



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

## TECHNICAL BULLETIN

File: Receivers AC.

Bulletin: HNQ-1.

Date: 30-10-52.

1.

## MANTEL MODEL "HNQ"

4 Valve Superheterodyne Broadcast Receiver.

For operation from:—

200-250 Volt 50 Cycle AC. Supply Mains.

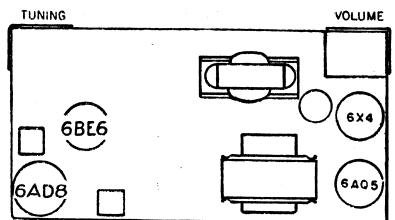
Power Consumption 40 Watts (approx.)

Tuning Range:—

535-1640 Kc/s. : 560.7-182.9 Metres

This Bulletin contains:—

1. Alignment Instructions.
2. Circuit Diagram.
3. Component Parts List.
4. Connections for IF. Transformers.



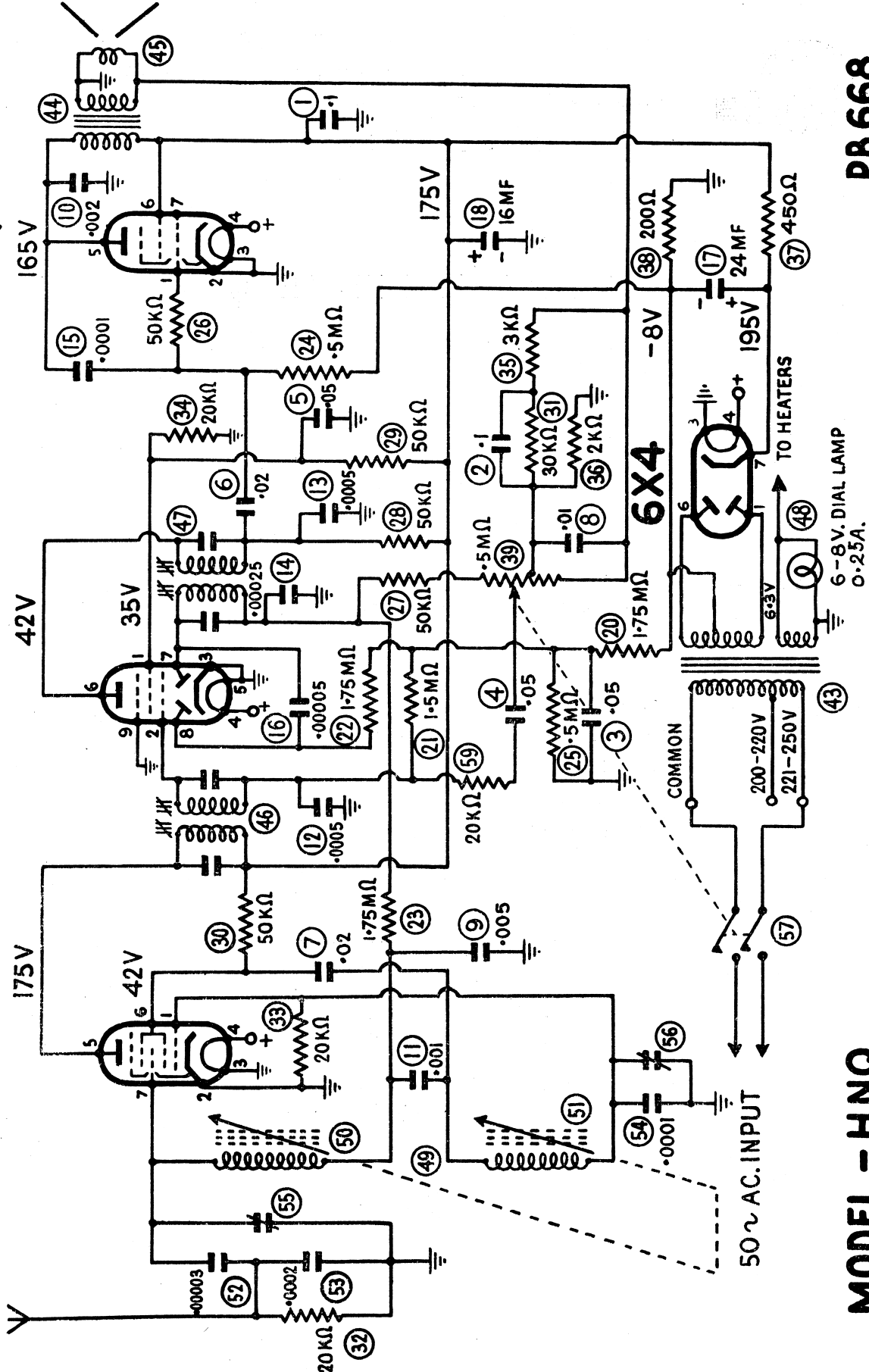
933/279

VALVE PLACEMENT DIAGRAM

6BE6

6AD8

6AQ5



MODEL - HNQ

PB 668

IF. 455 K c/s VOLTAGES MEASURED WITH A 1000Ω/VOLT VOLTMETER

## ALIGNMENT PROCEDURE

### EQUIPMENT

### ALIGNMENT CONDITIONS

Signal Generator:	Load Impedance : 5,500 ohms
Output Meter:	Output Level : 50 Milliwatts
Mica Capacitor : 0.01MF (for I.F. trans. alignment)	Vol. Control : Max. Vol. fully clockwise.
Dummy Antenna : 200MMF. Mica Capacitor	Intermed. Freq.: 455 Kc/s.
Alignment Tools : Type M195 and PM581.	Input Voltage : 230 Volts 50 Cycle AC. input to trans. 221-250 volt pri. tap.

Dummy Antenna: The 200MMF. dummy antenna must not be connected to the free end of the 25 ft. antenna during alignment, but must be connected to the antenna junction lug on the chassis. It is not necessary to have the 25 ft. antenna connected to the receiver during alignment, if it is connected it should be rolled up into a small hank.

Opera- tion No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.				To remove chassis from cabinet, prise off push on knob from vol. control spindle and centre knob from dial reading. Remove dial reading by unscrewing three screws in metal disc in centre of dial. Remove cabinet back and then, from beneath cabinet, the screws which fasten cabinet to chassis.
2.				To represent the pointer on the cabinet, connect a piece of stiff wire to the chassis and fashion it into position so that the wire is perpendicular to the centre of the perm. tuner dial shaft.
3.				Turn perm. tuner dial spindle fully anti-clockwise, then fit dial reading so that centre of end of travel spot on H.F. end of dial reading aligns with centre of wire pointer.
4.	To control grid of 6AD8 valve (pin No. 2)	455 Kc/s.	0.01MF Mica capacitor in series with generator.	Leave grid wire attached to valve socket. Peak 2nd I.F. trans. pri. and sec. for max. output.
5.	To control grid of 6BE6 valve (pin No. 7)	455 Kc/s.	0.01MF Mica capacitor in series with generator.	Turn dial and perm. tuner fully anti-clockwise. Leave grid wire attached to valve socket. Peak 1st I.F. trans. pri. and sec. for max. output.
6.				Repeat operations Nos. 4 and 5.
7.	To antenna junction lug on chassis	1000 Kc/s.	200MMF Mica capacitor in series with generator.	Turn perm. tuner and dial until centre of 1000 Kc/s. spot on dial aligns with centre of wire pointer. Peak oscl. coil trim. cond. then peak antenna trans. trim. cond. for max. output. Re-peak oscl. coil trim. cond.
8.				Check logging at each end of the dial.

4.

9. Remove dial reading and wire pointer attached to chassis; then refit chassis to cabinet. Turn perm. tuner and dial spindle fully anti-clockwise. Refit dial reading so that centre of end of travel spot on H.F. end of dial aligns with centre of pointer mark on cabinet.
10. Check logging at each end of the dial. Tuning range after alignment 535-1640 Kc/s.

NOTE: Both iron cores are pre-set at the factory to an exact dimension of 2.275" between the extreme end of the former protruding through the rubber grommet, and the end of the iron core in the former, when the unit is turned fully anti-clockwise and is hard against the stop.

If incorrect logging and mis-alignment are to be avoided, no adjustment of the iron cores must be made to vary this dimension. Both iron cores must have the same colour identification spot on the screw end of the iron core.

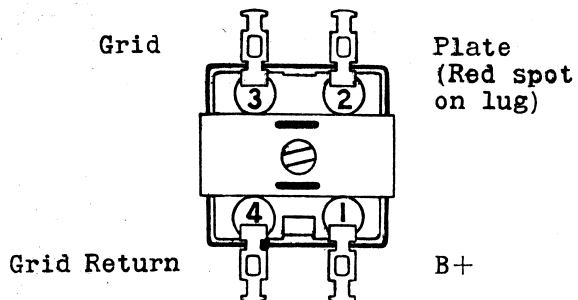
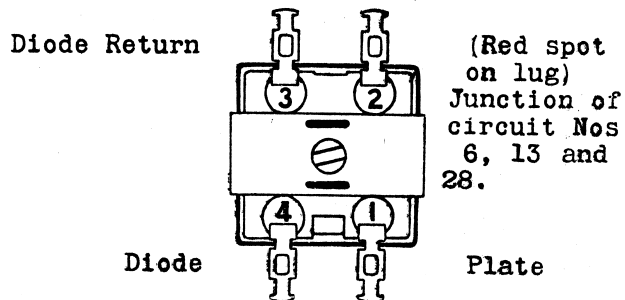
Circuit No.	Description	Tol. ±	Rating	Part No.
1.	.1MF Paper Condenser	20%	400V DCW	PC103
2.	.1MF " "	20%	200V DCW	PC218
3.	.05MF " "	20%	200V DCW	PC102
4.	.05MF " "	20%	200V DCW	PC102
5.	.05MF " "	20%	400V DCW	PC109
6.	.02MF " "	20%	400V DCW	PC111
7.	.02MF " "	20%	400V DCW	PC111
8.	.01MF " "	20%	600V DCW	PC140
9.	.005MF " "	10%	600V DCW	PC700
10.	.002MF " "	20%	600V DCW	PC112
11.	.001MF Mica Condenser	10%	1000 VT	PC108
12.	.0005MF " "	10%	1000 VT	PC144
13.	.0005MF " "	10%	1000 VT	PC144
14.	.00025MF " "	10%	1000 VT	PC126
15.	.0001MF " "	10%	1000 VT	PC571
16.	.00005MF " "	10%	1000 VT	PC141
71.	16MF Electrolytic Condenser	20%	350 PV	PC283
18.	24MF " "	20%	350 PV	PC276
19.				
20.	1.75 Megohm Carbon Resistor	10%	1/2 W	PR248
21.	1.5 " " "	10%	1/2 W	PR388
22.	1.75 " " "	10%	1/2 W	PR248
23.	1.75 " " "	10%	1/2 W	PR248
24.	.5 " " "	10%	1/2 W	PR245
25.	.5 " " "	10%	1/2 W	PR245
26.	50,000 ohm " " "	10%	1/2 W	PR160
27.	50,000 " " "	10%	1/2 W	PR160
28.	50,000 " " "	5%	1 W	PR541
29.	50,000 " " "	10%	1 W	PR115
30.	50,000 " " "	10%	1 W	PR115
31.	30,000 " " "	10%	1/2 W	PR151
32.	20,000 " " "	10%	1/2 W	PR166
33.	20,000 " " "	10%	1/2 W	PR166
34.	20,000 " " "	10%	1/2 W	PR166
35.	3,000 " " "	10%	1/2 W	PR185

Circuit No.	Description	Tol. ±	Rating	Part No.
36.	2,000 " " "	10%	$\frac{1}{2}$ W	PR253
37.	450 Ohm Wire Wound	10%	1 W	PR615
38.	200 " " "	10%	$\frac{1}{2}$ W	PR176
39.	.5 Megohm Carbon Pot. tapped at 40 K.ohms DP.ST. switch attached			
40.				
41.				
42.				
43.	Power trans. 200-250V. 50 cycle operation			PT938
43.	Power Trans. 200-260V. 40 cycle operation			PT939
44.	Speaker Input Trans. 5,500-3.7 ohms Imped. Code No. EDB64			PT930
45.	5" Permag. Speaker type 5C			K124
46.	I.F. Trans. 455 Kc/s.			PT869
47.	I.F. Trans. 455 Kc/s.			PT869
48.	6.3V. 0.3 Amp. Dial Lamp Min. screw base G3 $\frac{1}{2}$ bulb			M236
49.	Perm. Tuning Unit complete assy.			PT959
	Consists of:—			
50.	Aerial Coil - less iron core			PT960
	Iron core			11/766
51.	Osc. Coil - less iron core			PT961
	Iron core			11/766
52.	.00003MF Silvered Mica Cond.	5%	500V DCW	PC879
53.	.0002MF " " "	5%	500V DCW	PC877
54.	.0001MF " " "	5%	500V DCW	PC878
55.	3-50MMF Trimmer Cond.			PC843
56.	3-50MMF Trimmer Cond.			PC843
57.	Mains ON/OFF Switch - part of vol. control circuit No. 39			
58.				
59.	20,000 ohm Carbon Resistor	10%	$\frac{1}{2}$ W	PR166

	Part No.		Part No.
Dial Reading - N.S.W.	3/784-2	Cabinet Back	8/755
Dial Reading - Vic., N.S.W.	3/784-3	Antenna Wire	WM195
Dial Reading - Q'ld.	3/784-4	Valve Shield	38/635
Dial Reading - S.A., W.A.	3/784-5	Vol. Con. Knob - cream	216/81
Dial Centre Knob	27/755	Vol. Knob Clip	22/755
Dial Knob Clip	22/755		
Valve Socket - 9-pin	279/250	Valve Socket - 7-pin	A104/58
Speaker Clips	20/698	I.F.T. Mount Clips	7/670
Term. Strip 3-lug	A560/30C	Term. Strip 5-lug	A150/30C
Rubber Grommet on power cord	40/30C		
Screw (2) $\frac{1}{2}$ " x $\frac{5}{32}$ " CSK.HD. WHIT. Chassis to cabinet mount			17/560-10
Washer (2) on chassis to cab. scrwes			11/36-4
Dial Lamp Socket Assy.			A105/661
Screw (3) for fastening metal disc and dial to bush $\frac{1}{4}$ " x $\frac{3}{32}$ " Whit.			5/560-4
Metal Disc for clamping centre of dial to bush			30/755
Dial Mount Bush on perm. tuner dial shaft			29/755

## CABINET PART NUMBERS

Walnut	176/81-8	Sea Green	176/81-7
Mottled Green	176/81-6	Blue	176/81-5
Maroon	176/81-4	Green	176/81-3
Cream	176/81-2	Walnut - cream front	176/81-1

**No. 1 IF. TRANS.****No. 2 IF. TRANS.****ANTENNA TRANS.**

Start of winding - furthest from mounting end - AVC.  
 Finish of winding - nearest to mounting end - Signal grid.

**OSCL. COIL**

Start of winding - furthest from mounting end - Junction of circuit Nos. 7 and 11.  
 Finish of winding - nearest to mounting end - Oscl. grid.