



RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

TECHNICAL BULLETIN

Bulletin: GPM-1.

File: Receivers AC.

Date: 22-9-55.

Page 1.

MANTEL MODEL "GPM"

5 VALVE SUPERHETERODYNE BROADCAST RECEIVER

FOR OPERATION FROM:

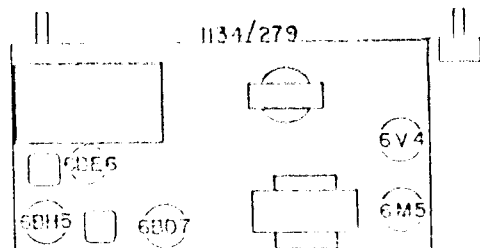
200-250 Volt 50 Cycle A.C. Supply Mains.
Power Consumption 40 Watts (approx.).

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 Transformers.
5. Dial Drive Cording Diagram.
6. Valve Placement Diagram.
7. Chassis Serial Number.
8. Instructions for Removing Chassis from Cabinet.
9. Instructions for Changing Mains Voltage Tap.



ALIGNMENT PROCEDURE

EQUIPMENT

Signal Generator:
 Output Meter:
 Mica Capacitor: 0.01MF (for trans. alignment).
 Dummy Antenna: 200 MMF. Mica Capacitor.
 Alignment Tool: Type M195.

ALIGNMENT CONDITIONS

Load Impedance: 7,000 ohms.
 Output Level: 50 Milliwatts.
 Vol. Control: Max. Vol. fully clockwise.
 Intermed. Freq.: 455 Kc's.
 Input Voltage: 230 Volts 50 Cycle A.C. input to
 trans.
 221-250 volt pri. tap.

DUMMY ANTENNA:

The 200 MMF. dummy antenna must not be connected to the free end of the 25 ft. antenna during alignment. The 200 MMF. dummy antenna 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 bank. Should a plate antenna be fitted into the rear section of the cabinet in addition to the 25 ft. antenna, the lead from the plate antenna must be disconnected from the antenna junction lug on the chassis during alignment.

I.F. TRANS. ALIGNMENT:

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.				Unscrew and remove four screws from rear of cabinet then prise rear section of cabinet away from front section. If a plate antenna is fitted, disconnect the lead from the antenna at the antenna junction lug on the chassis.
2.	To signal grid of 6BH5 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.
3.	To signal grid of 6BE6 valve (pin No. 7).	455 Kc's.	0.01MF mica capacitor in series with generator	Leave grid wire attached to valve socket. Turn perm. tuner so that iron cores are fully out of winding on coil formers. Peak 1st I.F. trans. pri. and sec. for max. output.
4.				Repeat operations Nos. 2 and 3.

B/CAST BAND ALIGNMENT:

1.				Place receiver chassis on its back so that front section of cabinet is uppermost.
2.				Remove two push-on type control knobs by pulling them straight up off the spindles.
3.				Remove dial reading by unscrewing four hex. head chrome plated screws and washers fastening dial to cabinet.
4.				Remove two Csk. head screws and washers fastening base of front section of cabinet to chassis.
5.				Lift front section of cabinet up and over top of chassis. The dial pointer will slide through slot in front of cabinet. The cabinet with speaker attached is to rest against chassis end rear brackets.

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
6.				Fit control knobs then set the dial up so that it rests between control spindles and edge of cabinet, dial pointer in front of dial.
7.	Dial Pointer Setting			Move dial reading until control spindles are central with spindle holes in moulded skirts of dial reading. Turn tuning control knob anti-clockwise until perm. tuner iron cores are out of windings on coil formers and the unit is hard against the stop. Set dial pointer on end of travel spot on dial reading near 1700 Kc/s.
8.	To antenna junction lug on chassis	1000 Kc/s.	200 MMF mica capacitor in series with generator	Turn perm. tuner until centre of dial pointer aligns with centre of spot on dial reading at 1000 Kc/s. Peak oscl. coil trimmer condenser then peak antenna trans. trim. cond. for max. output. Repeak oscl. coil trim cond.
9.	Tuning range after alignment 535 — 1640 Kc/s.			
10.	Check logging at each end of the band then refit chassis to cabinet.			

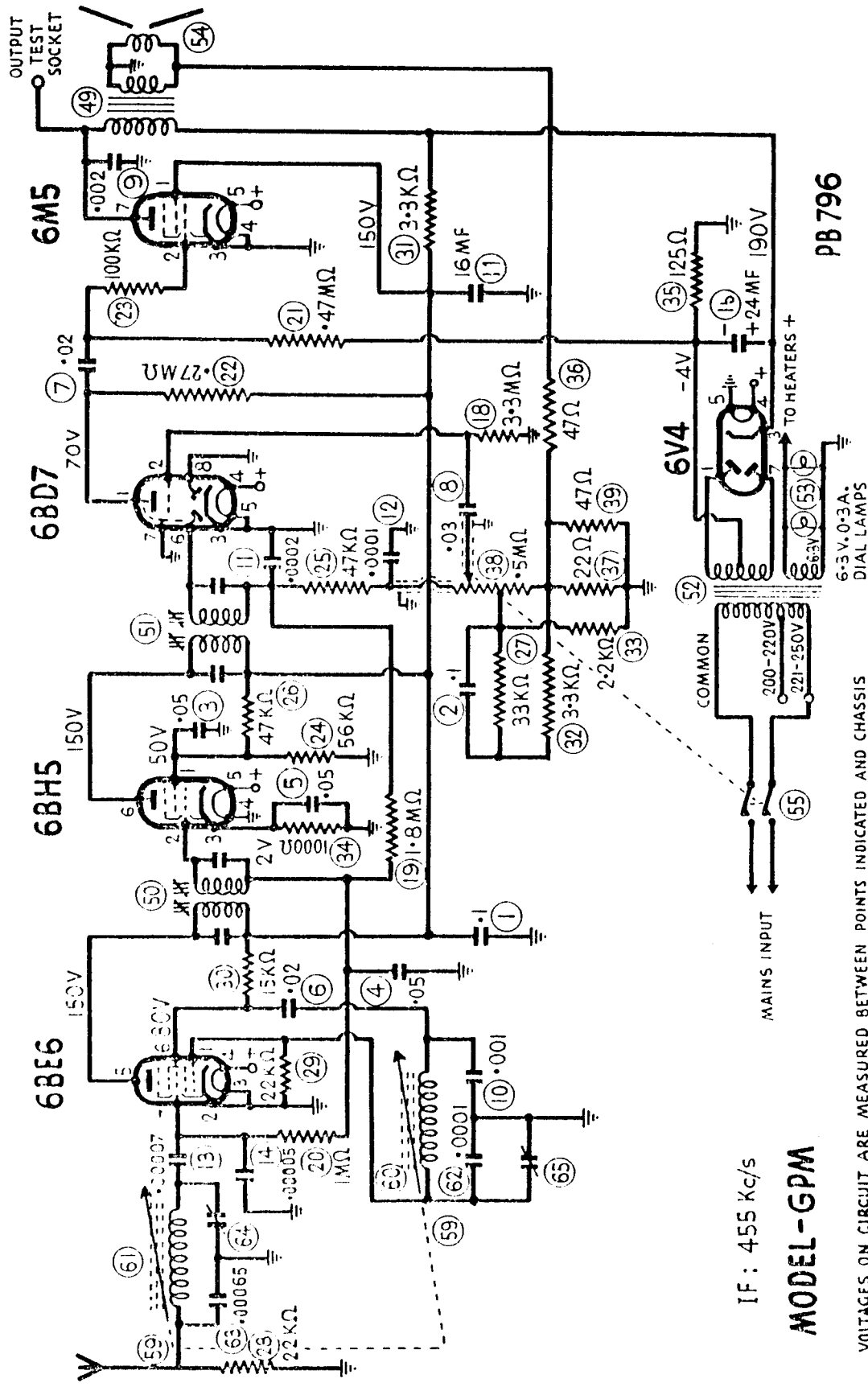
NOTE: Both iron cores are pre-set at the factory to an exact dimension of 2.275" between the extreme end of the former protruding through the rubber grommet, and the end of the iron cores in the former, when the perm. tuner unit spindle is turned fully anti-clockwise and is hard against the stop. If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

INSTRUCTIONS FOR REMOVING CHASSIS FROM CABINET

1. Unscrew and remove four screws from rear of cabinet then prise rear section of cabinet away from front section.
2. Unsolder lead attached to plate aerial if a plate aerial is fitted inside the top of the cabinet.
3. Remove two push-on knobs from control spindles by pulling them straight off the spindles.
4. Unscrew and remove four hex. head chrome plated screws and washers fastening dial to cabinet.
5. Unsolder speaker and dial lamp leads from terminal strip on top of chassis.
6. Unscrew and remove two Csk. head screws and washers from beneath front section of cabinet.
7. Withdraw chassis from cabinet so that dial pointer slides through long slot in cabinet.

CHASSIS SERIAL NUMBER

The chassis serial number is stamped into the rear edge of the metal chassis. When viewing the receiver from the rear it is visible through the lower slot in the cabinet back at the left or by removing the four screws in the cabinet back. It may be prised away from the front section.



PB 796

IF: 455 Kc/s

MODEL-GPM

VOLTAGES ON CIRCUIT ARE MEASURED BETWEEN POINTS INDICATED AND CHASSIS WITH A DC. VACUUM TUBE VOLTMETER 230V. 50 CYCLE AC INPUT TO POWER TRANS. 221-250V. PRI. TAP. WHEN MEASURING VOLTAGES IN HIGH IMPED. CIRCUITS LOWER READINGS THAN THOSE SHOWN WILL BE OBTAINED - IF A VTVM. IS NOT USED DEPENDING ON THE RESISTANCE OF THE METER. EG: 1000Ω/VOLT OR 20000Ω/VOLT

Circuit No.	Description	Tol.	± Rating	Part No.
1.	.1 MF Paper condenser	20%	400V DCW	PC103
2.	.1 MF ,, ,,	20%	200V DCW	PC218
3.	.05 MF ,, ,,	20%	400V DCW	PC109
4.	.05 MF ,, ,,	20%	200V DCW	PC102
5.	.05 MF ,, ,,	20%	200V DCW	PC102
6.	.02 MF ,, ,,	20%	400V DCW	PC111
7.	.02 MF ,, ,,	20%	400V DCW	PC111
8.	.03 MF ,, ,,	20%	200V DCW	PC303
9.	.002 MF ,, ,,	20%	600V DCW	PC112
10.	.001 MF Mica condenser	10%	1000 VT	PC108
11.	.0002 MF ,, ,,	10%	1000 VT	PC124
12.	.0001 MF ,, ,,	10%	1000 VT	PC110
13.	.00007 MF Silvered Mica	5%	500V DCW	PC968
14.	.00005 MF ,, ,,	5%	500V DCW	PC967
15.				
16.	24 MF Electrolytic condenser	20%	350 FV	PC276
17.	16 MF ,, ,,	20%	350 FV	PC283
18.	3.3 megohm carbon resistor	15%	½ W.	R3353
19.	1.8 megohm ,, ,,	10%	½ W.	R1852
20.	1 megohm ,, ,,	15%	½ W.	R1053
21.	.47 megohm ,, ,,	15%	½ W.	R4743
22.	.27 megohm ,, ,,	10%	½ W.	R2742
23.	100,000 ohm ,, ,,	15%	½ W.	R1043
24.	56,000 ohm ,, ,,	10%	½ W.	R5632
25.	47,000 ohm ,, ,,	10%	½ W.	R4732
26.	47,000 ohm ,, ,,	10%	½ W.	R4732
27.	33,000 ohm ,, ,,	15%	½ W.	R3333
28.	22,000 ohm ,, ,,	15%	½ W.	R2233
29.	22,000 ohm ,, ,,	10%	½ W.	R2232
30.	15,000 ohm ,, ,,	10%	1 W.	Z1532
31.	3,300 ohm ,, ,,	10%	1 W.	Z3322
32.	3,300 ohm ,, ,,	15%	½ W.	R3323
33.	2,200 ohm ,, ,,	15%	½ W.	R2223
34.	1,000 ohm ,, ,,	10%	½ W.	R1022
35.	125 ohm wire wound resistor	10%	½ W.	PR739
36.	47 ohm ,, ,, ,,	10%	½ W.	PR853
37.	22 ohm ,, ,, ,,	10%	½ W.	PR733
38.	.5 megohm carbon potentiometer tapped at 40 K. ohms DP. ST. switch attached			FR848
39.	47 ohm carbon resistor	10%	½ W.	FR853
49.	Speaker input transformer 7,000 - 3.5 ohms imp. Code No. EBG96			FT964
50.	I.F. Transformer 455 Kc/s.			FT869
51.	I.F. Transformer 455 Kc/s.			FT869
52.	Power transformer 200-250 volt 50 cycle ,, ,, 200-260 volt 40 cycle			PT938
				PT939
53.	Dial lamp 6.3V. 0.3A. min. screw base G3½ bulb			M236
54.	5" dia. permag. speaker type 5C. cone No. F87			K196
55.	On/off switch, part of vol. control circuit No. 38-			
59.	Permeability tuning unit - complete consists of:-			L140
60.	Oscillator coil (less iron core)			PT961
	,, ,, iron core - white spot			11/766-1
	,, ,, iron core - blue spot			11/766-2
61.	Aerial coil (less iron core)			PT960
	,, ,, iron core - white spot			11/766-1
	,, ,, iron core - blue spot			11/766-2

6.

62.	.0001 MF silvered mica condenser	5%	500V DCW	PC878
63.	.00065 MF ,, ,, ,,	5%	500V DCW	PC926
64.	3-55 MMF trimmer condenser			PC899
65.	3-55 MMF ,, ,, ,,			PC899

Terminal Strip - 3 lug	A555/30C	Dial Drum	41/785
,, ,, - 5 ,,	A567/30C	Dial Drum Bush	56/678-1
,, ,, - 8 ,,	A150/30C	Dial Lamp Socket (2)	A570/30C
,, ,, - 4 ,,	A560/30C	Light Shield	24/698
,, ,, - 2 ,,	A557/30C	Dial Cord Pulley	23/71
,, ,, - 2 ,,	A556/30C	Pulley Stud	18/87-4
Tuning Spindle		Stud Spacer	21/218A-3
Spindle Bush	972/495	Speaker Gasket	50/755
9 Pin Socket	279/250	Speed Nut (3)	304/250
9 Pin Socket Mt. Plate	33/698	Dial Reading	293/81
7 Pin Socket	A104/58	Spkr-Cab. silk 7" x 5½"	GX396
IF. Trans Mt. Clip	7/670	Aerial Wire 25 ft. hank	PA510
Plastic Bag-cab.	56/755	Knob Spring Clip	22/755
Dial Surround.-		Long Spacer-	
Section of cabinet into		rear of speaker to cab	58/755
which dial fits	266/81		
Cabinet Front - Dial mt. Screws (4) chrome			39/755
,, ,, - ,, ,, ,, washers - chrome			63/30C-12
Dial - ASTOR - scroll name - gold			498/30C-16
Screw-chassis to cab. mt. (2) ½" x 5/32" Whit. Csk. Hd.			17/560-10
Washer- ,, ,, ,, ,, (3)			19/648
Screw- ,, ,, ,, ,, (3)			35/560-44

CABINET STYLING

	Brown	Maroon	Pale Blue	Red	Ivory	Powder Blue
Cab. Front	267/81-1	267/81-2	267/81-3	267/81-4	267/81-5	267/81-6
Cab. Back	268/81-1	268/81-2	268/81-3	268/81-4	268/81-5	268/81-6
Knob	58/785-5	58/785-2	58/785-3	58/785-4	58/785-1	58/785-6
	Fawn	Light Grey	Green			
Cab. Front	267/81-7	267/81-8	267/81-9			
Cab. Back	268/81-7	268/81-8	268/81-9			
Knob	58/785-7	58/785-8	58/785-9			

INSTRUCTIONS FOR CHANGING MAINS VOLTAGE INPUT TAP FOR 200-220 VOLT OPERATION

MAINS VOLTAGE: The mains voltage adjustment tap should be adjusted as follows:--

For any A.C. voltage between 200V. and 220V. on the 200-220V. tap and for any A.C. voltage between 221V. and 250V. on the 221-250V. tap.

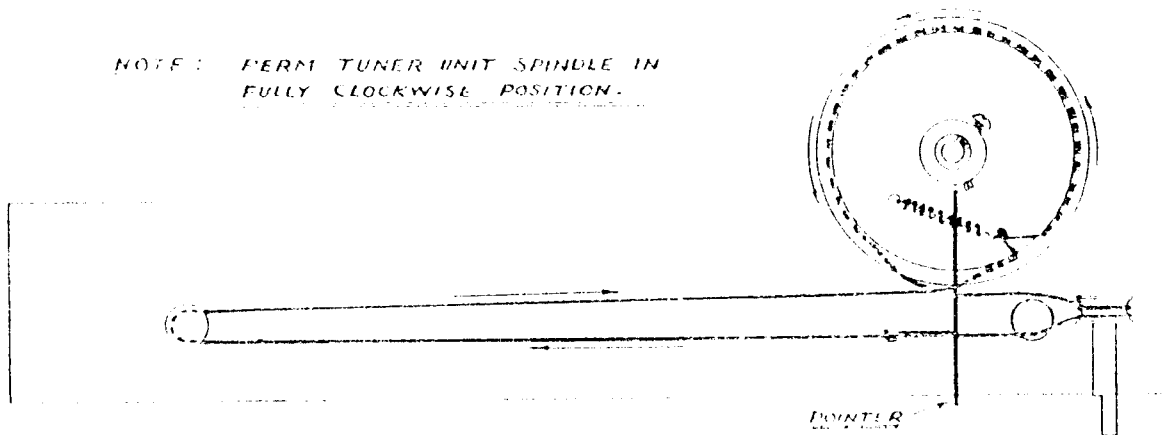
- A. The receiver chassis does not have to be removed from the cabinet for this adjustment.
- B. Switch the receiver off and DISCONNECT THE RECEIVER MAINS LEAD PLUG FROM THE POWER POINT SOCKET.
- C. Unscrew and remove the four screws from the rear section of the cabinet.
- D. Prise rear section of cabinet away from front section.
- E. The transformer primary mains tap terminal strip is located beneath right hand end of the chassis.
- F. The lead from the volume control switch which is attached to the 221-250 volt tap is to be unsoldered and then resoldered to the tap terminal marked 200-221 volt.

CORDING OF DIAL DRIVE

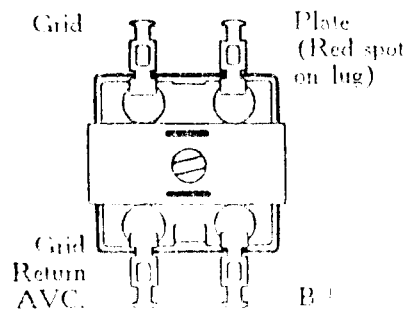
Length of cord required is 5 ft., which includes about 8 ins. to spare for tying to tension spring.

Cord part No.	34/754
Spring part No.	508/300
Dial Pointer part No.	A116/755

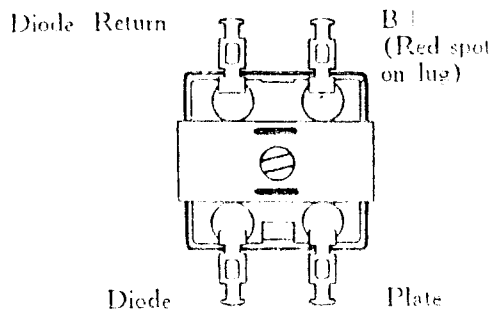
NOTE: FERM TUNER UNIT SPINDLE IN FULLY CLOCKWISE POSITION.



No. 1 IF. TRANS.



No. 2 IF. TRANS.



ANTENNA TRANS.

Start of winding — furthest from mounting end — Antenna.
 Finish of winding — nearest to mounting end — Grid.

OSCL. COIL

Start of winding -- furthest from mounting end -- Junction of circuit Nos. 6 and 10.
 Finish of winding -- nearest to mounting end -- Osci. grid.

POWER TRANS. (P1938) 50 cycle

Pri. red lead --- common
 .. green lead --- 200-220V.
 .. black lead --- 221-250V.

HT. Sec.

blue lead start
 yellow lead - centre tap
 blue lead --- finish

LT. Sec. (two windings in parallel)

start and finish
 in winding wire

POWER TRANS. (P1939) 40 cycle

Pri. red lead --- common
 .. green lead --- 220-250V.
 .. black lead --- 251-260V.

HT. Sec.

Yellow lead start
 blue lead centre tap
 yellow lead --- finish

LT. Sec. (two windings in parallel)

start and finish
 in winding wire

CIRCUIT MODIFICATIONS

- A. Circuit No. 36 a 50 Ohm. resistor part No. PR280 changed to preferred number value resistor 47 Ohms part No. PR853.
- B. Circuit No. 37 a 25 Ohm. resistor part No. PR281 changed to preferred number value resistor 22 Ohms part No. PR733.
- C. Circuit No. 39 a 47 Ohm. or a 50 Ohm. resistor added in parallel with circuit No. 37 to eliminate low volume flutter.
- D. Plate antenna part No. PA511 added to inside of top of rear section of cabinet for additional signal pick-up.