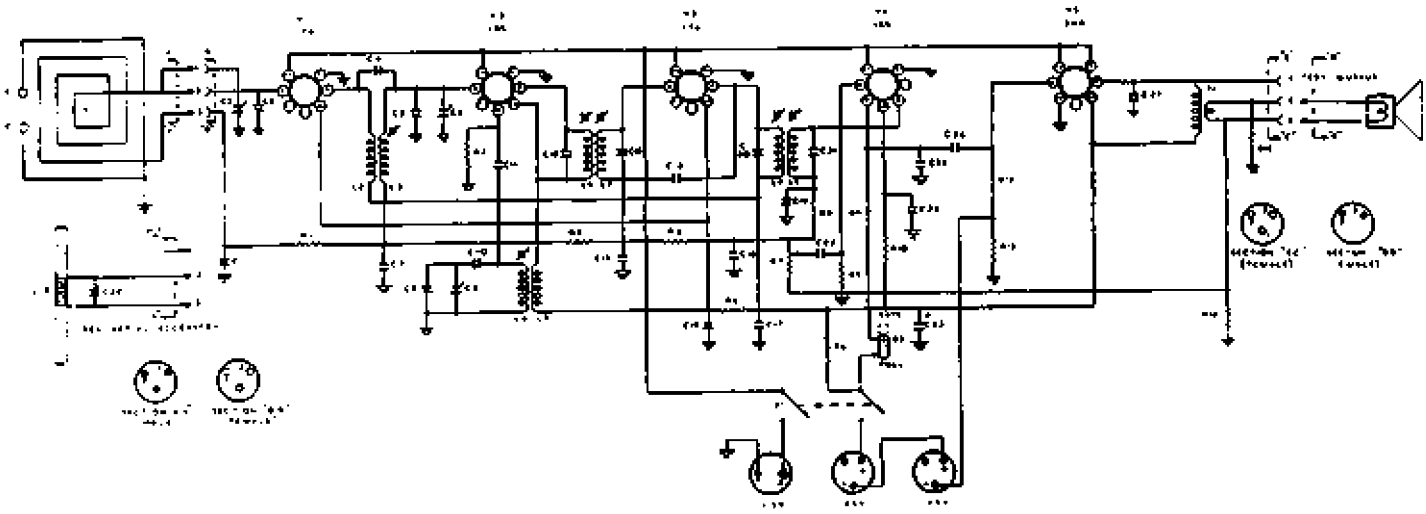
ALIGNMENT TABLE—MODEL 577-P

Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for maximum peak output:
	NOTE: If loop leads protruding from the chassis are disconnected, connect a 1.0 megohm resistor across them.			
1	Grid of 6T4* (I.F. Amp.)	455 Kc/s	Gang in full mesh	L9 and L8 Cores
2	Grid of 1R5* (Rear Section of Gang)	455 Kc/s	Gang in full mesh	L7 and L6 Cores
	Repeat adjustments 1 and 2 until the maximum output is obtained. With gang in full mesh, set the pointer to the setting mark at the right-hand end of the dial scale. Replace the cover over the receiver chassis which should then be fitted in the cabinet, remove the resistor from the loop leads and connect them to the aerial in the cabinet back, the green lead to the inside of the loop. The batteries must be in place in the cabinet and the back closed for alignment of aerial circuits. Connect a 10,000 ohm resistor from the rear section of the gang to chassis.			
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	I.F. Osc. Core Adj. (L4)‡§
4	Inductively coupled to loop†	1640 Kc/s	Gang fully open	H.F. Osc. Adj. (C9)§
5	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (3AK)	H.F. Aer. Adj. (C2)‡
	Repeat adjustments 3 and 5 until maximum output is obtained. Remove the 10,000 ohm resistor.			
6	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	I.F. R.F. Core Adj. (L3)§
7	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (3AK)	H.F. R.F. Adj. (C6)‡
	Repeat adjustments 6 and 7 until maximum output is obtained and finally check adjustments 3 and 5			

* A 0.001 μF capacitor should be connected in series with the high side of the test instrument
† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed co-axial with the loop and distant not less than 1 foot from it.
‡ Rock the tuning control back and forth through the signal
§ Open the back to make this adjustment and then close to complete alignment
‡ These adjustments are accessible through 4 holes in the cabinet back



SOCKET VOLTAGES—MODEL 577-P

	VALVE	Bias Volts	Screen to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts
1T4	R.F. Amp.	0	35	85	1.0	1.5
1R5	Converter	0	35	35	0.2	1.5
1T4	I.F. Amp.	0	35	85	1.0	1.5
1S5	Det., A.F. Amp., A.V.C.	0	20*	30*	0.1	1.5
3V4	Output	-5	85	82	6.5	1.5

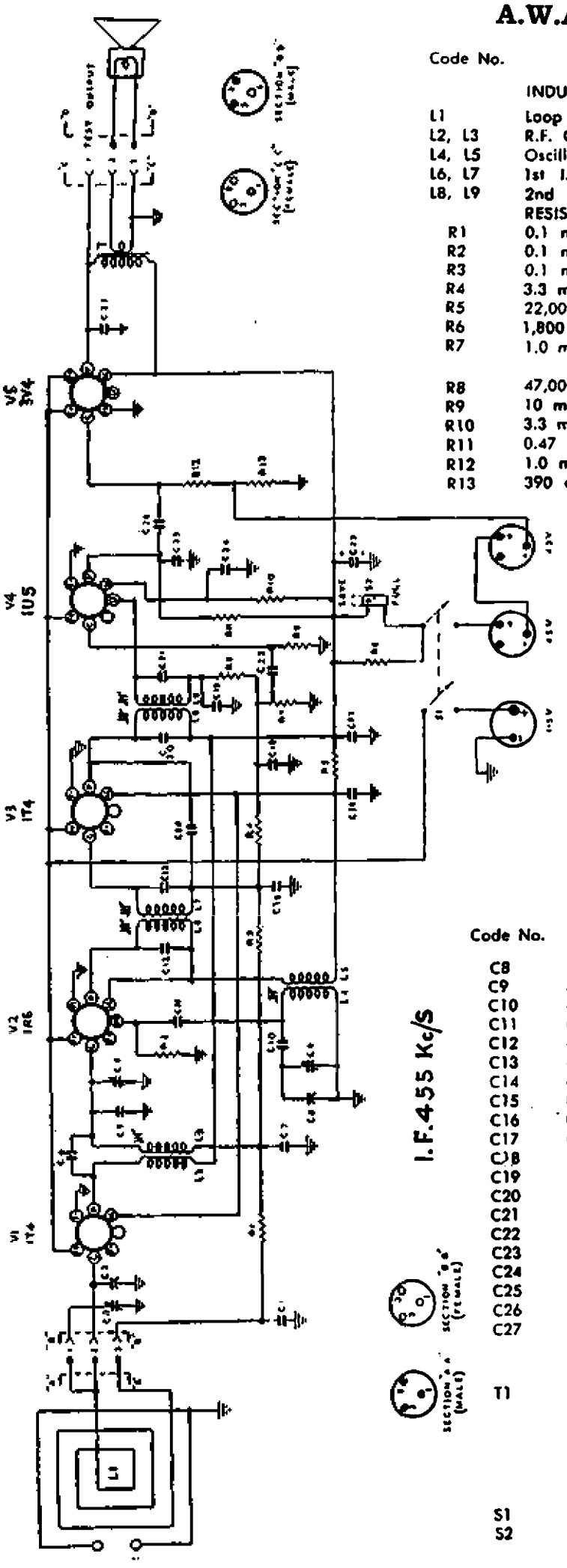
* Cannot be measured with an ordinary voltmeter.

Measured with no signal input. Volume Control maximum clockwise.

CIRCUIT CODE — RADIOLA 577-P

Code No.	Descriptions	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Loop Aerial Coil	31841		
L2, L3	R.F. Coil 540–1600 Kc/s.	30784	4	C13
L4, L5	Oscillator Coil 540-1600 Kc/s.	30777	4	C12
L6, L7	1st I.F. Transformer	27324	3	F6
L8, L9	2nd I.F. Transformer	27351	3	C7
	RESISTORS			
R1	0.1 megohm ½ watt ± 10%		4	E14
R2	0.1 megohm ½ " "		4	F14
R3	0.1 megohm ½ " "		4	E12
R4	3.3 megohms ½ " "		4	C12
R5	22,000 ohms ½ " "		4	E12
R6	1,800 ohms ½ " "		4	C5
R7	1.0 megohm Volume Control (includes S1)	27530	4	D2
R8	47,000 ohms ½ watt ± 10%		4	B11
R9	10 megohms ½ " "		4	F7
R10	3.3 megohms ½ " "		4	D10
R11	0.47 megohms ½ " "		4	C8
R12	1.0 megohm ½ " "		4	D6
R13	390 ohms ½ " ± 5%		4	E7
R14	30 ohms ½ "		4	D4
R15	330 ohms ½ "		4	C4
	CAPACITORS			
C1	0.05 μF paper 200V working		4	C16
C2	3-25 μμF Trimmer	27526	4	B16
C3	12-445 μμF Tuning	30785	3	D2
C4	6.8 μμF ceramic		4	F15
C5	12-445 μμF Tuning	30785	3	D6
C6	3-25 μμF Trimmer	27526	4	B14
C7	0.05 μF paper 200V working		4	E15
C8	12-445 μμF Tuning	30785	4	D4
C9	5-50 μμF Trimmer	31954	3	A5
C10	470 μμF pedder ± 2½%		4	C13
C11	68 μμF silvered mica		4	E12
C12	47 μμF silvered mica (in 1st I.F.)		3	F6
C13	47 μμF silvered mica (in 1st I.F.)		3	F6
C14	6.8 μμF ceramic		4	C12
C15	0.01 μF paper 600V working		4	E10
C16	0.05 μF paper 200V working		4	D13
C17	0.1 μF paper 200V working		4	F6
C18	100 μμF silvered mica		4	C12
C19	100 μμF silvered mica		4	C12
C20	100 μμF silvered mica (in 2nd I.F.)		3	C7
C21	100 μμF silvered mica (in 2nd I.F.)		3	C7
C22	0.01 μF paper 600V working		4	F5
C23	20 μF 200 P.V. electrolytic		3	E12
C24	0.05 μF paper 200V working		4	E10
C25	100 μμF silvered mica		4	C8
C26	0.01 μF paper 600V working		4	D8
C27	0.0025 μF paper 600V working		4	C4
C28	1-10 μμF trimmer	33155		
	TRANSFORMERS			
T1	Loudspeaker Transformer	317278	1.3	D14
	LOUDSPEAKER			
	4" Permanent Magnet	8H4		
	SWITCHES			
S1	Power Switch on R7		2.4	D3
S2	Battery Save Switch	22775	2.4	B5

A.W.A. RADIOLA 577PZ



Code No.	Description			Location
	INDUCTORS			
L1	Loop Aerial Coil			
L2, L3	R.F. Coil 540-1600 Kc/s			C14
L4, L5	Oscillator Coil 540-1600 Kc/s			C12
L6, L7	1st I.F. Transformer			H8
L8, L9	2nd I.F. Transformer			D10
	RESISTORS			
R1	0.1 megohm	½ watt	± 10%	E15
R2	0.1 megohm	½ "	"	F14
R3	0.1 megohm	½ "	"	E13
R4	3.3 megohms	½ "	"	B11
R5	22,000 ohms	½ "	"	D13
R6	1,800 ohms	½ "	"	C5
R7	1.0 megohm Volume Control (includes S1)			D3
R8	47,000 ohms	½ watt	± 10%	B11
R9	10 megohms	½ "	"	E8
R10	3.3 megohms	½ "	"	C10
R11	0.47 megohms	½ "	"	B9
R12	1.0 megohm	½ "	"	D7
R13	390 ohms	½ "	± 5%	D6

CAPACITORS

C1	0.05 μF paper 200V working	C16
C2	3-25 μμF trimmer	B16
C3	12-445 μμF tuning	D3
C4	6.8 μμF ceramic	E15
C5	12-445 μμF tuning	D7
C6	3-25 μμF trimmer	B15
C7	0.05 μF paper 200V working	D15

Code No.	Description	Location
C8	12-445 μμF tuning	D5
C9	5-50 μμF trimmer	D6
C10	470 μμF padder ± 2½%	C13
C11	68 μμF silvered mica	E13
C12	47 μμF silvered mica	F13
C13	47 μμF silvered mica	F13
C14	6.8 μμF ceramic	C12
C15	0.01 μF paper 600V working	E10
C16	0.05 μF paper 200V working	C14
C17	0.1 μF paper 200V working	F7
C18	100 μμF silvered mica	D11
C19	100 μμF silvered mica	B13
C20	100 μμF silvered mica	C11
C21	100 μμF silvered mica	C11
C22	0.01 μF paper 600V working	E5
C23	20 μF 200 P.V. electrolytic	H15
C24	0 05 μF paper 200V working	D9
C25	100 μμF silvered mica	C9
C26	0.01 μF paper 600V working	C8
C27	0 0025 μF paper 600V working	B9
	TRANSFORMER	
T1	Loudspeaker Transformer	F17
	LOUDSPEAKER	
	4" Permanent Magnet	
	SWITCHES	
S1	Power Switch on R7	D4
S2	Battery Save Switch	B6

TECHNICAL INFORMATION AND SERVICE DATA

RADIOLA

Portable Models 581-P & 581-PZ

FIVE VALVE, BROADCAST, DRY-CELL BATTERY or A.C. POWER UNIT OPERATED SUPERHETERODYNE

Issued by:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

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 megohm non-inductive resistor across the output terminals.

(3) A.W.A. Output Meter, type 2MBB32.

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	L7 Core
2	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L6 Core
3	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L5 Core
4	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L4 Core
Repeat the above adjustments until the maximum output is obtained				
5	Inductively coupled to Rod Aerial*	600 Kc/s	600 Kc/s	L.F. Osc. Core Adj. (L2)
6	Inductively coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C4)
7	Inductively coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C3)
Repeat adjustments 5, 6 and 7.				

* 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

VALVES	Bias Volts	Screen to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts	
1R5 Converter	–	48	48	0.5	1.3	1.4
1T4 I.F. Amp.	–	48	90	2.0	1.3	1.4
1S5 or 1U5 Det. A.F. Amp. A.V.C.		25*	35*	0.1	1.3	1.4
3V4 Output	4.5	90	88	6.5	2.6	2.8

* Cannot be measured with an ordinary voltmeter.
Measured with no signal input. Volume control maximum clockwise.
A.C. Power Unit Operation.
H.T. Secondary Volts 330 AC
6X4 Cathode to Chassis Volts 120V DC
Heater Volts 6.3V AC

4
521

ELECTRICAL SPECIFICATIONS

Frequency Range — 540-1600 Kc/s (555-187.5 Metres)

Intermediate Frequency — 455 Kc/s

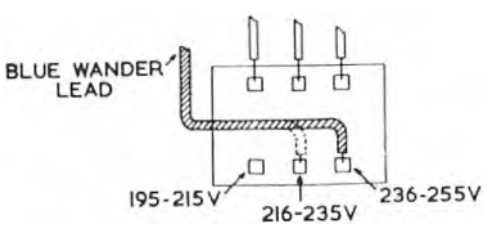
Battery Complement:
"A" Battery = One 7.5 volt type 719
"B" Battery = One 90 volt type 490-P

Battery Consumption:
"A" Battery = 50 mA
"B" Battery = 13 mA ("Full")
8 mA ("Save")

Power Unit Operation:

The receiver may be operated on the following voltage ranges by altering the transformer tappings:—

195-215 volts
216-235 volts
236-255 volts



With the switch in the AC position, the 6X4 is operated as a half wave rectifier with both plates connected to the chassis, which is negative for both "A" and "B" circuits. The transformer secondary voltage is applied between cathode and load.

With the switch in the "ACTIVATE" position, one rectifier plate and "A" battery negative are disconnected from the chassis and connected together, thus isolating the "A" and "B" circuits. The 6X4 is then used as two half wave rectifiers with a common cathode.

Power Unit Frequency Ranges:
50-60 C.P.S. and 40 C.P.S.

A.C. Power Consumption:
17 watts.

Valve Complement:
(1) 1R5 Converter
(2) 1T4 I.F. Amplifier
(3) 1S5 Detector, A.F. Amplifier, A.V.C. (581-P)
(3) 1U5 Detector, A.F. Amplifier, A.V.C. (581-PZ)
(4) 3V4 Output
(5) 6X4 Rectifier.

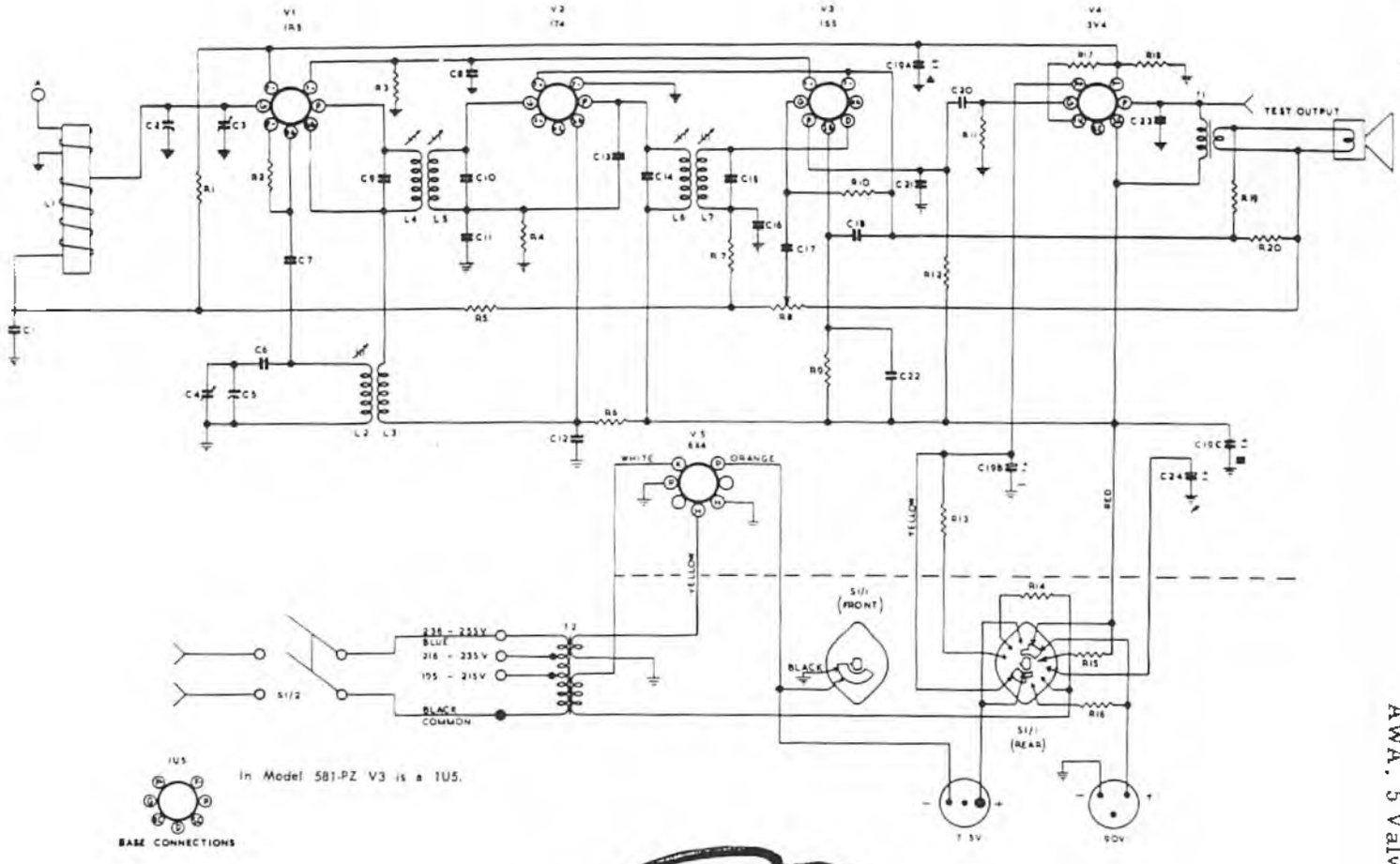
Loudspeaker:
4" permanent magnet No. 21018
Transformer No. 21135
V.C. Impedance, 16 ohms at 400 C.P.S.

Undistorted Power Output:
200 milliwatts.

Controls:
Tuning Control — front left-hand of cabinet
Volume Control — front right-hand of cabinet
Power Selector Switch — right-hand end of cabinet

Chassis Removal:

Remove the tuning control and power selector switch knobs. Remove two screws from the top of the cabinet. The chassis is now free to lift from the cabinet.

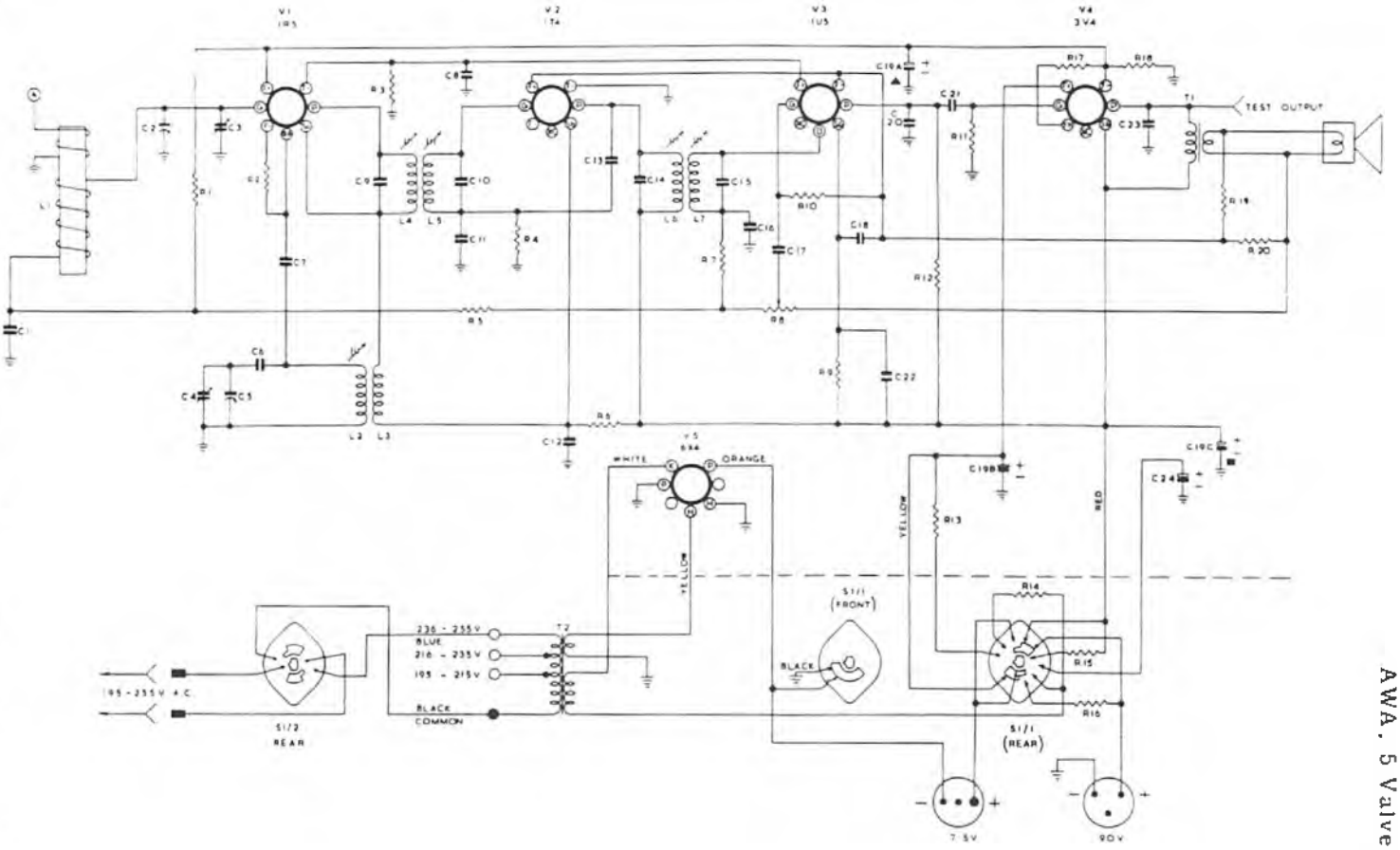


In Model 581-PZ V3 is a 1U5.

CIRCUIT CODE—RADIOLA 581-P, 581-PZ

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Ferrite Aerial Assembly	35432	1	B13
L2, L3	Oscillator Coil 540-1600 Kc/s.	30777	2	D11
L4, L5	1st I.F. Transformer	35434	1	F10
L6, L7	2nd I.F. Transformer	35434	1	G8
	RESISTORS			
R1	3.3 megohms ½ watt		2	C9
R2	0.1 megohm ½ "		2	B9
R3	820 ohms ½ "		2	C11
R4	4.7 megohms ½ "		2	D10
R5	3.3 megohms ½ "		2	C8
R6	13,000 ohms ½ "		2	E8
R7	47,000 ohms ½ "		2	D9
R8	1.0 megohm Volume Control	35267/9	2	A3
R9	3.3 megohms ½ watt		2	E3
R10	10 megohms ½ "		2	C4
R11	1.0 megohm ½ "		2	E4
R12	0.47 megohm ½ "		2	E6
R13	1100 ohms 3 watts (W.W.)		1	D3
R14	1200 ohms 3 " (W.W.)		1	D2
R15	1800 ohms 1 watt		1	G3
R16	470 ohms ½ "		1	G3
R17	470 ohms ½ "		2	E5
R18	820 ohms ½ "		2	B12
R19	820 ohms ½ "		2	D3
R20	30 ohms ½ "		2	C2
	CAPACITORS			
C1	0.047 μF paper 200V working		2	C7
C2	12-445 μμF Tuning	18687	2	E15
C3	4-27 μμF Trimmer (on gang)	33304	1	D16
C4	8-40 μμF Trimmer (on gang) Code No. 231185		1	D15
C5	12-445 μμF Tuning	18687	1	E15
C6	470 μμF padder ± 2½%		2	C12

Code No.	Description	Part No.	Fig. No.	Location
C7	68 μμF silvered mica		2	A10
C8	0.1 μF paper 200V working		2	B7
C9	47 μμF silvered mica (in 1st I.F.)		1	E10
C10	47 μμF silvered mica (in 1st I.F.)		1	E10
C11	0.01 μF paper 200V working		2	C8
C12	0.047 μF paper 200V working		2	E11
C13	6.8 μμF ceramic		2	D8
C14	47 μμF silvered mica (in 2nd I.F.)		1	E8
C15	47 μμF silvered mica (in 2nd I.F.)		1	E8
C16	220 μμF mica		2	D7
C17	0.01 μF paper 200V working (581-P)		2	B4
C17	0.047 μF paper 200V working (581-PZ)		2	B4
C18	0.047 μF paper 200V working		2	D3
C19A	40 μF 40 P.V. electrolytic		2	B14
C19B	400 μF 12 P.V. electrolytic		2	B14
C19C	*40 μF 200 P.V. electrolytic		2	B14
C20	0.0027 μF paper 400V working		2	D6
C21	100 μμF mica		2	C6
C22	0.01 μF paper 200V working		2	E4
C23	0.0047 μF paper 400V working		2	D4
C24	*50 μF 150 P.V. electrolytic		1	C3
	* On early models C19C is the 1st filter and C24 the 2nd filter. On later models C24 has been replaced by a 50/200 P.V. electrolytic and with C19C wired as shown in the circuit.			
	TRANSFORMERS			
T1	Loudspeaker Transformer	21135	1	C7
T2	Power Transformer 50 c/s	25835	1	J3
	40 c/s	25837		
	LOUDSPEAKER			
	4 inch permanent magnet	21018	1	H9
	SWITCHES			
S1	Power Selector	35274	1	F4



Apart from the Mechanical Replacement Parts and the Circuit and Code, refer to the 581-P and 581-PZ Service Manual for all other technical and mechanical information.

CIRCUIT CODE—RADIOLA PORTABLE MODEL 581-PY

Code No.	Description	Part No.
	INDUCTORS	
L1	Ferrite Aerial Assembly	35432
L2, L3	Oscillator Coil 540-1600 Kc/s	30777
L4, L5	1st I.F. Transformer	35434
L6, L7	2nd I.F. Transformer	35434
	RESISTORS	
	All resistors ± 20% unless otherwise stated.	
R1	3.3 megohms ± 10% ½ watt	
R2	0.1 megohm ½ "	
R3	820 ohms ± 10% ½ "	
R4	4.7 megohms ½ "	
R5	3.3 megohms ± 10% ½ "	
R6	13,000 ohms ± 5% ½ "	
R7	47,000 ohms ½ "	
R8	1.0 megohm Volume Control	35267/9
R9	3.3 megohms ½ "	
R10	10 megohms ½ "	
R11	1.0 megohm ½ "	
R12	0.47 megohm ½ "	
R13	1,100 ohms ± 5% 3 watts (W.W.)	
R14	1,200 ohms ± 5% 3 " (W.W.)	
R15	1,800 ohms ± 10% 1 watt	
R16	470 ohms ± 10% ½ "	
R17	470 ohms ± 10% ½ "	
R18	820 ohms ± 10% ½ "	
R19	820 ohms ½ "	
R20	30 ohms ½ "	
	CAPACITORS	
C1	0.047 μF paper 200V working	
C2	12-445 μμF Tuning	18687
C3	4-27 μμF Trimmer (on gang)	33304

Code No.	Description	Part No.
C4	8-40 μμF Trimmer (on gang)	Code No. 231185
C5	12-445 μμF Tuning	18687
C6	470 μμF padder ± 2½%	
C7	68 μμF silvered mica	
C8	0.1 μF paper 200V working	
C9	47 μμF silvered mica (in 1st I.F.)	
C10	47 μμF silvered mica (in 1st I.F.)	
C11	0.01 μF paper 200V working	
C12	0.047 μF paper 200V working	
C13	6.8 μμF ceramic	
C14	47 μμF silvered mica (in 2nd I.F.)	
C15	47 μμF silvered mica (in 2nd I.F.)	
C16	220 μμF mica	
C17	0.047 μF paper 200V working	
C18	0.047 μF paper 200V working	
C19A	40 μF 40 P.V. electrolytic	
C19B	400 μF 12 P.V. electrolytic	
C19C	40 μF 175 P.V. electrolytic	
C20	100 μμF mica	
C21	0.0027 μF paper 400V working	
C22	0.01 μF paper 200V working	
C23	0.0047 μF paper 400V working	
C24	50 μF 200 P.V. electrolytic	
	TRANSFORMERS	
T1	Loudspeaker Transformer	21135
T2	Power Transformer 50 c/s.	25835
	40 c/s.	25837
	LOUDSPEAKER	
	4 inch permanent magnet	21018
	SWITCHES	
S1	Power Selector	36374

TECHNICAL INFORMATION
AND
SERVICE DATA

RADIOLA

Model 582-GA

FIVE VALVE, BROADCAST, A.C. OPERATED
SUPERHETERODYNE

Issued by:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD

ELECTRICAL SPECIFICATIONS

Frequency Range	540-1600 K/cs (555.187.5 Metres)
Intermediate Frequency	455 Kc/s
Power Supply Voltage	200-260 volts A.C. 50 c.p.s.
Power Consumption Receiver Record Changer	45 watts 18 watts
Loudspeakers 12 inch permanent magnet 8 inch permanent magnet Transformer V.C. Impedance of each 15 ohms at 400 c.p.s.	21180 21020 21458
Undistorted Power Output	4.5 watts

Valve Complement.

(V1) 6B6 Converter
(V2) 6N8 I.F. Amplifier, Detector A.V.C.
(V3) 6AU6 A.F. Amplifier
(V4) 6B-25 Output
(V5) 6X4 Rectifier

Dial Lamp: 6.3 volt 0.25 amp. M.E.S.

Controls
Tuning, Volume, Phono Radio, Power and Tone.

Connection to Power Supply:
The receiver should not be connected to any current supplying other than 200-260 volts A.C. at a frequency of 50 c.p.s.

Connections to the power supply are shown in the following diagram.

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

Chassis Removal.

Remove all control knobs from the receiver. These are push on fits, however, in the case of the tuning control forcing the knob past its normal travel with a rocking action will be necessary to overcome friction between the knob and the gang spindle.

On removing the cabinet back disconnect the internal aerial and unplug the cables for the pick-up motor power, pick up and speakers. The chassis is held in position by two screws on the side near the record changer and by two wing nuts. Firstly remove the screws, then holding the chassis in one hand loosen the wing nuts off completely. The chassis may then be lifted free from the cabinet.

Chassis Replacement.

This is the reversal of the above procedure. After replacing the tuning knob the pointer should be lined up on the State Monograms on either side of the dial scale. Check the calibration on some known stations and correct for any tracking error by forcing the knob past its free travel in the appropriate direction.

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 and set the volume control in the maximum clockwise position.

Testing Instruments:

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

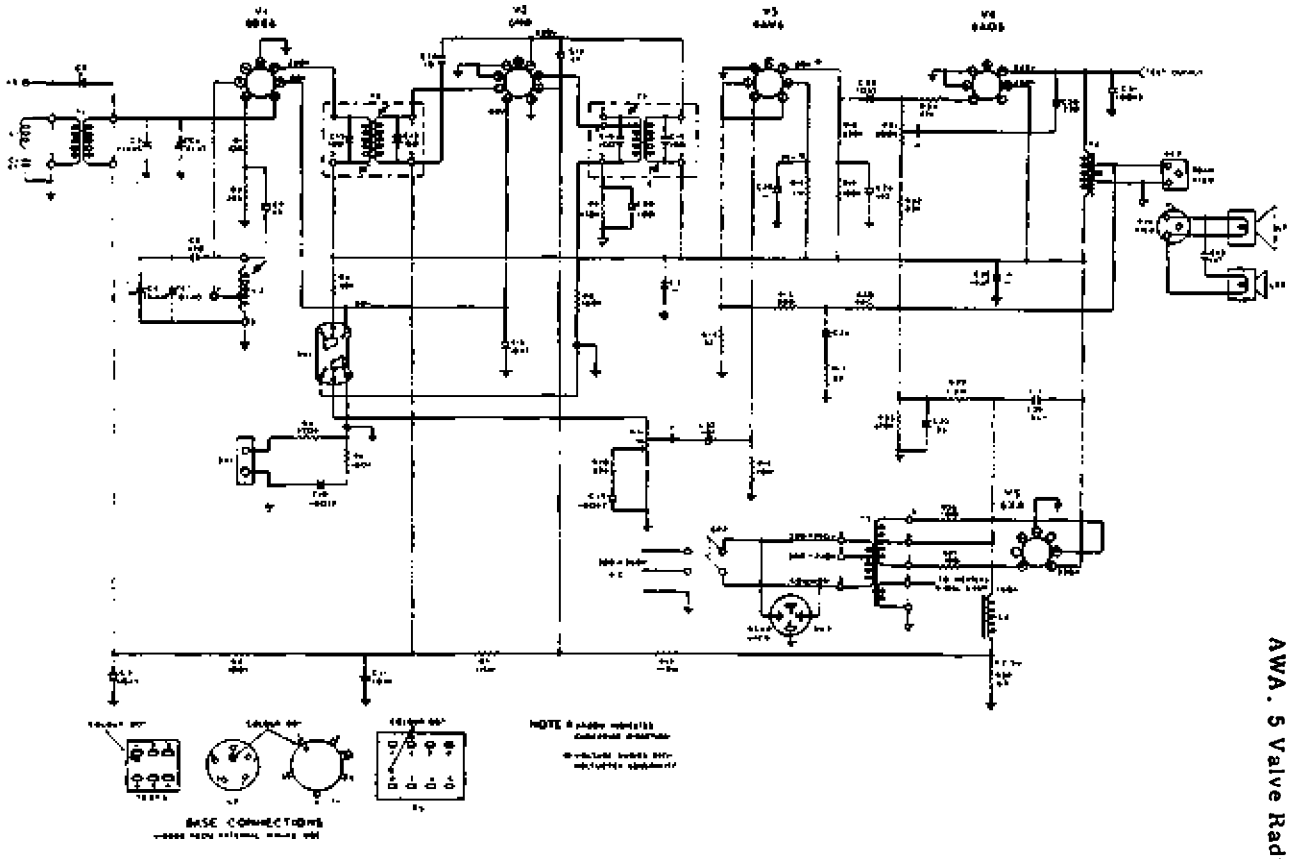
(2) A.W.A. Modulated Oscillator, series 16726.
If the modulated oscillator is used, connect a 0.25 megohm non-inductive resistor across the output terminals.

(3) A.W.A. Output Meter, type CM8832.

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 Front section of gang	455 K/cs.	Gang in full mesh	I3 Primary and Secondary
2	Grid of 6BE6 Front section of gang	455 K/cs.	Gang in full mesh	I2 Primary and Secondary
Repeat the above adjustments until maximum output is obtained.				
3	Aerial lead	600 Kc/s.	600 Kc/s	L.F. Osc. Core Adj. (L3)*
4	Aerial lead	1650 Kc/s.	Gang fully open	H.F. Osc. Adj. (C7)
5	Aerial lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C6)
Repeat Adjustments 3, 4 and 5.				

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



BASE CONNECTIONS

CIRCUIT CODE — RADIOLA 582GA

Code No.	Description	Part No.	Fig.	Location
	RESISTORS			
R1	100 ohms ± 20% ½ watt		1	C15
R2	22K ohms ± 10% ½ watt		1	D14
R3	100K ohms ± 20% ½ watt		1	C14
R4	470K ohms ± 10% ½ watt		1	A12
R5	28K ohms ± 10% 2 watt		1	G10
R6	100K ohms ± 20% ½ watt		1	B13
R7	1.5 Megohm ± 10% ½ watt		1	B12
R8	100K ohms ± 20% ½ watt		1	B10
R9	470K ohms ± 10% ½ watt		1	B10
R10	33K ohms ± 20% ½ watt		1	G13
R11	1 Megohm, 100K ohm tap Volume Control	36805	1	H12
R12	1.5 megohms ± 10% ½ watt		1	B13
R13	22 ohms ± 10% ½ watt		1	D12
R14	10 Megohms ± 20% ½ watt		1	E12
R15	680 ohms ± 10% ½ watt		1	G9
R16	1 Megohm ± 20% 1 watt		1	C12
R17	82 ohms ± 10% ½ watt		1	D8
R18	220K ohms ± 20% 1 watt		1	B9
R19	100K ohms ± 20% 1 watt		1	C8
R20	680 ohms ± 10% ½ watt		1	H9
R21	500K ohms Tone Control (incl. SW2)	36806	1	H8
R22	22K ohms ± 10% ½ watt		1	D6
R23	470K ohms ± 10% ½ watt		1	C6
R24	47K ohms ± 20% ½ watt		1	C7
R25	1.5 Megohms ± 10% ½ watt		1	D6
R26	100 ohms ± 20% ½ watt		1	C2
R27	100 ohms ± 20% ½ watt		1	C4
R28	47 ohms ± 10% ½ watt		1	B8
	CAPACITORS			
C1	47 pF ± 10% Silvered Mica		1	C17
C2	4 pF ± 10% Silvered Mica		2	B1
C3	0.047 μF ± 20% 200 V working paper		1	E13
C4	12-445 pF tuning (Osc.)	18689	1	E16
C5	12-445 pF tuning (Aerial)	18689	1	G16
C6	4-27 pF trimmer (Aerial)	33304	1	F13
C7	8-40 pF trimmer (Osc.)	231185	1	E17
C8	470 pF ± 2½% padder		1	E13
C9	47 pF ± 10% Silvered Mica		1	D14
C10	0.0022 μF ± 20% 600 V working paper		1	A14
C11	0.047 μF ± 20% 200 V working paper		1	B15
C12	100 pF ± 5% Silvered Mica (In 1st. I.F.)		1	C14
C13	100 pF ± 5% Silvered Mica (In 1st I.F.)		1	C14
C14	10 pF ± 10% N750 tubular		1	B12

Code No.	Description	Part No.	Fig.	Location
C15	0.047 μF ± 20% 400 V working paper		1	H11
C16	47 pF ± 10% N750 tubular		1	B12
C17	0.0047 μF ± 20% 600 V working paper		1	F12
C18	100 pF ± 5% Silvered Mica (In 2nd I.F.)		1	C11
C19	100 pF ± 5% Silvered Mica (In 2nd I.F.)		1	C11
C20	100 pF ± 10% Silvered Mica		1	B10
C21	0.1 μF ± 20% 400 V working paper		1	D16
C22	0.01 μF ± 20% 400 V working paper		1	F11
C23	0.1 μF ± 20% 400 V working paper		1	D11
C24	0.1 μF ± 20% 200 V working paper		1	E8
C25	0.047 μF ± 20% 400 V working paper		1	C8
C26	.22 μF ± 20% 400 V working paper		1	B6
C27	0.22 μF ± 20% 200 V working paper		1	D4
C28	16 μF 525 P.V. Electrolytic		1	D2
C29	8 μF 525 P.V. Electrolytic		1	F7
C30	220 pF ± 10% 1000 V working Silvered Mica		1	B6
C31	0.0022 μF ± 20% 600 V working paper		1	C4
C32	0.47 μF ± 20% 200 V working paper (On LS1)			
	TRANSFORMERS			
T1	Aerial Transformer 540-1650 K/cs.	15454	2	B2
T2	1st I.F. Transformer	27351	1	C14
T3	2nd I.F. Transformer	27353	1	C11
T4	Audio Output Transformer	21458	2	B9
T5	Power Transformer	17859	1	G3
	INDUCTORS			
L1	I.F. Filter Choke (Incl. C1)	35499	1	C17
L2	Oscillator Coil 540-1650 Kc/s.	32406	1	D13
L3	H.T. Filter Choke	36612	1	F10
	VALVES			
V1	Radiotron 6BE6		2	B3
V2	Radiotron 6N8		2	B6
V3	Radiotron 6AU6		2	D7
V4	Radiotron 6AQ5		2	B12
V5	Radiotron 6X4		2	B16
	MISCELLANEOUS			
SW1	Phono-Radio Switch	36601	1	H10
SW2	Power Switch (On R21)		1	G8
PL1	6.3 V .3 Amp. M.E.S.		1	H16
LS1	12" Permanent Magnet	21180		
LS2	4" Permanent Magnet	21020		
SK1	P.U. Socket	793038	1	A11
SK2	Phono Motor Power Socket	28313	1	C5
SK3	Speaker Socket	31825	1	A8

SERVICE DATA

RADIOLAGRAM

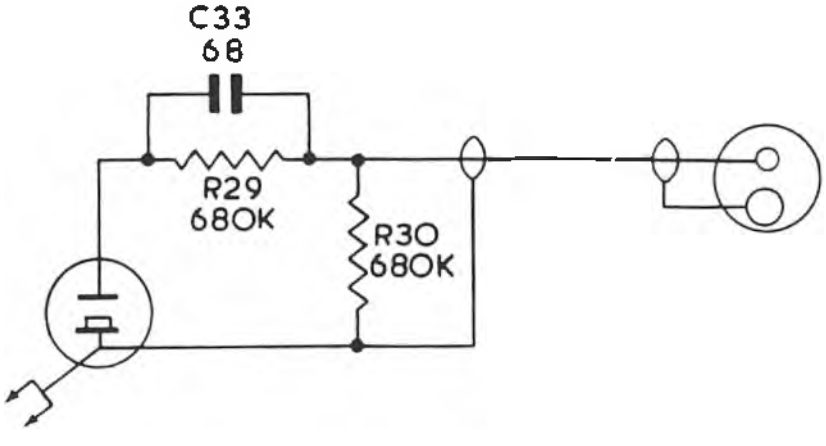
MODEL 584-GA

FIVE VALVE, BROADCAST, A.C. OPERATED
SUPERHETERODYNE

Issued by:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

For all Electrical and Mechanical information refer to the 582-GA Service Manual.

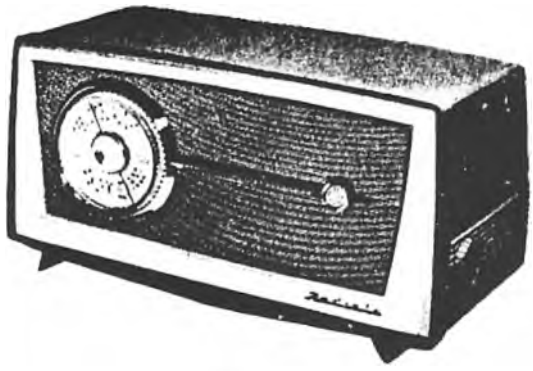
NOTE: A special crystal compensation circuit is incorporated on the record changer. Should at any time the record changer need replacing, remember that the new changer must be modified by the inclusion of this circuit.



C33 68pF ± 10% mica.
R29 680K ohms ± 10% ½ watt.
R30 680K ohms ± 10% ½ watt.

N.B.: After the initial production run the bass lift circuit of R10 and C17 was deleted.

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.

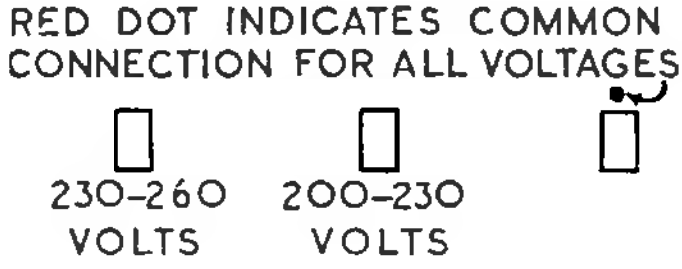
ELECTRICAL AND MECHANICAL SPECIFICATIONS

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.

TECHNICAL INFORMATION AND SERVICE DATA

AWA RADIOLA

Model 589-GA

FIVE VALVE, BROADCAST, A.C. OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL SPECIFICATIONS

Frequency Range	540-1600 Kc/s. (555-187.5 Metres)
Intermediate Frequency	455 Kc/s.
Power Supply Voltage	200-260 volts A.C 50 c.p.s

Power Consumption:

Receiver	32 watts
Record Changer	18 watts

Loudspeaker:

5 inch permanent magnet	21175
Transformer	21204B

V.C. Impedance, 15 ohms at 400 c.p.s.

Undistorted Power Output	3 watts

Valve Complement:

(V1) 6BE6 Converter

(V2) 6BA6 I.F. Amplifier

(V3) 6AV6 A.F. Amplifier, Detector, A.V.C.

(V4) 6AQ5 Output

(V5) 6X4 Rectifier

Dial Lamp	6.3 volt 0.25 amp M.E.S.

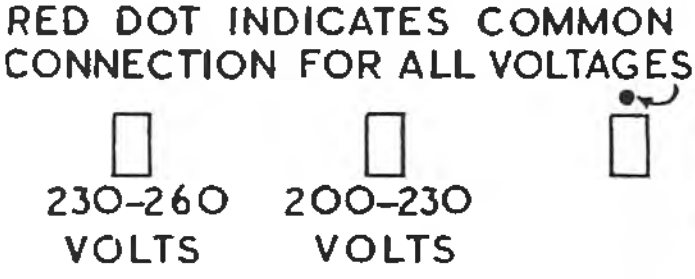
Controls:

Tuning, Volume, Phono/Radio, Power and Tone.

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 supply are shown in the following diagram.



Chassis Removal:

Remove the power cord and secure the changer to the motor board with its two transport screws.

Remove the screw from rear of case near the power socket.

Remove all the screws and cup washers around the edge of the base board. Standing the case on its end with the radio section uppermost, gently tilt this top end of the base board forward until it clears the case. Lift the board free of the case.

Remove all control knobs on the radio. These are all push-on fits; however in the case of the tuning control forcing the knob past its normal travel with a twisting action is necessary to overcome friction between the knob and the gang spindle.

Unplug the phono power and pick up leads. Remove the four screws holding the chassis to the base board. i.e two 3/16" Whitworth screws near the potentiometers and the two wood screws through the brackets on the side facing the record changer.

Chassis Replacement:

This is the reversal of the above operation. After replacing the tuning knob, the pointer should be lined up on the State Monograms on either side of the dial scale Check the calibration on some known stations and correct for any tracking error by forcing the knob past its free travel in the appropriate direction.

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.

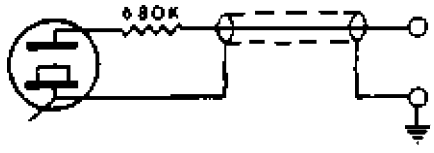
For all alignment operations, keep the generator output as low as possible to avoid A.V.C. action and set the volume control in the maximum clockwise position

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 0.25 megohm non-inductive resistor across the output terminals.

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



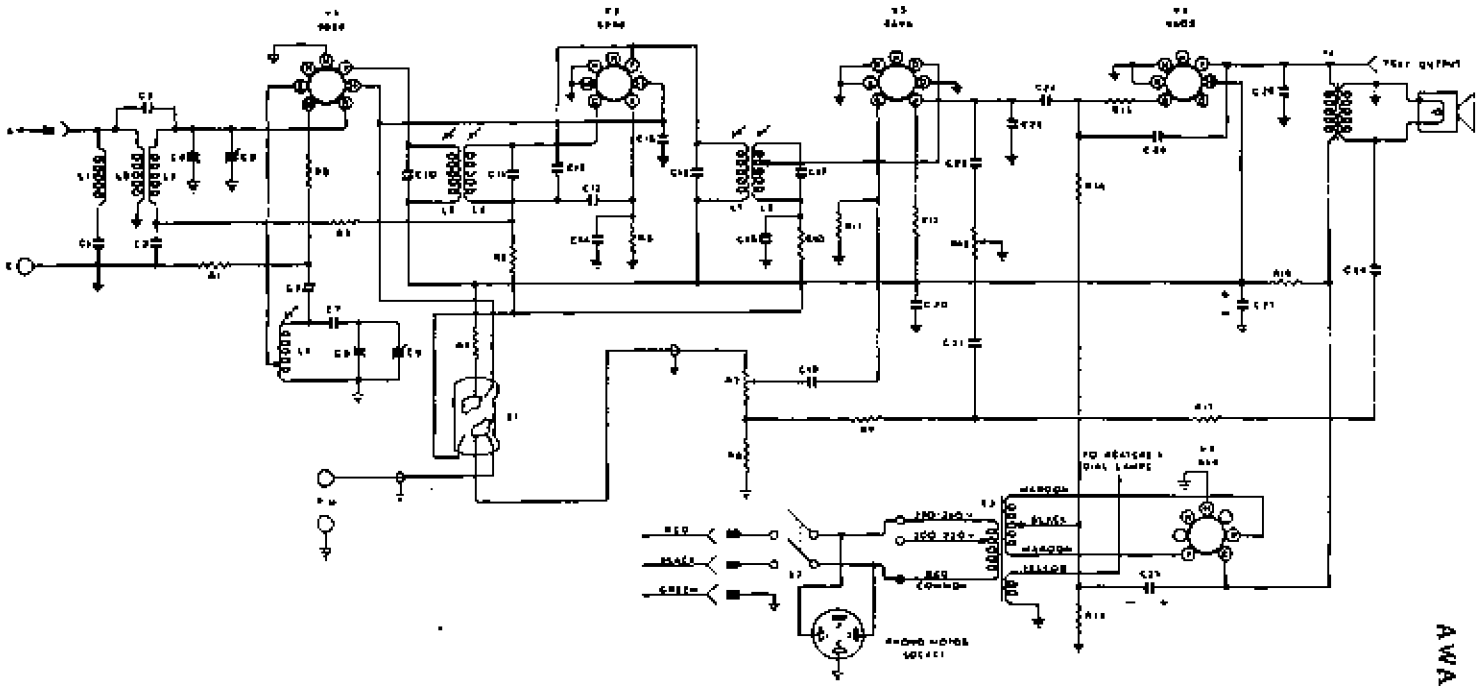
RECORD CHANGER

NOTE: A 680,000 ohms resistor has been added in series with the crystal pick-up. Should ever the record changer be replaced, be sure to add this component.

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 Front section of gang	455 Kc/s.	Gang in full mesh	L8 core
2	Grid of 6BE6 Front section of gang	455 Kc/s.	Gang in full mesh	L7 core
3	Grid of 6BE6 Front section of gang	455 Kc/s.	Gang in full mesh	L6 core
4	Grid of 6BE6 Front section of gang	455 Kc/s.	Gang in full mesh	L5 core
Repeat the above adjustments until maximum output is obtained.				
5	Aerial lead	600 Kc/s.	600 Kc/s.	L.F. Osc. Core Adj. (L4)*
6	Aerial lead	1650 Kc/s.	Gang fully ope	H.F. Osc. Adj. (C9)
7	Aerial lead	1500 Kc/s.	1500 Kc/s.	H.F. Aer. Adj. (C5)
Repeat adjustments 5, 6 and 7.				

* 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	—	90	180	2.5	6.3
6BA6 I.F. Amp.	2	90	180	3.5	6.3
6AV6 Det. A.F. Amp. A.V.C.	0	—	85	1	6.3
6AQ5 Output	0	180	250	30	6.3
6X4 Rectifier	255	—	235/235 A.C.		6.3

Total H.T. Current = 50 mA. Back Bias across R16 = 9.5 volts.

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

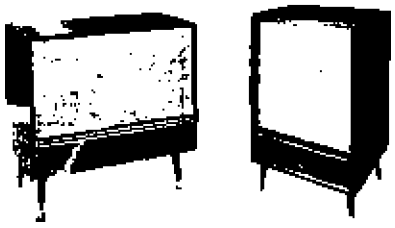
Volume Control maximum clockwise. Phono/Radio switch on Radio position.

Voltmeter 20,000 ohms per volt.

CIRCUIT CODE — RADIOLA 589GA

Code No.	Description	Part No	Location
	INDUCTORS		
L1	I.F. Filter (including C1)	35499	C16
L2, L3	Aerial Coil 540-1600 Kc/s.	15454 A	A16
L4	Oscillator Coil 540-1600 Kc/s.	32406	D13
L5, L6	1st I.F. Transformer	35483	A14
L7, L8	2nd I.F. Transformer	35485	A12
	RESISTORS		
	All Resistors ± 20% unless otherwise stated.		
R1	22,000 ohms ½ watt		C14
R2	100 ohms ½ watt		D15
R3	0.1 megohm ½ watt		C13
R4	15,000 ohms ± 10% 1 watt		D6
R5	1.5 megohms ½ watt		B10
R6	390 ohms ± 10% 1 watt		C12
R7	1 megohm Volume Control	32886	G11
R8	100 ohms ½ watt		F10
R9	680 ohms ± 10% ½ watt		G10
R10	47,000 ohms ½ watt		C10
R11	10 megohms ½ watt		D12
R12	0.22 megohm 1 watt		C6
R13	0.1 megohm Tone Control (Incl. S2)	32887	G8
R14	0.47 megohm ½ watt		D6
R15	47,000 ohms ½ watt		C7
R16	220 ohms ± 10% 1 watt		B5
R17	680 ohms ± 10% ½ watt		G9
R18	5,000 ohms ± 10% 2 watt		C4
	CAPACITORS		
C1	47 pF Silvered Mica (on I.F. Filter)		C16
C2	0.047 µF 200V working		D13
C3	4 pF Silvered Mica		A17
C4	12-445 pF Tuning	18677	F15
C5	4-27 pF Trimmer	33304	F13
C6	47 pF Silvered Mica		D13
C7	470 pF ± 2½% Padder		E13
C8	12-445 pF Tuning	18677	E15
C9	8-40 pF Trimmer	231185	D17
C10	100 pF Silvered Mica (in 1st I.F.)		A14
C11	100 pF Silvered Mica (in 1st I.F.)		A14
C12	10 pF Silvered Mica		B11
C13	0.047 µF 200 V working		B13
C14	0.1 µF 200V working		B11
C15	0.047 µF 400V working		G9
C16	100 pF Silvered Mica (in 2nd I.F.)		A12
C17	100 pF Silvered Mica (in 2nd I.F.)		A12
C18	220 pF Silvered Mica		C10
C19	0.01 µF 400V working		E12
C20	0.1 µF 400V working		C15
C21	0.22 µF 200V working		H8
C22	0.01 µF 400V working		D12
C23	100 pF Silvered Mica		C9
C24	0.047 µF 400V working		C7
C25	24 µF 350 P.V. Electrolytic		C2
C26	25 pF Mica		C6
C27	24 µF 350 P.V. Electrolytic		E6
C28	0.0022 µF 600 V working		B8
C29	0.22 µF 200V working		E8
	TRANSFORMERS		
T1	Loudspeaker Transformer	21204B	A9
T2	Power Transformer	25807	F4
	LOUDSPEAKER		
	5" Permanent Magnet	21175	
	SWITCHES		
S1	Radio-Phono	36305	G10
S2	Power Switch (on R13)		F8

TECHNICAL INFORMATION AND SERVICE DATA



596-GA 592-GA

RADIOLAGRAMS

Models 592-GA and 596-GA

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model 592-GA is a five valve, A.C. operated superheterodyne radiogram with provision for Stereophonic operation when used in conjunction with Kit No. 37402.

Model 596-GA is a five valve, A.C. operated superheterodyne radiogram with provision for Stereophonic operation when used in conjunction with Kit No. 37403.

Features of design include: High gain I.F. transformers; in-built aerial loop; wide range tone control; negative feedback over audio stages; high sensitivity dual speakers and direct drive dial tuning.

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/s.
Power Consumption:	
Tuner Unit	45 watts.
Stereo Amplifier	40 watts.
Record Changer	18 watts.
Loudspeakers:	
12 inch Permanent Magnet	21180-21596.
4 inch Permanent Magnet	21020
Transformer	21458.
V.C. Impedance of each	15 ohms at 400 C/s.
Undistorted Audio Output:	
Tuner Chassis	4.5 watts.
Stereo Chassis	4.5 watts.

Valve Complement:

Tuner Chassis
V1 Radiotron 6BE6 Converter.
V2 Radiotron 6N8 I.F. Amplifier, Detector, A.V.C.
V3 Radiotron 6AU6 Audio Amplifier.
V4 Radiotron 6AQ5 Audio Output.
V5 Radiotron 6X4 Rectifier.

Stereo Chassis:
V101 Radiotron 6AU6 Audio Amplifier.
V102 Radiotron 6AQ5 Audio Output.
V103 Radiotron 6X4 Rectifier.

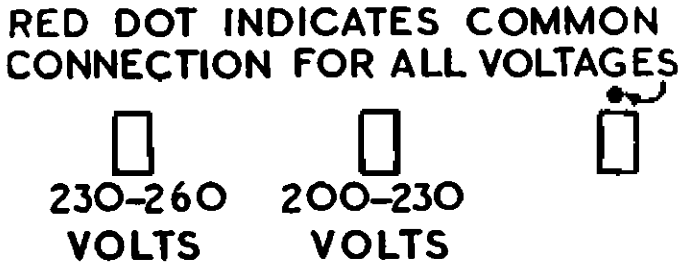
Controls:

Tuning, Volume, Phono/Radio, Power, Tone, and Balance.

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/s.

Connections for power supply on the power transformer are shown in the following diagram.



Chassis Removal:

Remove all control knobs.

On removing the cabinet back, disconnect the internal aerial and unplug all interconnecting cables. The tuner chassis is held in position by two screws, on the side near the record changer, and by two wing nuts. Remove the screws first, then holding the chassis in one hand loosen the wing nuts off completely and lift the chassis free from the cabinet.

The stereo chassis is held by two screws passing through the record compartment partition.

Chassis Installation:

This is the reversal of the above procedure.

After replacing the tuning knob the pointer should be lined up on the State Monograms on either side of the dial scale when the gang is fully closed. Check the calibration on some known stations and correct for any tracking error by forcing the knob past its free travel in the appropriate direction.

Balance Control Adjustment:

This control is located at the base of the tuner chassis inside the cabinet. With the pickup set to STEREO, play an ordinary microgroove recording preferably a vocal. Adjust the balance control until, from the listening area, the sound appears to come from midway between the two speaker cabinets.

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 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 0.25 megohm non-inductive resistor across the output terminals.

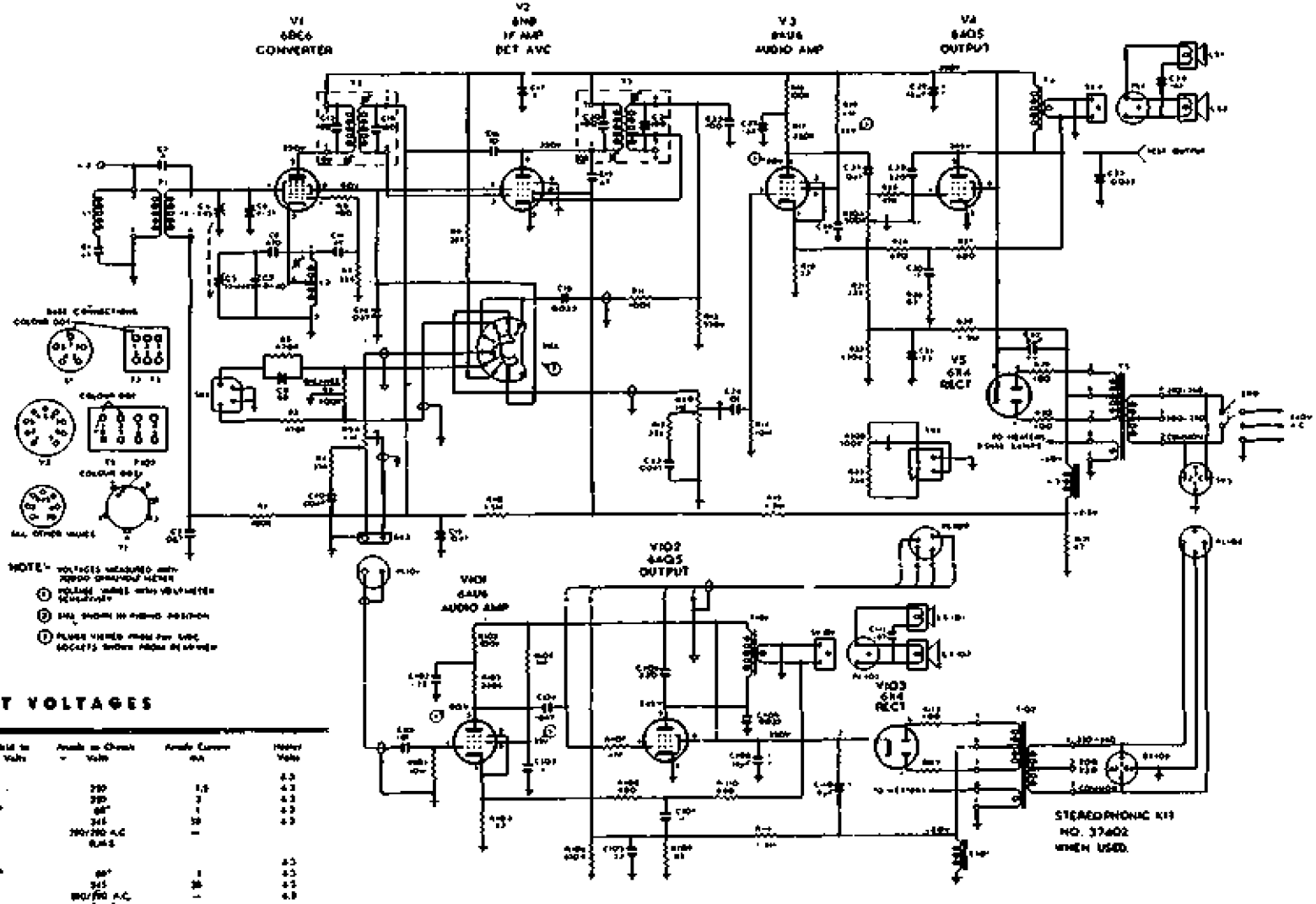
(3) A.W.A. Output Meter, type 2M8832.

ALIGNMENT TABLE

Alignment Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Maximum Peak Output:
1	Grid of 6BE6 Front section of gang	455 K/cs.	Gang in full mesh	T3 Primary and Secondary
2	Grid of 6BE6 Front section of gang	455 K/cs.	Gang in full mesh	T2 Primary and Secondary
	Repeat the above adjustments until maximum output is obtained.			
3	Aerial lead	600 Kc/s.	600 Kc/s.	L.F. Osc. Core Adj. (L2)*
4	Aerial lead	1650 Kc/s	Gang fully open	H.F. Osc. Adj. (C7)
5	Aerial lead	1500 Kc/s.	1500 Kc/s.	H.F. Aer. Adj. (C6)
	Repeat adjustments 3, 4 and 5.			

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

AWA. 5 Valve Radiogram MODEL 592-596 GA.



SOCKET VOLTAGES

	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
Power Units					
6BC6 Converter	-	88	250	1.5	6.3
6N8 I.F. Amp Det & A.V.C.	-	88	250	7	6.3
6AU6 A.F. Amp.	-	35*	68*	1	6.3
6AQ5 Output	-	250	315	38	6.3
6X4 Rectifier	350	-	350/350 A.C. R.M.S.	-	
Battery Units					
6AU6 A.F. Amp.	-	35*	68*	1	6.3
6AQ5 Output	-	250	315	38	6.3
6X4 Rectifier	350	-	350/350 A.C. R.M.S.	-	6.3

* Varies with volume control setting.

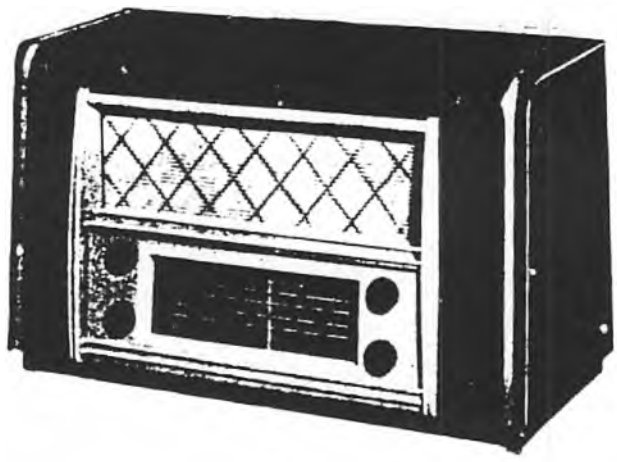
Voltages measured with receiver operating from 240 volts A.C. supply, Volume and Tone Controls maximum clockwise, Phono/Radio switch in Radio position and no input signal. Measurements taken on highest scale giving accurate readable deflection on a 20,000 ohm/volt meter.

TECHNICAL INFORMATION AND SERVICE DATA

A.W.A. RADIOLA
Model 656-TA

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

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) 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 ..... 220-260 volts. 50-60 C.P.S.
(Models are produced with other voltage and frequency ratings.)

Power Consumption ..... 45 watts.

Dial Lamps:
6.3 volts 0.25 Amp. M.E.S.

Valve Complement:

(1) 6BA6 — R.F. Amplifier
(2) 6AE8 or X79 — Converter
(3) 6BA6 — I.F. Amplifier
(4) 6AV6 — Detector, A.F. Amplifier, A.V.C.
(5) 6AQ5 — Output
(6) 6X4 — Rectifier

Loudspeaker:

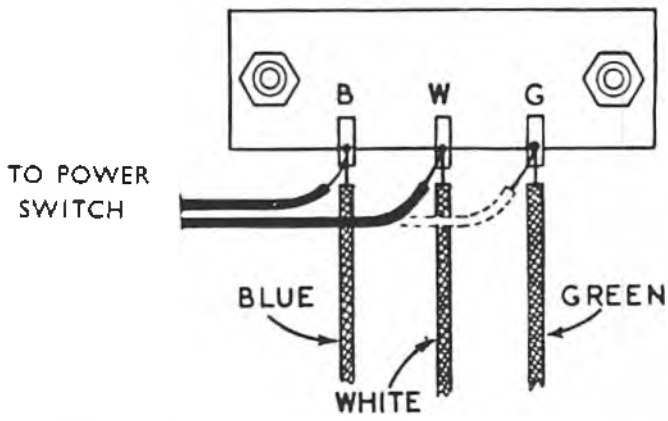
9" x 6" Electromagnet — Part No. 21529.
Transformer — TU301.
V.C. Impedance — 3 ohms at 400 C.P.S.
Field — 1,000 ohms.
Undistorted Power Output ..... 3 watts

Chassis Removal:

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

Disconnect the loudspeaker cable.

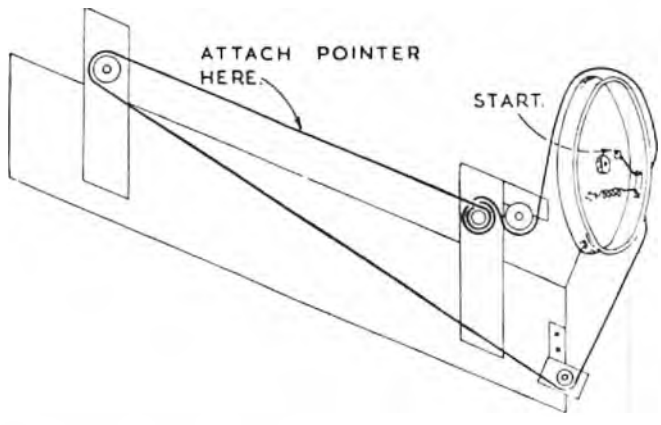
The chassis is held in the cabinet by four screws through the base of the cabinet. Removal of these enables the chassis to be withdrawn.



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.



Drive Cord Replacement:

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

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 2R7003, or

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

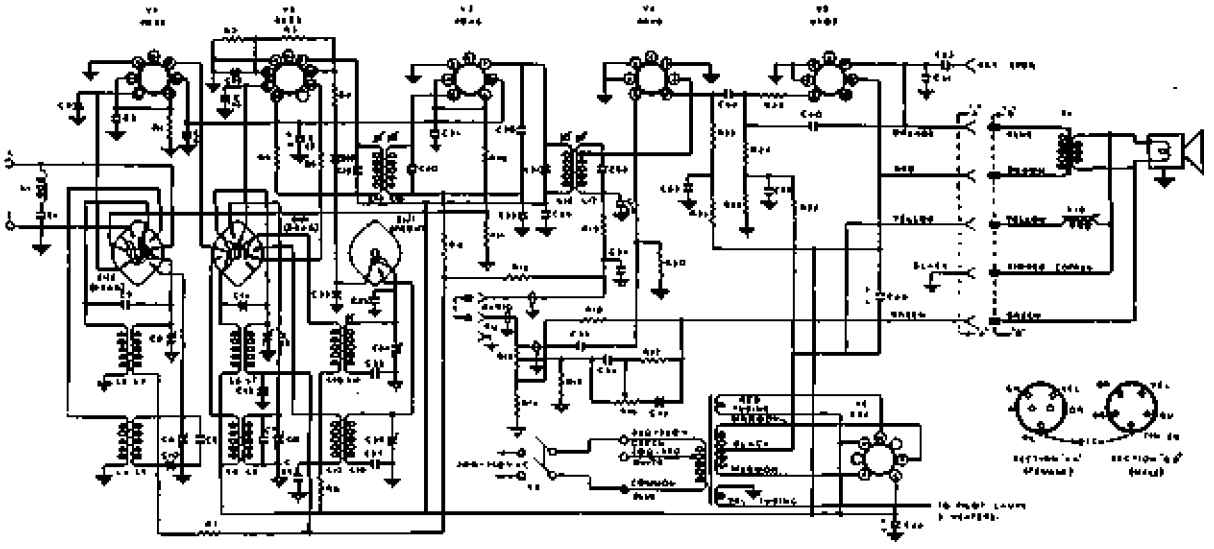
ALIGNMENT TABLE

Order	Connect "High" side of Generator to:	Tune Generator to:	Tune Receiver Dial to:	Adjust for Maximum Peak Output:
1	R.F. Section of Gang (Centre section)	455 Kc/s	540 Kc/s (4QL)	L17 Core
2	R.F. Section of Gang (Centre section)	455 Kc/s	540 Kc/s (4QL)	L16 Core
3	R.F. Section of Gang (Centre section)	455 Kc/s	540 Kc/s (4QL)	L15 Core
4	R.F. Section of Gang (Centre section)	455 Kc/s	540 Kc/s (4QL)	L14 Core
Repeat the above adjustments until the maximum output is obtained.				
5	Aerial Terminal	600 Kc/s	600 Kc/s (7ZL)	Osc. Core Adj. (L11)*
6	Aerial Terminal	1500 Kc/s	1500 Kc/s (3AK)	Osc. Adj. (C24)
7	Aerial Terminal	1500 Kc/s	1500 Kc/s (3AK)	R.F. Adj. (C13)
8	Aerial Terminal	1500 Kc/s	1500 Kc/s (3AK)	Aer. Adj. (C6)
Repeat adjustments 5, 6, 7 and 8.				
9	Aerial Terminal	16 Mc/s	16 Mc/s	Osc. Adj. (C26)†
10	Aerial Terminal	16 Mc/s	16 Mc/s	R.F. Adj. (C11)§
11	Aerial Terminal	16 Mc/s	16 Mc/s	Aer. Adj. (C8)§

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

† Use minimum capacity peak if two can be obtained. Check to determine that C26 has been adjusted to correct peak by tuning the receiver to approximately 15.09 Mc/s where a weaker signal should be received.

§ Use maximum capacity peak if two can be obtained.



SOCKET VOLTAGES

VALVES	Cathode to Chassis Volts.	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA.	Heater Volts.
6BA6 R.F. Amp.	2.0	86	240	4.4	6.3
X79 or 6AE8 Converter	1.8	86	240	6.9	6.3
6BA6 I.F. Amp. M.W	3.5	86	240	5	6.3
S.W.	2.6	86	240	6	-
6AV6 A.F. Amp., Det., A.V.C.	-	-	80V*	0.5	6.3
6AQ5 Output	..	240	225	38	6.3
6X4 Rectifier	240	-	280/280 A.C. R.M.S.	-	6.3

Total H.T. Current 70 mA.

Volts across L18 75 volts.

Measured at 240 volts A.C. supply. No signal input. Volume Control maximum clockwise. Voltmeter 1,000 ohms per volt measurements taken on highest scale giving accurate readable deflection.

* This reading may vary depending on the voltmeter used.

CIRCUIT CODE — RADIOLA 656-TA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Filter Unit (including C1)	9382	2	K15
L2, L3	Aerial Coil 540-1600 Kc/s.	15464	2	N16
L4, L5	Aerial Coil 6-18 Mc/s.	15456	2	O16
L6, L7	R.F. Coil 540-1600 Kc/s.	23099	2	D14
L8, L9	R.F. Coil 6-18 Mc/s.	26060	2	N14
L10, L11	Oscillator Coil 540-1600 Kc/s.	7638A	2	G10
L12, L13	Oscillator Coil 6-18 Mc/s.	15458	2	E10
L14, L15	1st I.F. Transformer	26673	1	J7
L16, L17	2nd I.F. Transformer	25197	1	J10
L18	Field Coil, 1,000 ohms			
	RESISTORS			
R1	330 ohms ½ watt		2	J17
R2	150 ohms ½ ..		2	J16
R3	39,000 ohms ½ ..		2	J15
R4	220 ohms ½ ..		2	J14
R5	220 ohms ½ ..		2	J14
R6	23,000 ohms 2 ..		2	H7
R7	0.1 megohm ½ ..		2	E13
R8	33,000 ohms 1 ..		2	H12
R9	0.1 megohm ½ ..		2	J12
R10	390 ohms ½ ..		2	J10
R11	330 ohms ½ ..		2	H10
R12	2.7 megohms ½ ..		2	J9
R13	0.5 megohm volume control (Tapped 40,000 ohms)	27145	1	C17
R14	50 ohms ½ watt		1	C16
R15	2,000 ohms ½ ..		2	E5
R16	25,000 ohms tone control (including S2)	32803	2	C3
R17	4,700 ohms ½ watt		2	E6
R18	50 ohms ½ ..		2	D6
R19	47,000 ohms ½ ..		2	J9
R20	10.0 megohms ½ ..		2	H9
R21	47,000 ohms 1 ..		2	J7
R22	0.27 megohm 1 ..		2	H8
R23	47,000 ohms ½ ..		2	J6
R24	0.47 megohm ½ ..		2	H5
R25	0.47 megohm ½ ..		2	H4
R26	2.7 megohms ½ ..		2	J5
	CAPACITORS			
C1	50 μμF silvered mica		2	K16
C2	12-430 μμF tuning	18321	1	F9
C3	0.1 μF paper 200V working		2	N16
C4	0.05 μF paper 400V working		2	G7
C5	6.8 μμF ceramic		2	H17
C6	2-20 μμF air trimmer	19659	2	G15
C7	9 μμF mica		2	H13
C8	2-20 μμF air trimmer	19659	2	F15

Code No.	Description	Part No.	Fig. No.	Location
C9	9 μμF mica		2	E15
C10	0.05 μF paper 200V working		2	N16
C11	2-20 μμF air trimmer	19659	2	G14
C12	0.025 μF paper 200V working		2	E14
C13	2-20 μμF air trimmer	19659	2	J14
C14	6.8 μμF ceramic		2	D13
C15	12-430 μμF tuning	18321	1	F5
C16	0.1 μF paper 200V working		2	K16
C17	8 μF 525 P.V. electrolytic		2	F8
C18	47 μμF mica		2	H13
C19	100 μμF silvered mica (in 1st I.F.)		2	K13
C20	100 μμF silvered mica (in 1st I.F.)		2	K13
C21	0.1 μF paper 200V working		2	K12
C22	12-430 μμF tuning	18321	1	F7
C23	9 μμF mica		2	G10
C24	2-20 μμF air trimmer	19659	2	D11
C25	440 μμF padder ± 2½%		2	D9
C26	2-20 μμF air trimmer	19659	2	D12
C27	4,000 μμF padder ± 2½%		2	D9
C28	0.5 μF paper 200V working		2	J12
C29	0.1 μF paper 400V working		2	H12
C30	6.8 μμF ceramic		2	E9
C31	100 μμF silvered mica (in 2nd I.F.)		2	K9
C32	100 μμF silvered mica (in 2nd I.F.)		2	K9
C33	100 μμF mica		2	H9
C34	100 μμF mica		2	K8
C35	0.01 μF paper 600V working		2	F9
C36	0.1 μF paper 200V working		2	E6
C37	0.05 μF paper 400V working		2	G8
C38	0.02 μF paper 600V working		2	J7
C39	0.4 μF paper 200V working		2	H5
C40	68 μμF mica		2	J5
C41	0.0025 μF paper 600V working		2	K5
C42	0.5 μF paper 400V working		2	K4
C43	8 μF 525 P.V. electrolytic		2	G6
C44	16 μF 525 P.V. electrolytic		1	E12
C45	0.1 μF paper 400V working		2	D9
C46	0.5 μF paper 200V working		2	D5
	TRANSFORMERS			
T1	Loudspeaker Transformer	1u301		
T2	Power Transformer 50-60 C.P.S.	25825	1	G15
	40 C.P.S.	25846		
	LOUDSPEAKER			
	9" x 6" Electromagnetic Speaker	21529		
	SWITCHES			
S1	Range Switch	27084	2	J16
S2	Tone-Power Switch (on R16)		2	D8

A124.

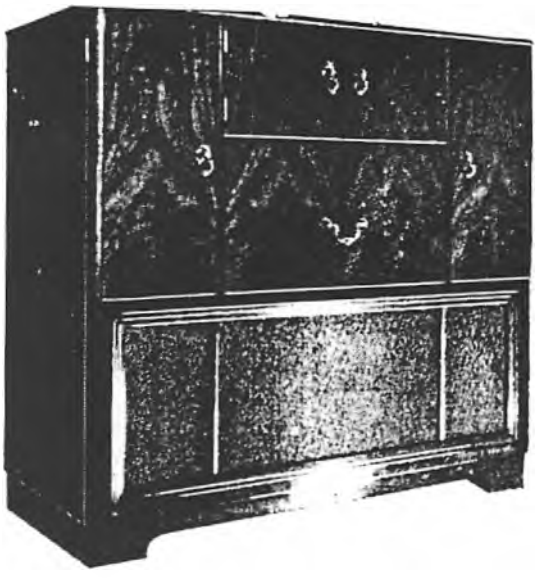
TECHNICAL INFORMATION AND SERVICE DATA

AWA RADIOLA

Model 674-GA

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

ISSUED BY :
AMALGAMATED WIRELESS (AUSTRALASIA) 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:

Receiver	80 watts
Record Player	20 watts

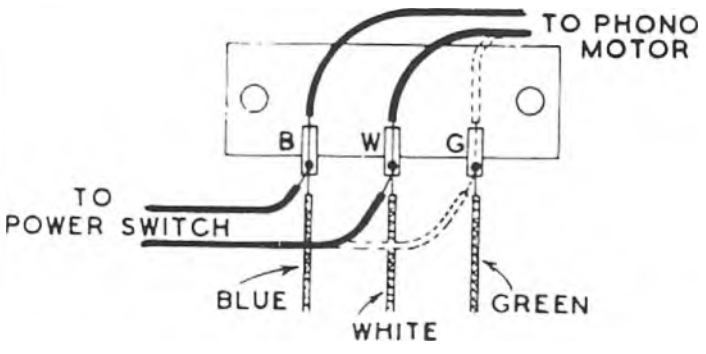
Dial Lamps: 6.3 volts, 0.25 M.E.S.

Valve Complement:

(1) 6AE8 Converter
(2) 6BA6 I.F. Amplifier
(3) 6AR7GT Detector, A.F. Amplifier, A.V.C.
(4) 6BV7 }
(5) 6BV7 } Push-pull Output
(6) 5Y3GT Rectifier.

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.



Loudspeaker:

12 inch permanent magnet — Part No. 20941
Transformer — Part No. 7203.
V.C. Impedance 12.5 ohms at 400 C.P.S.
Undistorted Power Output: 7 watts.

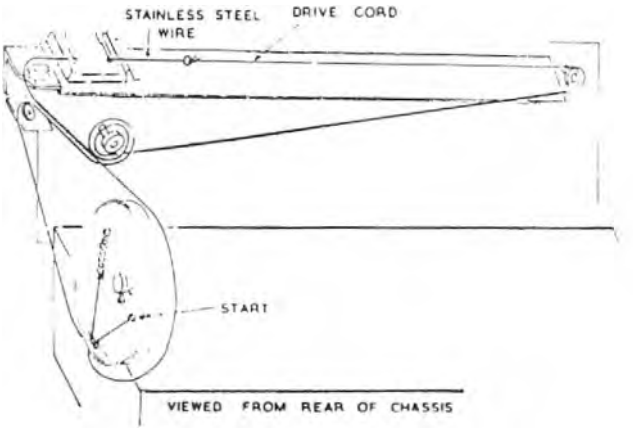
Chassis Removal:

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

Then, disconnect the loudspeaker cable, pick-up cable, phono-motor plug from the socket on the rear of the chassis and the dial lamp leads from the top of the chassis.

Pull the Record Changer Drawer out and from the rear of the cabinet remove two bolts situated under the receiver shelf. Two other bolts holding the chassis are accessible from the front of the cabinet under the receiver shelf with the Record Changer Drawer open.

With these bolts removed, the chassis may be withdrawn from the cabinet.



Drive Cord Replacement:

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

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-aligned 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 2R7003, or
(2) A.W.A. Modulated Oscillator, series 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.

ALIGNMENT TABLE

Alignment 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.	L13 Core
2	Aerial Section of Gang (Drive end)	455 Kc/s.	540 Kc/s.	L12 Core
3	Aerial Section of Gang (Drive end)	455 Kc/s.	540 Kc/s.	L11 Core
4	Aerial Section of Gang (Drive end)	455 Kc/s.	540 Kc/s.	L10 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. (L7) *
6	Aerial Lead	1500 Kc/s.	1500 Kc/s.	H.F. Osc., Adj. (C15)
7	Aerial Lead	1500 Kc/s.	1500 Kc/s.	H.F. Aer. Adj. (C3)
Repeat adjustments 5, 6 and 7.				
8	Aerial Lead	16 Mc/s.	16 Mc/s.	H.F. Osc. Adj. (C18) †
9	Aerial Lead	16 Mc/s.	16 Mc/s.	H.F. Aer. Adj. (C6) ‡

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

† Use minimum 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 15.09 Mc/s. where a weaker signal should be obtained.

‡ Use maximum capacity peak where two can be obtained.

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Aerial Coil (M.W.)	
Primary (L2)	20
Secondary (L3)	4
Aerial Coil (S.W.)	
Primary (L4)	4
Secondary (L5)	*
Oscillator Coil (M.W.)	
Primary (L6)	1.5
Secondary (L7)	6
Oscillator Coil (S.W.)	
Primary (L8)	*
Secondary (L9)	*
I.F. Filter (L1)	17.5 †
I.F. Transformer Windings	10
Filter Choke (L14, L15)	1,000
Power Transformer (T2)	
Primary	13
Secondary	280
Loudspeaker Input Transformer (T1)	
Primary	380
Secondary	*

* Less than 1 ohm.

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

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

VALVE		Cathode to Chassis Volts:	Screen Grid to Chassis Volts:	Anode to Chassis Volts:	Heater Volts:
6AE8	Converter M.W.	1.8	110	270	6.3
	S.W.	2.2	115	270	6.3
6BA6	I.F. Amp. Radio	2.4	70	270	
	Pre Amp. Phono	1.0	25 *	110 *	6.3
6AR7GT	A.F. Amp., Det., A.V.C.	–	20 *	25 *	6.3
6BV7	Push-pull output	5.8	275	270	6.3
6BV7					
5Y3GT	Rectifier		--	330/330 A.C R.M.S.	5.0

Total H.T. Current = 86 mA

Volts across L14, L15 = 64V D.C.

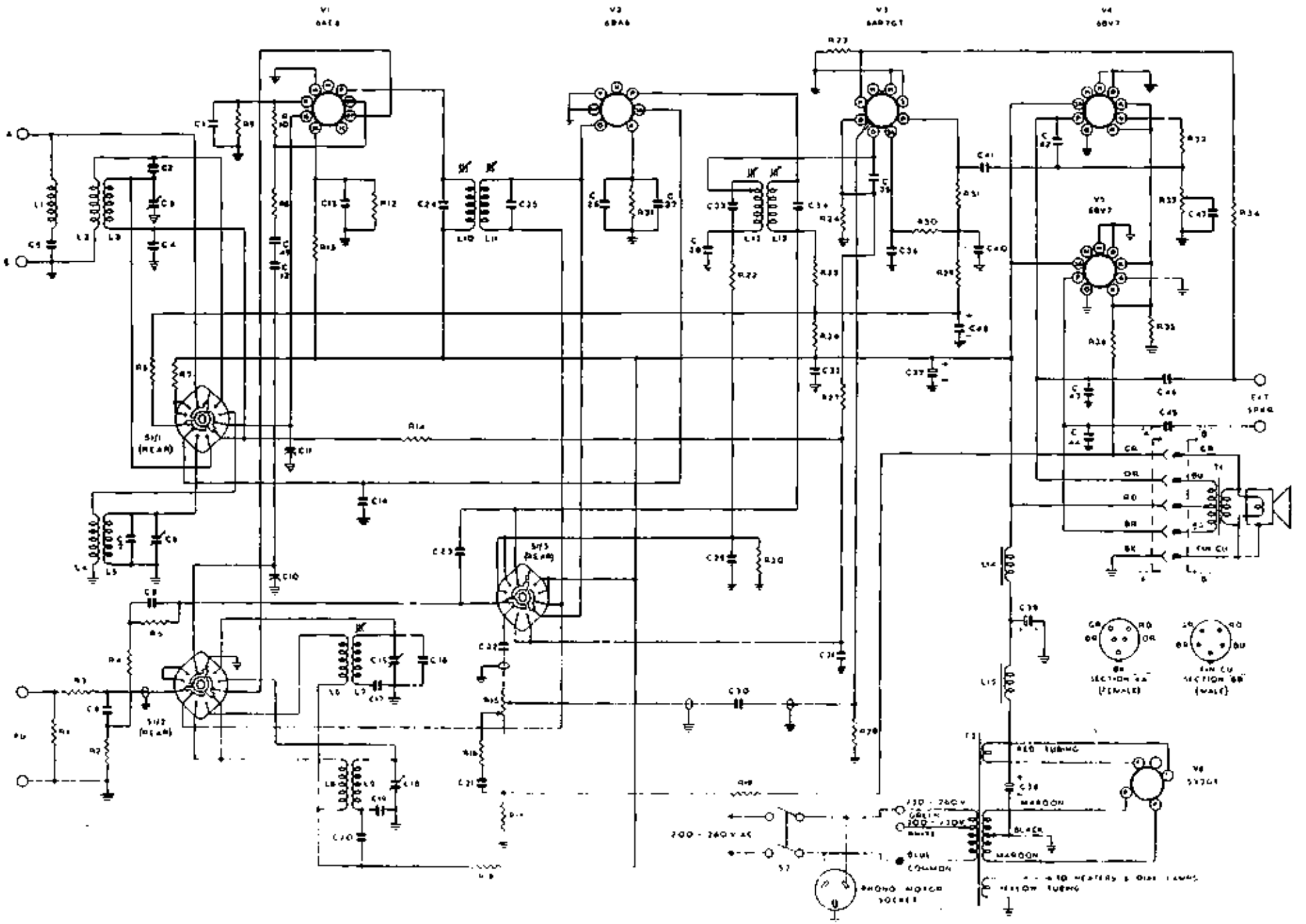
Measured at 240 volts A.C. supply. No signal input. Volume Control maximum clockwise. Voltmeter 20,000 ohms per volt; measurements taken on highest scale giving accurate readable deflection.

* This reading may vary depending on the resistance of the voltmeter used.

CIRCUIT CODE—RADIOLA 674—GA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Filter Unit (including C5)	9382	2	F12
L2, L3	Aerial Coil 540-1600 K/cs	15454	2	D16
L4, L5	Aerial Coil 6-18 M/cs	15456	2	D12
L6, L7	Oscillator Coil 540-1600 K/cs	76384	2	F13
L8, L9	Oscillator Coil 6-18 M/cs	15458	2	J17
L10, L11	1st I.F. Transformer	26673	4	J6
L12, L13	2nd I.F. Transformer	25192	4	J10
L14	Choke	26733	2	D11
L15	Choke	26733	2	D8
	RESISTORS			
R1	4,700 ohms ± watt		2	J10
R2	22,000 ohms		2	K11
R3	39,000 ohms		2	K11
R4	270,000 ohms		2	H12
R5	1.0 megohm		2	G12
R6	0.47 megohm		2	E12
R7	220,000 ohms		2	D11
R8	100 ohms		2	H14
R9	220 ohms		2	J15
R10	47,000 ohms		2	J15
R11	Not used			
R12	33,000 ohms		2	H17
R13	27,000 ohms		2	H16
R14	0.1 megohm		2	D17
R15	0.5 megohm Volume Control tapped 40,000 ohms)	27143/12	1	B15
R16	39,000 ohms		2	D8
R17	50 ohms		2	C9
R18	33,000 ohms		2	J12
R19	4,700 ohms		2	D5
R20	0.47 megohm		2	F9
R21	820 ohms		2	J11
R22	47,000 ohms		2	F9
R23	50 ohms		2	G8
R24	0.47 megohm		2	H9
R25	0.1 megohm		2	G12
R26	40,000 ohm		2	C12
R27	1.5 megohm		2	G10
R28	10 megohm		2	F9
R29	40,000 ohms		2	H11
R30	1.0 megohm		2	G10
R31	0.27 megohm		2	G11
R32	47,000 ohms		2	H7
R33	0.5 megohm Tone Control including S1	26443	1	B14
R34	0.1 megohm		2	J3
R35	100 ohms		2	J5
R36	220 ohm		2	J6
NOTE	R33 ... ally sets at 1.0 meg with 1.0 meg in parallel with it			
	CAPACITORS			
C1	0.05 µF paper 200V working		2	K15
C2	4 µµF mica		2	E15
C3	2.20 µµF trimmer	19659	2	D15
C4	0.05 µF paper 200V working		2	D17
C5	47 µµF silvered mica		2	F17
C6	2.20 µµ. trimmer	19659	2	G14
C7	9 µµF mica		2	G14
C8	0.005 µF paper 400V working		2	H13
C9	0.025 µF paper 400V working		2	K17
C10	12-430 µµF tuning	18230	1	F5
C11	12-430 µµF tuning	18230	1	F4
C12	70 µµF silvered mica		2	E15
C13	0.05 µF paper 400V working		2	G15
C14	0.05 µF paper 400V working		2	E16
C15	2.20 µµF trimmer	19659	2	E12
C16	9 µµF mica		2	E12
C17	440 µµF padder ± 2½%		2	K12
C18	2.20 µµF trimmer	19659	2	K12
C19	0.006 µF padder ± 2½%		2	K13
C20	0.05 µF paper 400V working		2	J16
C21	0.05 µF paper 200V working		2	E6
C22	0.005 µF 400V working		2	G14
C23	0.05 µF paper 400V working		2	G15
C24	100 µµF silvered mica (on 1st I.F.)		1	J6
C25	100 µµF silvered mica (on 1st I.F.)		1	G9
C26	400 µF 12 P.V. Electrolytic		1	J19
C27	0.0025 µF paper 400V working		2	F15
C28	100 µµF silvered mica		2	F9
C29	100 µµF silvered mica		2	J9
C30	0.04 µF 200V working		2	E15
C31	0.05 µF paper 200V working		2	J10
C32	0.1 µF paper 400V working		2	G6
C33	100 µµF silvered mica (on 2nd I.F.)		2	J10
C34	100 µµF silvered mica (on 2nd I.F.)		2	H10
C35	47 µµF silvered mica		2	H12
C36	0.1 µF paper 400V working		2	F10
C37	16 µF 525 P.V. Electrolytic		2	F10
C38	8 µF 525 P.V. Electrolytic		2	F5
C39	8 µF 525 P.V. Electrolytic		2	F4
C40	0.05 µF paper 400V working		2	F...
C41	0.1 µF paper 400V working		2	H7
C42	25 µµF silvered mica		2	J6
C43	0.0025 µF paper 400V working		2	E5
C44	0.0025 µF paper 400V working		2	E3
C45	0.5 µF paper 400V working		2	H3
C46	0.5 µF paper 400V working		2	H3
C47	0.005 µF paper 400V working		2	D5
C48	16 µF 525 P.V. Electrolytic		1	C14
C49	47 µµF silvered mica		2	F13
	TRANSFORMERS			
T1	Loudspeaker Transformer 1X6	7200		F11
T2	Power Transformer	75854		F11
	LOUDSPEAKER			
	12 inch Permanent Magnet	20841		
	SWITCHES			
S1	Range Switch	31388	2	F11
S2	Tone-Power Switch (on R33)			E9

AWA. 5 Valve D/W. Radiogram MODEL 674 GA.



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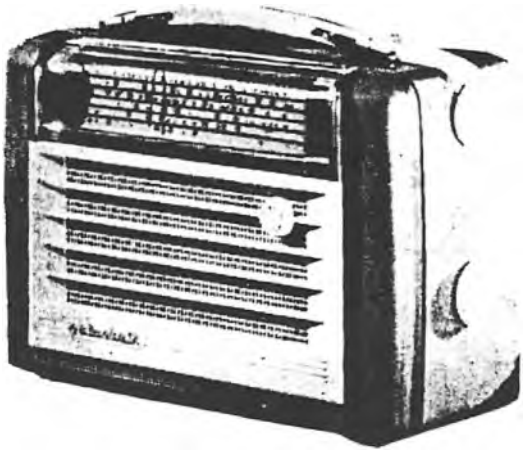
RADIOLA



Portable Model 679-P

SIX VALVE, BROADCAST, DRY-CELL BATTERY or A.C. POWER UNIT OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL SPECIFICATIONS

Frequency Range ..... 540-1600 Kc/s (555-187.5 Metres)

Intermediate Frequency ..... 455 Kc/s

Battery Complement:

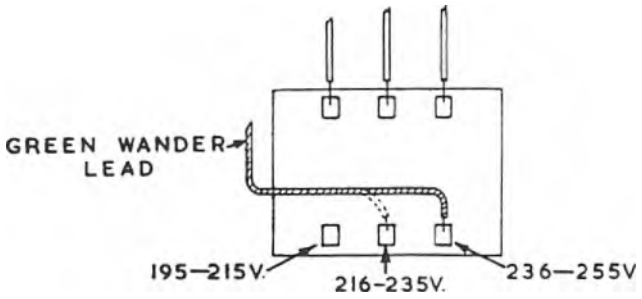
Model 575-P ..... "A" Battery:—One 7.5 volt, type 719
"B" Battery:—One 90 volt, type 490P

Model 679-P ..... "A" Battery:—One 9.0 volt, type 765
"B" Battery:—One 90 volt, type 490P

Battery Consumption:

Model 575-P ..... "A" Battery = 50 mA
"B" Battery = 13 mA ("Full")
= 8 mA ("Save")

Model 679-P ..... "A" Battery = 50 mA
"B" Battery = 13 mA ("Full")
= 8 mA ("Save")



Power Unit Operation:

The receiver may be operated on the following voltage ranges by altering the transformer tappings:—

195-215 volts
216-235 volts
236-255 volts

With the switch in the A.C. position, the 6X4 is operated as a half wave rectifier with both plates connected to the chassis, which is negative for both "A" and "B" circuits. The transformer secondary voltage is applied between cathode and load.

With the switch in the "ACTIVATE" position, one rectifier plate and "A" battery negative are disconnected from the chassis and connected together, thus isolating the "A" and "B" circuits. The 6X4 is then used as two half-wave rectifiers with a common cathode.

Power Unit Frequency Range:
50-60 C.P.S. and 40 C.P.S.

A.C. Power Consumption ..... 17 watts

1T4 R.F. Amplifier (679-P only)
1R5 Converter
1T4 I.F. Amplifier
1S5 Detector, A.F. Amplifier, A.V.C.
3V4 Output
6X4 Rectifier

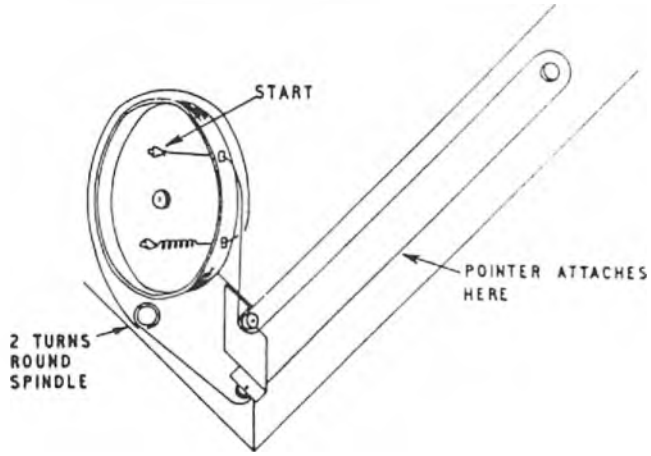
Loudspeaker (Permanent Magnet):

6 inch — Code No. AG52
Transformer — 31727A
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output ..... 200 milliwatts

Controls:

Tuning Control — right-hand end of cabinet.
Volume Control — top left-hand end of cabinet.
Power Selector Switch — bottom left-hand end of cabinet.



Drive Cord Replacement:

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

Chassis Removal:

To remove the chassis from the cabinet open the back and disconnect the speaker cable and batteries. Unsolder the loop aerial leads and pull them back through the guides on the side of the cabinet.

Remove the knobs by pulling them straight off their spindles. Remove a screw under each knob when the cream link covers may be lifted off. The screw under each cover on being removed allows the chassis to be withdrawn.

When replacing the chassis pass the loop leads through the guides, keeping the green lead separate from the black and white, and solder the green lead to the panel so that it connects to the inside of the loop winding.

Note that the link covers are slightly different and must be replaced on the correct side, the one marked "TUNE" on the tuning spindle side and the one marked "VOL" on the volume control side.

ALIGNMENT TABLE—MODEL 679-P

Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for maximum peak output:
	NOTE: If loop leads protruding from the chassis are disconnected, connect a 1 megohm resistor across them.			
1	Grid of 1T4* (I.F. Amp.)	455 Kc/s	Gang in full mesh	L9 and L8 Cores
2	Grid of 1R5* (Rear Section of Gang)	455 Kc/s	Gang in full mesh	L7 and L6 Cores
	Repeat adjustments 1 and 2 until the maximum output is obtained. With gang in full mesh, set the pointer to the setting mark at the right-hand end of the dial scale. Replace the cover over the receiver chassis which should then be fitted in the cabinet, remove the resistor from the loop leads and connect them to the aerial in the cabinet back, the green lead to the inside of the loop. The batteries must be in place in the cabinet and the back closed for alignment of aerial circuits. Connect a 10,000 ohms resistor from the rear section of the gang to chassis.			
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	L.F. Osc. Core Adj. (L4)§‡
4	Inductively coupled to loop†	1640 Kc/s	Gang fully open	H.F. Osc. Adj. (C9)¶
5	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (3AK)	H.F. Aer. Adj. (C2)§
	Repeat adjustments 3 and 5 until maximum output is obtained. Remove the 10,000 ohm resistor.			
6	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	L.F. R.F. Core Adj. (L3)§
7	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (3AK)	H.F. R.F. Adj. (C7)§
	Repeat adjustments 6 and 7 until maximum output is obtained and finally check adjustments 3 and 5.			

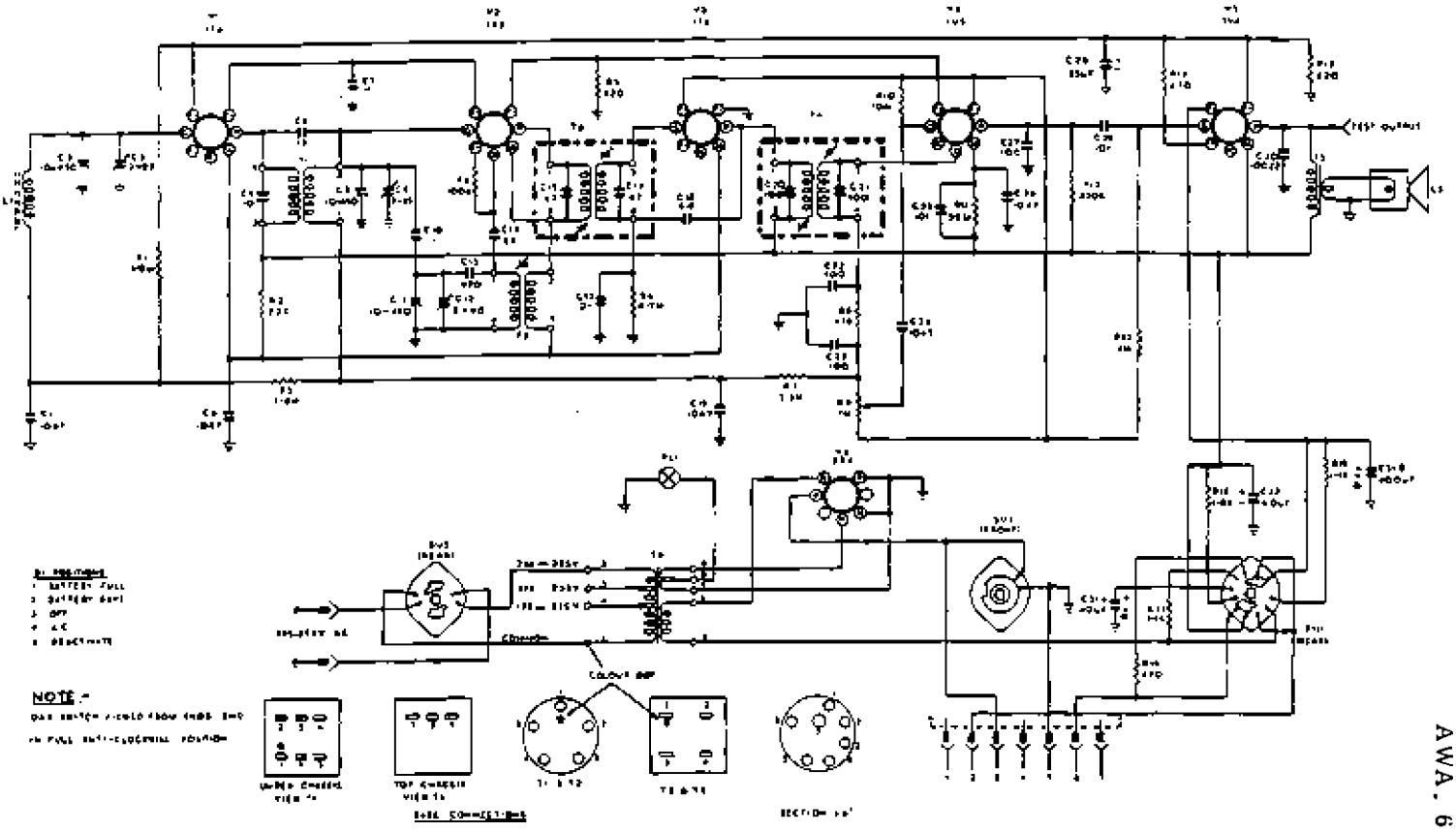
* A 0.001 μF capacitor should be connected in series with the high side of the test instrument.

† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed co-axial with the loop and distant not less than 1 foot from it.

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

§ These adjustments are accessible through 4 holes in the cabinet back.

¶ Open the back to make this adjustment and then close to complete alignment.



C5 Re-positioned - now between pin 5 on T1 and junction of R1 and R3.

TUNING KNOB REMOVAL

If difficulty is experienced in removing the tuning control, the following methods may be adopted:

(1) Make a loop out of approximately 14" of fine cord. Feed the cord under the tuning knob making sure that it does not foul the dial scale. (Because of the rubber mountings on the gang, this knob should rock enough to place the cord behind it.) When the cord is diagonally across the knob, pull outwards with a clockwise rotating motion.

If the cord cannot be placed behind the knob, the alternative method is —

(2) Open the receiver lid and, with the gang fully closed, push with a long shaft screwdriver against the back end of the tuning knob boss while turning this knob anti-clockwise (viewed from the gang).

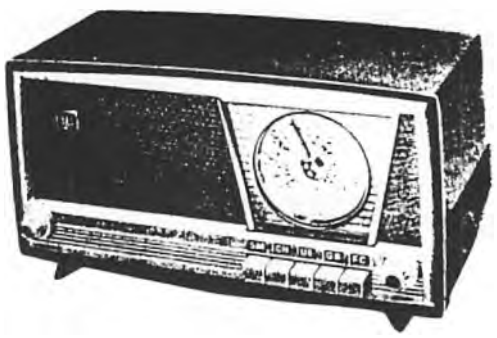
CIRCUIT CODE—RADIOLA PORTABLE MODEL 685-P

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Ferrite Rod Aerial (in handle)	35475		
	TRANSFORMERS			
T1	R.F. Transformer	35466	2	G4
T2	Osc. Transformer	35467	2	D4
T3	1st I.F. Transformer	27324	2	B5
T4	2nd I.F. Transformer	27351	2	B8
T5	Audio Output Transformer (on loudspeaker LS1			
T6	Power Transformer	25835	2	C12
	RESISTORS			
	All Resistors ±20% unless otherwise stated			
R1	6.8 megohm ±10% ½ watt		1	C4
R2	22 K ohms ±10% ½ watt		1	E3
R3	1.8 megohm ±10% ½ watt		1	C4
R4	100 K ohms ½ watt		1	J2
R5	820 ohms ±10% ½ watt		1	H4
R6	4.7 megohm ½ watt		1	K5
R7	3.3 megohm ±10% ½ watt		1	J10
R8	47 K ohms ½ watt		1	J9
R9	1 Megohm Volume Control	35267/3	2	B3
R10	10 megohm ½ watt		1	F9
R11	3.3 megohm ½ watt		1	G11
R12	470 K ohms ½ watt		1	F9
R13	1 megohm ½ watt		1	E9
R14	470 ohms ±10% ½ watt		1	F15
R15	820 ohms ±10% ½ watt		1	F14
R16	470 ohms ±10% ½ watt		2	F15
R17	1.1 K ohms ±5% wire wound 3 watts		1	H14
R18	1.8 K ohms ±10% 1 watt		2	F16
R19	1.1 K ohms ±5% wire wound 3 watts		1	D16
	CAPACITORS			
C1	0.047 µf ±10% paper 200V working		1	F4
C2	10-450 pf tuning (Aerial)	36355	2	G6
C3	3-25 pf trimmer (Aerial)	33304	1	C6
C4	0.047 µf ±10% paper 200V working		1	H5

Code No.	Description	Part No.	Fig. No.	Location
C5	10 pf ±20% Bead ceramic		1	D3
C6	12 pf ±10% N750 ceramic		1	D2
C7	0.1 µf paper 200V working		1	E2
C8	10-450 pf tuning (R.F.)	36355	2	D6
C9	3-25 pf trimmer (R.F.)	33304	1	F5
C10	1 pf NPO ceramic		1	F6
C11	10-450 pf tuning (Osc.)	36355	2	E6
C12	8-40 pf spiral trimmer (Osc.)	231185	1	E5
C13	470 pf ±2½% padder		1	F3
C14	68 pf ±20% silvered mica		1	J1
C15	47 pf ±5% silvered mica (in 1st I.F.)		2	B5
C16	47 pf ±5% silvered mica (in 1st I.F.)		2	B5
C17	0.01 µf paper 400V working		1	K5
C18	6.8 pf ±20% ceramic		1	K8
C19	0.047 µf ±10% paper 200V working		1	K9
C20	100 pf ±5% silvered mica (in 2nd I.F.)		2	B8
C21	100pf ±5% silvered mica (in 2nd I.F.)		2	B8
C22	100 pf NPO K5000 ceramic		1	J9
C23	not used,			
C24	0.047 µf ±10% paper 200V working		1	F7
C25	0.01 µf paper 400V working		1	G11
C26	0.047 µf ±10% paper 200V working		1	F11
C27	100 pf NPO K5000 ceramic		1	G9
C28	25 µf Electrolytic 40V peak		1	B4
C29	0.01 µf paper 400V working		1	E10
C30	0.0022 µf paper 600V working		1	E11
C31A	40 µf Electrolytic 150V working	229835	2	H16
C31B	400 µf Electrolytic 10V working			
C32	40 µf Electrolytic 150V working	229570	2	F9
	LOUDSPEAKER			
LS1	4" P.M. Speaker and Baffle Ass'y (including T5)	36196	2	H12
	SWITCH			
S1	Power Selector	35940	2	E16
	PILOT LAMP			
PL1	6.3V, 0.35 amps. M.E.S.		2	H5

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" elleptical speaker, all components readily accessible on the chassis.

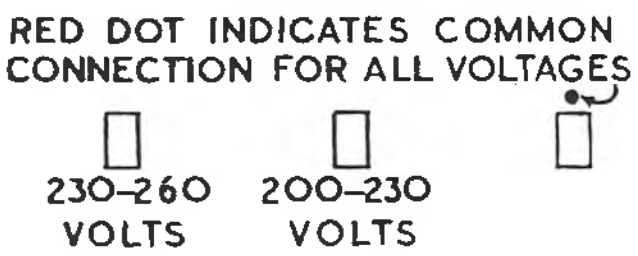
ELECTRICAL AND MECHANICAL SPECIFICATIONS

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	33 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 7¼", Width 13½", Depth 7".	
Weight approximately 10¾ pounds.	

Connection to Power Supply:

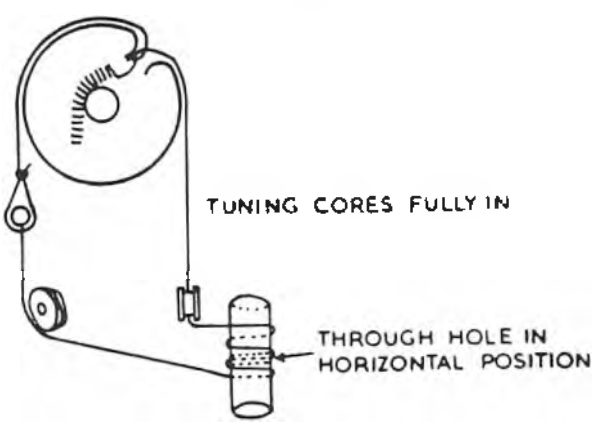
The receiver may be connected to any circuit supplying A.C. voltages between 200 to 230 or 230 to 260 at a frequency of 50 C.P.S.

Connections on the power transformer are shown below.



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.



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 max. 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 μF 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.

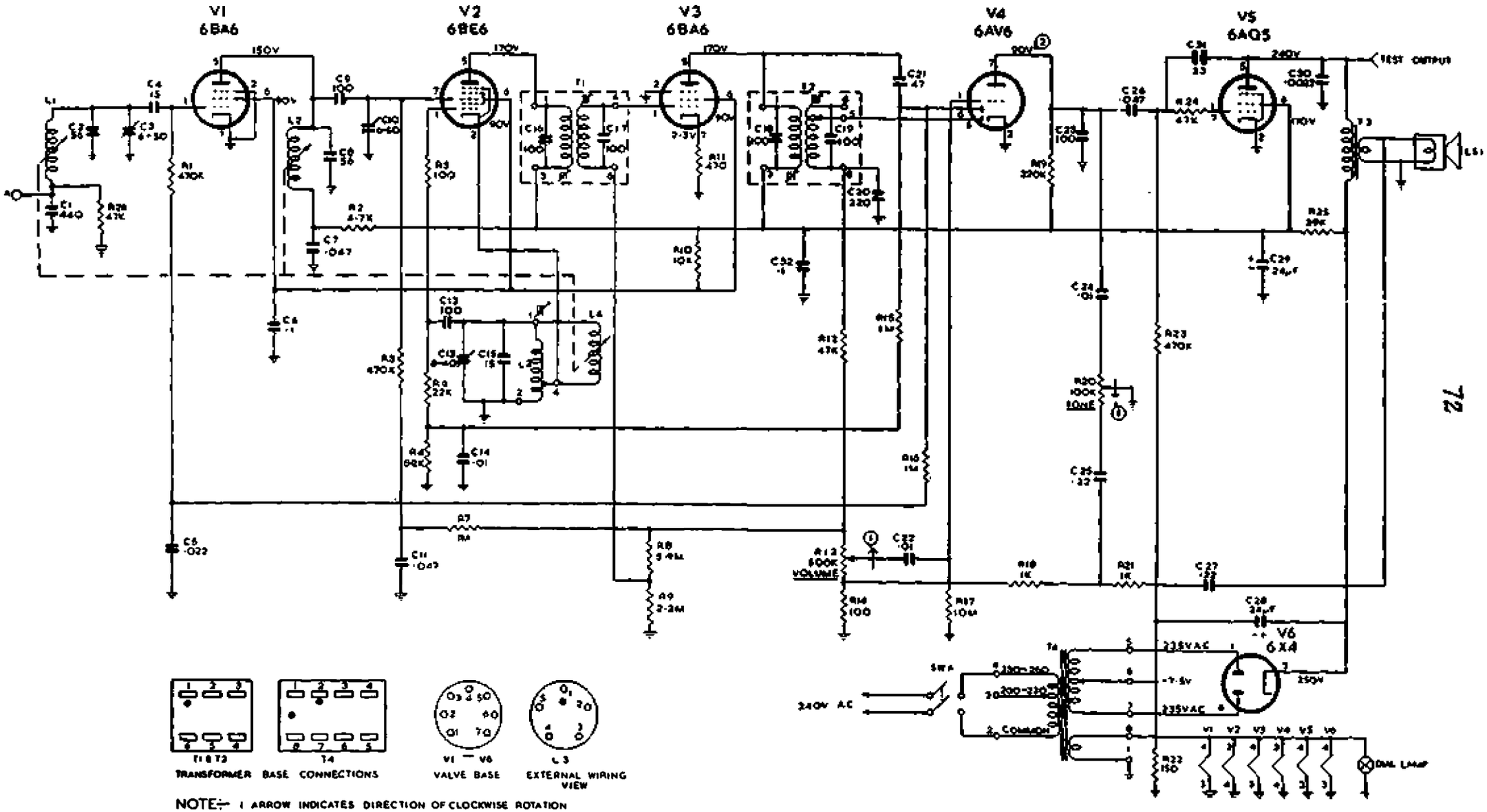
(2) Tune the signal generator to 1000 Kc/s. and connect it to the aerial terminal.

(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.

AWA . 6 Valve Pressmatic Mantle MODEL 690 MA.



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	250
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 *.

PUSH BUTTON TUNER ASSEMBLY

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

FAULT	CAUSE	REMEDY
Manual Drive slipping	1. Lack of clearance between slide (1) and clutch gate (2).	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.
	2. Loose riveting of universal coupling (4) or clutch plate (5) to pinion shaft.	Replace manual drive shaft assembly. Replace clutch assembly.
station is detuned when locking button	Paddle plate (6) loose.	Loosen locknut and tighten adjusting screw (7). Retighten locknut.
Button Sticking in	1. Insufficient clearance of manual drive shaft in forked bracket (8).	Adjust by bending bracket slightly to widen the slot.
	2. Button touching front fret moulding.	Adjust tuner position and chassis height to give clearance.
	3. Muting switch pressure too high when button is fully depressed.	Adjust switch setting.
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	1. Pointer spindle or pulleys insufficiently lubricated.	Lubricate with light grease.
	2. Drive cord too tight.	Slacken cord so that it is lightly tensioned by the spring only.
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.

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.

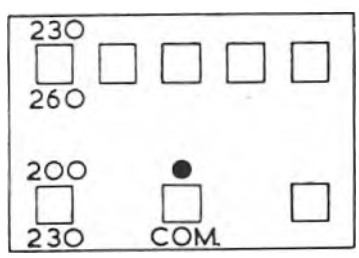
Dimensions:
Control Unit (less legs): Height—10"; Depth—19"; Width—16", Weight—48lbs.
Speaker Cabinet: Height—21"; Depth—9", Width—15", Weight—15lbs.

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.

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.

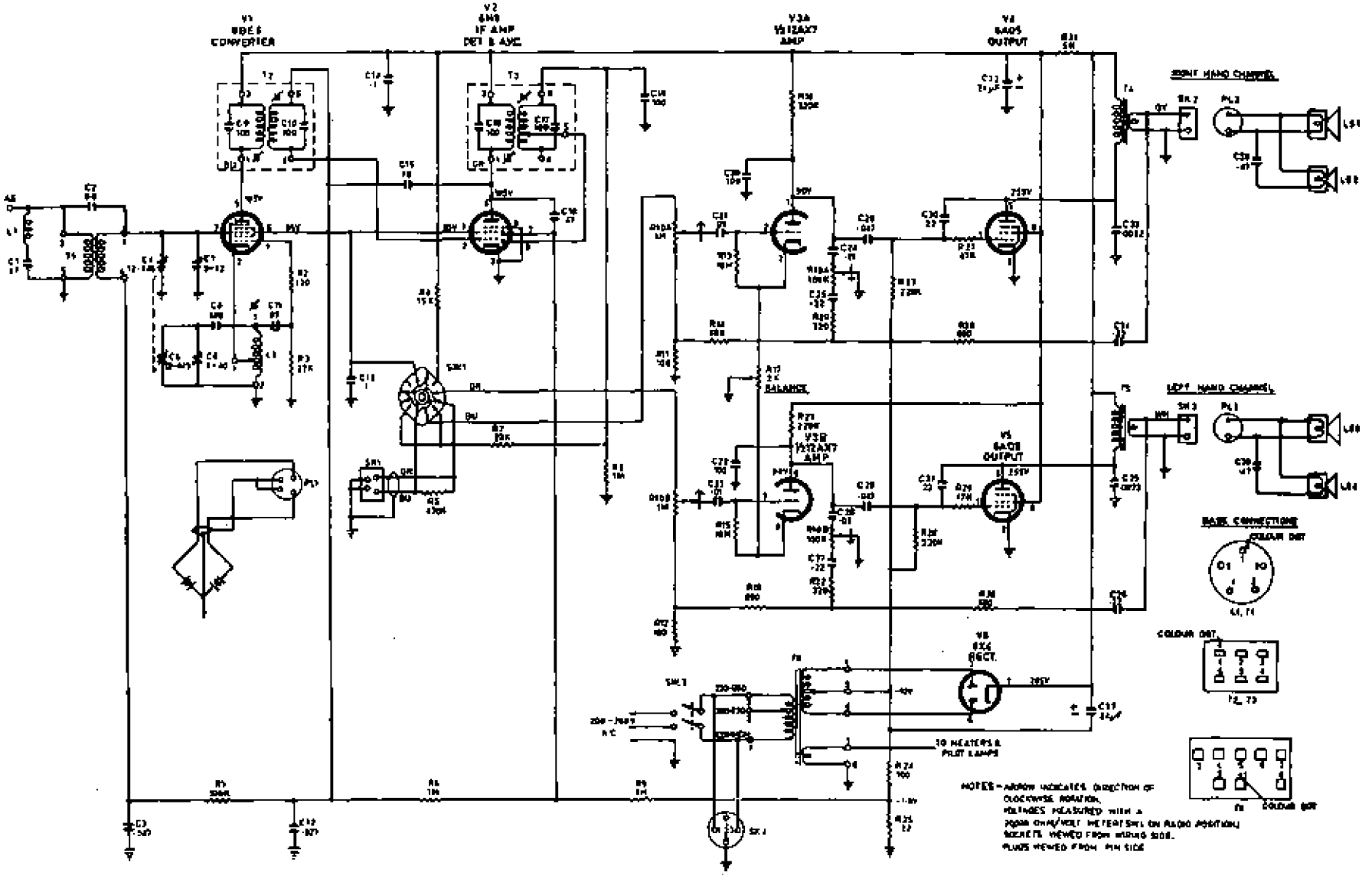
SOCKET VOLTAGES

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

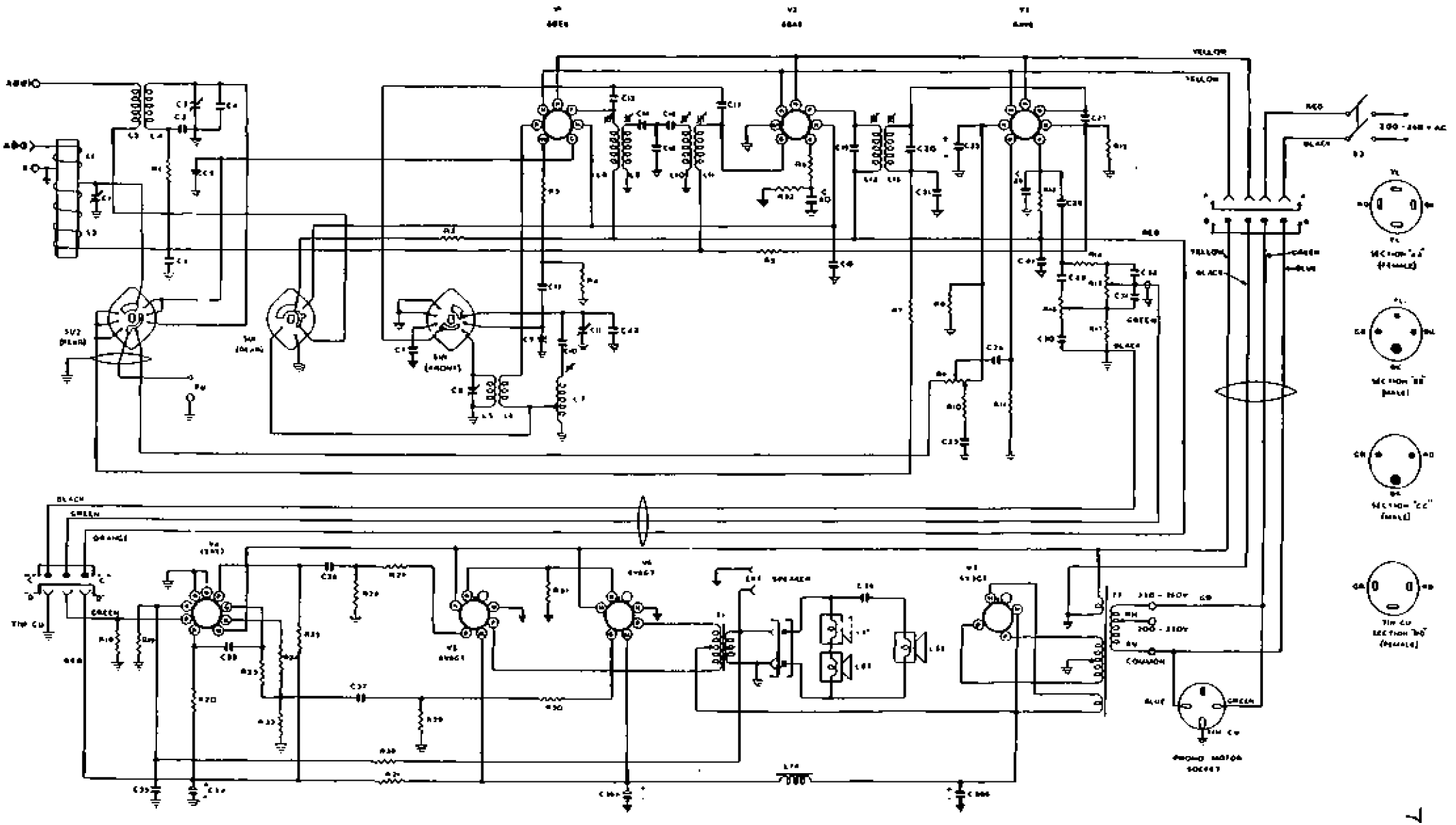
* Varies with balance control setting.
Back bias across R25 = 1.8 volts.
Back bias across R25 + R24 = 10 volts.
Total H.T. Current = 80 mA.

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.

AWA. 6 Valve Stereophonic Radiogram MODEL 699 GA.



AWA. 7 Valve D/W. Radiogram MODEL 776-778GA.



CIRCUIT CODE — MODELS 776-GA and 778-GA

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
1, L2	Ferrite Aerial Assembly 540-1600 Kc/s	34327	1	B5
3, L4	Aerial Coil 6-18 Mc/s	28228	1	F6
5, L6	Oscillator Coil 6-18 Mc/s	28229	1	F3
7	Oscillator Coil 540-1600 Kc/s	32406	1	F2
8, L9	1st I.F. Transformer	34384	1	C7
10, L11	2nd I.F. Transformer	34384	1	C10
12, L13	3rd I.F. Transformer	33596	1	C12
14	Filter Choke	TU24	3	D9
	RESISTORS			
R1	0.1 megohm ½ watt		1	E5
R2	11,000 ohms 2 "		1	F9
R3	100 ohms ½ "		1	E5
R4	22,000 ohms ½ "		1	D5
R5	2.2 megohms ½ "		1	E13
R6	150 ohms ½ "		1	E10
R7	47,000 ohms ½ "		1	E12
R8	2,200 ohms ½ "		1	F11
R9	0.5 megohm Volume Control	26442/3	1	G9
R10	10,000 ohms ½ watt		1	G8
R11	1.0 megohm ½ "		1	F12
R12	0.22 megohm 1 "		1	F14
R13	2.2 megohms ½ "		1	E13
R14	0.47 megohm ½ "		1	G13
R15	1.0 megohm Tone Control (Bass) incl. S2	32852/1	1	G14
R16	1.0 megohm Tone Control (Treble)	32852/1	1	G14
R17	47,000 ohms ½ watt		1	G15
R18	1.0 megohm ½ "		2	C2
R19	2,200 ohms ½ "		2	C2
R20	0.22 megohm 1 "		2	C2
R21	4,700 ohms 1 "		2	B10
R22	0.1 megohm 1 "		2	B3
R23	1.0 megohm ½ "		2	C3
R24	2,200 ohms ½ "		2	D4
R25	0.1 megohm 1 "		2	B3
R26	0.47 megohm ½ "		2	C5
R27	10,000 ohms ½ "		2	C4
R28	33,000 ohms ½ "		2	D6
R29	0.47 megohm ½ "		2	C8
R30	10,000 ohms ½ "		2	D8
R31	165 ohms 2 "		2	D10
R32	150 ohms ½ "		1	E11
	CAPACITORS			
C1	2-20 μμF Trimmer	19659	1	G2
C2	4000 μμF padder ± 2½%		1	F5
C3	2-20 μμF Trimmer	19656	1	F7
C4	10 μμF mica		1	F6
C5	12-445 μμF tuning	18674	1	C4
C6	0.1 μF paper 200V working		1	D3
C7	0.0022 μF paper 600V working		1	G3
C8	2-20 μμF Trimmer	19659	1	E2
C9	12-445 μμF tuning	18674	1	C4
C10	470 μμF padder ± 2½%		1	F2
C11	4-27 μμF trimmer	33304	1	F2
C12	47 μμF mica		1	D5
C13	100 μμF silvered mica (in 1st I.F.)		1	D7
C14	100 μμF silvered mica (in 1st I.F.)		1	D7
C15	0.01 μF mica		1	E7
C16	100 μμF silvered mica (in 2nd I.F.)		1	D10
C17	100 μμF silvered mica (in 2nd I.F.)		1	D10
C18	0.1 μF paper 400V working		1	E8
C19	220 μμF silvered mica (in 3rd I.F.)		1	D12
C20	220 μμF silvered mica (in 3rd I.F.)		1	D12
C21	100 μμF ceramic		1	E11
C22	NOT USED			
C23	0.05 μF paper 200V working		1	G10
C24	0.05 μF paper 200V working		1	F12
C25	25 μF 40 P.V. Electrolytic		1	F10
C26	100 μμF silvered mica		1	E13
C27	47 μμF ceramic		1	E12
C28	0.01 μF paper 600V working		1	F14
C29	470 μμF mica		1	G13
C30	0.0025 μF paper 600V working		1	H15
C31	0.005 μF paper 600V working		1	H14
C32	0.001 μF mica		1	H13
C33	0.025 μF paper 400V working		2	E6
C34	8 μF 525 P.V. Electrolytic		3	C14
C35	0.01 μF paper 600V working		2	E3
C36	0.025 paper 400V working		2	C4
C37	0.025 paper 400V working		2	B4
C38A	16 μF 525 P.V. Electrolytic		3	C8
C38B	8 μF 525 P.V. Electrolytic		3	C8
C39	0.5 μF paper 200V working			(on Loudspeaker)
C40	0.025 μF paper 400V working		1	F9
C41	0.1 μF paper 400V working		1	F10
C42	10 μμF mica		2	E2
	TRANSFORMERS			
T1	Loudspeaker Transformer	25861	3	D9
T2	Power Transformer	25859	3	C3
	LOUDSPEAKERS			
LS1	7 x 5 inch Permanent Magnet	20922		
LS2	12 inch Permanent Magnet	20933		
LS3	6 inch Permanent Magnet	20766		
	SWITCHES			
S1	Phono-Radio Switch	35090	1	G3
S2	Power Switch (on R15, R16)		1	G14

AWA. 7 Valve D/W. Radiogram MODEL 776-778GA.

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Ferrite Aerial Assembly (AM.W.):	
Primary (L1)	*
Secondary (L2)	2
Aerial Coil (S.W.):	
Primary (L3)	2.5
Secondary (L4)	*
Oscillator Coil (M.W.) (L7)	3.5
Oscillator Coil (S.W.):	
Primary (L6)	*
Secondary (L5)	*
1st, 2nd I.F. Transformer Windings	17
3rd I.F. Transformer Windings	12
Filter Choke (L14)	170
Power Transformer (T2):	
Primary	20
Secondary	260
Loudspeaker Input Transformer (T1):	
Primary	500
Secondary	1

* 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	—	65	170	2.0	6.3
6BA6 I.F. Amp.	2.0	65	170	4.5	6.3
6AV6 Det., 1st Gen'l Amp., A.V.C.	0.75	—	90	1.0	6.3
12AX7 A.F. Amp., Phase Splitter	1.22	—	135	1.0	
6V6GT Push-pull output	14	260	260	78	6.3
5Y3GT Rectifier	260	—	265/295 A.C. R.M.S.		5.0

Total H.T. Current { Radio = 105 mA Volts across Filter Choke L14 = { Radio 4
{ Phono = 90 mA { Phono 15

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.

TECHNICAL INFORMATION AND SERVICE DATA

RADIOLAGRAM

MODEL 1091 GA.

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

ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model 1091-GA is a Ten-Valve, A.C.-operated, Duol Wave, High-Fidelity Radiogram.

Included in its many attractive features are:—Three separate chassis, tuner, high-frequency and low-frequency amplifiers, two matched-speaker enclosures containing six loudspeakers, separate bass and treble controls providing both attenuation and boost, broad and narrow band Broadcast reception, non-resonant crossover system in each amplifier, and finally, a high performance four-speed record changer possessing several unique features.

ELECTRICAL AND MECHANICAL 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 c/s.
Power Consumption	On Radio — 110 watts. On Phonogram — 125 watts.
Dial Lamps	6.3 volts, 0.25 amp. M.E.S.

Valve Complement

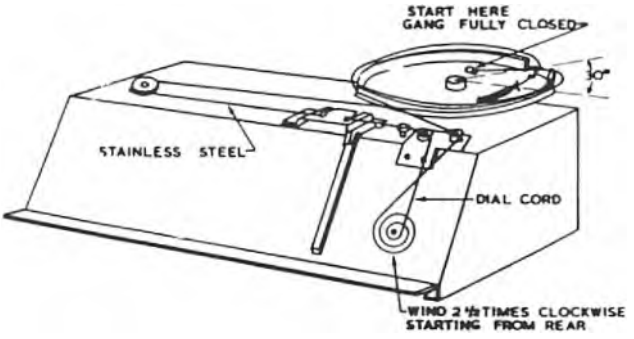
6BE6 Converter
6N8 I.F. Amplifier and Detector
Z729/6BK8 Audio Amplifier
6AU6 H.F. Amplifier
6AQ5 H.F. Output
6X4 Rectifier
12AX7 Amplifier and Phase-Splitter
6V6GT } Push-pull Output
6V6GT }
5Y3GT Rectifier

Loudspeakers

2 — 12 inch permanent magnet No. 21586M
1 — 4 inch permanent magnet No. 21534M
1 — 4 inch permanent magnet No. 21588M
2 — 2½ inch permanent magnet No. 21536M

Dial Cord Replacement:

The following diagram indicates the procedure for assembling Dial Cord No. 32812/6 on the tuner chassis in the event of cord breakage or gang replacement.



Connection to Power Supply:

The receiver should not be connected to any circuit supplying other than alternating current from 200-260 volts at a frequency of 50 c/s. The following diagrams show the voltage taps on the power transformers in each amplifier chassis.

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 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 2R7003, or

(2) A.W.A. Modulated Oscillator, series 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 ohm 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 receiver is tuned to receive a 16 Mc/s. signal, the image will be heard at 16.91 Mc/s. instead of the usual 15.09 Mc/s.

ALIGNMENT TABLE

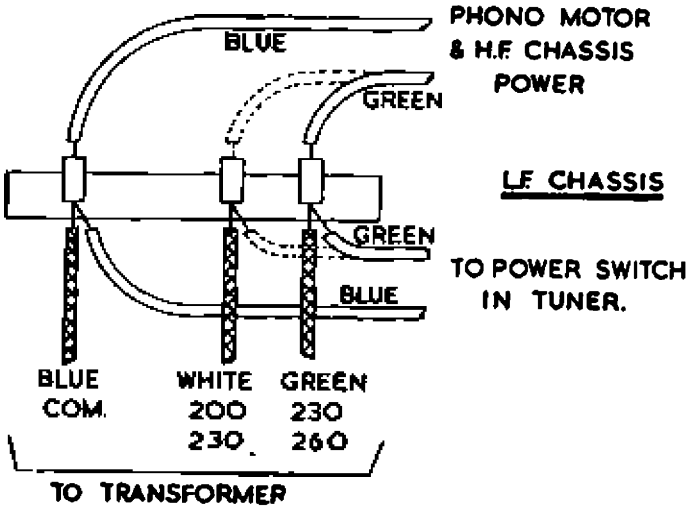
Order	Connect "High" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Maximum Peak Output:
Switch Receiver to Broadcast Narrow.				
1	Aerial Section of Gang (Drive End)	455 Kc/s.	Gang fully closed	Top Core T6
2	Aerial Section of Gang (Drive End)	455 Kc/s.	Gang fully closed	Bottom Core T6
3	Aerial Section of Gang (Drive End)	455 Kc/s.	Gang fully closed	Top Core T5
4	Aerial Section of Gang (Drive End)	455 Kc/s.	Gang fully closed	Bottom Core T5*
5	Aerial Section of Gang (Drive End)	455 Kc/s.	Gang fully closed	Top Core T4*
6	Aerial Section of Gang (Drive End)	455 Kc/s.	Gang fully closed	Bottom Core T4
*If the 1st and 2nd I.F. are completely out of alignment, tune bottom core T5 and top core T4 for a sharp dip and then repeat the above adjustments, peaking all cores.				
7	Aerial Lead	600 Kc/s.	600 Kc/s. (7ZL)	L.F. Osc. Core Adj. (L2) †
8	Aerial Lead	1500 Kc/s.	1500 Kc/s. (3AK)	H.F. Osc. Adj. (C16)
9	Aerial Lead	1500 Kc/s.	1500 Kc/s. (3AK)	H.F. Aer. Adj. (C4)
Repeat the above adjustments until maximum output is obtained.				
Switch Receiver to S/W and proceed as below				
10	Aerial Lead	16 Mc/s.	16 Mc/s.	H.F. Osc. Adj. (C10) ‡
11	Aerial Lead	16 Mc/s.	16 Mc/s.	H.F. Aer. Adj. (C5)

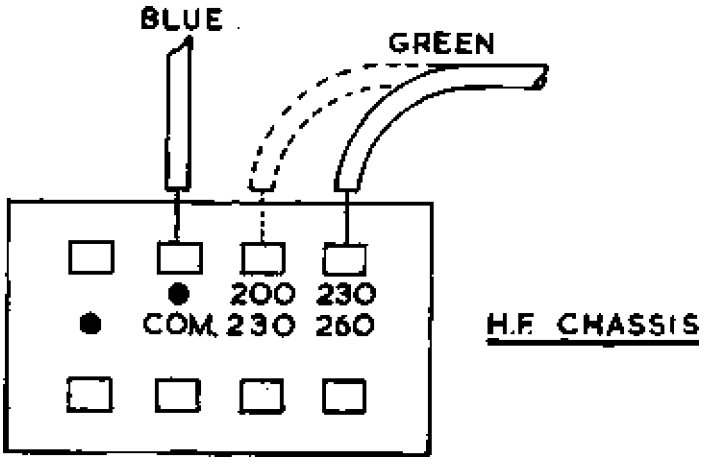
† Rock the tuning control back and forth through signal.

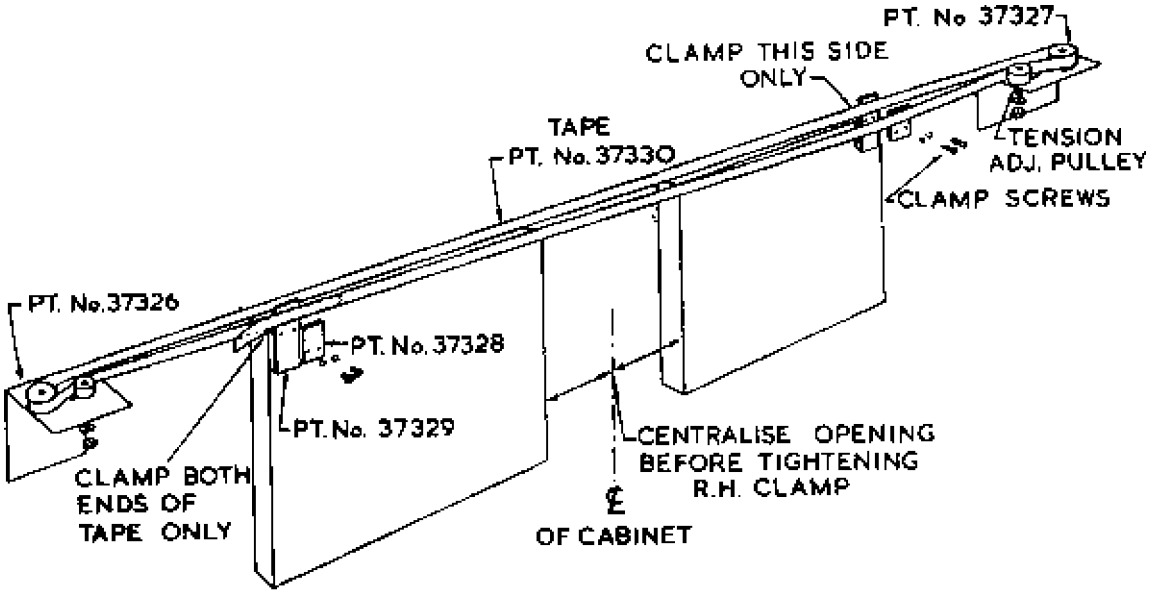
‡ Use maximum capacity peak if two can be obtained. Check to determine that the trimmer has been adjusted to correct peak by tuning the receiver to approximately 16.91 Mc/s., where a weaker signal should be obtained.

TRANSFORMER TAPS

A.W.A. model







VIEWED FROM BACK

Sliding Door Adjustment:

The moving elements of the above system are exposed on removing the backs of all speaker compartments. This will be necessary should ever the system need lubrication or should the Tape become slack or broken.

The procedure for assembling the system is:—

Loosen nuts on Tension Adjustment Pulleys and move them towards the centre of the cabinet.

Loosen Clamp Screws and place the Tape in the position shown above.

Pull the Tape finger tight and lock in position with the Left Hand Clamp.

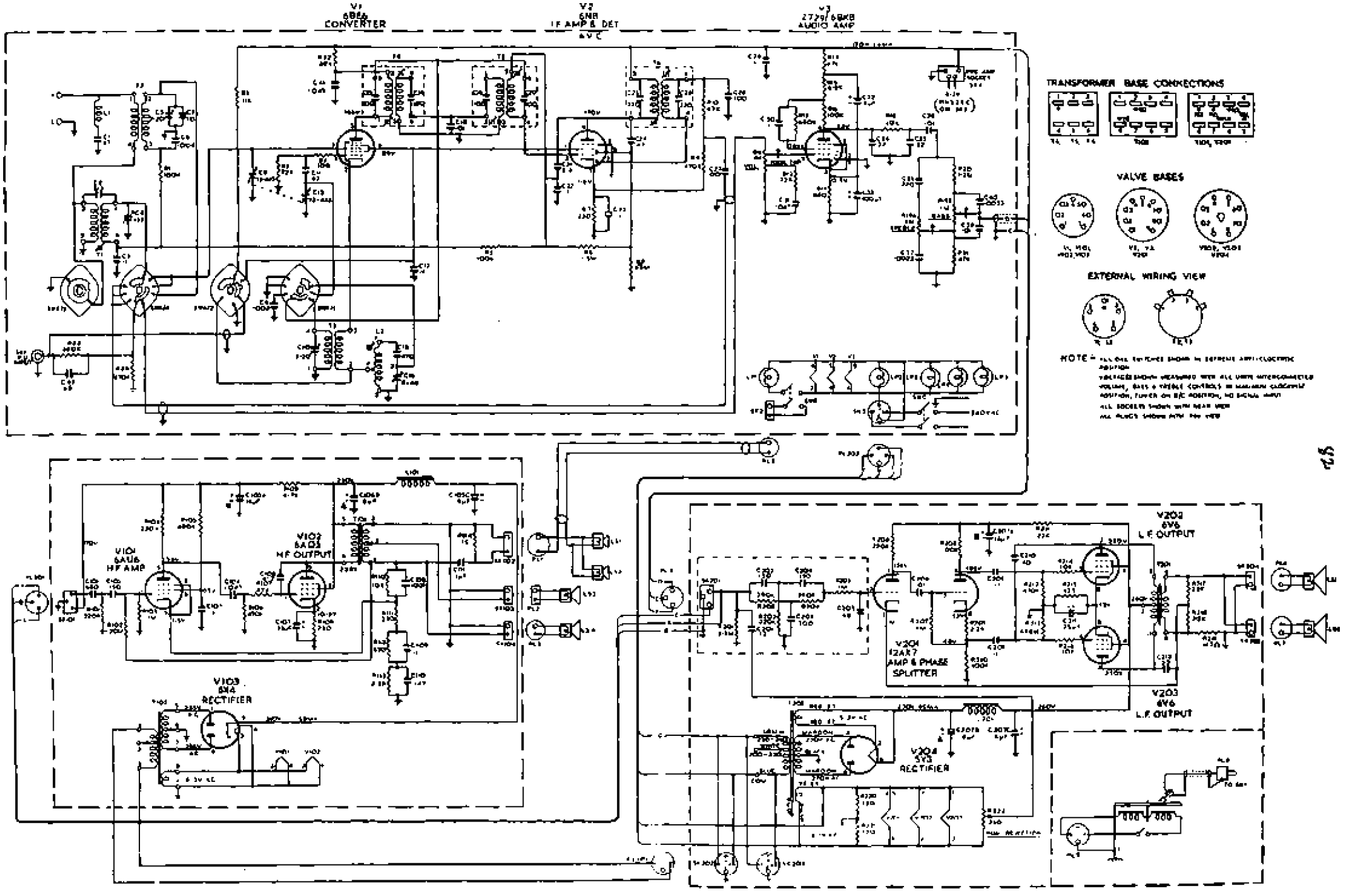
Any slackness in the Tape may be taken up by the range of movement in the Tension Adjustment Pulleys. When set in position their nuts should be tightened securely.

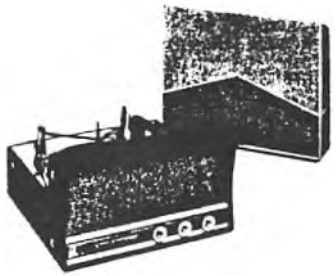
The doors should now be centralised in an open position lining the edge of each door up with the edge of the Volume Control slot being a good reference point.

Without moving either door from this position, tighten the Right Hand Clamp.

Check the door for smoothness and quietness of operation, and if satisfactory, replace the backs for the speaker compartments.

AWA. 10 Valve D/W. Radiogram MODEL 1091 GA.





RADIOLA

Stereophonic Portable Phonograph

Model 104S

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model 104S is a four valve, A.C. operated, portable stereophonic phonograph, capable of reproducing all stereophonic and monophonic recordings. The dual amplifier chassis and the right hand channel speaker are mounted in the main cabinet, while the detachable lid houses the left hand channel speaker.
Features of the design include: Matched amplifiers, tandem volume controls with matched elements.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Valve Complement:

Radiotron 12AX7 Two Channel Audio Amplifier.
Radiotron 6AQ5 Output.
Radiotron 6AQ5 Output.
Radiotron 6X4 Rectifier.

Loudspeakers:

In cabinet: 7" x 5" Permanent Magnet No. 21007.
In lid: 7" x 5" Permanent Magnet No. 21618.
Loudspeaker Transformers 21204G.
V/C Impedance: 15 ohms at 400 C.P.S.
Undistorted Power Output 1.5 watts per channel.

Dimensions:

Height, 9½"; Width, 18"; Depth, 19"; Weight, 32 lbs. nett.

Connection to Power Supply:

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

Connections for power supply on the power transformer as shown in the following diagram.

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

230–260 VOLTS

200–230 VOLTS

Chassis Removal:

Unhinge the lid from the cabinet and secure the record changer firmly to the motor board with the transport screws.

Remove all the screws retaining both the perforated metal cover and the motor board. Disconnect the pick up and phono motor power leads and lift the motor board and changer assembly free of the cabinet.

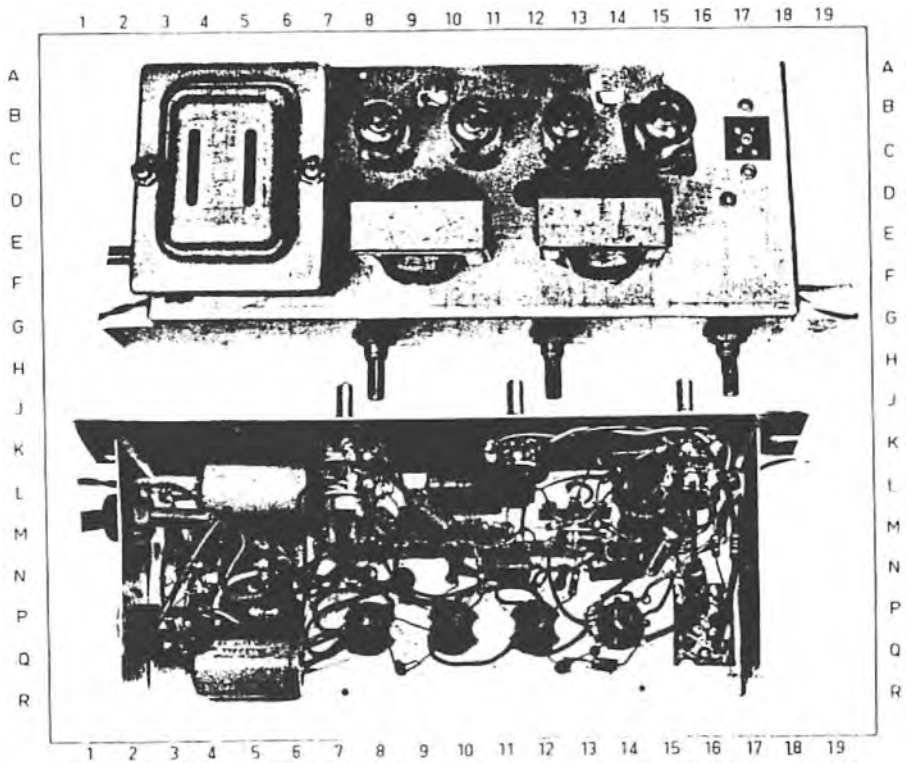
Disconnect both pairs of speaker leads and slide the pilot lamp holder off its support bracket. Remove the chassis back plate which is held in position by two nuts and two self tapping screws. Remove the control knobs by pulling them off their spindles.

Using a long 4 BA tube spanner, remove the two nuts holding the chassis to the front of the cabinet, and the chassis may be lifted free of the cabinet.

To replace the chassis, the above procedure is reversed. The correct phasing of the loudspeakers may be determined from the circuit diagram.

Note:

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



CIRCUIT CODE — RADIOLA 104S

Code No.	Description	Part No.	Location
	RESISTORS		
	All Resistors ± 10% Carbon unless otherwise stated		
R1	470K ohms ½ watt	601840	N16
R2A	1 Megohm Log Carbon, Volume	620943	L16
R2B	1 Megohm Log Carbon, Volume		K16
R3	100 ohms ½ watt	601070	M15
R4	1K ohms ½ watt	601210	M14
R5	10 Megohms ½ watt	601991	Q13
R6	220K ohms 1 watt	600727	N14
R7A	500K ohms Log Carbon, Tone W/S	620923	L7
R7B	500K ohms Log Carbon, Tone W/S		K7
R8	1K ohms ½ watt	601210	M13
R9	47K ohms ½ watt	601610	N13
R10	220 ohms 1 watt	600687	On SK2
R11	1 Megohm Linear Carbon, Balance	620713	K11
R12	470K ohms ½ watt	601840	N17
R13	100 ohms ½ watt	601070	K14
R14	1K ohms ½ watt	601210	K14
R15	10 Megohms ½ watt	601991	P13
R16	220K ohms 1 watt	600727	M13
R17	1K ohms ½ watt	601210	M12
R18	47K ohms ½ watt	601610	N10
R19	10K ohms 1 watt	600701	M7
R20	180 ohms 1 watt	604911	M3
	CAPACITORS		
C1	0.01 µF 400 volt working paper	226311	P16
C2	0.1 µF 200 volt working paper	227032	M15
C3	0.01 µF 400 volt working paper	226311	N14
C4	0.0022 µF 600 volt working paper	225624	M8
C5	22 pF ± 10% N750 Disc	220882	N12
C6	0.22 µF 200 volt working paper	227330	L10
C7	0.01 µF 400 volt working paper	226311	N15
C8	0.1 µF 200 volt working paper	227032	L14
C9	0.01 µF 400 volt working paper	226311	N11
C10	0.0022 µF 600 volt working paper	225624	M9
C11	22 pF ± 10% N750 Disc	220882	N10
C12	0.22 µF 200 volt working paper	227330	M10
C13	24 µF 350 VP Electrolytic	222813	L5
C14	24 µF 350 VP Electrolytic	222813	Q5
	TRANSFORMERS		
T1	Output Transformer	21204G	E13
T2	Output Transformer	21204G	E9
T3	Power Transformer	25807	D5
	MISCELLANEOUS		
LS1	7" x 5" Permanent Magnet	21618	In Lid
LS2	7" x 5" Permanent Magnet	21007	
SK1	4 Pin Wafer Socket	793287	C17
SK2	Co-axial Socket	793249	
SK3	4 Pin Moulded Socket	28313	P3
SW1	Power Switch on R7		M7
	VALVES		
V1	Radiotron 12AX7		P14
V2	Radiotron 6AQ5		P12
V3	Radiotron 6AQ5		P10
V4	Radiotron 6X4		P8

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Output Transformers T1, T2:	
Primary	380
Secondary	2
Power Transformer T3:	
Primary	52
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.

MECHANICAL REPLACEMENT PARTS

Item	Part Number
Chassis Assembly:	
Cover, Power Transformer	20150
Clamp Body, Power Cable	208095
Clamp Lock, Power Cable	208096
Speed Nut	21915
Socket, 7 Pin	794579
Socket, 9 Pin	794591
Cabinet Fitting:	
Back plate, Chassis	38533
Bezel Light	37317
Bracket, Cable Storage	38537
Bracket, Pilot Lamp	35984
Cable, External Speaker	38715
Cover, Speaker	38526
Knobs	38528
Plate and Socket Assembly	38531
Shield, Pilot Light	36698

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

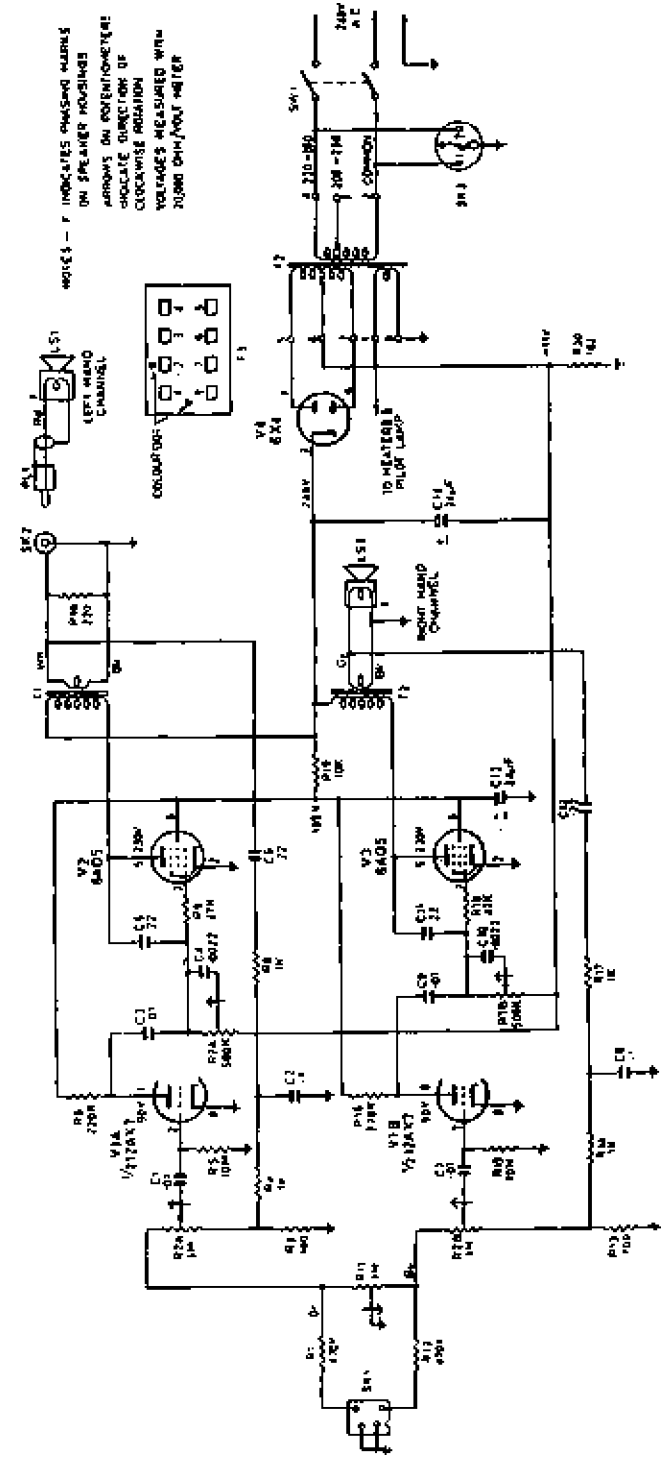
SOCKET VOLTAGES

Valve	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
12AX7	0	—	90	1	6.3
6AQ5	0	195	230	27	6.3
6x4	240	—	235/235 AC RMS	—	6.3

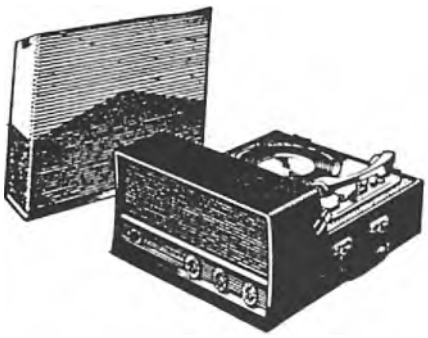
Voltage across back-bias resistor R20 = 11 volts.

Total current drain = 60 mA.

Voltages measured with amplifier connected to 240 volts AC supply, with no signal input. Measurements taken on a 20,000 ohm/volt meter on highest scale giving accurate readable deflection.



TECHNICAL INFORMATION AND SERVICE DATA



RADIOLA

Stereophonic Portable Phonograph

Model 194S

ISSUED BY

AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model 194S is a four valve, A.C. operated, portable stereophonic phonograph, capable of reproducing all stereophonic and monophonic recordings. The dual amplifier chassis and the right hand channel speaker are mounted in the main cabinet, while the detachable lid houses the left hand channel speaker.
Features of the design include: Matched amplifiers; tandem volume controls with matched elements.

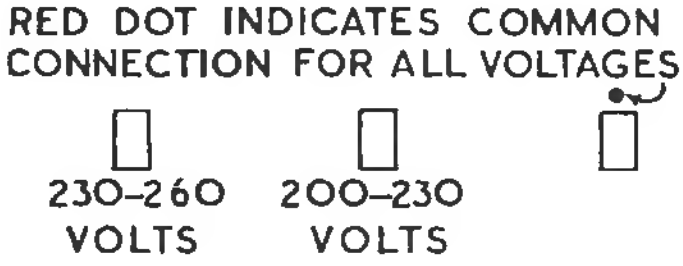
ELECTRICAL AND MECHANICAL SPECIFICATIONS

Valve Complement:
Radiotron 12AX7 Two Channel Audio Amplifier.
Radiotron 6AQ5 Output.
Radiotron 6AQ5 Output.
Radiotron 6X4 Rectifier.

Loudspeakers:
In cabinet: 5" Permanent Magnet No. 21650.
In lid: 5" Permanent Magnet No. 21643.
Loudspeaker Transformers 21204G.
V/C Impedance: 15 ohms at 400 C.P.S.
Undistorted Power Output: 1.5 watts per channel.

Dimensions:
Height, 7¼"; Width, 15"; Depth, 18"; Weight, 25 lbs. net.

Connection to Power Supply:
The receiver should not be connected to any circuit supplying other than 200 to 260 volts A.C. at a frequency of 50 C.P.S.
Connections for power supply on the power transformer as shown in the following diagram.



Chassis Removal:

Unhinge the lid from the cabinet and secure the record player firmly to the motor board with the transport screws.

Remove all the screws retaining both the perforated metal cover and the motor board. Disconnect the pick up and phono motor power leads and lift the motor board and player assembly free of the cabinet.

Disconnect both pairs of speaker leads and slide the pilot lamp holder off its support bracket. Remove the chassis back plate which is held in position by two nuts and two self tapping screws. Remove the control knobs by pulling them off their spindles.

Remove the two 4BA nuts holding the chassis to the front of the cabinet, and the chassis may be lifted free of the cabinet.

To replace the chassis, the above procedure is reversed. The correct phasing of the loudspeakers may be determined from the circuit diagram.

Note:

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 amplifiers. Hence a 15 ohm 3 watts resistor should be connected to the voice coil terminals of the amplifier which is not loaded with an output meter or a speaker.

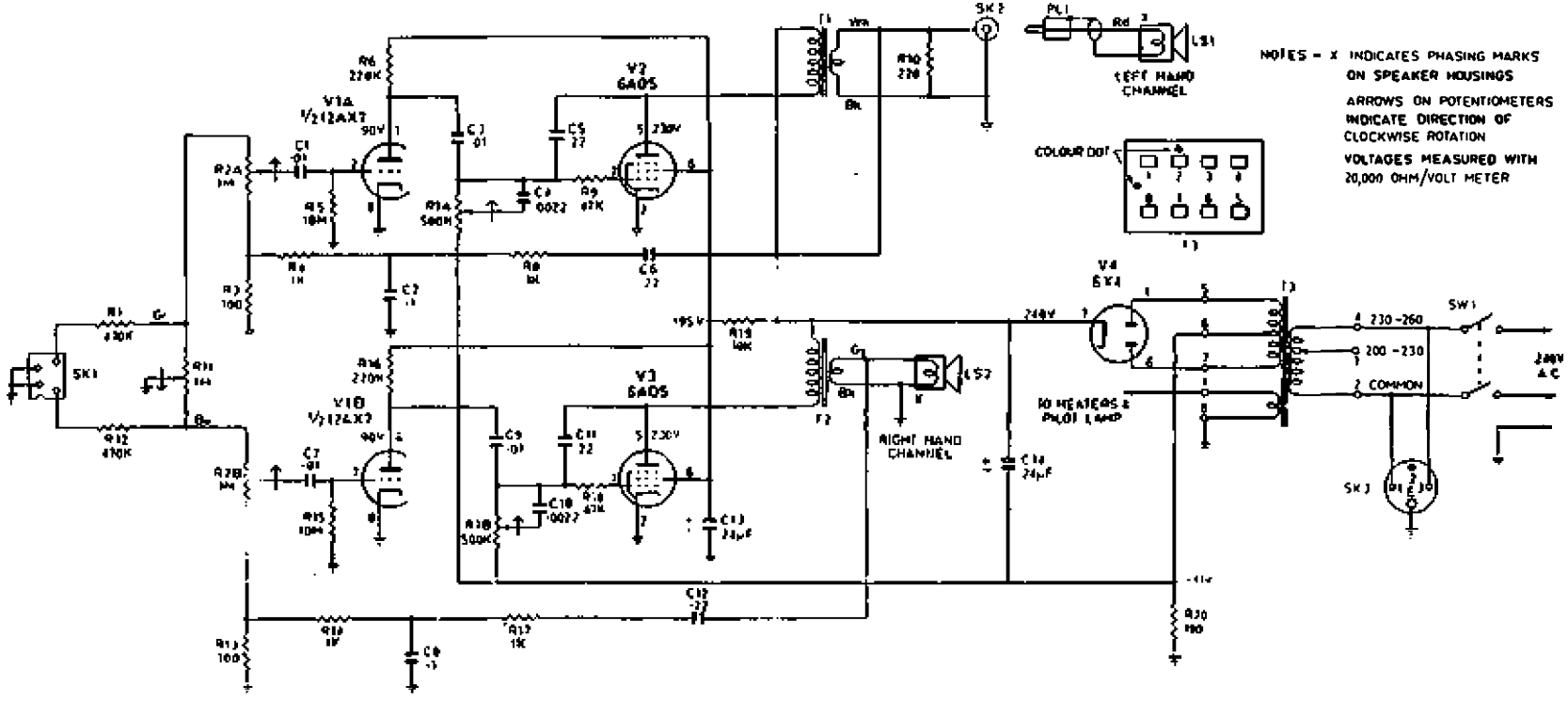
SOCKET VOLTAGES

Valve	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
12AX7	0	—	90	1	6.3
6AQ5	0	195	230	27	6.3
6X4	240	—	235/235 AC RMS	—	6.3

Voltage across back-bias resistor R20 = 11 volts.

Total current drain = 60 mA.

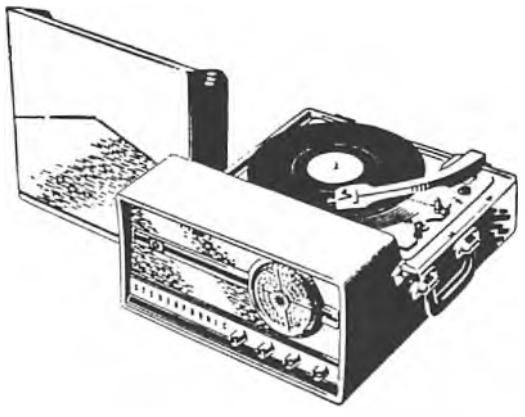
Voltages measured with amplifier connected to 240 volts A.C. supply, with no signal input. Measurements taken on a 20,000 ohm/volt meter on highest scale giving accurate readable deflection.



Addenda

1 Two 270K ohms ±10% ½ watt resistors have been added, one from each end of the Balance Control to chassis.

2 A 470 K ohm ±10% ½ watt resistor is located on the record player base plate between orange and green leads.



MODEL B13
PORTABLE
STEREOPHONIC
RADIOLAGRAM
"THE BALALAIKA"

GENERAL DESCRIPTION

Model B13 is a six valve A.C. operated portable stereophonic radiogram designed for the reception of the Medium Wave Band and for the reproduction of both monophonic and stereophonic recordings.

Features of design include: Tandem volume and tone controls with closely matched resistive elements; matched audio amplifiers; feedback over audio stages; wide range tone control circuits.

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 Player ..... 20 watts

Undistorted power output ..... 1.5 watts per channel

Loudspeakers:
- 5" Permanent Magnet (in cabinet) ..... No. 21547
- 5" Permanent Magnet (in lid) ..... No. 21643

Loudspeaker Transformers 21204G

V.C. Impedance ..... 15 ohms

Dimensions:

Weight—30 lbs.
Height— 7"; Depth—17"; Width—14".

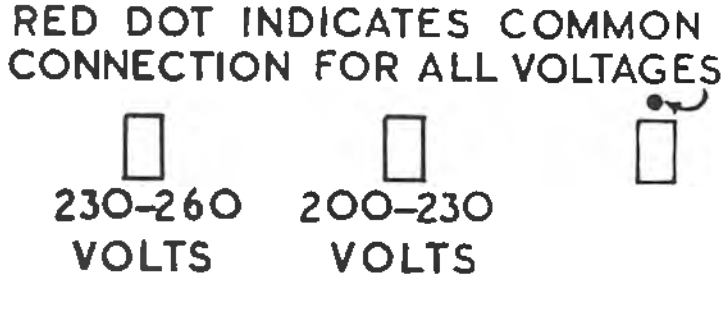
VALVE COMPLEMENT:

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.



CHASSIS REMOVAL AND INSTALLATION

Remove the lid.

Remove the perforated metal cover. (All valves may be reached with this cover removed.)

Remove the wood screws holding the record player base plate, tilt the board back enough to unplug the interconnecting cables and remove the player completely.

Remove the four small control knobs, these being a push on fit.

Hold the tuning control knob steady and unscrew the centre retaining screw. Remove the outer knob and the pointer, the latter being a push on fit.

Loosen the screws securing the power and speaker lead clamps to the cabinet.

Unplug the aerial and earth panel from the rear of the cabinet.

Remove the three nuts holding the chassis to the cabinet.

Slide the chassis free of the cabinet.
Installation is the reverse of the above.

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. (C9)
4	Aerial lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C7)
	Repeat adjustments 2, 3 and 4.			

* Rock the tuning control back and forth through the signal

ophonic Port. R/G. MODEL B13.

D.C. RESISTANCE OF WINDINGS

WINDING	RESISTANCE IN OHMS	WINDING	RESISTANCE IN OHMS
I.F. Filter L1	23	Output Transformers T4 and T5:	
Oscillator Coil L2	3.7	Primary	380
Aerial Transformer T1:		Secondary	2
Primary	13.5	Power Transformer T6:	
Secondary	1.9	Primary	52
I.F.Transformer Windings T2 and T3	18	H.T. Secondary	350
		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.

SOCKET VOLTAGES

VALVES	CATHODE TO CHASSIS VOLTS	SCREEN GRID TO CHASSIS VOLTS	ANODE TO CHASSIS VOLTS	ANODE CURRENT mA	HEATER VOLTS
6BE6 Converter	0	90	190	2	6.3
6N8 I.F. Amp. Det. A.V.C.	0	90	190	6	6.3
12AX7 A.F. Amp.	0	—	85	1.0	6.3
6AQ5 Output	0	190	220	20	6.3
6AQ5 Output	0	190	220	20	6.3
6X4 Rectifier	230	—	235 A.C. R.M.S.		6.3

Back bias across R25 = —1.5 volts.
Back bias across R25 + R26 = —10 volts.
Total H.T. Current = 60 mA.

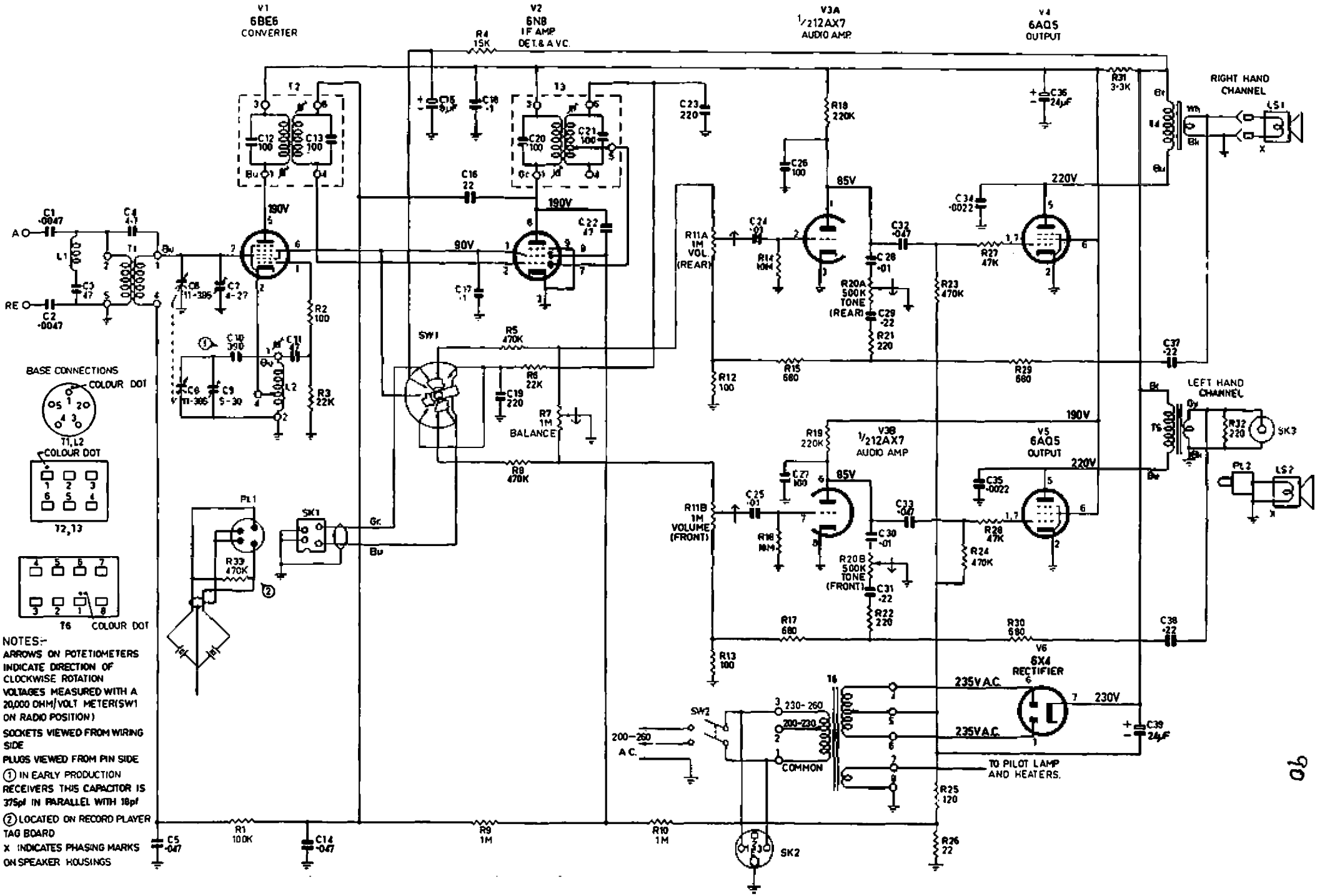
Measured with 240 volts A.C. supply (with P.U.—Radio Switch in Radio position). No signal input; Volume Control maximum clockwise; voltmeter 20,000 ohms/volt; measurements taken on highest scale giving accurate readable deflection.

MECHANICAL REPLACEMENT PARTS

ITEM	PART No.	ITEM	PART No.
Chassis Assembly:		Cabinet Fitting:	
Bracket, Transformer support	60605	Bracket, Cable Storage	60623
Clamp Body, Power Cable	41397	Cabinet	60205
Clamp Lock, Power Cable	41398	Clamp, Power Cable	1221
Clip, I.F. Mounting	27780	Clamp, Power Cable Moulded	39522
Cover, Transformer	20150	Clamp, Speaker Cable	32818
Dial Scale	37942	Cover, Speaker	39389
Lamp Holder	4194	Knob Assembly, Balance, Tone & Volume	60103
Pointer Assembly	60634	Knob Assembly, Phono—Radio	60639
Screw, Coil Mounting	31373	Knob Assembly, Tuning	60614
		Label, Valve Layout	60313
		Screw, Tuning Knob	60626

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.

AWA. 6 valve stereophonic Port. R/G. MODEL B13.



STEREOPH
RADIOLAG
MODEL B14

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model B14 is a six valve A.C. operated stereophonic radiogram designed for the reception of the Medium Wave Band and for the reproduction of both monophonic and stereophonic recordings.

Features of design include: Tandem volume and tone controls with closely matched resistive elements; matched audio amplifiers; feedback over audio stages; wide range tone control circuits; elliptical speakers with high frequency radiation cones.

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

Loudspeaker (per channel):
- 9" x 6" Permanent Magnet ..... No. 50295

Loudspeaker Transformer 38124

V.C. Impedance ..... 15 ohms

Dimensions:
(Less legs): Height—12"; Depth—17"; Width—42". Weight—90 lbs.

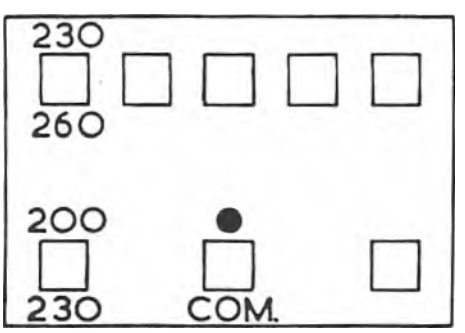
VALVE COMPLEMENT:

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:

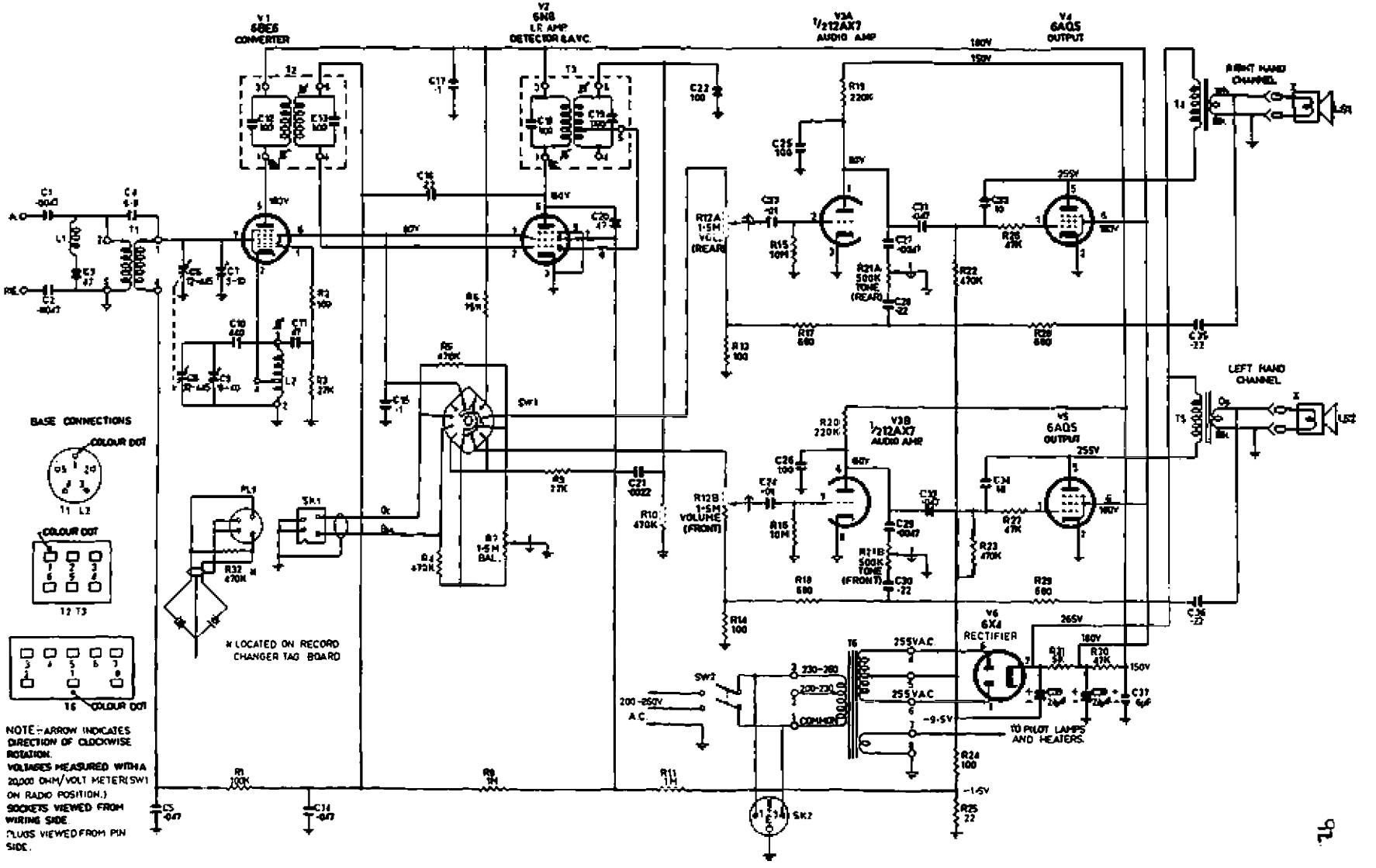
The receiver should not be connected to any circuit supplying other than 200-260 volts A.C. at a frequency of 50 c.p.s.

Connections to the power transformer are shown below.



POWER CONNECTION

AWA. 6 Valve Stereophonic Radiogram MODEL B14.



Note: On early production receivers the tone control (R21A + R21B) was 100K ohms.

AWA. 6 Valve Stereophonic Radiogram MODEL B14.

CHASSIS REMOVAL:

Remove the six 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.

Disconnect the speaker, aerial and earth leads.

Remove the four chassis retaining screws and slide the chassis free of the cabinet.

Chassis installation is the reverse of the above procedure.

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. (C9)
4	Aerial lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C7)
	Repeat adjustments 2, 3 and 4.			

* Rock the tuning control back and forth through the signal

D.C. RESISTANCE OF WINDINGS

WINDING	RESISTANCE IN OHMS	WINDING	RESISTANCE IN OHMS
I.F. Filter L1	23	Output Transformers T4 and T5:	
Oscillator Coil L2	3.7	Primary	360
Aerial Transformer T1:		Secondary	1.3
Primary	13.5	Power Transformer T6:	
Secondary	1.9	Primary	19
I.F.Transformer Windings T2 and T3	18	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.

SOCKET VOLTAGES

VALVES	CATHODE TO CHASSIS VOLTS	SCREEN GRID TO CHASSIS VOLTS	ANODE TO CHASSIS VOLTS	ANODE CURRENT mA	HEATER VOLTS
6BE6 Converter	0	80	180	1.5	6.3
6N8 I.F. Amp. Det. A.V.C.	0	80	180	5.0	6.3
12AX7 A.F. Amp.	0	—	80	1.0	6.3
6AQ5 Output	0	180	255	25	6.3
6AQ5 Output	0	180	255	25	6.3
6X4 Rectifier	265	—	255 A.C. R.M.S.		6.3

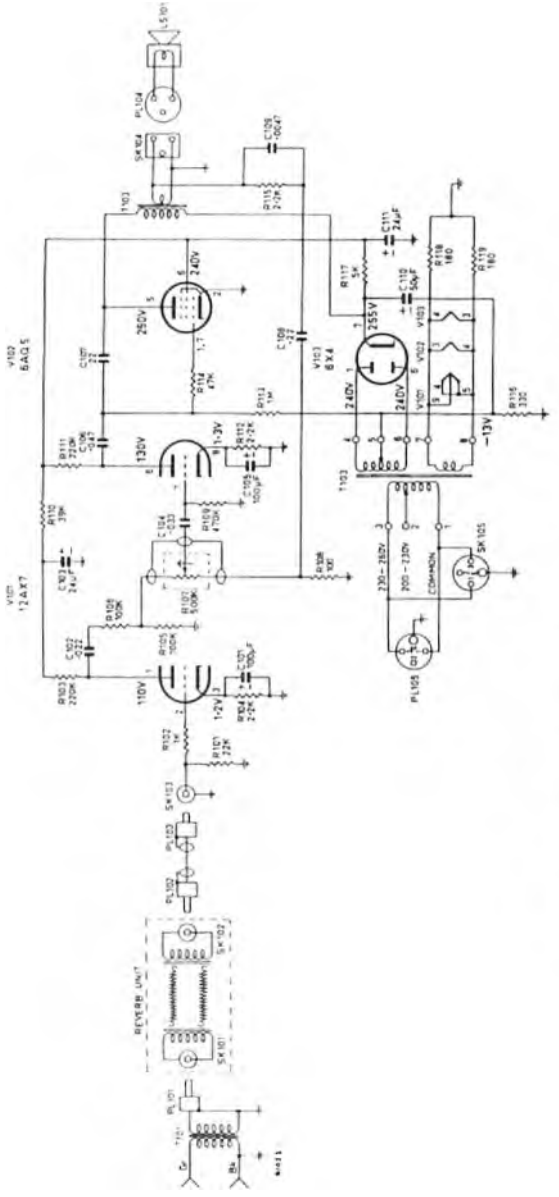
Back bias across R25 = —1.5 volts.
Back bias across R25 + R24 = —9.5 volts.
Total H.T. Current = 80 mA.

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.

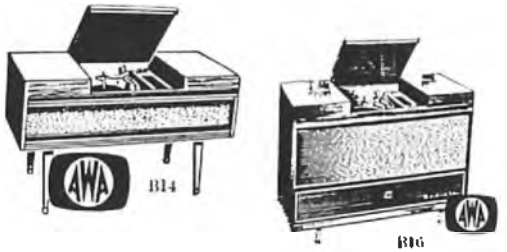
MECHANICAL REPLACEMENT PARTS

ITEM	PART No.	ITEM	PART No.
Chassis Assembly:		Socket, 9 Pin	794591
Bracket, Chassis Mounting	38447	Socket, 7 Pin	794579
Bracket, Transformer Mounting	38458	Socket, 7 Pin (Rectifier)	794620
Clamp Body, Power Cable	41397	Socket, 4 Pin Moulded	28313
Clamp Lock, Power Cable	41398	Socket, 4 Pin Wafer	40180
Cowl Light	38470	Cabinet Assembly:	
Dial Scale	37940	Buffer Rubber, Lid	37379
Insulator, Power Switch	38469	Cabinet	60203
Lamp Holder Assembly	4194	Knob Assembly,	60103
Pointer Assembly	39862	Label Component Layout	60305
Screw, Coil Mounting	34147	Leg, Cabinet	60051

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.



CIRCUIT CODE: REVERBERATION AMPLIFIER. Part No. 37450



STEREOPHONIC RADIOLAGRAMS

MODELS B14Z, B16 and B16R SERIES

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Models B14Z and B16 are 6 valve AC operated stereophonic radiograms designed for the reception of the Medium Wave Band and for the reproduction of both monophonic and stereophonic recordings. Model B16R is similar to Model B16, with the addition of a controllable reverberation system.

Features of design include: Tandem volume and tone controls with closely matched resistive elements; matched audio amplifiers; feedback over audio stages; wide range tone control circuits; loudspeakers incorporating high frequency radiation cones.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range	540-1600 Kc/s (555-187.5 Metres)
Intermediate Frequency	455 Kc/s
Power Supply Rating	200-260V AC 50 c.p.s.
Power Consumption:	
Receiver	50 watts
Record Changer	20 watts
Reverberation Amplifier	30 watts
Undistorted Power Output: Receiver — 2.5 Watts per channel	
Reverberation Amplifier	3 Watts
Loudspeaker (per channel):	
9" x 6" Permanent Magnet (B14Z)	50295
12" Permanent Magnet (B16 Series)	50293
9" x 6" Permanent Magnet (for Reverb. Unit)	50078
V.C. Impedance	15 ohms

Dimensions:

B14Z (less legs): Height—12"; Depth—17"; Width—42"; Weight—90 lbs.

B16 Series: Height—30½"; Depth—17"; Width—42"; Weight—120 lbs.

VALVE COMPLEMENT:

Receiver:

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.

Reverb. Amplifier:

Radiotron 12AX7—2 Stage Audio Amplifier.
Radiotron 6AQ5—Reverb. Output.
Radiotron 6X4—Rectifier.

AWA. 6 Valve Stereophonic Radiogram MODEL B14Z-B16-B16R.

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.

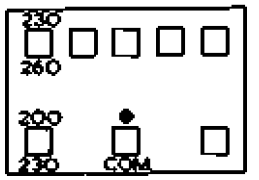
Connections to the power transformer are shown below.

In Reverb. Amplifier

RED DOT INDICATES COMMON CONNECTION FOR ALL VOLTAGES

230–260 VOLTS 200–230 VOLTS

In Receiver Chassis



POWER CONNECTION

CHASSIS REMOVAL:

For Model B14Z lay the receiver on its back, remove the screws securing the cabinet base and lift the base free.

For Models B16 and B16R remove the cabinet back.

For all Models proceed as follows:—

Disconnect all interconnecting leads

Remove the chassis mounting screws.

With a steady firm pressure pull the chassis free from the cabinet. In this operation the control knobs will be released from their spindles

Installation is the reverse of the above procedure.

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 2MA8832.

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. (C9)
4	Aerial lead	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C7)
	Repeat adjustments 2, 3 and 4.			

* Rock the tuning control back and forth through the signal

D.C. RESISTANCE OF WINDINGS

WINDING	RESISTANCE IN OHMS	WINDING	RESISTANCE IN OHMS
Receiver Chassis:		**Reverb. Amplifier:**	
I.F. Filter L1	23		
Oscillator Coil L2	3.7	Input Transformer T101:	
Aerial Transformer T1:		Primary	*
Primary	13.5	Secondary	180
Secondary	1.9	Output Transformer T102:	
I.F. Transformer Windings T2 and T3	18	Primary	360
Output Transformers T4 and T5:		Secondary	1.3
Primary	375	Power Transformer T103:	
Secondary	1	Primary	50
Power Transformer T6:		H.T. Secondary	450
Primary	18	L.T. Secondary	*
H.T. Secondary	290		
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.

SOCKET VOLTAGES

VALVES	CATHODE TO CHASSIS VOLTS	SCREEN GRID TO CHASSIS VOLTS	ANODE TO CHASSIS VOLTS	ANODE CURRENT mA	HEATER VOLTS
Receiver Chassis					
6BE6 Converter	0	80	160	1.5	6.3
6N8 I.F. Amp. Det. A.V.C.	0	80	180	5.0	6.3
12AX7 A.F. Amp.	0	—	80	1.0	6.3
6AQ5 Output	0	160	255	30	6.3
6AQ5 Output	0	180	255	30	6.3
6X4 Rectifier	265	—	255 A.C. R.M.S.		6.3
Reverb. Amplifier					
1/2 12AX7 Preamp.	1.2	—	110	0.6	6.3
1/2 12AX7 Audio Amp.	1.3	—	125	0.6	6.3
6AQ5 Output	0	240	250	30	6.3
6X4 Rectifier	255	—	240 A.C.		6.3

Back bias across R116 = —13 volts.
Back bias across R25 = —1.5 volts.
Back bias across R25 + R24 = —9.5 volts.
Total H.T. Current = 80 mA (Receiver); 35 mA (Reverb. Amplifier)

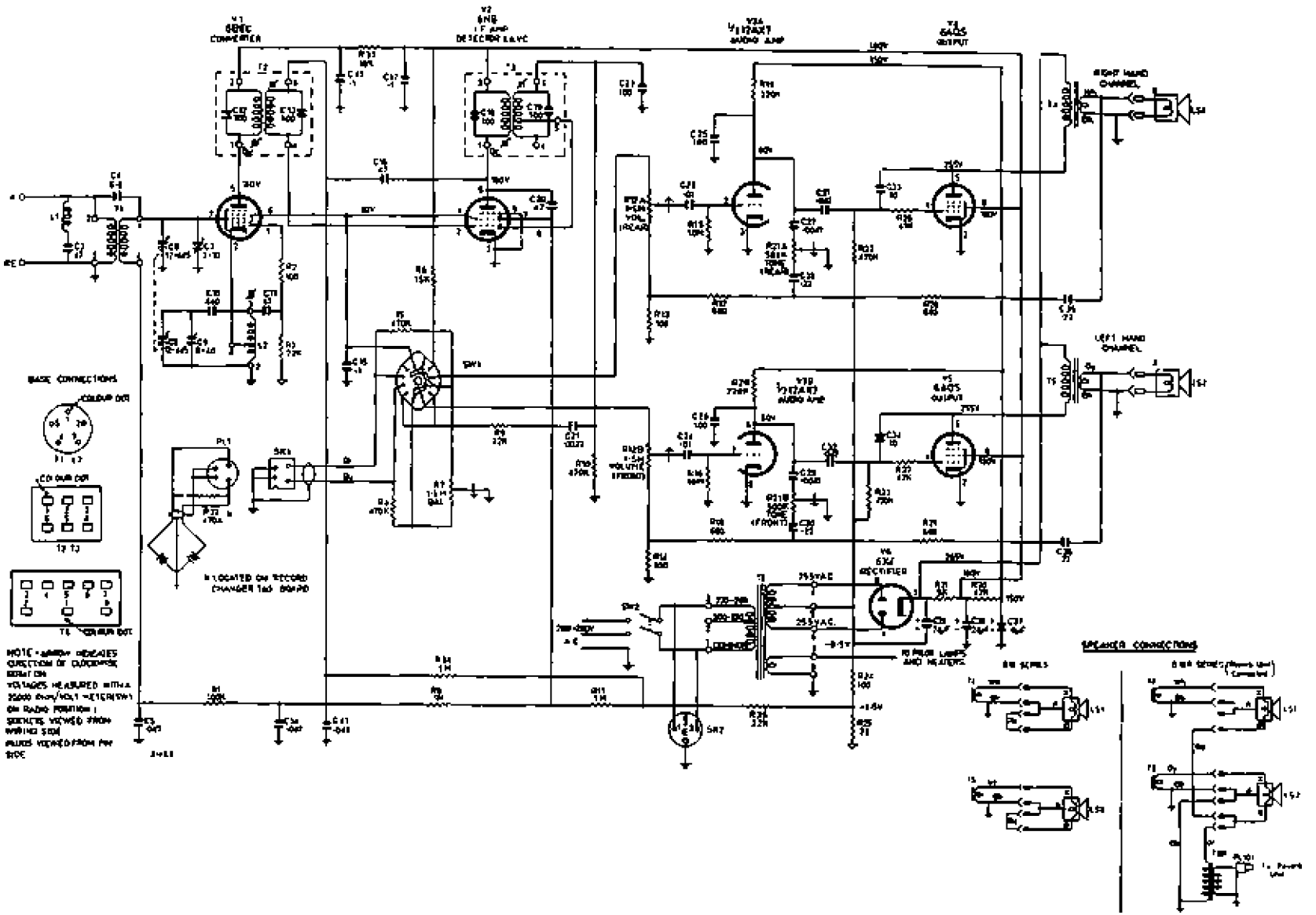
Measured with 240 volts A.C. supply (with P.U.—Radio Switch in Radio position). No signal input; Volume Control maximum clockwise; voltmeter 20,000 ohms/volt; measurements taken on highest scale giving accurate readable deflection.

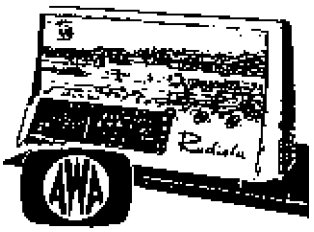
MECHANICAL REPLACEMENT PARTS

ITEM	PART No.	ITEM	PART No.
Chassis Assembly:		Socket, 4 Pin Moulded	28213
Bracket, Chassis Mounting (B14Z)	38447	Socket, 4 Pin Wafer	40180
Bracket, Chassis Front Mounting (B16 Series)	60969		
Bracket, Chassis Rear Mounting (B16 Series)	60963	Cabinet Assembly:	
Clamp, Body, Power Cable	41397	Buffer, Lid	37379
Clamp, Lock, Power Cable	41398	Knob, Balance	60946
Cover, Mains Switch	38469	Knob, Dummy (set of 3)	60947
Dial Scale	37950	Knob Assembly, Control (set of 4)	39053/1
Drive Cord	9576/22	Knob Assembly, Reverb. (B16R)	60981
Lamp Holder Assembly	4194	Label, Component Layout	60335
Light Shield, Estafoam	38470	Label, Reverb. Layout (B16R only)	60339
Pointer Assembly	39862	Leg, Cabinet (B14Z)	60943
Screw, Coil Mounting	34147	Support, Door (B14Z)	856511
Socket, 9 Pin	794591	Support, Door (B16 Series)	60939

NOTE: When ordering spares, always quote the above Part Numbers, and in the case of coloured parts, such as knobs, etc., also quote the colour.

AWA. 6 Valve Stereophonic Radiogram MODEL B14Z-B16-B16R.





Radiola
Mantel Receiver
Model B15

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

MODEL B15 is a five valve, A.C. operated superheterodyne 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 6" x 4" elliptical speaker; all components readily accessible on chassis.

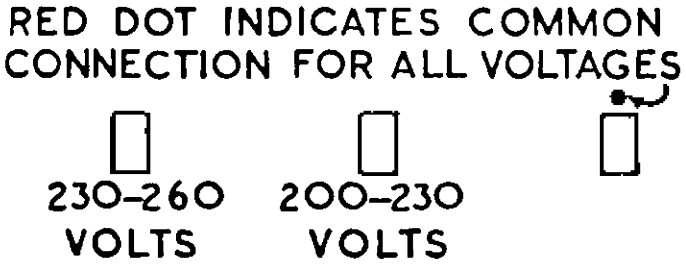
ELECTRICAL AND MECHANICAL SPECIFICATIONS

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: 6" x 4" Permanent Magnet 50067.
Loudspeaker Transformer 50543A
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

Loosen off completely the two cabinet retaining screws in the cabinet back.

Remove the two rear chassis mounting screws through the base of the cabinet back.

Remove the cabinet back.

Unplug the speaker cable.

Remove all control knobs; these are a push on fit.

Remove the remaining two chassis mounting screws and slide the chassis free of the cabinet.

Replacing the chassis is the reverse of the above procedure.

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 TR3 and TR2
	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. (C8)
4	Inductively Coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Aerial Adj. (C6)

* 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

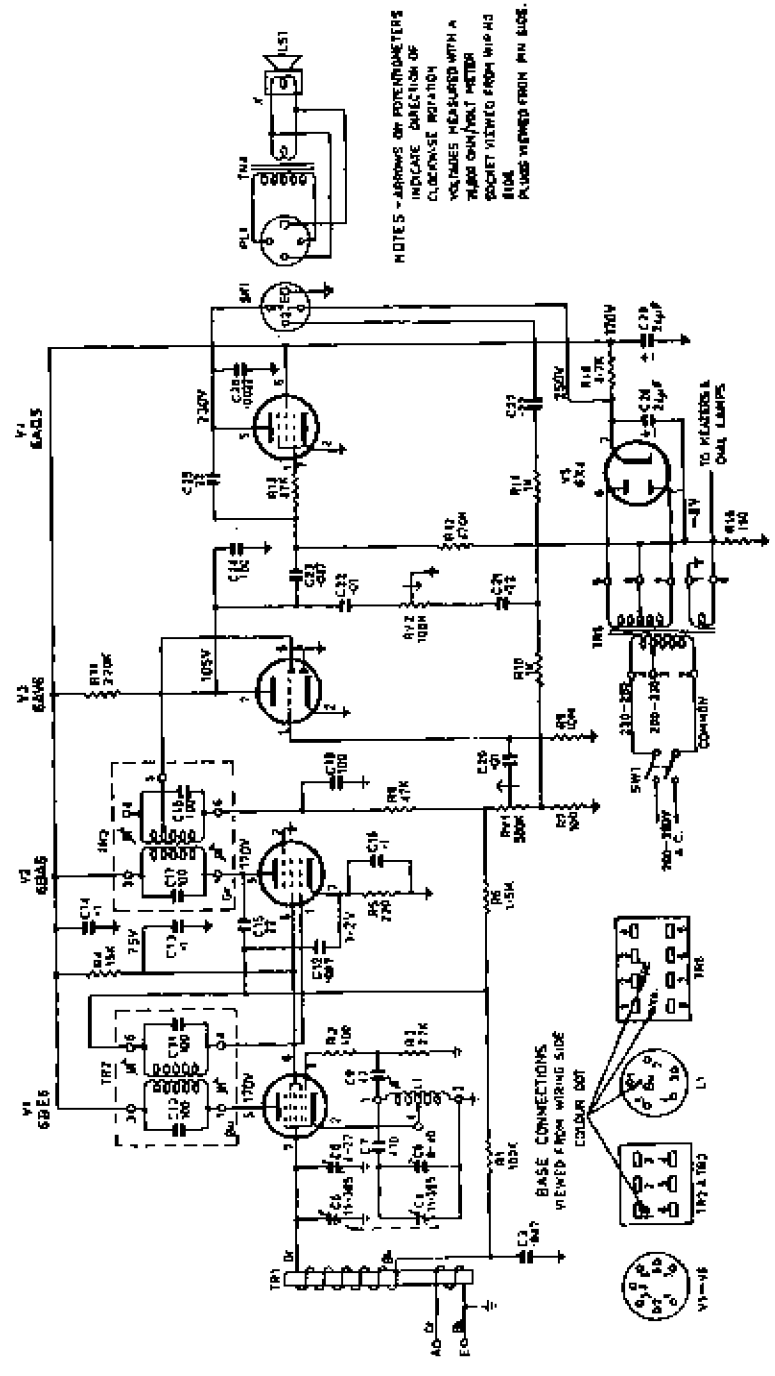
Volts	Cathode to Chassis Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
6BE6 Converter ..	—	75	170	2	6.3
6BA6 I.F. Amp. ..	1.5	75	170	4	6.3
6AV6 A.F. Amp., Det., A.V.C.	—	—	105	0.5	6.3
6AQ5 Output	—	170	230	36	6.3
6X4 Rectifier ..	250	—	235/235 A.C. R.M.S.	—	6.3

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

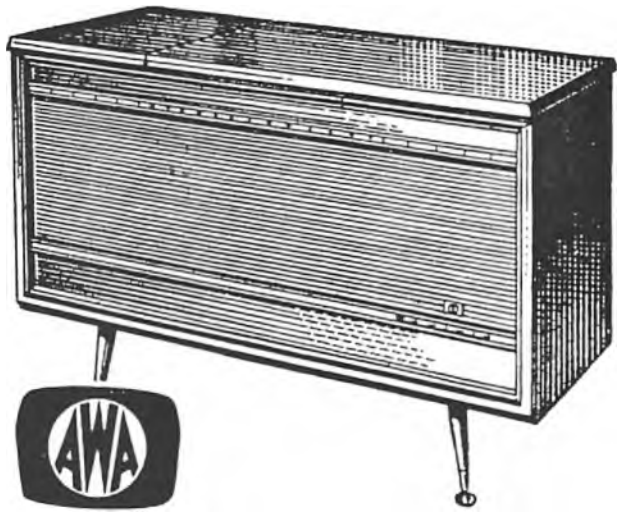
Total H.T. Current = 50 mA.

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.



A.W.A.
STEREOPHONIC
RADIOLAGRAM
MODEL B20



ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model B20 is a 6 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 design include: Tandem volume and tone controls with closely matched resistive elements; matched audio amplifiers; feedback over audio stages; wide range tone control circuits; loudspeakers incorporating high frequency radiation cones.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range ..... 530-1600 Kc/s (566-187.5 Metres)

Intermediate Frequency ..... 455 Kc/s

Power Supply Rating ..... 200-260V AC 50 c.p.s.

Power Consumption:
- Receiver ..... 50 watts
- Record Changer ..... 20 watts

Undistorted Power Output ..... 2.5 watts per channel

Loudspeaker (per channel):
- 8" Permanent Magnet 50110

V.C. Impedance ..... 15 ohms

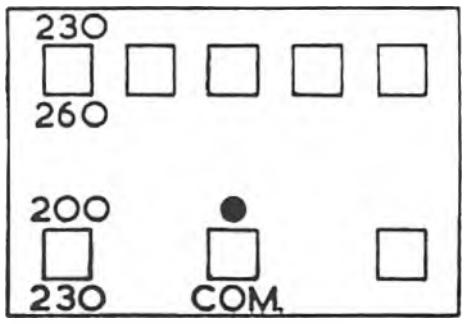
VALVE COMPLEMENT:
Receiver:
- Radiotron 6BE6—Converter.
- Radiotron 6N8—I.F. Amp., Detector, A.V.C.
- Radiotron 12AX7—Two Channel Audio Amp.
- Radiotron 6AQ5—Audio Output.
- Radiotron 6AQ5—Audio Output.
- Radiotron 6X4—Rectifier.

Dimensions:
- Height (less legs): $22\frac{5}{16}$"
- Depth: $17\frac{1}{2}$"
- Width: $43\frac{1}{2}$"
- Weight: 110 lbs.

CONNECTION TO POWER SUPPLY:

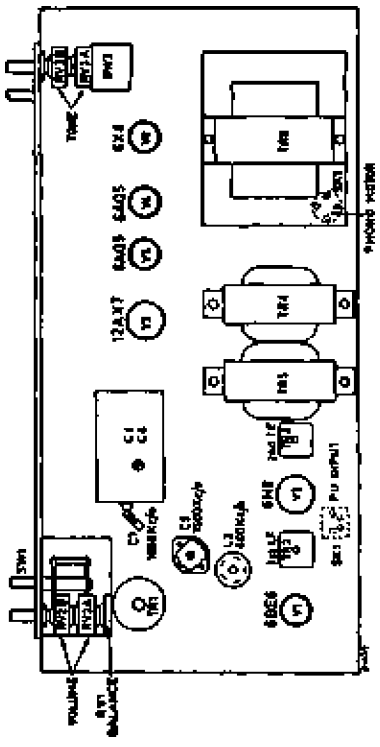
The receiver should not be connected to any circuit supplying other than 200-260 volts A.C. at a frequency of 50 c.p.s.

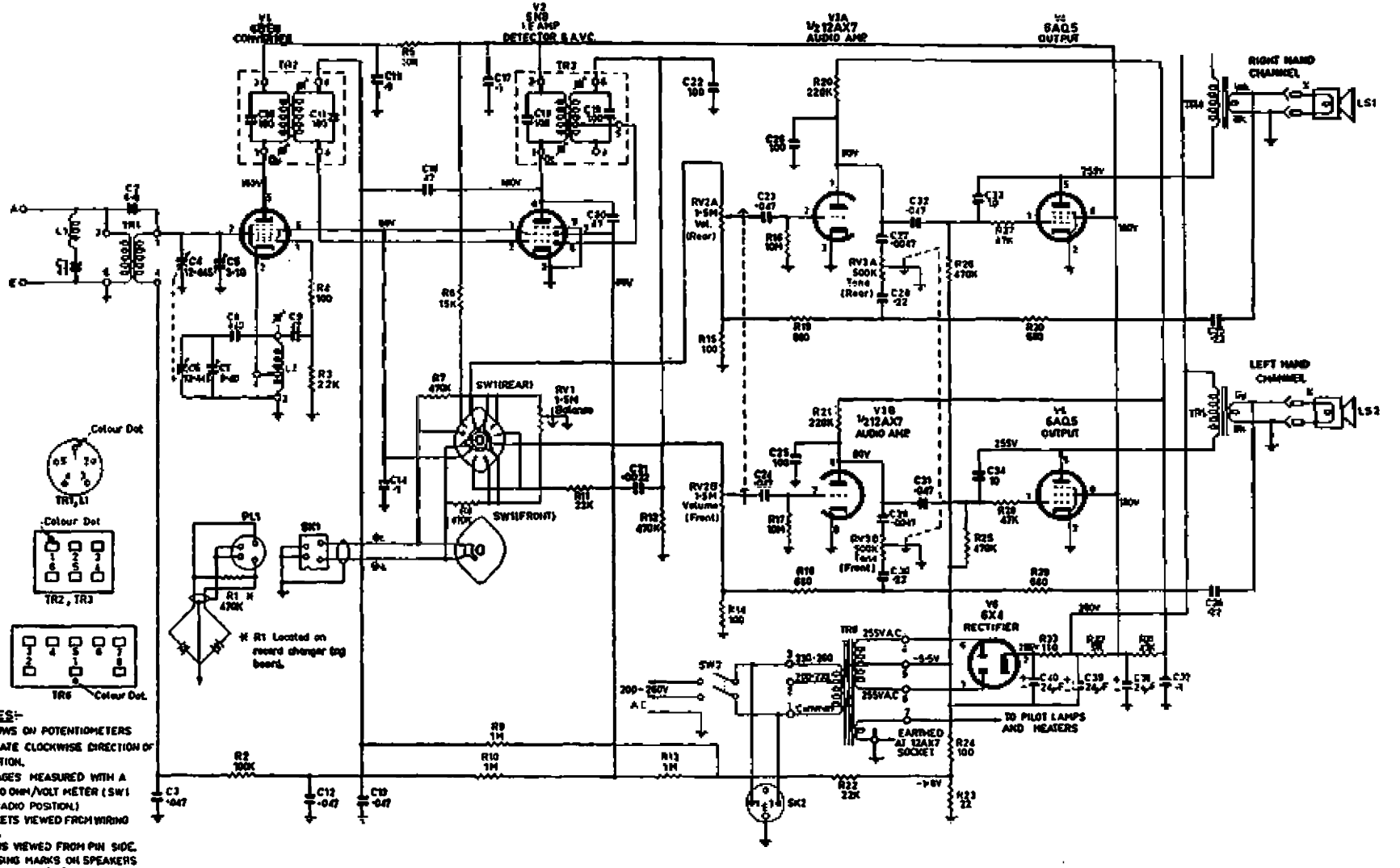
Connections to the power transformer are shown below.



POWER CONNECTION

AWA. 6 Valve Stereophonic Radiogram MODEL B20.





NOTES:-
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE DIRECTION OF ROTATION.
VOLTAGES MEASURED WITH A 20 000 OHM/VOLT METER (SW1 ON RADIO POSITION.)
SOCKETS VIEWED FROM WIRING SIDE.
PLUGS VIEWED FROM PIN SIDE.
PHASING MARKS ON SPEAKERS INDICATED BY 'x.'

R.1826

CHASSIS REMOVAL AND INSTALLATION:

Remove all control knobs; these are a push on fit.

Remove the cabinet back.

Unplug the record changer power cable and the pick-up input cable.

Unplug the speaker leads at the speakers.

Slide the indicating lamp off its bracket.

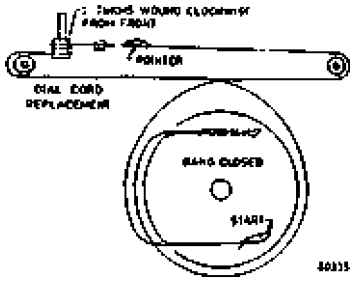
Disconnect the aerial and earth leads.

Remove the front mounting screw and the two rear mounting screws and lift the chassis free from the cabinet.

Installation is the reverse of the above procedure making sure that the speakers are connected correctly in phase; i.e., the white and grey speaker leads should be connected to the speaker terminals marked "X" in each case.

DIAL CORD REPLACEMENT:

Should the dial cord ever break it may be replaced by following the diagram below using 52 inches of dial cord.



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.

(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 TR3 and TR2
	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. (C5)
	Repeat adjustments 2, 3 and 4.			

* Rock the tuning control back and forth through the signal

D.C. RESISTANCE OF WINDINGS

WINDING	RESISTANCE IN OHMS	WINDING	RESISTANCE IN OHMS
Receiver Chassis:		Output Transformers TR4 and TR5:	
I.F. Filter L1	23	Primary	375
Oscillator Coil L2	3.7	Secondary	1
Aerial Transformer TR1:		**Power Transformer TR6:**	
Primary	13.5	Primary	18
Secondary	1.9	H.T. Secondary	290
I.F. Transformer Windings TR2 and TR3	.18	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.

SOCKET VOLTAGES

VALVES	CATHODE TO CHASSIS VOLTS	SCREEN GRID TO CHASSIS VOLTS	ANODE TO CHASSIS VOLTS	ANODE CURRENT mA	HEATER VOLTS
Receiver Chassis					
6BE6 Converter	0	80	160	1.5	6.3
6N8 I.F. Amp. Det. A.V.C.	0	80	180	5.0	6.3
12AX7 A.F. Amp.	0	—	80	1.0	6.3
6AQ5 Output	0	180	255	30	6.3
6AQ5 Output	0	180	255	30	6.3
6X4 Rectifier	265	—	255 A.C. R.M.S.		6.3

Back bias across R23 = —1.8 volts.

Back bias across R23 + R24 = —9.5 volts.

Total H.T. Current = 80 mA.

Measured with 240 volts A.C. supply (with Selector 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.

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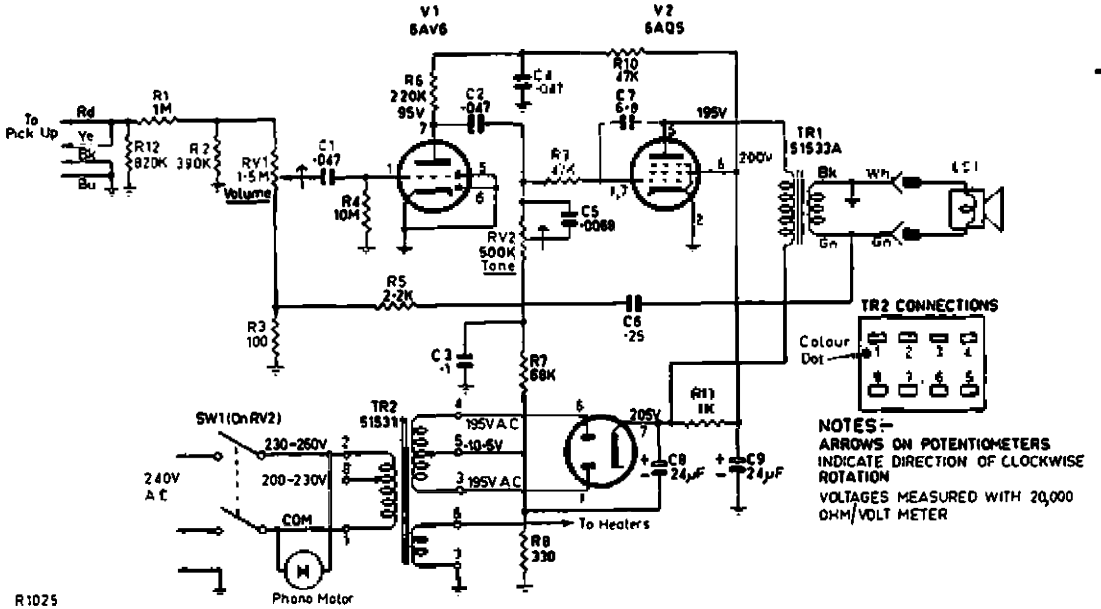
B20. MECHANICAL REPLACEMENTS

ITEM	PART No.	ITEM	PART No.
Chassis Assembly:		Socket, 4 Pin Wafer	40180
Clamp Body (Power Cable)	208056	Cabinet Assembly:	
Clamp Lock (Power Cable)	208057	Bracket, Chassis Mounting	61533
Dial Scale	37955	Bracket, Chassis Mounting	61534
Drive Cord	9576/22	Bracket, Lamp	23562
Drive Drum Ass'y	20130B	Buffer, Lid	37379
Grommet D5	389005	Hinge, Butt, 2" x ½" Brass	398042
Lampholder Ass'y	4195	Knob Ass'y, Balance	60946
Pointer Ass'y	39862	Knob Ass'y, Control (set of 3)	42644
Shield, Estafoam	38470	Knob Ass'y, Dummy (set of 3)	60947
Socket, 9 Pin	794591	Knob Ass'y, Selector	61528
Socket, 4 Pin Moulded	28213	Legs (packed)	61543

NOTE: When ordering spares, always quote the above Part Numbers and in the case of coloured parts, such as knobs, etc., also quote the colour.



CIRCUIT CODE—RADIOLA B22

RESISTORS

All resistors carbon unless otherwise stated

R1	1 Megohm	±10%	½ watt	618016
R2	390K ohms	±10%	½ watt	617204
R3	100 ohms	±10%	½ watt	604031
R4	10 Megohms	±10%	½ watt	619406
R5	2.2K ohms	±10%	½ watt	609442
R6	220K ohms	±10%	1 watt	616726
R7	68K ohms	±10%	½ watt	615494
R8	330 ohms	±10%	1 watt	605964
R9	47K ohms	±10%	½ watt	614961
R10	47K ohms	±10%	1 watt	614969
R11	1K ohms	±10%	1 watt	608031
R12	820K ohms	±10%	½ watt	617842
RV1	1.5 Megohms log carbon, Volume			620779
RV2	500K ohms linear carbon w/s, Tone			620666

CAPACITORS

C1	0.047uf ±20% 200VW paper	226828
C2	0.047uf ±10% 400VW paper	226829
C3	0.1uf 200VW paper	227009
C4	0.047uf ±10% 400VW paper	226829
C5	0.0068uf ±10% 600VW paper	226223
C6	0.25uf ±20% 200VW Hunts	229007
C7	6.8pf ±10% N750 disc	220382
C8	24uf 300 VW Electrolytic	222812
C9	24uf 300VW Electrolytic	222812

VALVES

V1	Radiotron 6AV6
V2	Radiotron 6AQ5
V3	Radiotron 6X4

TRANSFORMERS

TR1	Audio Transformer	51533A
TR2	Power Transformer	51531

MISCELANEOUS

SW1	ON/OFF Switch (on RV2)	
LS1	7" x 5" Speaker	62294

TECHNICAL INFORMATION AND SERVICE DATA

PORTABLE

A.C. PHONOGRAPH

MODEL B22

ISSUED BY
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Model B22 is a 3-valve, a.c. operated portable phonograph, designed for the reproduction of 7, 10 or 12 inch monophonic recordings, at any of the four standard speeds.

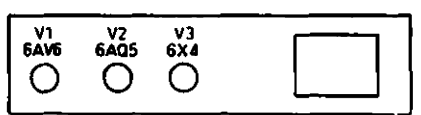
Features of design include: record storage for 7 inch records; compartment for power cable storage; provision for personal monogramming of the case.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Power Supply Rating	200-260 V A.C. 50 c.p.s.
Power Consumption	30 Watts
Power Output	1½ Watts
Loudspeaker 7" x 5"	62294
V.C. Impedance	15 ohms at 400 c.p.s.

Dimensions

Height	5⅛"
Depth	17 3/32"
Width	13⅜"
Weight	13 lbs.



Valve Complement

6AV6	Audio Amplifier
6AQ5	Audio Output
6X4	Rectifier
Record Player	B.S.R type TU12
Pick-up Cartridge	B.S.R. type TC8M

CHASSIS REMOVAL

The metal motor board, chassis and record player form one composite unit and it is only necessary to remove this complete assembly as a whole for any service work.

Remove 8 screws around the edge of the metal motor plate and lift sufficiently clear of the cabinet to remove the two speaker leads.

DO NOT LIFT THE MOTOR PLATE BY THE TURNTABLE OR PICK-UP ARM.

To remove the loudspeaker, fold back the four screw covers in the corners of the fret cloth and remove the four screws.

To remove the record player unit from the base plate, disconnect the two mains leads and green earth wire. Remove 3 screws and lift the record player free.

MECHANICAL REPLACEMENT LIST

Item	Part No.
Bracket, Transformer	36306
Cabinet and Baffle Assembly	60226
Clamp, Cable	42818
Cover, Screw, Baffle Mounting	255805
Knob, Assembly	62269
Plate, Control Names	62251
Terminal, Male, Quick Connector	891016
Spring, Record Storage	259530
Stylus Replacement, 78	TC8G
Stylus Replacement, 33-45	TC8R

TECHNICAL INFORMATION AND SERVICE DATA

MANUFACTURERS AWA SUPERVISED SERVICE

A.W.A.

PORTABLE RECORD PLAYER

Models B56 and B56Z

ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

These models are AC operated, two-valve, four-speed record players designed for the reproduction of 7", 10" or 12" monophonic records.

The only difference in these models is the type of cartridge used; Model B56 uses a crystal type X1M and Model B56Z uses a ceramic type CS1. The ceramic cartridge is suitable for tropical conditions and, because of its higher vertical compliance, it may be used on stereophonic records without fear of damaging them. In this case both channels are reproduced through the one speaker.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Power Output	1½ Watts
Power Supply	220-250 volts A.C. at 50 c.p.s.
Power Consumption	35 Watts
Loudspeaker, 6" x 4"	52867
V.C. Impedance	15 ohms at 400 c.p.s.

Valve Complement:
V1 Radiotron 6EB8 Audio Amp. and Output.
V2 Radiotron 6X4 Rectifier.

Dimensions:
Width 11½"; Height 5"; Depth 10",
Weight 8 lbs. 11 ozs.

Controls ... Volume, ON/OFF — Tone, Speed Selector

SERVICE NOTES

To gain access to the chassis, proceed as follows.

Remove the front control knobs by pulling them straight off their spindles.

Remove the lid and make sure the pick-up arm is secured to its rest.

Place the record player face down and remove four screws exposed in the bottom of the case.

The case may now be lifted away from the motor board assembly to reveal the complete chassis for servicing.

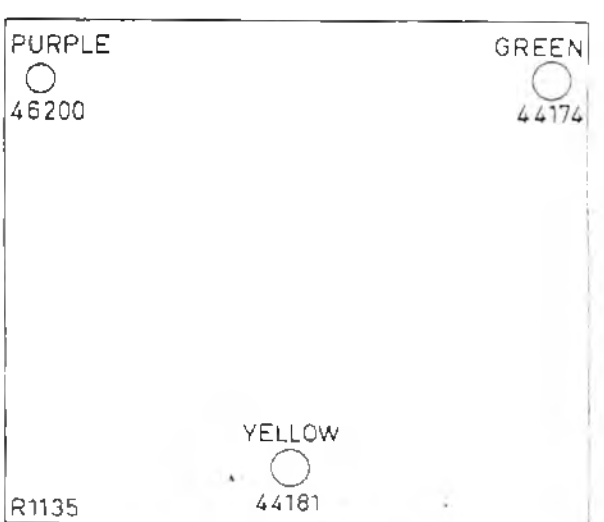
Spring Loaded Foot Replacement.

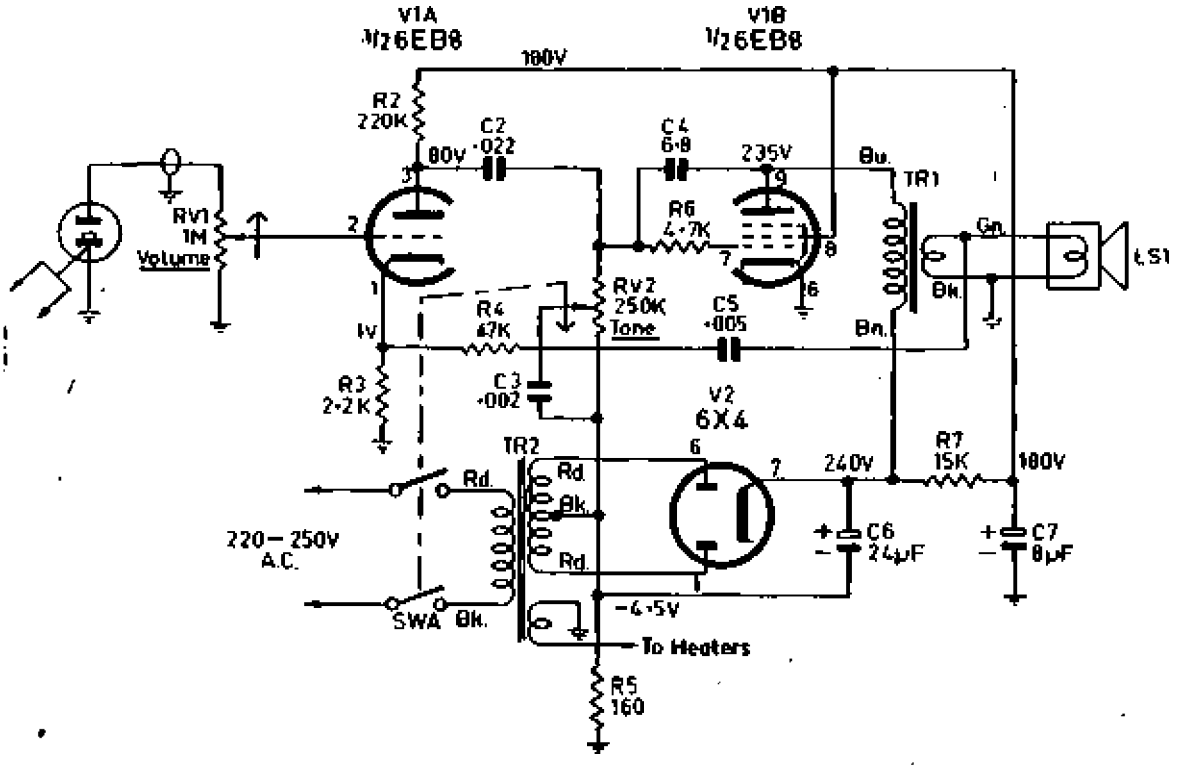
To accomplish this, the whole assembly comprising, foot (part No. 64846) spring and retaining clip (No. SCO/1868) must be replaced. It is essential that the correctly coloured springs, as shown in fig. 1, are replaced in their corresponding positions. The diagram is viewed from the underside of the cabinet case.

To replace a foot, first remove the cabinet case.

Mount the correct spring on the foot and push it through its mounting hole.

From inside the cabinet case push the retaining clip onto the foot until its teeth engage in the groove in the foot.





REPLACEMENT PARTS

ELECTRICAL

CODE NO.	Description	PART NO.
	RESISTORS	
	All Resistors composition type unless otherwise stated.	
R1	Not used	
R2	220K ohms ±10% 1 watt	
R3	2.2K ohms ±10% ½ watt	
R4	47K ohms ±10% ½ watt	
R5	160 ohms ± 5% 1 watt	
R6	4.7K ohms ±10% ½ watt	
R7	15K ohms ±10% 1 watt	
RV1	1 Megohm curve A carbon, Volume	620802
RV2	250K ohms curve A carbon, Tone w/s	620470
	CAPACITORS	
C1	Not used	
C2	0.022μF ±10% 160VW polyester	
C3	0.002μF ±20% 400VW AEE W99	
C4	6.8pF ±10% NPO disc	
C5	0.005μF ±20% 200VW AEE W99	
C6	24μF 300VW Electrolytic	222812
C7	8μF 300VW Electrolytic	228422
	TRANSFORMERS	
TR1	Speaker Transformer	53932
TR2	Power Transformer	53934
	VALVES	
V1	Radiotron 6EB8	
V2	Radiotron 6X4	
	MISCELLANEOUS	
LS1	Speaker 6" x 4"	52867

MECHANICAL

Item	Part No.
Case, Cabinet	67682/002
Catch, Button Assembly	64853
Clip, Retaining Tone Arm	64901
Handle	64864
Hinge, Handle, Left-hand	64866
Hinge, Handle, Right-hand	64865
Knobs, Front Controls	64869
Knob, Speed Change	64867
Lid, Assembly	67683
Comprising:	
Badge, A.W.A.	64904
Fret, Speaker	67685
Lid	67684
Stay, Lid	64850
Trim	67687
Record Player (B56)	67680
Including:	
Cartridge (Crystal)	X1M
Stylus Replacement	ST3
Record Player (B56Z)	64907
Including:	
Cartridge (Ceramic)	CS1
Stylus Replacement	ST3

NOTE: When ordering spares, always quote the above Part Numbers, and in the case of coloured parts, such as knobs, etc., also quote the colour.

ELECTROSOUND SUPER G.

ALIGNMENT INSTRUCTIONS.

NOTE: The IF transformers KF360, KSF361 & KRF362 are combined for AM and FM. The AM slugs being towards dial.

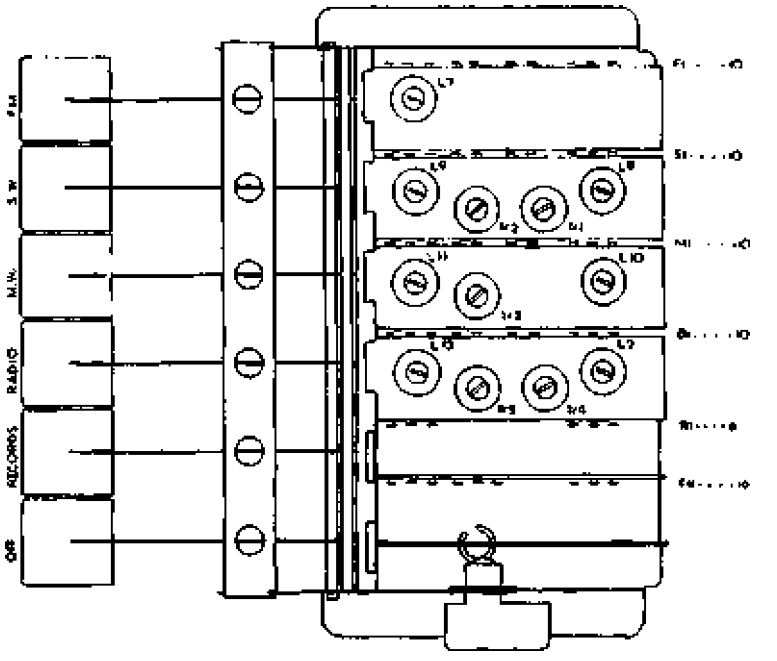
AM SECTION. Set selectivity control to sharp position – Adjust volume control for maximum
Connect output meter to speaker – Use Signal Generator 30% AM modulated

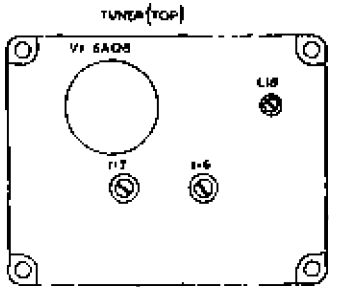
Order	Connect Sig. Gen. to	Press Button	Tune Gen. to	Tune Receiver to	Adj. for Maximum Output at Approx. 50 mW	Position of Slug or Trimmer
1	Front section of Gang	Radio	455 KC	540 KC	L6	Top of KRF362
2	" " " "	"	455 KC	540 KC	L5	Bottom of KRF362
3	" " " "	"	455 KC	540 KC	L4	Top of KSF361
4	" " " "	"	455 KC	540 KC	L3	Bottom of KSF361
5	" " " "	"	455 KC	540 KC	L2	Top of KF 360
6	" " " "	"	455 KC	540 KC	L1	Bottom of KF 360
	Repeat Orders 1 to 6 until true maximum is obtained					
7	Aerial Terminal	Radio	455 KC	540 KC	L7 for minimum output	Coil unit
8	" "	S.W.	9 MC	9 MC	L8 (Osc.) L9 (Aerial)	" "
9	" "	S.W.	21 MC	21 MC	Tr1 (Osc.) Tr2 (Aer.)	" "
	Repeat Orders 8 and 9 until true maximum is obtained					
10	Aerial Terminal	M.W.	3 MC	3 MC	L10 (Osc.) L11 (Aerial)	" "
11	" "	M.W.	7 MC	7 MC	Tr3 (Aerial)	" "
	Repeat Orders 10 and 11 until true maximum is obtained					
12	Aerial Terminal	Radio	600 KC	600 KC	L12 (Osc.) L13 (Aerial)	" "
13	" "	"	1500 KC	1500 KC	Tr4 (Osc.) Tr5 (Aerial)	" "
	Repeat Orders 12 and 13 until true maximum is obtained.					

FM SECTION. Press FM Button – Connect VTVM across C321 (3MF) on Ratio Detector
Connect output meter to speaker – Adjust Tr6 for minimum noise level
For IF alignment connect Signal Generator to V1 6AQ8 by means of a metal cylinder pushed firmly over the valve ensuring that the cylinder does not touch the chassis.
Feed sufficient Signal so that VTVM reads always 10 volts negative.

Order	Connect Sig. Gen. to	Tune Gen. to	Tune Receiver to	Adj. for Maximum Reading on VTVM	Position of Slug or Trimmer
1	To Cylinder over V1	10.7 MC	92 MC	L23	Top of KRF362
2	" " " V1	10.7 MC	92 MC	L22	Top of KSF361
3	" " " V1	10.7 MC	92 MC	L21	Bottom of KSF361
4	" " " V1	10.7 MC	92 MC	L20	Top of KF 360
5	" " " V1	10.7 MC	92 MC	L19	Bottom of KF 360
6	" " " V1	10.7 MC	92 MC	L18	Top of Tuner
7	" " " V1	10.7 MC	92 MC	L17	Bottom of Tuner
	Repeat Orders 1 to 7 until true maximum is obtained				
	Connect 50 μA meter as shown in Fig. 1				
8	To Cylinder over V1	10.7 MC	92 MC	L24 for zero on 50 uA meter	Bottom of KRF362
9	Modulate Generator 30% AM To Cylinder over V1	10.7 MC	92 MC	R324 tab pot for minimum sound output	Under KRF362
	Repeat Orders 8 and 9				
10	Dipole Terminals	92 MC	92 MC	Tr7 (Osc.) Tr8 (Aerial)	Top of Tuner

UNDERNEATH VIEW OF COIL UNIT





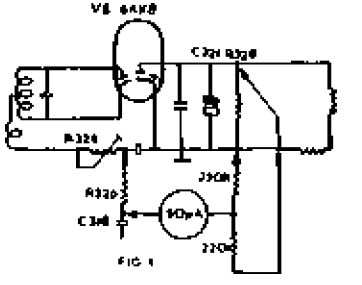
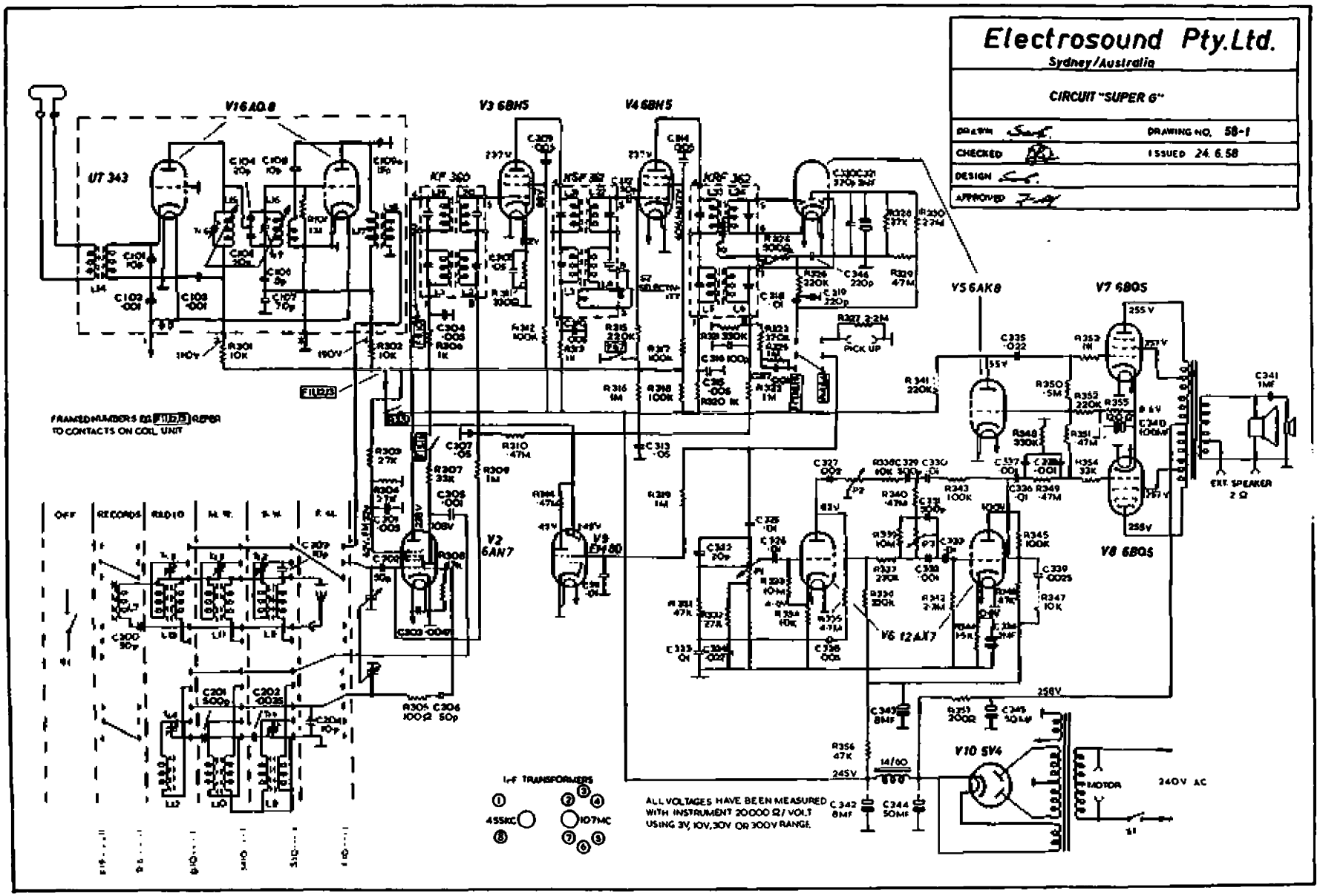


FIG 1


Electrosound Pty.Ltd.
Sydney/Australia
CIRCUIT "SUPER 6"
DRAWING NO. 58-1
CHECKED
ISSUED 24. 6. 58
DESIGN
APPROVED
V1 6AQ8
UT 343
V3 6BH5
V4 6BH5
V5 6AK8
V7 6BQ5
V8 6BQ5
V2 6AN7
V9 EM80
V6 12AX7
V10 5Y4
PICK UP
EXT SPEAKER 2 Ω
MOTOR
240V AC
I-F TRANSFORMERS
455KC
107MC
ALL VOLTAGES HAVE BEEN MEASURED WITH INSTRUMENT 20000 Ω/ VOLT USING 3V, 10V, 30V OR 300V RANGE.
OFF
RECORD
RADIO
M. W.
S. W.
P. U.

901

ELECTROSOUND STEREO, A

ALIGNMENT INSTRUCTIONS.

NOTE: The IF transformers KF360, KSF361 & KRF362 are combined for AM and FM, the AM slugs being towards dial.

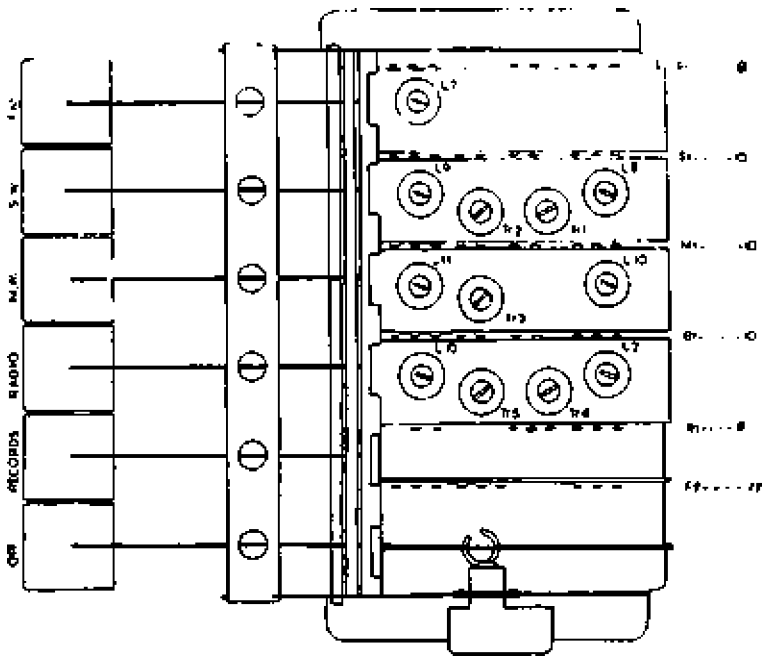
AM SECTION. Set selectivity control to sharp position - Adjust volume control for maximum
Connect output meter to speaker - Use Signal Generator 30% AM modulated

Order	Connect Sig. Gen. to	Press Button	Tune Gen. to	Tune Receiver to	Adj. for Maximum Output at Approx. 50 mW	Position of Slug or Trimmer
1	Front section of Gang	Radio	455 KC	540 KC	L6	Top of KRF362
2	" " " "	"	455 KC	540 KC	L5	Bottom of KRF362
3	" " " "	"	455 KC	540 KC	L4	Top of KSF361
4	" " " "	"	455 KC	540 KC	L3	Bottom of KSF361
5	" " " "	"	455 KC	540 KC	L2	Top of KF 360
6	" " " "	"	455 KC	540 KC	L1	Bottom of KF 360
	Repeat Orders 1 to 6 until true maximum is obtained					
7	Aerial Terminal	Radio	455 KC	540 KC	L7 for minimum output	Coil unit
8	" "	S.W.	9 MC	9 MC	L8 (Osc.) L9 (Aerial)	" "
9	" "	S.W.	21 MC	21 MC	Tr1 (Osc.) Tr2 (Aer.)	" "
	Repeat Orders 8 and 9 until true maximum is obtained					
10	Aerial Terminal	M.W.	3 MC	3 MC	L10 (Osc.) L11 (Aerial)	" "
11	" "	M.W.	7 MC	7 MC	Tr3 (Aerial)	" "
	Repeat Orders 10 and 11 until true maximum is obtained					
12	Aerial Terminal	Radio	600 KC	600 KC	L12 (Osc.) L13 (Aerial)	" "
13	" "	"	1500 KC	1500 KC	Tr4 (Osc.) Tr5 (Aerial)	" "
	Repeat Orders 12 and 13 until true maximum is obtained.					

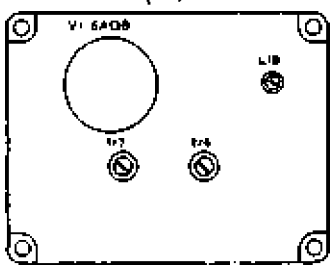
FM SECTION. Press FM Button - Connect VTVM across C321 (3MF) on Ratio Detector
Connect output meter to speaker - Adjust Tr6 for minimum noise level
For IF alignment connect Signal Generator to V1 6AQ8 by means of a metal cylinder pushed firmly over the valve ensuring that the cylinder does not touch the chassis.
Feed sufficient Signal so that VTVM reads always 10 volts negative.

Order	Connect Sig. Gen. to	Tune Gen. to	Tune Receiver to	Adj. for Maximum Reading on VTVM	Position of Slug or Trimmer
1	To Cylinder over V1	10.7 MC	92 MC	L23	Top of KRF362
2	" " " V1	10.7 MC	92 MC	L22	Top of KSF361
3	" " " V1	10.7 MC	92 MC	L21	Bottom of KSF361
4	" " " V1	10.7 MC	92 MC	L20	Top of KF 360
5	" " " V1	10.7 MC	92 MC	L19	Bottom of KF 360
6	" " " V1	10.7 MC	92 MC	L18	Top of Tuner
7	" " " V1	10.7 MC	92 MC	L17	Bottom of Tuner
	Repeat Orders 1 to 7 until true maximum is obtained				
	Connect 50 μA meter as shown in Fig. 1				
8	To Cylinder over V1	10.7 MC	92 MC	L24 for zero on 50 uA meter	Bottom of KRF362
9	Modulate Generator 30% AM To Cylinder over V1	10.7 MC	92 MC	R324 tab pot for minimum sound output	Under KRF362
	Repeat Orders 8 and 9				
10	Dipole Terminals	92 MC	92 MC	Tr7 (Osc.) Tr8 (Aerial)	Top of Tuner

UNDERSLATE VIEW OF COIL UNIT



TUNER (TOP)



V5 6AK8

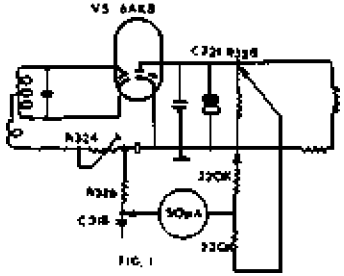
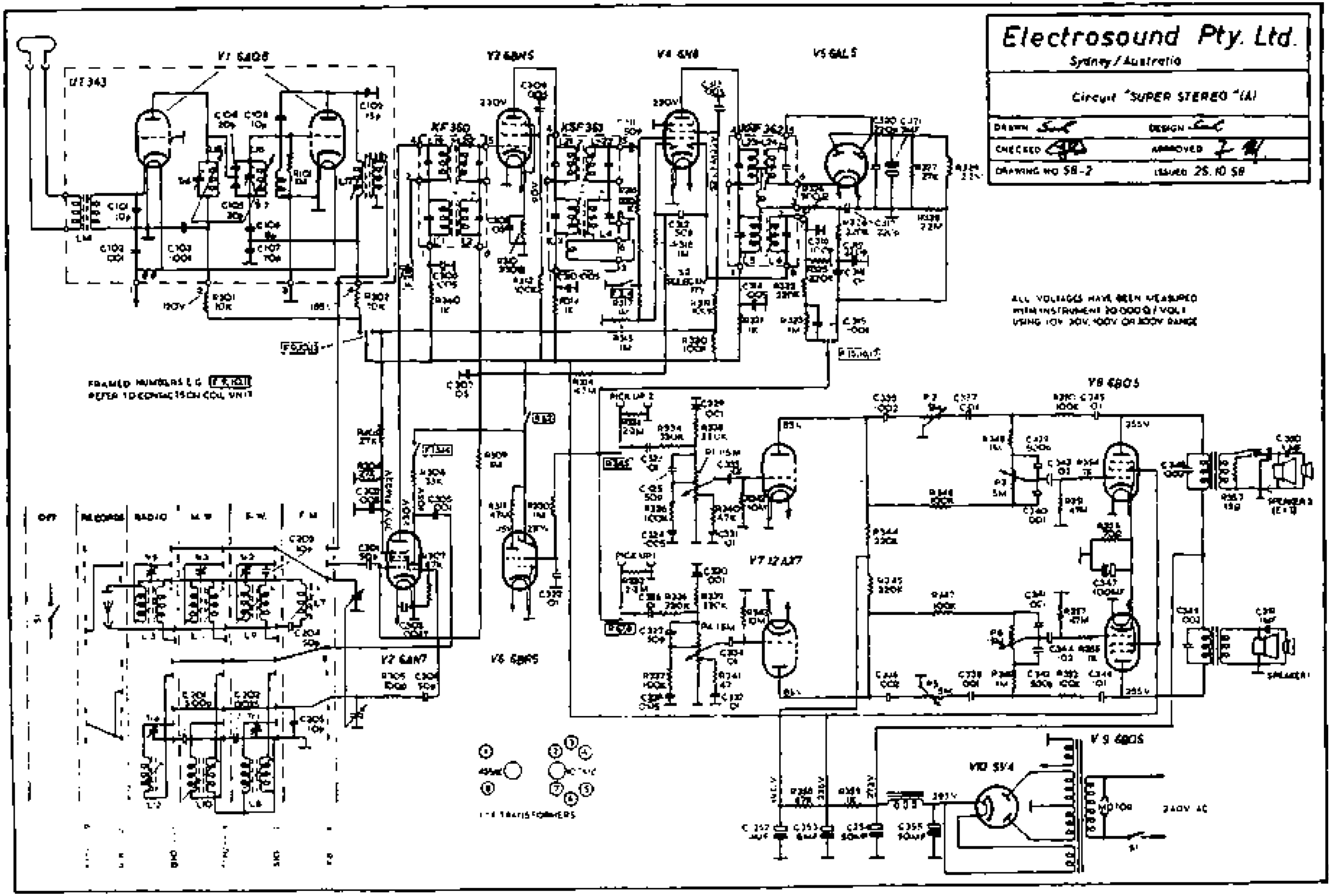


FIG. 1


Electrosound Pty. Ltd.
Sydney / Australia
Circuit "SUPER STEREO" (A)
DRAWN
DESIGN
CHECKED
APPROVED
DRAWING NO SB-2
ISSUED 25.10.58
V1 6AQ8
V2 6AN7
V3 6BH5
V4 6N8
V5 6AL5
V6 6BH5
V7 12AX7
V8 6BQ5
V9 6BQ5
V10 5V4
ALL VOLTAGES HAVE BEEN MEASURED WITH INSTRUMENT 20,000Ω / VOLT USING 10V, 30V, 100V OR 300V RANGE
FRAMED NUMBERS E.G. REFER TO CONTACTS ON COIL UNIT
OFF
RECORDS
RADIO
M.W.
S.W.
F.M.
PICK UP 1
PICK UP 2
SPEAKER 1
SPEAKER 2
MOTOR
240V AC
I.F. TRANSFORMERS

ELECTROSOUND STEREO B.

ALIGNMENT INSTRUCTIONS.

NOTE: The IF transformers KF360, KSF361 & KRF362 are combined for AM and FM. The AM slugs being towards dial.

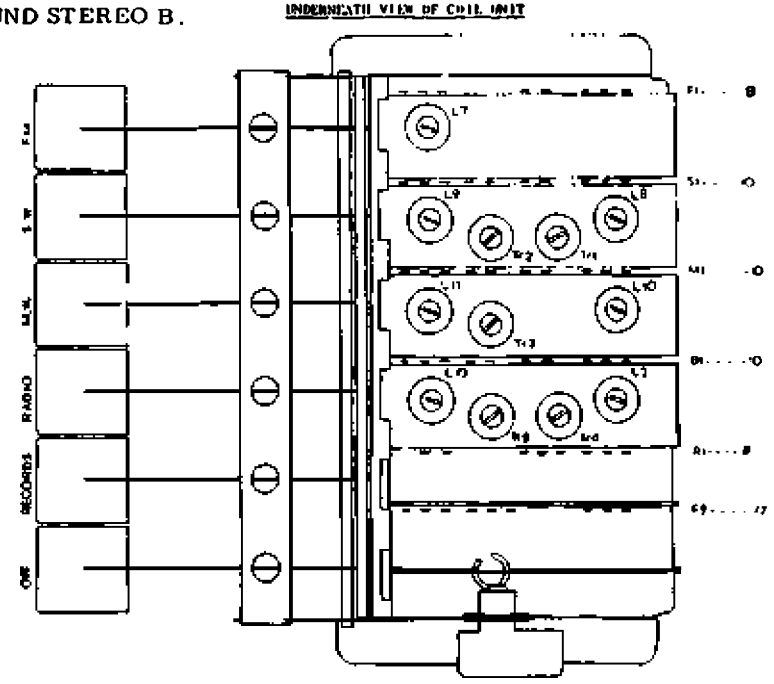
AM SECTION. Set selectivity control to sharp position - Adjust volume control for maximum
Connect output meter to speaker - Use Signal Generator 30% AM modulated

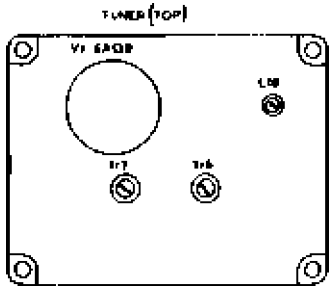
Order	Connect Sig. Gen. to	Press Button	Tune Gen. to	Tune Receiver to	Adj. for Maximum Output at Approx. 50 mW	Position of Slug or Trimmer
1	Front section of Gang	Radio	455 KC	540 KC	L6	Top of KRF362
2	" " " "	"	455 KC	540 KC	L5	Bottom of KRF362
3	" " " "	"	455 KC	540 KC	L4	Top of KSF361
4	" " " "	"	455 KC	540 KC	L3	Bottom of KSF361
5	" " " "	"	455 KC	540 KC	L2	Top of KF 360
6	" " " "	"	455 KC	540 KC	L1	Bottom of KF 360
	Repeat Orders 1 to 6 until true maximum is obtained					
7	Aerial Terminal	Radio	455 KC	540 KC	L7 for minimum output	Coil unit
8	" "	S.W.	9 MC	9 MC	L8 (Osc.) L9 (Aerial)	" "
9	" "	S.W.	21 MC	21 MC	Tr1 (Osc.) Tr2 (Aer.)	" "
	Repeat Orders 8 and 9 until true maximum is obtained					
10	Aerial Terminal	S.W.	3 MC	3 MC	L10 (Osc.) L11 (Aerial)	" "
11	" "	S.W.	7 MC	7 MC	Tr3 (Aerial)	" "
	Repeat Orders 10 and 11 until true maximum is obtained					
12	Aerial Terminal	Radio	600 KC	600 KC	L12 (Osc.) L13 (Aerial)	" "
13	" "	"	1500 KC	1500 KC	Tr4 (Osc.) Tr5 (Aerial)	" "
	Repeat Orders 12 and 13 until true maximum is obtained.					

FM SECTION. Press FM Button - Connect VTVM across C321 (3MF) on Ratio Detector
Connect output meter to speaker - Adjust Tr8 for minimum noise level
For IF alignment connect Signal Generator to V1 6AQ8 by means of a metal cylinder pushed firmly over the valve ensuring that the cylinder does not touch the chassis.
Feed sufficient Signal so that VTVM reads always 10 volts negative.

Order	Connect Sig. Gen. to	Tune Gen. to	Tune Receiver to	Adj. for Maximum Reading on VTVM	Position of Slug or Trimmer
1	To Cylinder over V1	10.7 MC	92 MC	L23	Top of KRF362
2	" " " V1	10.7 MC	92 MC	L22	Top of KSF361
3	" " " V1	10.7 MC	92 MC	L21	Bottom of KSF361
4	" " " V1	10.7 MC	92 MC	L20	Top of KF 360
5	" " " V1	10.7 MC	92 MC	L19	Bottom of KF 360
6	" " " V1	10.7 MC	92 MC	L18	Top of Tuner
7	" " " V1	10.7 MC	92 MC	L17	Bottom of Tuner
	Repeat Orders 1 to 7 until true maximum is obtained				
	Connect 50 uA meter as shown in Fig. 1				
8	To Cylinder over V1	10.7 MC	92 MC	L24 for zero on 50 uA meter	Bottom of KRF362
9	Modulate Generator 30% AM To Cylinder over V1	10.7 MC	92 MC	R324 tab pot for minimum sound output	Under KRF362
	Repeat Orders Band 9				
10	Ripple Terminals	92 MC	92 MC	Tr7 (Osc.) Tr6 (Aerial)	Top of Tuner

UNDERNEATH VIEW OF COIL UNIT





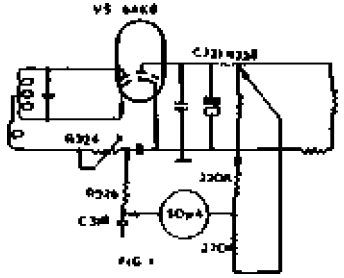
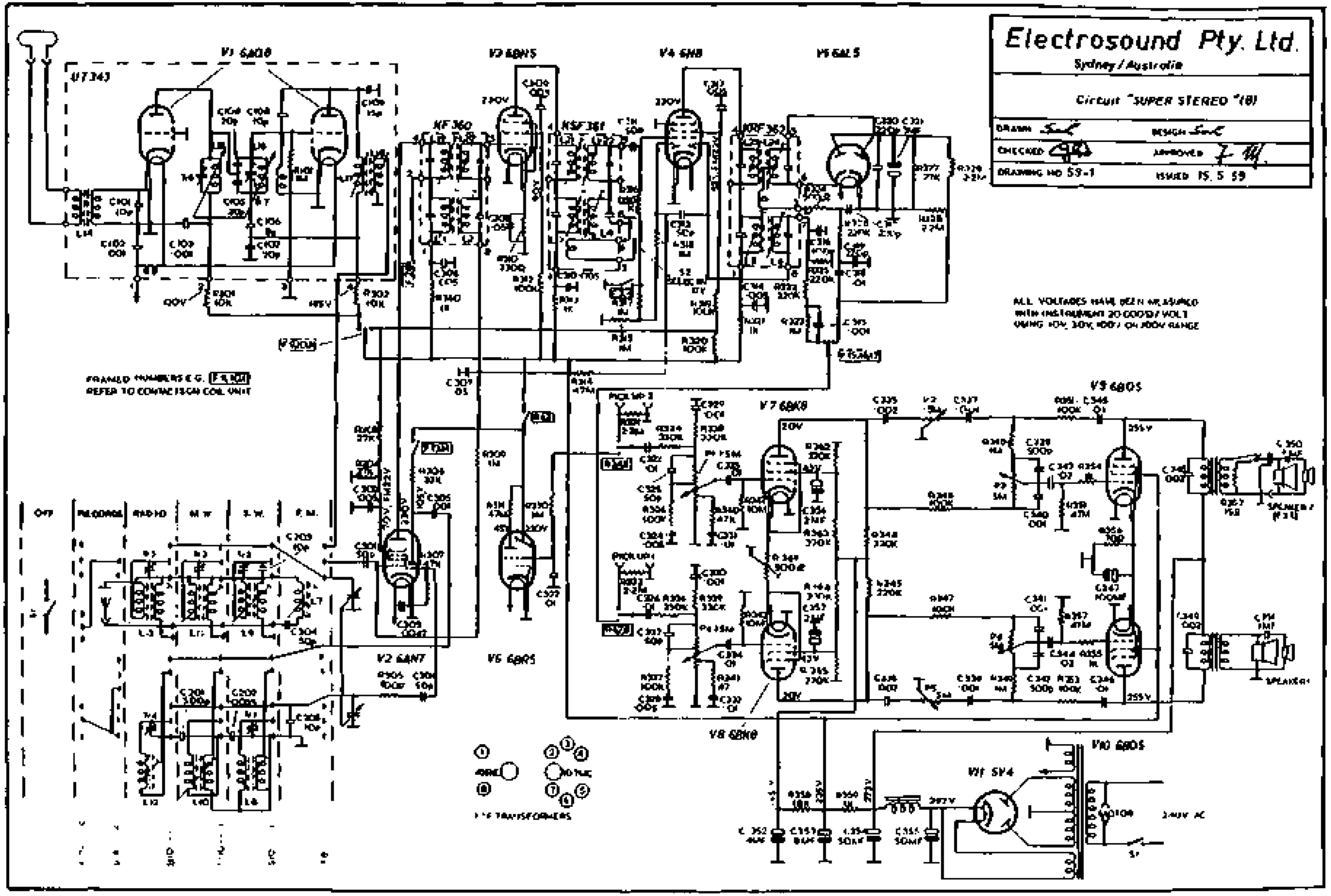


FIG 1


Electrosound Pty. Ltd.
Sydney / Australia
Circuit "SUPER STEREO" (B)
DRAWN
DESIGN
CHECKED
APPROVED
DRAWING NO 59-1
ISSUED 15.5.59
ALL VOLTAGES HAVE BEEN MEASURED WITH INSTRUMENT 20 000Ω/VOLT USING 10V, 30V, 100V OR 300V RANGE
FRAMED NUMBERS E.G. REFER TO CONNECTION COIL UNIT
V1 6AQ8
V3 6BH5
V4 6N8
V5 6AL5
V2 6AN7
V6 6BQ5
V7 6BK8
V8 6BK8
V9 6BQ5
V10 6BQ5
V11 5V4
OFF
PICKUP
RADIO
M.W.
S.W.
F.M.
SPEAKER 1
SPEAKER 2
I.F. TRANSFORMERS
240V AC

ELECTROSOUND STEREO. AX.

ALIGNMENT INSTRUCTIONS.

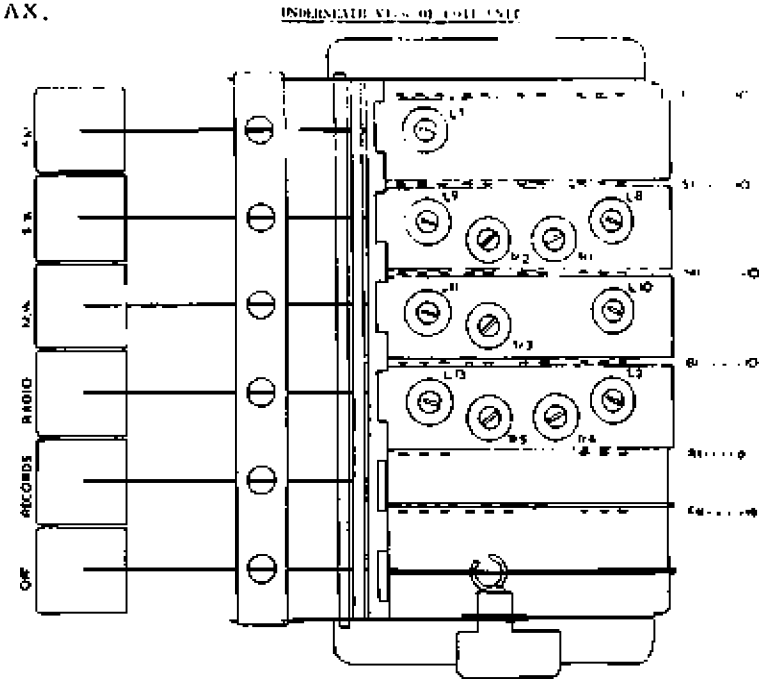
NOTE The IF transformers KF360, KSF361 & KRF362 are combined for AM and FM. The AM slugs being towards dial.

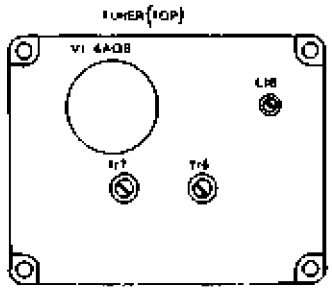
AM SECTION. Set selectivity control to sharp position - Adjust volume control for maximum
Connect output meter to speaker - Use Signal Generator 30% AM modulated

Order	Connect Sig. Gen. to	Press Button	Tune Gen. to	Tune Receiver to	Adj. for Maximum Output at Approx. 50 mW	Position of Slug or Trimmer
1	Front section of Gang	Radio	455 KC	540 KC	L6	Top of KRF362
2	" " " "	"	455 KC	540 KC	L5	Bottom of KRF362
3	" " " "	"	455 KC	540 KC	L4	Top of KSF361
4	" " " "	"	455 KC	540 KC	L3	Bottom of KSF361
5	" " " "	"	455 KC	540 KC	L2	Top of KF 360
6	" " " "	"	455 KC	540 KC	L1	Bottom of KF 360
	Repeat Orders 1 to 6 until true maximum is obtained					
7	Aerial Terminal	Radio	455 KC	540 KC	L7 for minimum output	Coil unit
8	" "	S.W.	9 MC	9 MC	L8 (Osc.) L9 (Aerial)	" "
9	" "	S.W.	21 MC	21 MC	Tr1 (Osc.) Tr2 (Aer.)	" "
	Repeat Orders 8 and 9 until true maximum is obtained					
10	Aerial Terminal	M.W.	3 MC	3 MC	L10 (Osc.) L11 (Aerial)	" "
11	" "	M.W.	7 MC	7 MC	Tr3 (Aerial)	" "
	Repeat Orders 10 and 11 until true maximum is obtained					
12	Aerial Terminal	Radio	600 KC	600 KC	L12 (Osc.) L13 (Aerial)	" "
13	" "	"	1500 KC	1500 KC	Tr4 (Osc.) Tr5 (Aerial)	" "
	Repeat Orders 12 and 13 until true maximum is obtained.					

FM SECTION. Press FM Button - Connect VTVM across C321 (3MF) on Ratio Detector
Connect output meter to speaker - Adjust Tr6 for minimum noise level
For IF alignment connect Signal Generator to V1 6AQ8 by means of a metal cylinder pushed firmly over the valve ensuring that the cylinder does not touch the chassis.
Feed sufficient Signal so that VTVM reads always 10 volts negative.

Order	Connect Sig. Gen. to	Tune Gen. to	Tune Receiver to	Adj. for Maximum Reading on VTVM	Position of Slug or Trimmer
1	To Cylinder over V1	10.7 MC	92 MC	L23	Top of KRF362
2	" " " V1	10.7 MC	92 MC	L22	Top of KSF361
3	" " " V1	10.7 MC	92 MC	L21	Bottom of KSF361
4	" " " V1	10.7 MC	92 MC	L20	Top of KF 360
5	" " " V1	10.7 MC	92 MC	L19	Bottom of KF 360
6	" " " V1	10.7 MC	92 MC	L18	Top of Tuner
7	" " " V1	10.7 MC	92 MC	L17	Bottom of Tuner
	Repeat Orders 1 to 7 until true maximum is obtained				
	Connect 50 μA meter as shown in Fig. 1				
8	To Cylinder over V1	10.7 MC	92 MC	L24 for zero on 50 μA meter	Bottom of KRF362
9	Modulate Generator 30% AM To Cylinder over V1	10.7 MC	92 MC	R324 tab pot for minimum sound output	Under KRF362
	Repeat Orders 9 and 10				
10	Dipole Terminals	92 MC	92 MC	Tr7 (Osc.) Tr8 (Aerial)	Top of Tuner





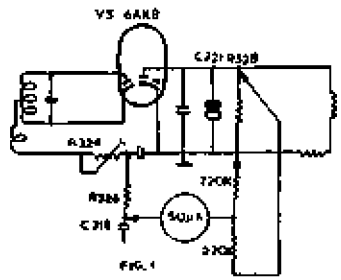
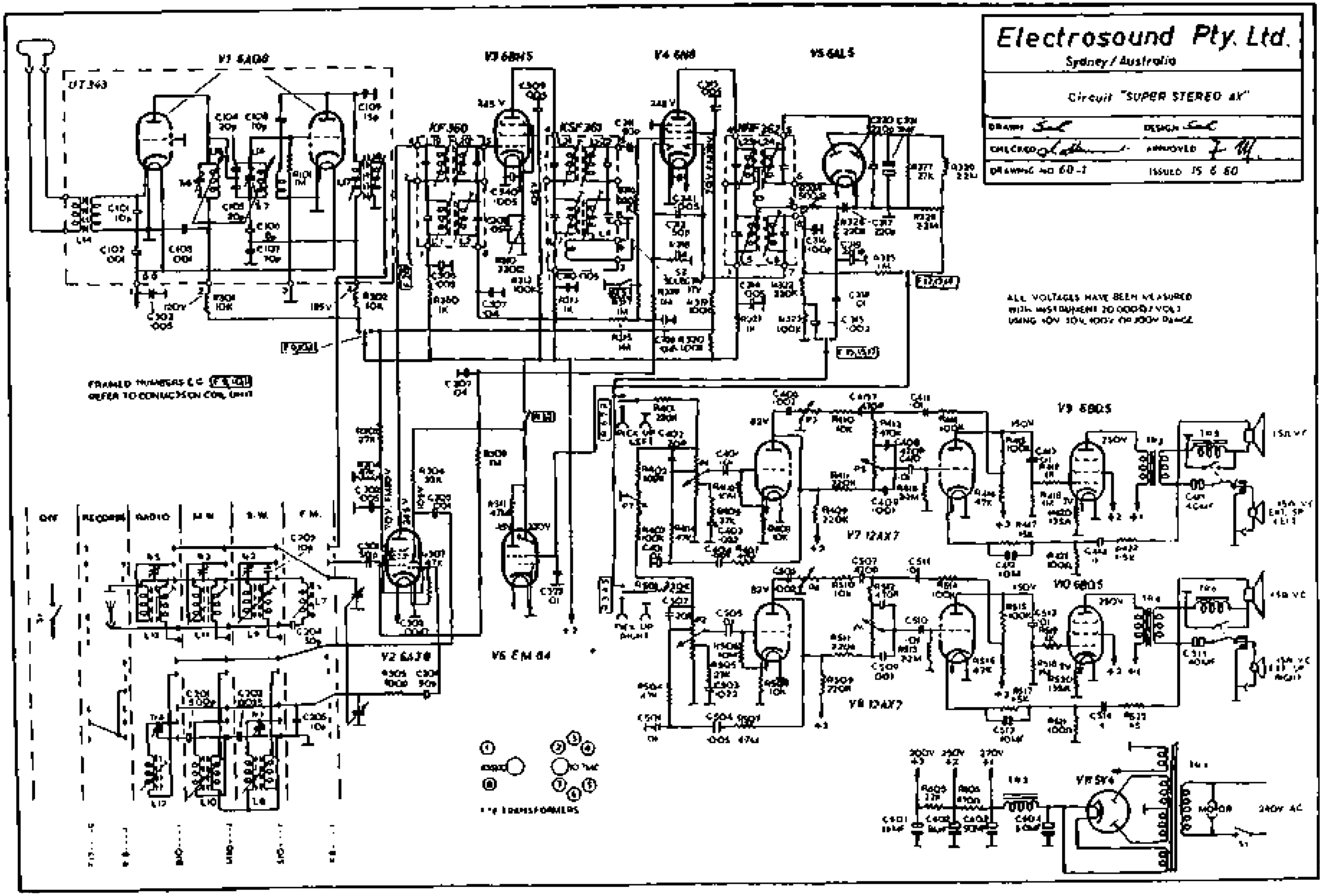
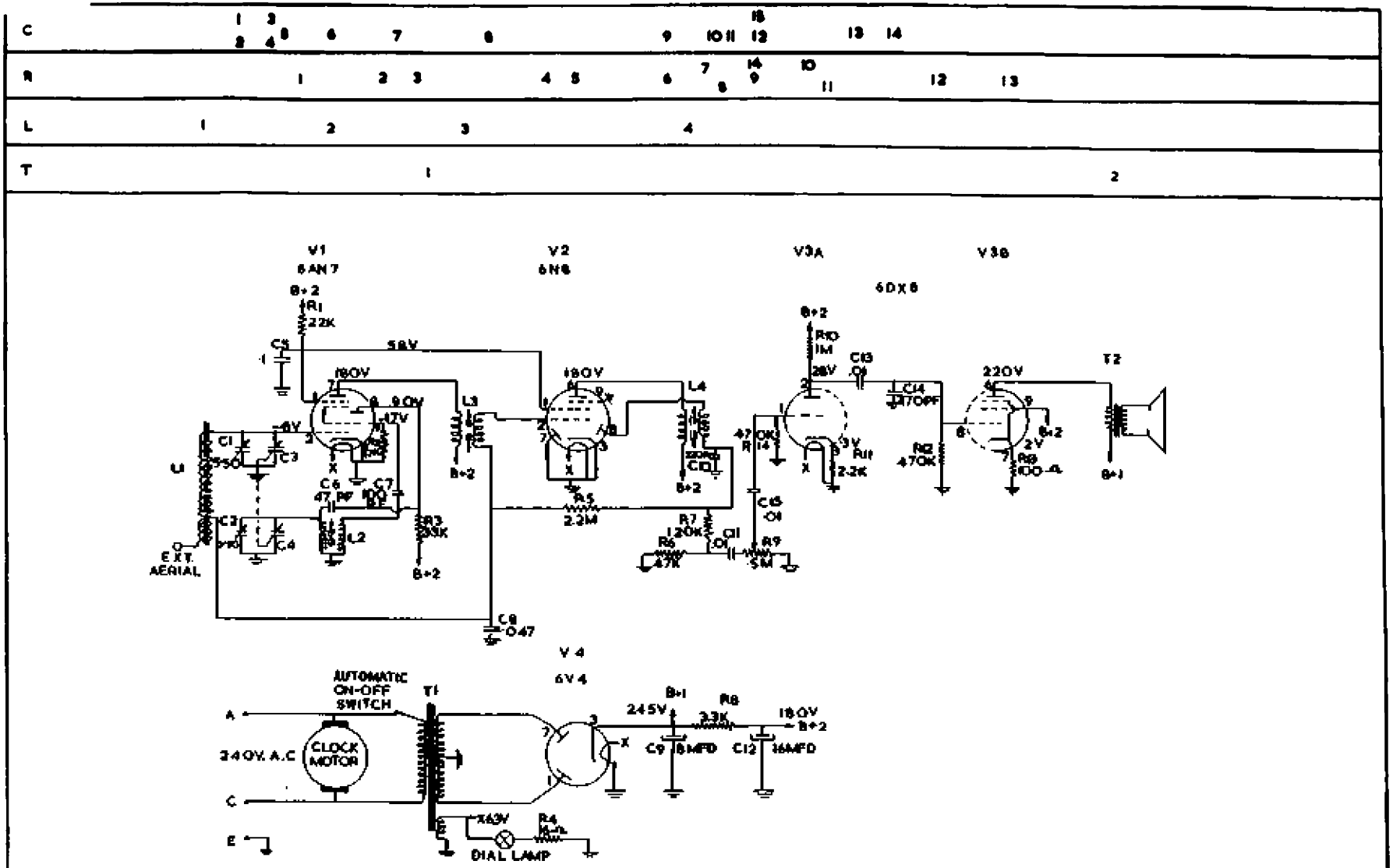


FIG. 1


Electrosound Pty. Ltd.
Sydney / Australia
Circuit "SUPER STEREO 4X"
DRAWING NO 60-1
ISSUED 15 6 60
V1 6AQ8
V3 6BH5
V4 6N8
V5 6AL5
V2 6AJ8
V6 EM 84
V7 12AX7
V8 12AX7
V9 6BQ5
V10 6BQ5
V11 5Y4
OFF
RECORDS
RADIO
M.W.
S.W.
F.M.
PICK UP LEFT
PICK UP RIGHT
240V AC
MOTOR



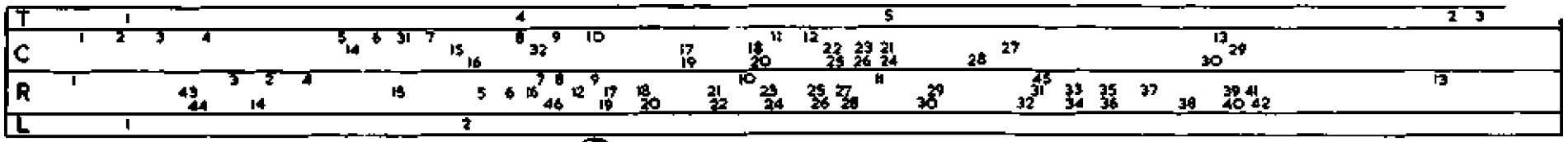
GENERAL ELECTRIC
AUSTRALIA

CHRONOMETER RADIO

MODEL CR1

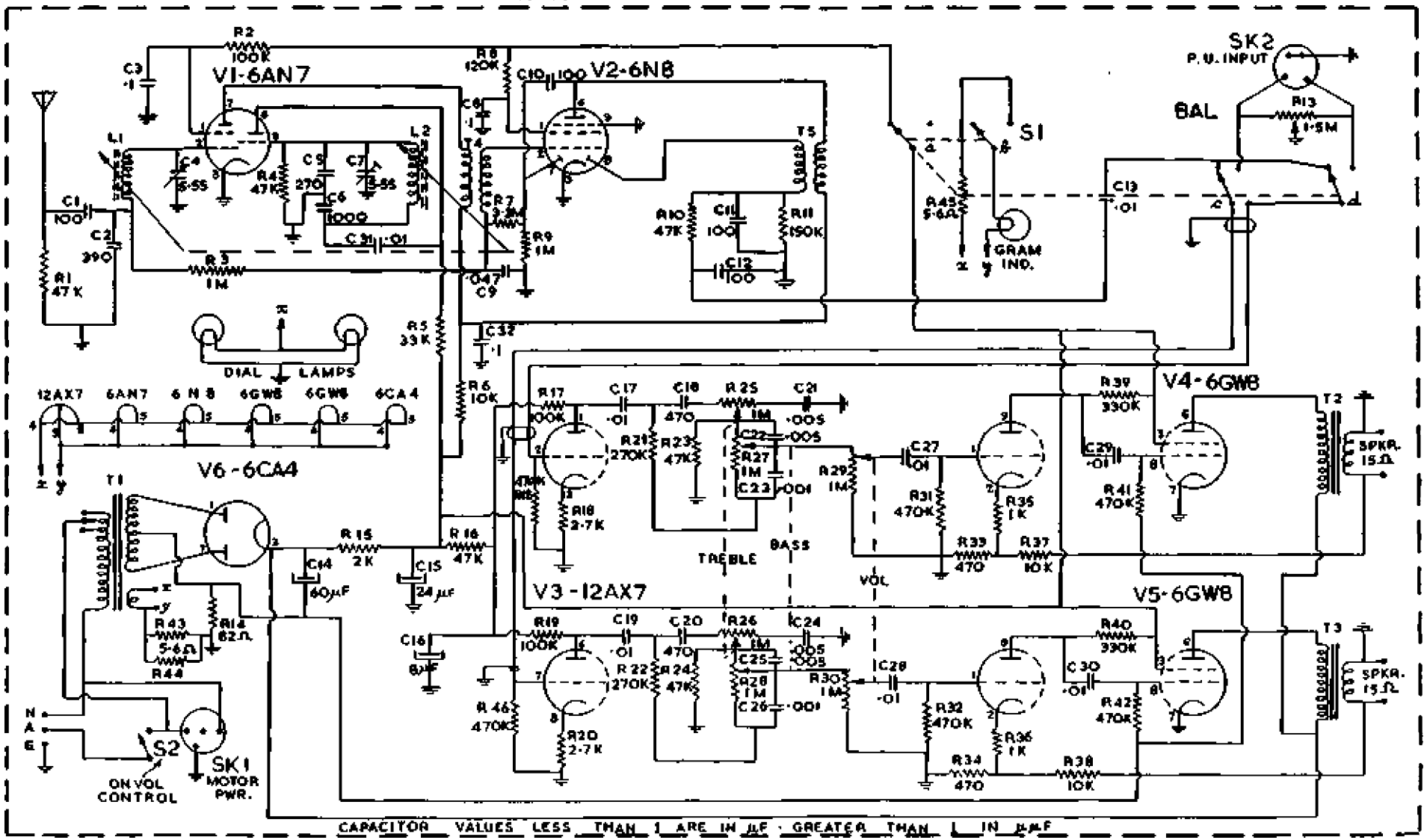
INTERMEDIATE FREQUENCY 455 KC

FREQUENCY COVERAGE 520 KC/S - 1650 KC/S



CIRCUIT DIAGRAM GENERAL ELECTRIC RADIO - STEREOGRAM MODEL RA 1

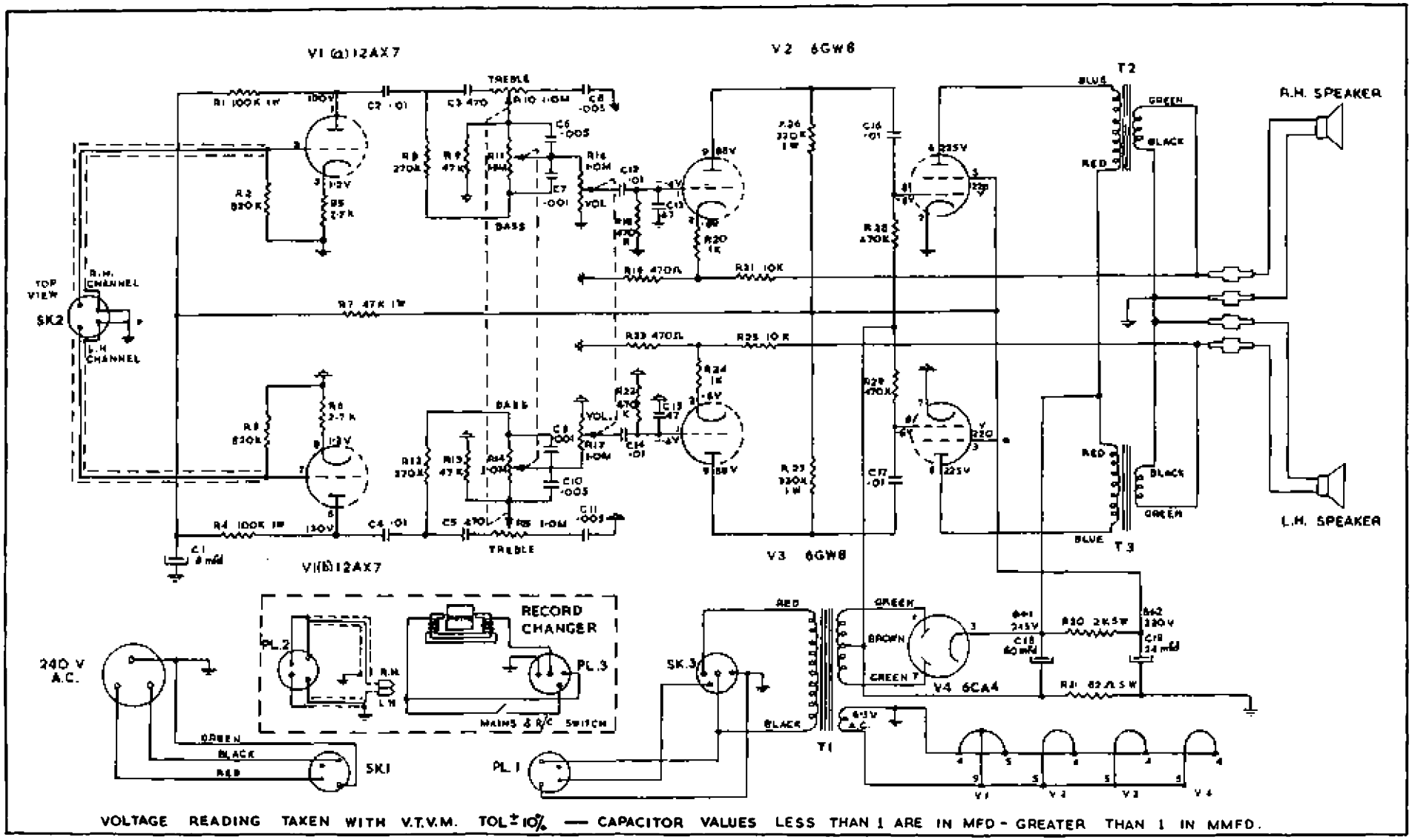
AUSTRALIA



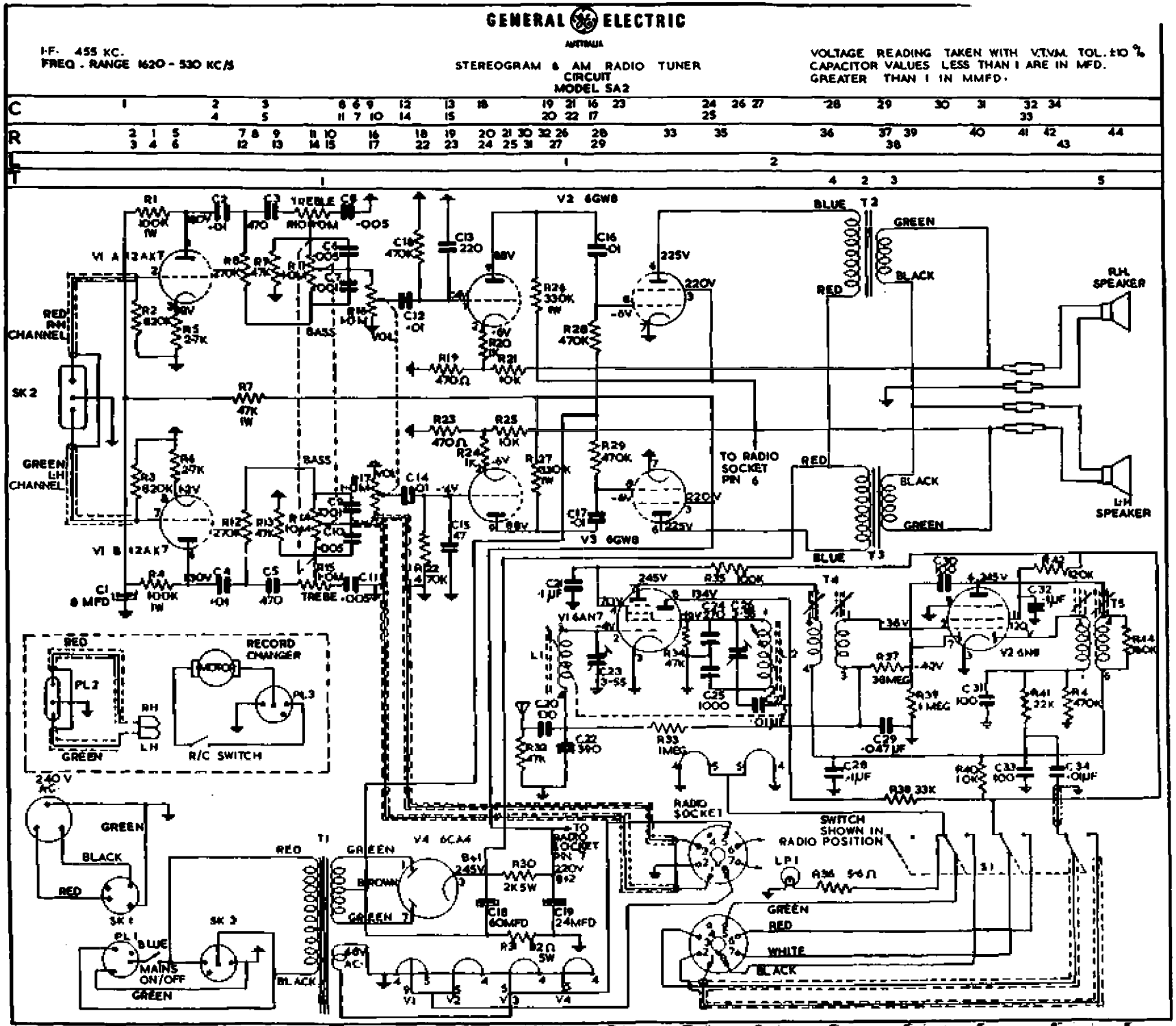
GENERAL ELECTRIC
AUSTRALIA

CIRCUIT DIAGRAM — PORTABLE STEREOGRAM — MODEL SA1

ISSUED : 13-6-1962



VOLTAGE READING TAKEN WITH V.T.V.M. TOL ± 10% — CAPACITOR VALUES LESS THAN 1 ARE IN MFD - GREATER THAN 1 IN MMFD.


GENERAL ELECTRIC
AUSTRALIA
I·F· 455 KC.
FREQ. RANGE 1620 - 530 KC/S
STEREOGRAM & AM RADIO TUNER CIRCUIT MODEL SA2
VOLTAGE READING TAKEN WITH V.T.V.M. TOL. ±10 %
CAPACITOR VALUES LESS THAN 1 ARE IN MFD. GREATER THAN 1 IN MMFD·
C
R
L
T
V2 6GW8
V3 6GW8
V4 6CA4
V1 A 12AK7
V1 B 12AK7
V1 6AN7
V2 6N8
RED CH. CHANNEL
GREEN LH CHANNEL
SK 2
BASS
TREBLE
VOL
TO RADIO SOCKET PIN 6
R.H. SPEAKER
L.H. SPEAKER
RECORD CHANGER
PL 2
PL 3
R/C SWITCH
240 V AC
MAINS ON/OFF
SK 1
SK 3
PL 1
RADIO SOCKET
SWITCH SHOWN IN RADIO POSITION
LP1
GREEN
RED
WHITE
BLACK
BLUE
BROWN