

ASTOR

RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

125-130 GRANT STREET, SOUTH MELBOURNE, S.C.A.

File: Receivers AC.

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TECHNICAL BULLETIN

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ASTOR MODEL — HQL

STEREOPHONIC RECORD PLAYER

3 VALVE 2 CHANNEL AUDIO AMPLIFIER AND A 4 SPEED
SINGLE RECORD PLAYER (16-2/3, 33-1/3, 45 and 78 R.P.M.)



THIS BULLETIN CONTAINS:

1. Service Instructions — Electrical.
2. Service Instructions — Mechanical.
3. Component Parts List.
4. Chassis Serial Number.
5. Valve Placement Diagram.
6. Circuit Diagram.

MODEL - HQL

POWER OUTPUT:

0.5 watt

FOR OPERATION FROM:

200-240V 50 cycle and 250V 40 cycle or 50 cycle
AC Mains (Power Transformer T251).

Power trans. Primary Tap, red - common.
" " " " green - 200V 50 cycle mains.
" " " " black - 230 & 240V 50 cycle mains.
" " " " orange - 250V 40 or 50 cycle mains.

POWER CONSUMPTION:

64 Watts approx.

SERVICE INSTRUCTIONS (ELECTRICAL)

EQUIPMENT:

Audio Signal Generator
Output Meter

TEST CONDITIONS:

Volume Control: maximum (fully clockwise)
Tone Control : maximum treble (fully clockwise)
Audio Signal
Generator : 1000 CPS
Signal
Generator
Output : 0.1 Volt.
Output Meter : 4 Ohms impedance.
Connected alternatively
across secondary winding
of each output transformer.
(Speaker voice coils dis-
connected).
Mains Input
Voltage : 235 Volts 50 cycle AC.
input to power transformer
230-240 Volt primary tap.

AUDIO AMPLIFIER GAIN TEST:

The amplifier chassis/record player unit has to be removed from the cabinet to check the overall gain of the amplifiers.

IMPORTANT: Before disconnecting pick-up leads from terminals of volume controls, identify the leads to ensure correct channel connection when the leads are reconnected.

- A. Set frequency of audio generator to 1000 cycles.
- B. Adjust output level of generator to 0.1 volt.
- C. Disconnect pick-up leads from terminals of volume controls.
- D. Disconnect the 4 pin plug attached to speaker leads from socket of amplifier.
- E. Connect output meter across secondary winding of left-channel output transformer.
- F. Connect audio signal generator output lead to input terminal lug of left channel volume control (control nearest mount bush).
 1. Generator output lead 'active' to volume control terminal lug.
 2. Generator output lead 'non-active' to amplifier chassis.
- G. Turn ON/OFF switch - tone control fully clockwise.
- H. Turn volume control to maximum, fully clockwise.
- I. With a signal input of 0.1 volt applied to amplifier input, the output meter should indicate a minimum of 500 milliwatts output.
- J. Repeat paragraphs A to I with audio signal generator connected to right channel volume control and the output meter connected to secondary winding of right channel output transformer.

AUDIO AMPLIFIER BALANCE TEST:

- A. Set frequency of audio signal generator to 1000 cycles.
- B. Connect audio signal generator output lead to right channel volume control input lug.
- C. Connect plug on speaker lead to four pin socket of amplifier.
- D. Connect output meter across secondary winding of right-channel output transformer.

- E. Turn tone control and volume control fully clockwise.
- F. Adjust output of audio signal generator until output meter indicates 25 Milliwatts.
- G. With the controls and signal generator set, connect audio signal generator output lead to left channel volume control input lug and the output meter across the secondary winding of the left channel output transformer.
- H. The difference in output between the two channels must not exceed 8 milliwatts.

SPEAKER PHASING:

It is essential that the speakers be phased correctly.

If a speaker has to be removed for service, note the lead connections to ensure correct phasing when reconnecting.

A method used for checking the phasing of the speakers is detailed in the following paragraphs.

1. Place the speaker cabinets in line approx. four feet apart.
2. Play a monophonic record.
3. To conduct the following test the listener should be located in a position midway between the speaker cabinets and approx. four feet away in front.
4. If the phasing is correct the reproduced sound will appear to be radiated from a point midway between the two speakers.
5. With incorrect phasing the quality of reproduction will be poor, it will appear to be lacking in bass response and will appear to be radiated from both speakers.
6. If the speakers are incorrectly phased, reverse the leads connected to the voice coil terminals of one speaker then repeat the test detailed above.

SERVICE INSTRUCTIONS (MECHANICAL)

1. CHASSIS SERIAL NUMBER

The chassis serial number is stamped into the top surface of chassis and is visible when the four pin speaker plug is removed from its socket.

2. REMOVAL OF AMPLIFIER AND PLAYER UNIT ASSY. FROM CABINET

- A. Switch amplifier power "OFF" and disconnect mains lead plug from power point socket.
- B. Place pick-up arm on to the rest pillar, fasten with the wire clip.
- C. Remove the five screws fastening player unit mount board to cabinet.
- D. Remove the four screws, two each end of control panel escutcheon.
- E. Lift the amplifier/player unit assy. upward out of the base section of cabinet.
- F. Refitting of the amplifier/player unit assy. to the cabinet is the reverse procedure to removing it.

3. POWER TRANSFORMER MAINS TAP ADJUSTMENT FOR OPERATION ON 200 VOLT MAINS

The mains voltage tap terminal strip is located beneath the amplifier chassis near the power transformer.

- A. Remove the amplifier/player unit assy. as detailed in Para. 2.
- B. The lead from the switch on the rear of the tone control which is connected to the terminal strip lug 230 & 240 volt tap is to be unsoldered from the 230 & 240V tap and resoldered to the terminal strip lug marked 200V.
- C. Refit unit to cabinet.

Circuit No.	Description	Tol [±]	Rating	Part No.
1.	.01 MF Paper condenser	20%	600V DCW	F1033
2.	25 MF Electrolytic condenser	20%	25V DCW	PC318
3.	.047 MF Paper condenser	20%	400V DCW	E4733
4.	.047 MF Paper condenser	20%	400V DCW	E4733
5.	.0047 MF Paper condenser	20%	400V DCW	E4723
6.	.0047 MF Paper condenser	20%	400V DCW	E4723
7.	16 MF Electrolytic condenser	20%	300V DCW	PC275
8.	100 MF Electrolytic condenser	+100%-10%	12V DCW	C284
9.	100 MF Electrolytic condenser	+100%-10%	12V DCW	C284
10.				
11.	24 MF Electrolytic condenser	20%	300V DCW	PC276
12.	24 MF Electrolytic condenser	20%	300V DCW	PC276
13.	Volume control - ganged potentiometers Front section - 2 Megohm Rear section - 2 Megohm			R350
14.	2,700 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R2722
15.				
16.	330,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3342
17.	330,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3342
18.	Tone control - ganged potentiometers Front section - 500,000 Ohm Rear section - 500,000 Ohm DP.ST. switch attached			R351
19.	100,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1042
20.	100,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1042
21.				
22.	390 Ohm carbon resistor	10%	1W	Z3912
23.	390 Ohm carbon resistor	10%	1W	Z3912
24.	12,000 Ohm carbon resistor	10%	1W	Z1232
25.	12,000 Ohm carbon resistor	10%	1W	Z1232
26.	Record player, Collaro single record player 4 speed, 200-250V 50 cycle operation 'Acos' type GP73-1a turnover type Stereophonic cartridge Motor - 4 speed Turntable assy - includes rubber mat Rubber mat Drive pulley - silver) Drive pulley - black) 50 cycle Drive pulley - green) dia. increases with Drive pulley - yellow) colour sequence. Drive pulley - 40 cycle Crystal cartridge - Acos type GP73-1a includes needles assy. Needles assy. - 78 and microgroove Pickup arm - moulded section Insert - moulded covers opening in front face of pickup arm. Motor ON/OFF switch assy. consists of Cover Shorting bar Base			M505 A563/1511 A518/1511 20/1511 810/1511 455/1511 425/1511 426/1511 846/524 A665/1511 814/1511 226/1511 710/81 211/1511 A117/1511 739/524

27.	Switch - part of circuit No. 26.	
28.	Switch - mains ON/OFF DP.ST. part of circuit No. 18.	
*29.	Power transformer - 40 & 50 cycle mains	T251
30.	Indicator lamp - 6 volt .2A min. screw base T3 $\frac{1}{4}$ bulb	M449
31.	Speaker input transformer - 7000 - 3.5 ohm impedance	T229
32.	Speaker input transformer - 7000 - 3.5 ohm impedance	T229
33.	Speaker - 6 in. permag type 6M	K213
34.	Speaker - 6 in. permag type 6M	K213
35.	4 pin plug	A105/814
	Cover - 4 pin plug	285/81
36.	4 pin socket	A104/815
37.	2 pin socket	389/30C
38.	2 pin plug	761/250
	Junction block - mains lead	297/250
	Terminal strip (4) 3 lug type 1E1	A591/30C
	Terminal strip - 5 lug type 2E2	A587/30C
	Terminal strip - 5 lug type E3E, 50 cycle trans. T201.	A587/30C-1
	Terminal strip - 5 lug type E3E, 40 or 50 cycle trans. T251	A597/30C-2
	Socket (3) 9 pin	279/250
	Mains lead - 9 ft 2 core flat parallel with 3 pin plug	PA609
	Speaker lead - 3 core - 9 ft.	WM346-8
	Speaker lead - 2 core -13 ft.	WM334-8
	Control knob - volume	A142/81-11
	Control knob - tone - ON/OFF	A142/81-31
	Escutcheon assy.	A101/861
	includes	
	Plaque - ASTOR STEREO	772/250
	Speed nut (2) plaque	627/250-12
	Escutcheon	3/361
	Red bezel - "ON" indicator	475/81-2
	Pick-up arm rest	743/1511
	Retaining clip - arm rest	307/1511
	Screw (3) player unit mount 1 $\frac{1}{2}$ " x 2 BA	15/1511
	Washer (3) " " " 9/16" flat steel	55/60-5
	Nut (3) " " " 2 BA	2/478
	Spacer (3) " " "	7/845
	Spring (3) " " "	467/250
	Washer (3) " " " 3/16" shakeproof	2/562-5
	Grommet - mains lead	5/91
	Lamp socket assy.	A128/30C
	Lamp shield	80/387-2
	Screw (4) fastens escutcheon assy. to cabinet	44/560-21
	Screw (5) fastens player unit mt. board to cabinet	
	$\frac{3}{4}$ " x No.8 Rd. Hd.	44/560-18
	Nut (2) control mount bush	41/161
	Screw (2) two pin socket mt. - $\frac{1}{4}$ " x No.4 Rd. Hd.	35/560-20

* NOTE: The first production run of Model HQL amplifiers used power transformer part No. T201 designed to operate from 50 cycle 200-240 volt mains.

CABINET STYLING

COMPLETE CABINET ASSY. - includes hardware

Lid sections / Base section

WHITE	/	RED	A119/221-1
WHITE	/	BLACK SILVER	A119/221-2
BEIGE	/	TAN	A119/221-3
BLUE	/	BLUE	A119/221-4
YELLOW	/	TAN	A119/221-5

CABINET LID - Left speaker housing

WHITE	326/221-1
BEIGE	326/221-2
BLUE	326/221-3
YELLOW	326/221-4

CABINET LID - Right speaker housing

WHITE	327/221-1
BEIGE	327/221-2
BLUE	327/221-3
YELLOW	327/221-4

REAR PANEL - Left speaker housing

RED	328/221-5
BLACK SILVER	328/221-6
TAN	328/221-7
BLUE	328/221-8

REAR PANEL - Right speaker housing

RED	329/221-5
BLACK SILVER	329/221-6
TAN	329/221-7
BLUE	329/221-8

PLAYER UNIT MOUNT BOARD

RED	331/221-5
BLACK SILVER	331/221-6
BLUE	331/221-7
YELLOW	331/221-8

HANDLE includes mount pivots.

GREY	767/250-10
BEIGE	767/250-11
TAN	767/250-1

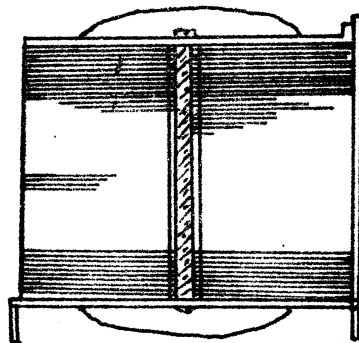
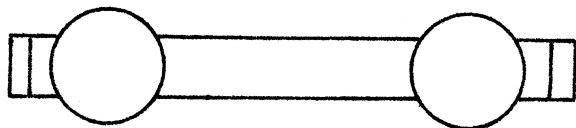
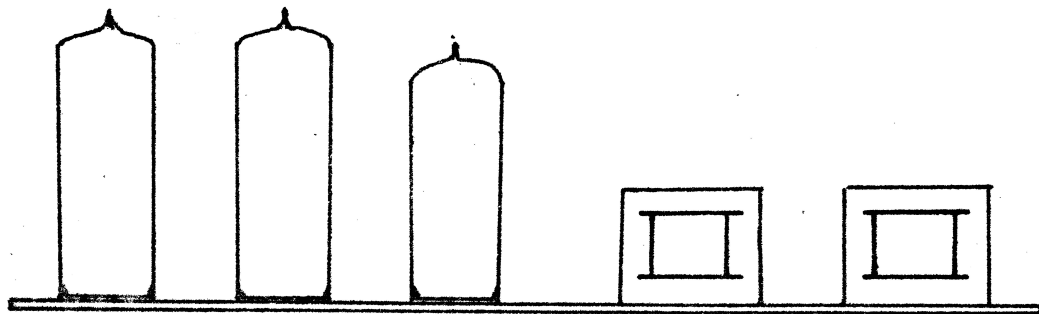
CABINET BASE SECTION

RED	330/221-5
BLACK SILVER	330/221-6
TAN	330/221-7
BLUE	330/221-8

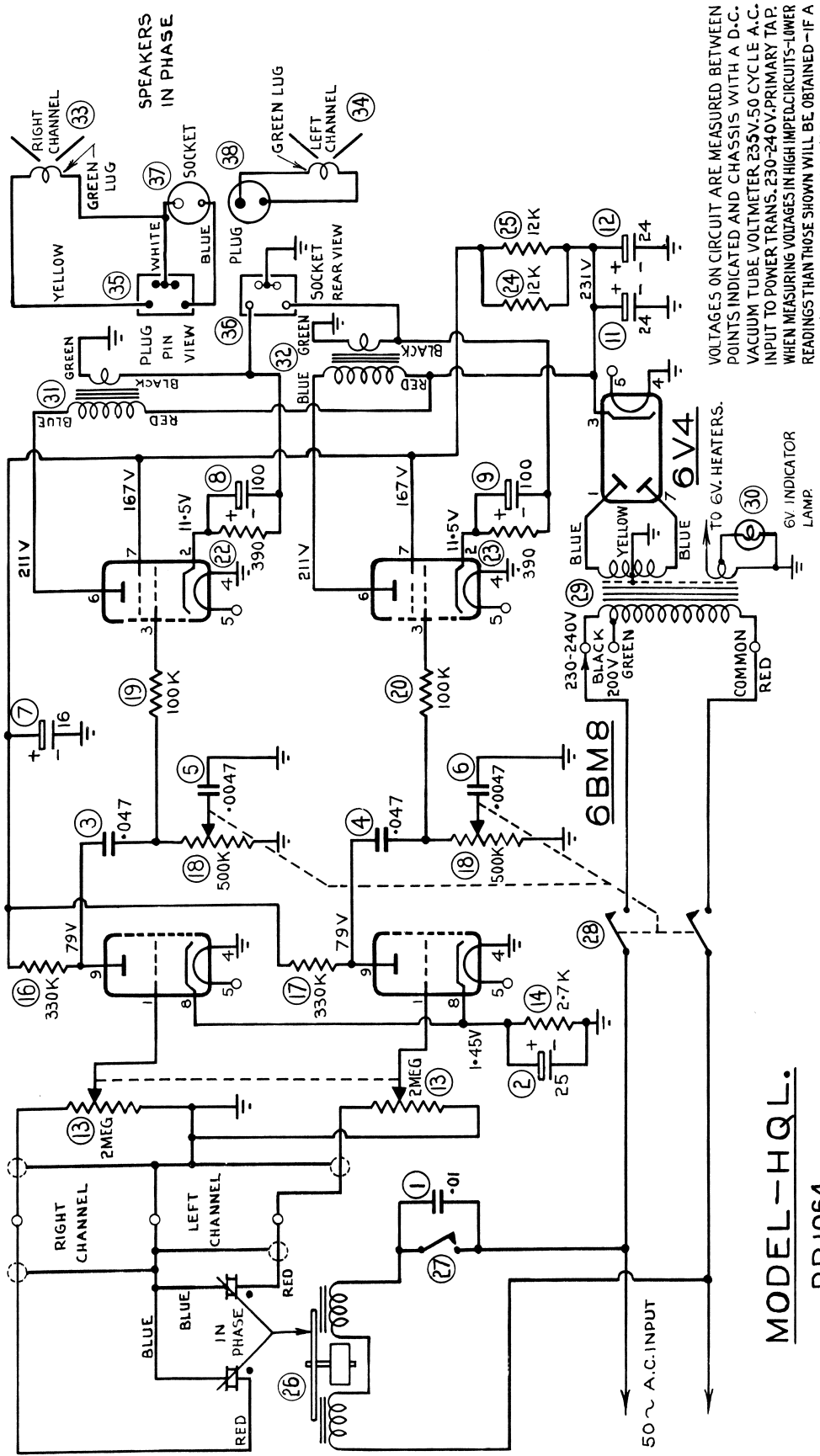
CABINET HARDWARE

Bracket (2) wall mounting of speakers	7/861
Cord storage bollard (4)	769/250
Toggle action catch (2)	A113/853-1
Catch plate (2)	24/853-1
Scratch plate (2) catch	22/845
Hinge (4)	765/250
Plaque - ASTOR STEREOPHONIC	762/250
Cabinet foot (12) nylon	718/81
Heat reflector	1/861
Screw (28) cab. foot mt. and hinge mt. - 5/16" x No.8 Rd. Hd.	44/560-19
Screw (8) toggle catch mt. - $\frac{3}{8}$ " x No.4 Rd. Hd.	44/560-17
Screw (4) wall mt. bracket - 5/16 x No.4 Rd. Hd.	44/560-21
Screw (4) fastens handle pivots - $\frac{3}{8}$ " x 5/32" Whit. Rd. Hd.	13/560-31

6BM8 6BM8 6V4



6BM8



MODEL-HQL PB1064

VOLTAGES ON CIRCUIT ARE MEASURED BETWEEN POINTS INDICATED AND CHASSIS WITH A D.C. VACUUM TUBE VOLTMETER 235V-50 CYCLE A.C. INPUT TO POWER TRANS. 230-240V-PRIMARY TAP. WHEN MEASURING VOLTAGES IN HIGH IMPEDANCE CIRCUITS-LOWER READINGS THAN THOSE SHOWN WILL BE OBTAINED-IF A VT.VM. IS NOT USED-DEPENDING ON THE RESISTANCE OF THE METER USED EG. 1000Ω/VOLT OR 20,000Ω/VOLT.