

# A.W.A. THEATRE-GRAM MODELS D93 AND K93

ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

## GENERAL DESCRIPTION

A.W.A. Theatre-gram Models D93 and K93 consist of two separate and independent electronic units housed in one cabinet.

The radiogram unit consists of a seven-valve stereophonic radio-phonograph chassis, a four-speed automatic record changer, two-speaker stereophonic network and record storage space housed in the left-hand side of the cabinet.

The television unit in Model D93 consists of a standard 40-00 series TV chassis (40-06) and TB4 (45054) type neutrode Turret Tuner housed in the right-hand side of the cabinet.

In Model K93 the television chassis used is a 36-50 series TV chassis (36-60).

This manual will cover completely the radiogram chassis, all mechanical replacement parts associated with the radiogram chassis, cabinet fittings and those items on the television that are peculiar to those models. For alignment procedure and code list for the TV chassis, refer to the 40-00 Series TV Chassis Service Manual issued February 1966, or to the 36-50 TV Chassis Service Manual issued June 1965, as the case may be. For information pertaining to the TV Tuner, refer to Service Data for the Series Neutrode Turret Tuner issued April, 1965.

## ELECTRICAL AND MECHANICAL SPECIFICATIONS

### RADIOPHONOGRAPH

Frequency Range	.....	525-1650 Kc/s
Intermediate Frequency	.....	455 Kc/s
Power Supply Rating	200-260 volts a.c. 50 c.p.s.	

### POWER CONSUMPTION

Receiver Chassis	.....	50 watts
Record Changer	.....	20 watts

### UNDISTORTED POWER OUTPUT: 1.5 watts per channel LOUDSPEAKERS

9" x 6", one per channel	.....	53304
V.C. IMPEDANCE	.....	15 ohms at 400 c.p.s.

DIMENSIONS	.....	30"
Height	.....	57½"
Width	.....	17½"
Depth	.....	8"
Height of Legs	.....	2 1/3 lbs.
Weight	.....	

### VALVE COMPLEMENT

V1 Radiotron 6BE6	.....	I.F. Amplifier, Detector and A.G.C.
V2 Radiotron 6NB	.....	Left-hand channel Audio Amplifier
V3 Radiotron 6AU6	.....	Right-hand channel Audio Amplifier
V4 Radiotron 6AU6	.....	Left-hand channel Output
V5 Radiotron 6AO5	.....	Left-hand channel output
V6 Radiotron 6AO5	.....	Right-hand channel output
V7 Radiotron 6V4	.....	Power Rectifier

\* 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.

VALVES	CATHODE TO CHASSIS VOLTS	SCREEN GRID TO CHASSIS VOLTS	ANODE TO CHASSIS VOLTS	ANODE CURRENT mA	HEATER VOLTS
6BE6 Converter	0	70	160	2	6.3
6NB I.F. Amp., Det., AGC	0	70	160	5	6.3
6AU6 Audio Amp.	0	61	50	0.75	6.3
6AU6 Audio Amp.	0	61	50	0.75	6.3
6AQ5 Audio Output	0	160	220	25	6.3
6AQ5 Audio Output	0	160	220	25	6.3
6V4 Rectifier	240	—	235	—	6.3

Total H.T. Current = 70mA

Measured with 240 volts A.C. supply (with selector switch in radio position). No signal input. Volume Control maximum clockwise. Voltmeter 20,000 ohms per volt. Measurements taken on highest scale giving accurate readable deflection.

### D.C. RESISTANCE OF WINDINGS

WINDING	D.C. RESISTANCE IN OHMS	WINDING	D.C. RESISTANCE IN OHMS
Aerial Transformer TR1	32	Output Transformers TR5 and TR6	360
Primary	1.5	Secondary	1.8
Secondary	1.5	Power Transformer TR7	
Oscillator Transformer TR2	3.5	Primary	50
I.F. Transformers TR3 and TR4	18	H.T. Secondary	450
		L.T. Secondary	*

Fig. 1 shows the route of the cord and the method of attachment.

**CHASSIS REMOVAL**

Remove the television cabinet back. Remove the tuner and control panel assembly, secured by a wing nut to the side of the cabinet, and attach it to the chassis (a retaining screw and anchor point are provided along the left side of the chassis for this purpose).

Uping the aerial lead from the tuner.

Uping the power, yoke, picture tube sockets and ultor lead. Uplng the audio leads from the chassis and disconnect the tuner earth strap from the tuner.

Loosen the two top wing nuts and hinge the chassis down to a position slightly above the horizontal and withdraw the chassis from the hinge brackets.

Re-assemble is the reverse of the above procedure, taking care of the following points: When replacing the tuner and control panel assembly make sure that the rubber sealing band is in position around the front escutcheon. Before tightening the tuner wing nut make sure that the control panel escutcheon is centrally and evenly placed, in respect to the cabinet front.

### PICTURE TUBE REMOVAL

Remove the chassis as described above.

Remove the four nuts securing the picture tube to the mount brackets.

The picture tube may now be removed from the cabinet. Installation is the reverse of the above procedure, taking note that the high voltage terminal is on the right-hand side.

### MASK REMOVAL

Remove the chassis and picture tube as described above. Remove the two bottom picture tube mount brackets. The mask is then removed by swinging the left-hand edge of the moulding backwards to clear the top and bottom triangular bracket blocks, and then sideways to clear the right-hand side. The bottom of the mask can then be swung back to free the mask completely. To prevent interference from the cardboard heat shield mounted to the cabinet top, make sure that the mask edge of this shield is stapled to the cabinet allowing free movement of the top of the mask.

## RADIogram

### CHASSIS REMOVAL

Remove the radio and TV cabinet backs and disconnect the aerial and earth leads.

Release the clips securing the power and phone motor cables to the cabinet.

Disconnect the speaker leads, power plug and phone motor power socket.

Loosen the power transformer mounting bolt, remove the screw holding the rear mounting bracket to the cabinet and remove the bracket.

Slide the bezel light holder from its bracket. Remove two Philips Head screws holding the lid stay to the lid and lay the lid back as far as possible.

Remove the tuning knob.

Remove three Phillips-head screws retarding the escutcheon and remove some.

Remove the four control knobs. Remove two screws holding the chassis to the record changer wall.

Lift the chassis up sufficiently to expose and disconnect the pick-up input plug.

The chassis may now be gently eased from the cabinet. Remove the cardboard light shield from the control spindles. Installation is the reverse of the above procedure.

### RECORD CHANGER REMOVAL

Remove the radio cabinet back.

Follow the steps outlined in "Chassis Removal" to that of removing the pick-up input plug.

Viewed from underneath the base board will be seen the two clips securing the record changer. Swing the clips over so that they are parallel to the screws and lift the record changer free.

**LAMP REPLACEMENT**

Both 12 and 6 volt lamps are used in this combination. The bezel light is a 12 volt, while all others are 6 volt.

The bezel light is accessible on removing the radio cabinet back, the channel indicator light on removing the tuner, both of which dial lamps are of the bayonet type and their holders clip into position on insulated strips.

### ALIGNMENT PROCEDURE

#### MANUFACTURER'S SETTING OF ADJUSTMENTS

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-adjustment should be necessary only when components in tuned circuits are required 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 the correct testing instruments, listed below, are used. 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.

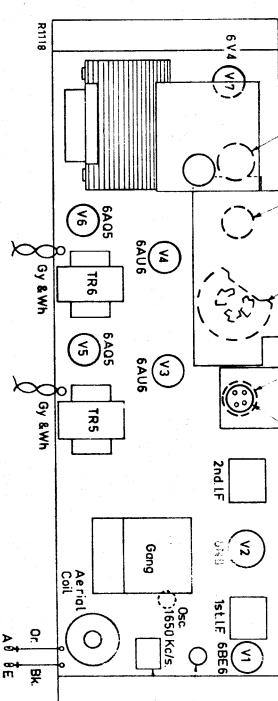
For all alignment operations, keep the generator output as low as possible to avoid a.c. action. Also, keep the volume control in the maximum clockwise position.

### ALIGNMENT TABLE

ORDER	CONNECT 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 TR4 and TR3
2	Aerial Lead	600 Kc/s	600 Kc/s	Osc. Core Adj. (TR2)*
3	Aerial Lead	1,650 Kc/s	Gang fully open	Osc. Trimmer (C8)
4	Aerial Lead	1,500 Kc/s	1,500 Kc/s	Aer. Trimmer (C5)

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

### CHASSIS LAYOUT



#### TESTING INSTRUMENTS

- (1) Signal Generator: modulated at 400 c.p.s. or 2200 c.p.s. or 220 ohms non-inductive resistor across the output terminals.
- (2) Modulated Oscillator: If the modulated oscillator is used, connect a 220 ohms non-inductive resistor across the output terminals.
- (3) Output Meter—15 ohms impedance.

In order to avoid damage to output valves and associated circuitry when the chassis is being tested, it is necessary to provide a load on both audio amplifiers. Hence a 15 ohms, 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.

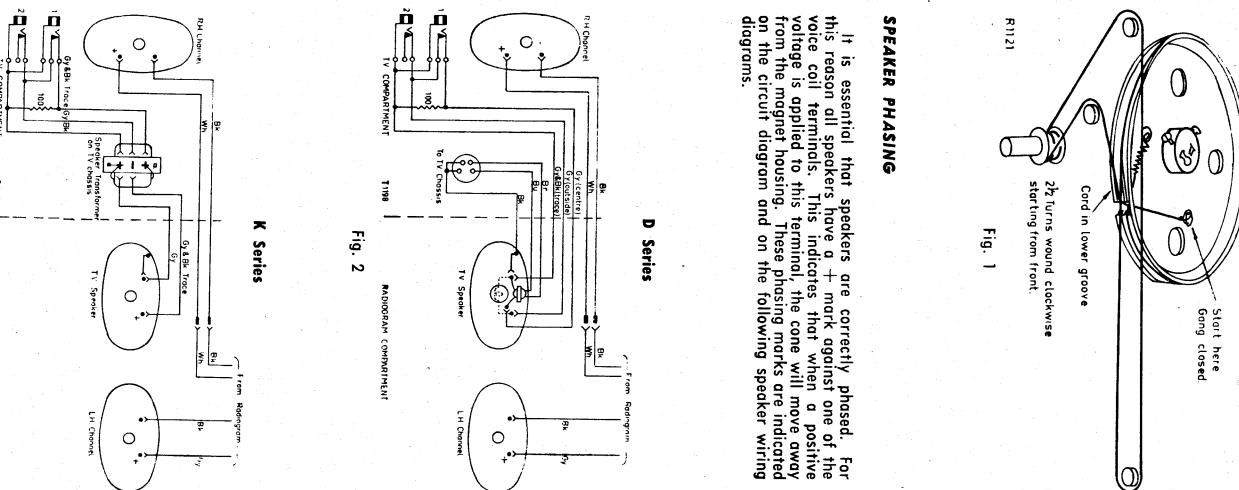
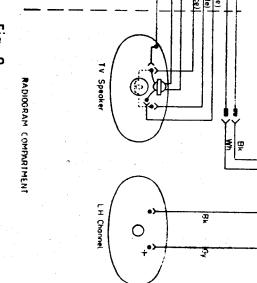


Fig. 2



whilst the dial lamps are accessible on removing the radio chassis.

