



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN: MM-1.

File: Receivers

Portable

Date: 1/11/50.

Page 1.

SUBJECT-

MODEL "MM".

4 Tube Superheterodyne Universal Portable Receiver.

For operation from:

195-260 Volt 40-60 cycle A.C. electric supply mains  
195-260 Volt DC electric supply mains or  
7.5 volts "A" battery (five 1.5 volts batteries in series) and  
67.5 volts "B" Battery.

Power Consumption:

Battery operation :- 50Ma. "A" Battery  
10Ma. "B" Battery

A.C. operation :-100Ma. 230 volts 50 cycle A.C. input  
fly lead connected to 215-234 volt tap.

D.C. operation:-60Ma. 230 volts DC. input, fly lead  
connected to 215-234 volt tap.

Tuning Range:

535 to 1620 Kilocycles.

Power Output:

250 milliwatts (max.)  
100 milliwatts (undistorted).

This Bulletin contains:-

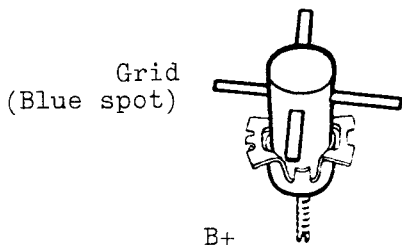
1. Technical Data.
2. Alignment Procedure.
3. Circuit Diagram.
4. Component Parts List.
5. I.F. and R.F. Transformer Connections.
6. Instructions for Changing Batteries.
7. Instructions for Changing Mains Voltage Tap Positions.
8. Instructions for Changing Dial Reading.

SUBJECT - CONNECTIONS FOR RF. AND IF. TRANSFORMERS.

LOOP ANTENNA

- 3 Turn pri. . . . . Outside turn to loading coil.  
Inside turn to ground.
- Secondary . . . . . Outside turn (next to pri.) to A.V.C.  
Inside turn to grid.

OSCL. COIL



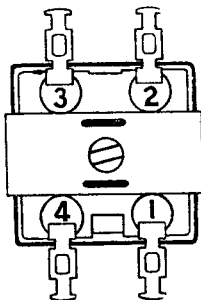
Junction of 1st IF. pri. and circuit No. 9 and 40.

Chassis

No. 1 I.F.T.

No. 2 I.F.T.

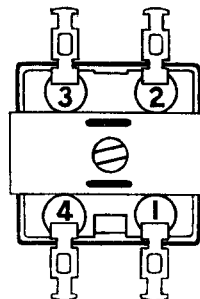
Grid Return



(Red spot on lug)  
Junction of oscl. coil, and circuit No. 9 and 40

Plate

Diode Return

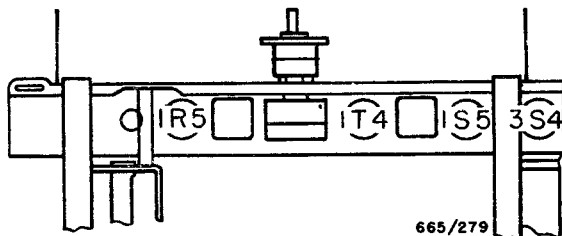


B+ (Red spot on lug)

Diode

Plate

Grid



665/279

VALVE PLACEMENT DIAGRAM MODEL "MM"

SUBJECT- ALIGNMENT INSTRUCTIONS - MODEL "MM".

<u>Equipment</u>	<u>Alignment Conditions</u>
Signal Generator :	Load Impedance : 5,000 ohms
Output Meter:	Output Level: 25 milliwatts
Mica Capacitor: 0.01 MFD (Part No. PCl45) for I.F.T. Alignment	Volume Control: Max. vol. (fully clockwise)
Dummy Antenna: 200MMFD. Mica capacitor	"A" Battery: 7.5 volts (five 1.5 volt batteries in series)
Alignment Tools: Part No. PM581 and M195	"B" Battery: 67.5 volts Intermediate Freq.: 455 Kc/s.

To remove chassis from cabinet. Turn vol. control switch off and from receiver remove AC. cord, cabinet base and "B" battery. Remove grub screw from under vol. control knob then pull knob upwards.

Remove dial reading by unscrewing several screws in centre of dial. Remove the screws, one at each end of handle also screws in top of cabinet. Unsolder two wires connected to loop antenna then remove bakelite expander strips from between chassis legs and withdraw chassis from cabinet. Remove loop antenna from cabinet and reconnect to receiver (grid lead to loop sec. inside turn, A.V.C. lead to loop sec. outside turn).

Fully mesh cond. gang plates and refit dial reading so that the centre screws are in the centre of the dial slots.

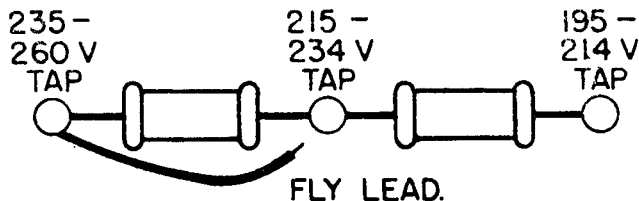
Fasten a piece of stiff wire to the chassis and fashion it into position to represent the pointer on the cabinet.

Operation No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To control grid of IT4 tube (pin No. 6)	455 Kc/s	0.01MFD mica capacitor in series with generator	Turn cond. gang plates fully out of mesh. Peak 2nd I.F. trans. pri. and sec. for max. output.
2.	To control grid of IR5 tube (Pin No. 6)	455 Kc/s	0.01MFD. mica capacitor in series with generator	Turn cond. gang plates fully out of mesh. Peak 1st I.F. trans. pri. and sec. for max. output.

SUBJECT-- INSTRUCTIONS FOR CHANGING MAINS VOLTAGE TAP POSITIONS  
- MODEL "MM".

Mains Voltage Adjustment : Disconnect receiver from mains power point and turn volume control switch off. Remove chassis from cabinet by removing cabinet base and disconnecting batteries. Remove grub screw from under volume control knob then pull the knob straight upward. Remove dial reading by unscrewing several screws in centre of dial. Remove the screws, one at each end of handle, also screws in top of cabinet. Unsolder two wires connected to loop aerial and remove bakelite expander strips from chassis legs. After adjusting mains voltage tap on side of chassis refit chassis in exactly the reverse procedure to removing it.

Mains Voltage Taps: To operate receiver on A.C. or D.C. mains voltages between 195 and 214 volts connect fly lead to 195-214 volt tap. Mains voltages between 215 and 234 volts connect fly lead to 215-235 volt tap, and for mains voltages between 235 and 260 volts connect fly lead to 235-260 volt tap which is the position that the fly lead starts from. The fly lead must be soldered to the voltage tap.

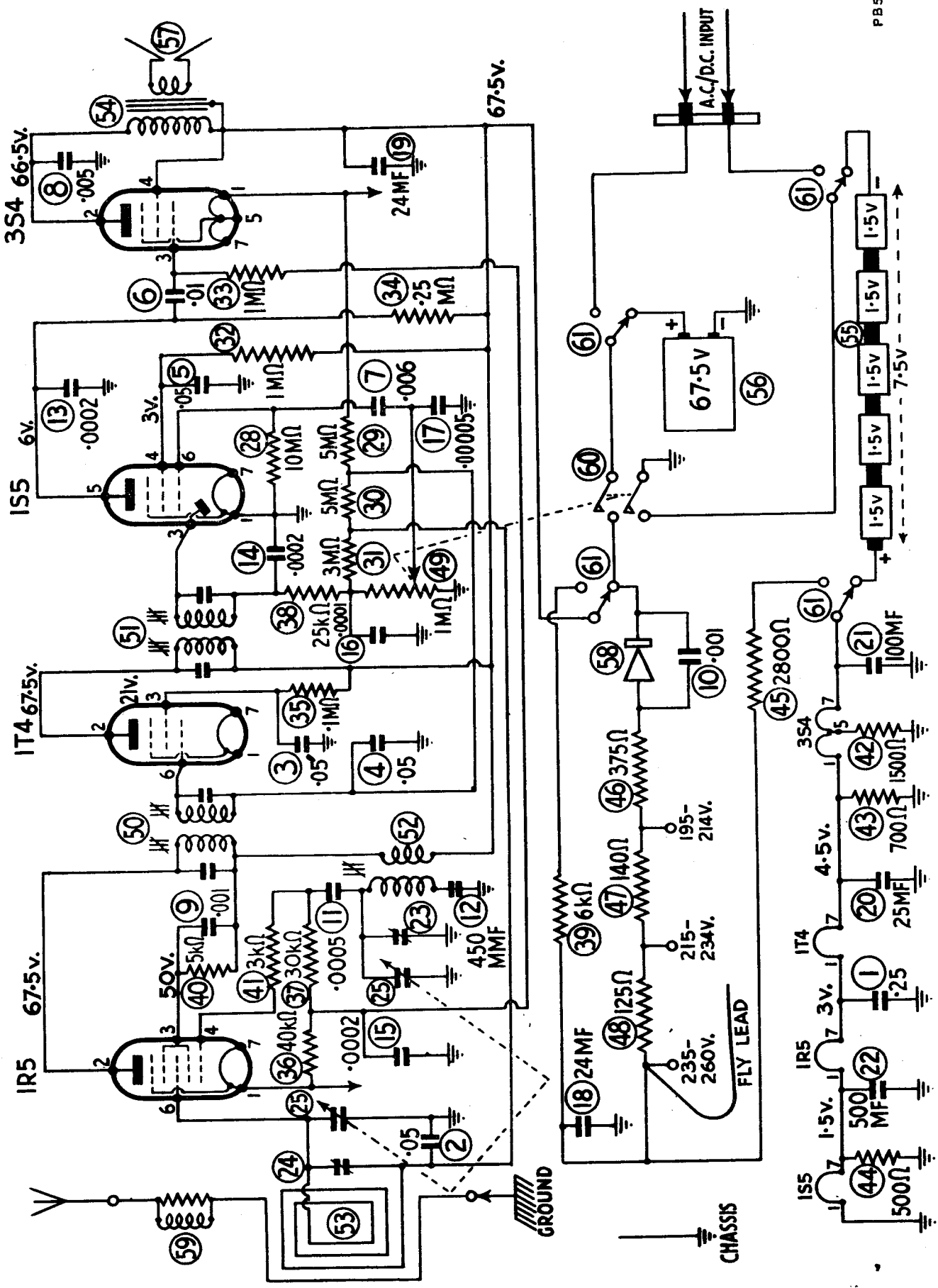


SUBJECT - INSTRUCTIONS FOR CHANGING DIAL READING - MODEL "MM".

A separate dial reading is available for each Australian State. These dial readings show the major stations for each State in large letters and other stations within a reasonable reception distance in smaller letters. To change the dial reading, disconnect the receiver from the mains and turn the volume control switch off. Remove the centre knob by removing small grub screw under the knob which will expose several small screws. Remove these screws, refit new dial reading, tighten the screws and then refit centre knob before connecting to the mains, make sure grub screw in the knob is securely tightened.

PB547

I.F. = 455 Kc/s VOLTAGES MEASURED WITH 1000 $\Omega$ /V. METER - BATT. OPERATION



STYLING LIST.ALL WALNUT CABINET.

Cabinet Ass'y - (all walnut) less handle	A121/81-1
Handle Ass'y. Complete - (all walnut)	A101/678-1
Cabinet Base Ass'y - (walnut) complete with clips	A108/678-1
Cabinet Base - base only	184/81-1
Knob - (walnut)	17/678-1

WALNUT - CREAM CABINET

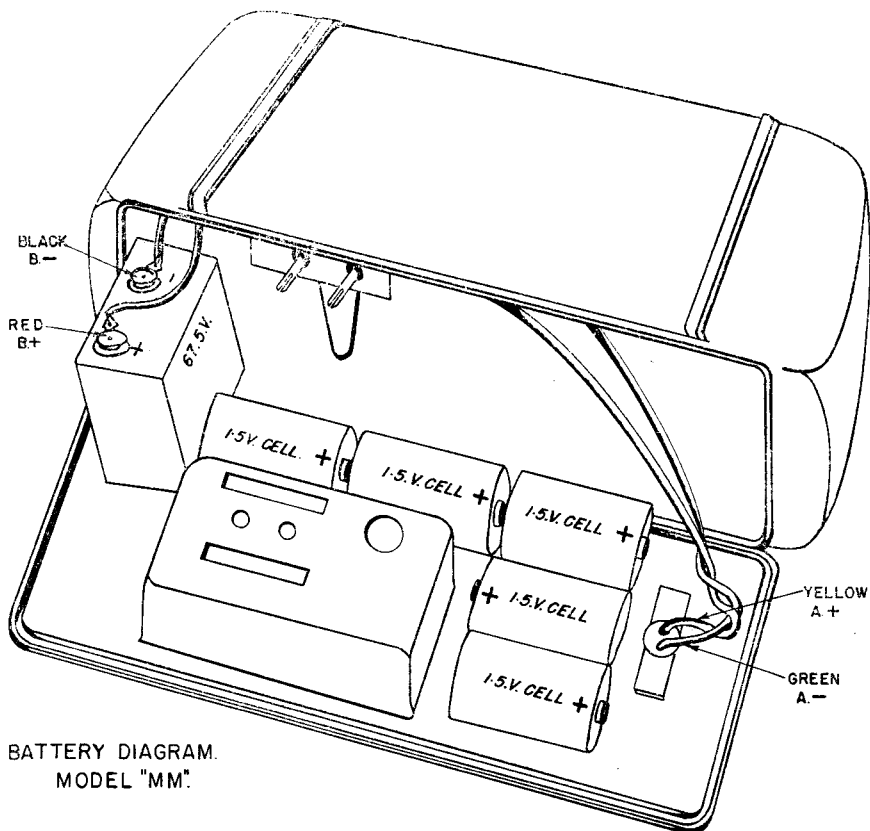
Cabinet Ass'y - (cream centre section) less handle	A121/81-2
Handle Ass'y. Complete-(cream inlay)	A101/678-2
Cabinet Base Ass'y-(walnut) complete with clips	A108/678-1
Cabinet Base-base only	184/81-1
Knob - (walnut)	17/678-1

MAROON-FAWN CABINET

Cabinet Ass'y-(fawn centre section) less handle	A121/81-3
Handle Ass'y Complete-(fawn only)	A101/678-3
Cabinet Base Ass'y-(Maroon) complete with clips	A108/678-2
Cabinet Base-base only	184/81-2
Knob-(maroon)	17/678-2

SUBJECT :- INSTRUCTIONS FOR CHANGING BATTERIES - MODEL "MM".

1. Make sure the receiver is switched off.
2. Lay the receiver, speaker grille downwards, receiver base towards the operator and the end of the receiver with aerial and earth sockets to the right.
3. Remove the power cord from its compartment in the receiver base. The plug on the receiver end of the cord is withdrawn by pulling it straight out.
4. Unscrew and withdraw four screws from around the outside edge of the receiver base which will allow the base to be prized off.
5. The five small 1.5 volt "A" batteries are removed by pulling them straight upwards. The 67.5 volt "B" battery has spring clips which can be prized off.
6. CAUTION : When refitting the new "A" batteries make sure the batteries are pressed firmly down into their spring clips and the positive centre terminal of the "A" batteries are fitted to the "cup" end of the spring clips - refer diagram.
7. Refit receiver base with the four screws and then fit 2 pin plug and power cord into its compartment.



SUBJECT- ALIGNMENT INSTRUCTIONS - MODEL "MM".

Operat- ion No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
3.				Fully mesh the cond. gang plates and set the end of the wire pointer to the end of travel spot on the dial reading near 540 Kc/s.
4.	To AVC end of loop (outside turn of sec.)	600 Kc/s.	200MMFD Mica capacitor in series with generator	Turn dial to 600 Kc/s dial spot and adjust oscl. coil inductance trimmer (iron core) for max. output. Rock the cond. gang to and fro through the signal while adjusting.
5.	To AVC end of loop (outside turn of sec.)	1400 Kc/s	200MMFD Mica capacitor in series with generator	Turn dial to 1400 Kc/s. dial spot and adjust oscl. coil. trim. condenser for logging and peak loop antenna trim condenser for max. output.
6.				Repeat operations Nos. 4 and 5.
7.				Remove wire pointer and dial reading from chassis. Disconnect loop antenna from chassis and refit loop to cabinet. Refit chassis to cabinet, reconnect loop antenna to receiver and refit dial reading. The slotted holes in the dial reading allow the dial to be moved either way to log the station on the dial to the pointer on the cabinet.
8.	To AVC end of loop (outside turn of sec.)	1400 Kc/s	200 MMFD. Mica capacitor in series with generator	Turn dial reading to 1400 Kc/s re-peak loop antenna trimmer condenser for max. output.
9.				Refit the carrying handle, the cabinet base and make sure the grub screw in the volume control knob is securely tightened.

Tuning range after alignment 535-1620 Kc/s.



SUBJECT - COMPONENT PARTS LIST - MODEL "MM".

Circuit No.	Description	Tol. ±	Rating	Part No.
1.	.25 MFD Paper Condenser	20%	200V.DCW.	PC146
2.	.05 MFD " "	20%	200V.DCW.	PC102
3.	.05 MFD " "	20%	200V.DCW.	PC102
4.	.05 MFD " "	20%	200V.DCW.	PC102
5.	.05 MFD " "	20%	200V.DCW.	PC102
6.	.01 MFD. " "	20%	400V.DCW.	PC140
7.	.006 MFD " "	20%	600V.DCW.	PC217
8.	.005 MFD " "	20%	600V.DCW.	PC252
9.	.001 MFD Mica " "	10%	1000VT.	PC108
10.	.001 MFD " "	10%	1000VT.	PC108
11.	.0005MFD " "	10%	1000VT.	PC144
12.	.00045MFD " "	2½%	1000VT.	PC727
13.	.0002MFD " "	10%	1000VT.	PC124
14.	.0002MFD " "	10%	1000VT.	PC124
15.	.0002MFD " "	10%	1000VT.	PC124
16.	.0001MFD " "	10%	1000VT.	PC110
17.	.00005MFD " "	10%	1000VT.	PC141
18.	24MFD Electrolytic Condenser	20%	350PV.	PC184
19.	24 MFD. " "	20%	350PV.	PC184
20.	25MFD. " "	20%	40PV.	PC318
21.	100MFD. " " Composite)	20%	12.PV.	PC807
22.	500MFD. " " type)	20%	12.PV.	
23.	0-30MMFD Trimmer Condenser (wire wound)			PC663
24.	1.5-18MMFD. Trimmer Condenser			PC250
25.	2 Gang Variable Condenser			PC842
26.				
27.				
28.	10 Megohm Carbon Resistor	10%	1 Watt	PR236
29.	5 " " "	10%	1 Watt	PR355
30.	5 " " "	10%	1 Watt	PR355
31.	3 " " "	10%	½ Watt	PR282
32.	1 " " "	10%	1 Watt	PR520
33.	1 " " "	10%	½ Watt	PR246
34.	.25 " " "	10%	1 Watt	PR496
35.	100000 ohm " "	10%	1 Watt	PR165
36.	40,000 ohm " "	10%	½ Watt	PR251
37.	30,000 ohm " "	10%	½ Watt	PR151
38.	25,000 ohm " "	10%	½ Watt	PR155
39.	6,000 ohm " "	10%	1 Watt	PR296
40.	5,000 ohm " "	10%	1 Watt	PR304
41.	3,000 ohm " "	10%	½ Watt	PR185
42.	1,500 ohm " "	10%	1 Watt	PR491
43.	700 ohm " "	10%	1 Watt	PR424
44.	500 ohm " "	10%	1 Watt	PR289
45.	2,800 ohm wire wound	5%	10 Watt	PR701
46.	375 ohm Wire Wound	5%	10 Watt	PR702
47.	140 ohm " "	5%	3 Watt	PR703
48.	125 ohm " "	5%	3 Watt	PR704

Circuit No.	Description	Tol. $\pm$	Rating	Part No.
49.	1 Megohm Carbon Potentiometer with a DP.ST. switch attached	20%		PR696
50.	I.F. Transformer			PT869
51.	I.F. Transformer			PT869
52.	Oscillator Coil.			PT860
53.	Loop Antenna			PT910
54.	Speaker Input Transformer 5,000-3.7 ohms Imped.		PT949	or PT919
55.	1.5 volt "A" Battery (5)			PM466
56.	67.5 volt "B" Battery			M101
57.	Permag. 5" Speaker			K124
58.	Metal Rectifier			M230
59.	Loading Coil-part of loop antenna circuit No. 53			PT942
60.	On/off switch on volume control - part of vol. control.			S170
61.	AC-DC Battery Change-over switch			A103/678
	Switch Actuating Arm Ass'y.			PA431
	Power Cord and 2 pin plug on receiver end			A104/58
	Valve Socket - 7 pin			A104/58-1
	Valve Socket - 7 pin - rubber mounted			2/681
	Valve Socket Rubber Cushion			336/30C
	Battery plug - 2 pin			389/30C
	Battery socket - 2 pin			245/250
	"B" Battery Clip - female			246/250
	"B" Battery Clip - male			15/678
	Cover for power cord compartment			A119/250
	Hinge for cord cover plate			6/291
	Eyelets for cord cover hinge			A105/639
	"A" Battery Clip Ass'y - 2			A113/639
	"A" Battery Clip - 2 (clips which hold 3 batt. in series)			23/678
	"A" Battery Bakelite Tube Holder			3/291
	Eyelets for mounting battery clips			11/203-4
	Screw-base to cabinet - 4			11/203-3
	Screw - top ends of cabinet - 2			4/560-13
	Screw - handle to cabinet - 2			3/678
	Stud - in ends of handle			56/678
	Knob Collar			31/560-7
	Screw-knob mounting			11/252
	Phone tips			161/81
	Knob Spring			16/678-2
	Dial reading - N.S.W.			16/678-3
	" " - TAS., VICT.			16/678-4
	" " - QLD.			16/678-5
	" " - W.A., S.A.			