



RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

TECHNICAL BULLETIN

BULLETIN: PS-1.

File: Receivers
Portable

Date: 27/2/52.

Page 1.

MODEL "PS"

5 TUBE SUPERHETERODYNE UNIVERSAL PORTABLE RECEIVER.

FOR OPERATION FROM:

195-260 Volt 40-60 Cycle A.C. electric supply mains.
195-260 Volt D.C. electric supply mains or
9 volts "A" battery and
90 volts "B" battery. (Two 45 volt "B" batteries connected in series.)

POWER CONSUMPTION:

Battery operation:—50Ma. "A" Battery.
11Ma. "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 D.C., input fly lead. connected to 215-234 volt tap.

TUNING RANGE:

535 to 1640 Kilocycles. 560.7 to 182.9 Metres.

POWER OUTPUT:

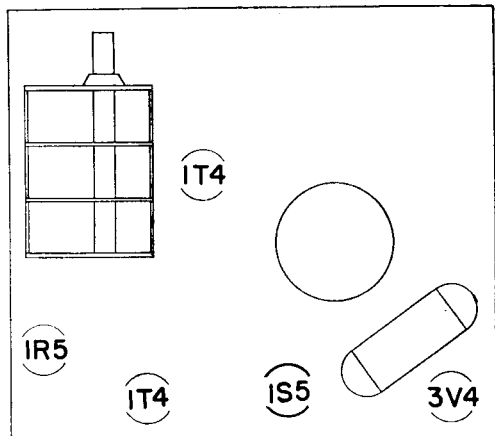
250 milliwatts (max.).
100 milliwatts (undistorted).

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.

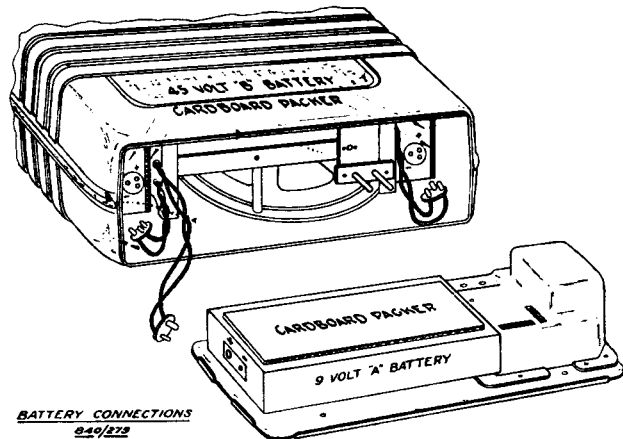
Storage When out of Use:—

It is not advisable to leave an exhausted battery in the receiver. If the receiver is stored away, or not required for long periods, even partly-used batteries should be removed and stored in a dry, cool place. This is a precautionary measure against the swelling and corroding action of worn-out batteries, which applies to all battery-operated devices, such as torches, etc.



VALVE PLACEMENT DIAGRAM

785/279



CLEANING AGENT FOR PLASTIC CARRYING CASE:—

WARNING: The plastic sections of the carrying case should not be cleaned with benzol, petrol or similar cleaning liquids, as these are solvents for the plastic materials.

If the case becomes dirty a piece of cloth dampened with water should be used.

Scratches may be removed with fine steel wool and then polished with Par-Pol or Embex car polish.

EXTERNAL AERIAL

On the rear of the receiver cabinet, about the centre, are two holes marked "A" for aerial and "E" for earth. Insert the end of the aerial lead into the hole marked "A" and the end of the earth lead into the hole marked "E".

Two small plugs are supplied with each receiver. These plugs when connected (soldered) to the ends of the aerial and earth leads, provide an easy and mechanically sound connection to the sockets for the external aerial and earth.

An aerial lead approx. 50 ft. long as high as possible from the ground, is recommended.

An earth lead is essential to obtain maximum results from the external aerial.

Should an earth connection not be obtainable, place the receiver close to the ground and connect to the earth socket approx. 50 ft. of wire laid along the ground and directly beneath the aerial lead.

Viewing the receiver from the rear with the handle uppermost the socket at the right is for the external aerial and the socket at the left is for the external earth connection.

MODEL "PS"

The "Astor" Model "PS" Universal Portable is a 5 valve superheterodyne broadcast receiver designed to operate from dry batteries fitted inside the carrying case or from A.C. or D.C. electric supply mains. The power cord for connecting the receiver to the supply mains is contained in a small compartment in the base of the carrying case. A switch in the power cord compartment converts the receiver from dry battery operation to A.C.-D.C. mains operation or vice versa.

When operating the receiver as a portable no external connections are necessary as a built-in loop aerial is incorporated in the carrying case. Should the receiver be required to operate in localities where the signal pick-up by the built-in loop aerial is not sufficient to provide reasonable volume, an external aerial and earth may be connected to the two small sockets on the rear of the receiver to increase the signal pick-up.

ALIGNMENT INSTRUCTIONS

EQUIPMENT

Signal Generator:
Output Meter:
Safety Lamp: 230 volt 40 watt
incandescent lamp.
Mica Capacitor: 0.01MF (part No. PC145)
for I.F.T. Alignment.

ALIGNMENT CONDITIONS

Load Impedance: 10,000 ohms.
Output Level: 25 milliwatts.
Volume Control: Max. vol. (fully
clockwise). —
"A" Battery: 9 volts.
"B" Battery: 90 volts (two 45 volt "B"
batteries connected in series).
Intermediate Freq.: 455 Kc/s.

Alignment Tools: Part No. PM581 and M195.

To remove chassis from cabinet: Turn vol. control switch off and from receiver remove A.C. cord and plug by pulling the plug straight off the 2 pin connector in the A.C. cord compartment. Unscrew four screws in the cabinet base, remove cabinet base then the "A" and "B" batteries.

Loosen off the grub-screw under the volume and tuning control knobs, then pull the knobs straight off their spindles. Remove dial reading from cabinet by unscrewing the two nuts on top of the dial.

Inside the cabinet, on each side of the receiver chassis near the top, is a small bracket. A $\frac{1}{4}$ " x $\frac{5}{32}$ " Whit. screw through each of these brackets fastens the chassis to the cabinet. When these two screws are removed the chassis will slide out of the cabinet. Refitting the chassis to the cabinet is the exact reverse procedure to removing it. Always make sure that the grub-screws under the control knobs are tightened securely.

Opera- tion.	Generator connection.	Generator Frequency.	Dummy Antenna.	Instructions.
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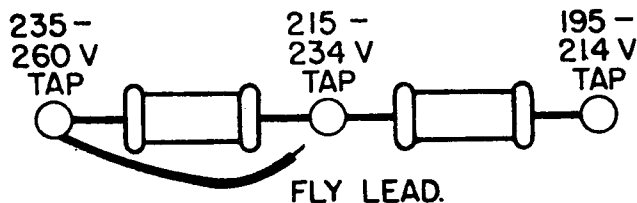
1. The receiver may be aligned when operating it from batteries or from the A.C. or D.C. mains. When operating it from the A.C. or D.C. mains apply the safety lamp between the receiver chassis and ground to make sure the chassis is not above earth potential; if it is, reverse the receiver plug in the power point/light socket.
2. Fasten dial on to top of chassis with two $\frac{1}{8}$ " Whit. nuts, then fit knobs on to control spindles.
3. Remove speaker and loop aerial from their mounting supports.

MAINS TAP VOLTAGE ADJUSTMENT

DISCONNECT RECEIVER POWER CORD PLUG FROM MAINS POWER POINT SOCKET and turn volume control switch off. Remove chassis from cabinet by first removing power cord from receiver, then unscrew two screws each end of cabinet base. Prize off base of cabinet, withdraw small plugs from batteries and remove battery cardboard packers and batteries. With a narrow blade screw driver loosen off grub screw beneath each control knob, pull knobs straight up off spindles. Remove dial reading by unscrewing two $\frac{1}{8}$ " nuts holding dial to cabinet. Inside the cabinet a $\frac{5}{32}$ " Rd. Hd. Whit. screw through a small bracket on each side of the chassis at the top holds the chassis to the cabinet. When these two $\frac{5}{32}$ " screws are removed the chassis will slide out of the cabinet. Do not remove the two insulated screws each side of the small brackets. Adjust mains voltage tap on side of chassis as detailed below. Refit chassis to cabinet in exact 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 same tap terminal as the fly lead starts from. The fly lead must be soldered to the voltage tap. This work should be done by a competent serviceman or an electrician.



BATTERY REPLACEMENT

The internal batteries used with this receiver are one 9 volt "A" battery and two 45 volt "B" batteries.

These batteries are not re-chargeable and when worn out must be replaced with new ones. When connecting new batteries, follow the instructions exactly because if a mistake is made all the valves are liable to be burned out.

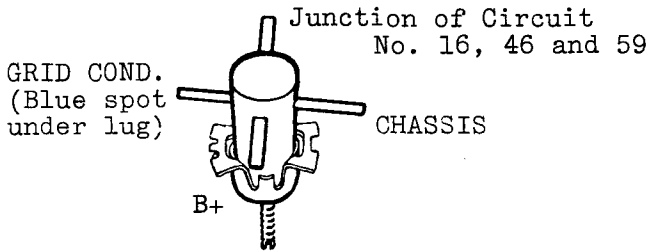
1. Make sure the receiver is switched off.
2. Lay the receiver, speaker grille downwards, on a flat surface.
3. Prize open the lid of the power cord compartment and remove the power cord. The plug on the receiver end of the cord is withdrawn by pulling it straight out.
4. Unscrew and withdraw the two screws at each end of the cabinet base plate, then remove the cabinet base plate, which will allow easy access to the batteries.
5. Withdraw the small plugs from the batteries.
6. Replace the batteries, using strips of cardboard as packers to overcome any looseness.
7. Refit the small plugs to the sockets of the new batteries, then refit the cardboard packer, base plate and screws.

LOOP AERIAL

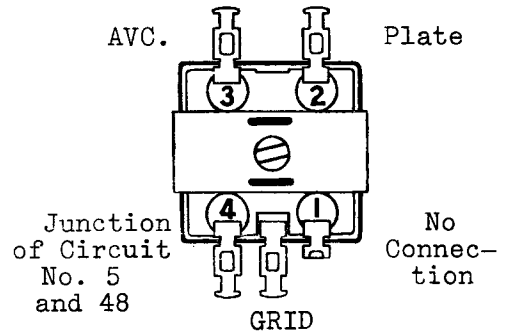
Primary (3 turns) outside turn - ANTENNA LOADING COIL
inside turn - EXTERNAL EARTH (Ground) SOCKET

Secondary outside turn - CHASSIS
inside turn - .005MFD GRID COND.

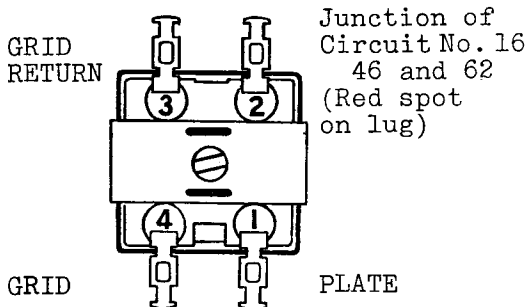
OSCL. COIL



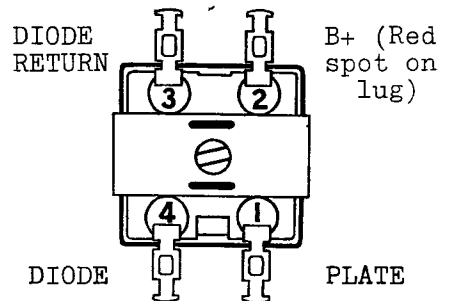
RF. TRANS.



NO. 1 IF. TRANS.



NO. 2 IF. TRANS.



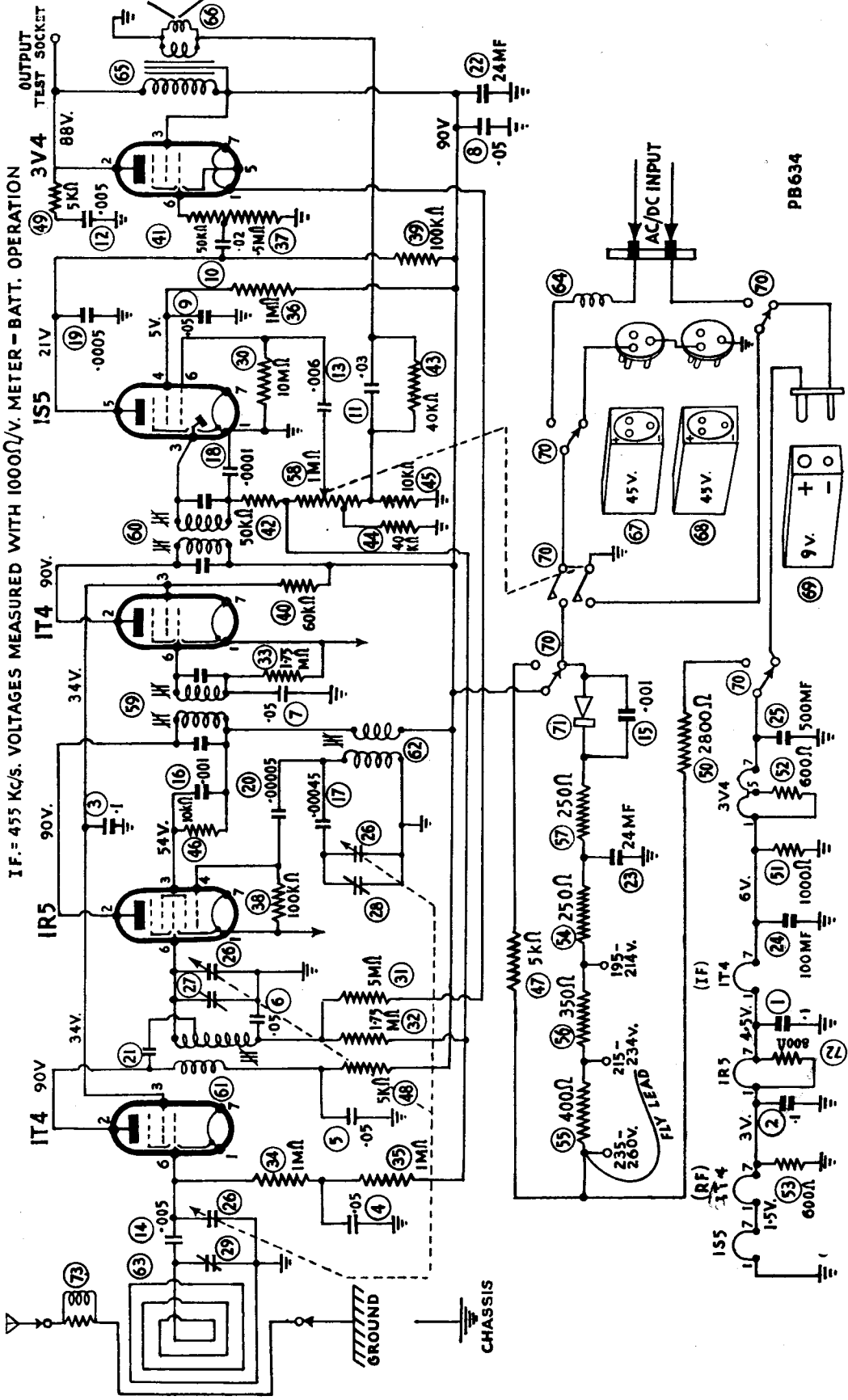
4. To control 455 Kc/s. 0.01MF mica Leave grid wire attached to valve
grid of IT4 capacitor socket. Peak 2nd IF trans. pri. and
IF valve in series sec. for max. output.
(pin No. 6) with
generator.
5. To control 455 Kc/s. 0.01MF mica Leave grid wire attached to valve
grid of IR5 capacitor socket. Turn gang plates fully out
valve (pin in series of mesh. Peak 1st IF trans. pri. and
No. 6). with sec. for max. output.
generator.
6. Repeat operations No. 4 and 5, then refit speaker and loop aerial to their
mount supports.
7. DIAL POINTER SETTING: Fully mesh cond. gang plates and set apex of tuning
knob pointer on end of travel spot on dial reading near 540 Kc/s.
8. To inject a signal into the loop aerial, lay approx. two feet of aerial
wire in front of the signal generator and connect one end of it to the
generator output active terminal.
Place receiver approx. two feet distant from the two feet of aerial wire,
then stand the receiver chassis on one end so that the speaker is nearest
the operator and the control knobs are to the left. The control knobs can be
operated with the left hand and all adjustable trimmers are accessible from
the right.
9. Refer 600 Kc/s. — Turn cond. gang and tuning knob until
Oper. 8. pointer is on 600 Kc/s. dial mark.
Adjust oscl. coil ind. trim (iron
core) and RF. trans. ind. trim. (iron
core, from bottom of trans.) for
max. output. Rock cond. gang to and fro
through the signal while adjusting.
10. Refer 1400 Kc/s. — Turn cond. gang and tuning knob until
Oper. 8. pointer is on 1400 Kc/s. dial mark.
Adjust oscl. coil trim. cond. for
logging and peak RF. and loop aerial
trimmer condensers for max. output.
Rock cond. gang to and fro through the
signal when peaking the RF. and loop
trimmer conds.
11. Repeat operations No. 9 and 10.
12. Refit chassis to cabinet. Make sure the grub-screws under the control knobs
are securely tightened. Fit "B" batteries securely in position in the cabinet.
13. Refer 1400 Kc/s. -- With the "B" batteries in position
Oper. 8. in the cabinet peak (from the bottom
of the cabinet) the loop aerial
trimmer cond. for max output. Rock
cond. gang to and fro through the sig-
nal when peaking the trim condenser.

CIRCUIT MODIFICATION

An 800 Ohm. $\frac{1}{2}$ Watt resistor Part No. PR257, circuit No. 72, is wired on the IR5 valve socket between filament pins 1 and 7.

The resistor has been added to stabilise the current through the filament circuit.

When Model "PS" receivers are returned for service a check is to be made to make sure the resistor is included and if not it should be added as it was not included in a quantity of the first production run.



Handle Assembly:—Refer styling list

Consists of:—

Handle Insert—chrome finish	15/681
Screw (2) ¼" x No. 4 binder head PK. type Z used for mounting handle to pivot	39/560-2
Handle Grip—bottom section—refer styling list	
Handle Top—top section—refer styling list	

Handle Pivot (2)	25/765
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Aerial Transfer	29/245
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Earth Transfer	30/245
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Phone Tips	11/252
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Astor Badge—moulded	53/634
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Astor Badge—Transfer	340/279
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Cabinet Metal Base	A101/765
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Consists of:—

Metal Washer (8)	78/56-2
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Rubber Feet	28/658
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Eyelet (2) mounts rubber cushions	5/291
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Eyelet (2) mounts rubber cushions, cord box end	66/291
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Eyelet (8) cord box mount	6/291
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Eyelet (2) box cover plate to hinge	2/291-1
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Cord Box	2/765
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Washer (4)	63/300-12
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Metal Base	3/765
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Hinge Assembly	A102/765
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Consists of:—

Hinge Leaf	7/763
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Hinge Pin	11/763
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STYLING LIST

WALNUT CABINET

CREAM CABINET

Cabinet Assembly—complete, less handle	A109/765-3		A109/765-1
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Consists of:—

Cabinet	89/81-4	Walnut	89/81-1	Cream
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Grille Bars	88/81-4	Walnut	88/81-2	Cream
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Front and Rear Speaker Weave	21/681-4	Fawn	21/681-2	Burgundy
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Handle Assembly—complete	A101/681-6		A101/681-3
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Consists of:—

Top Section	18/681-4	Walnut	18/681-3	Cream
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Bottom Grip Section	16/681-4	Walnut	16/681-1	Cream
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Chrome Insert	15/681		15/681	
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Control Knobs	179/81-2	Walnut	179/81-1	Cream
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BURGUNDY CABINET

BURGUNDY CABINET

Cabinet Assembly—complete, less handle	A109/765-2		A109/765-11
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Consists of:—

Cabinet	89/81-2	Burgundy	89/81-2	Burgundy
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Grille Bars	88/81-3	Fawn	88/81-2	Cream
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Front and Rear Speaker Weave	21/681-4	Fawn	21/681-7	Cream
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Handle Assembly—complete	A101/681-2		A101/681-5
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Consists of:—

Top Section	18/681-2	Fawn	18/681-3	Cream
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Bottom Grip Section	16/681-2	Burgundy	16/681-2	Burgundy
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Chrome Insert	15/681		15/681	
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Control Knobs	179/81	Burgundy	179/81	Burgundy
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CHASSIS SERIAL No.

The receiver chassis serial number is stamped into the base of the metal chassis and is visible through a small slot in the power cord compartment.

Circuit No.	Description.	Tol.±	Rating	Part No.
1.	.1MF Paper Condenser	20%	200V.DCW.	PC218
2.	.1MF ,, ,,	20%	200V.DCW.	PC218
3.	.1MF ,, ,,	20%	200V.DCW.	PC218
4.	.05MF ,, ,,	20%	200V.DCW.	PC102
5.	.05MF ,, ,,	20%	200V.DCW.	PC102
6.	.05MF ,, ,,	20%	200V.DCW.	PC102
7.	.05MF ,, ,,	20%	200V.DCW.	PC102
8.	.05MF ,, ,,	20%	200V.DCW.	PC102
9.	.05MF ,, ,,	20%	200V.DCW.	PC102
10.	.02MF ,, ,,	20%	400V.DCW.	PC111
11.	.03MF ,, ,,	20%	200V.DCW.	PC303
12.	.005MF ,, ,,	20%	600V.DCW.	PC252
13.	.006MF ,, ,,	20%	600V.DCW.	PC217
14.	.005MF Mica Condenser	10%	1000VT.	PC249
15.	.001MF ,, ,,	10%	1000VT.	PC108
16.	.001MF ,, ,,	10%	1000VT.	PC108
17.	.00045MF ,, ,,	2½%	1000VT.	PC727
18.	.0001MF ,, ,,	10%	1000VT.	PC110
19.	.0005MF ,, ,,	10%	1000VT.	PC144
20.	.00005MF ,, ,,	10%	1000VT.	PC141
21.	20MMFD. Cond. (Part of RF. trans. circuit No. 61)			
22.	24MF. Electrolytic Condenser	20%	350PV.	PC184
23.	24MF. ,, ,,	20%	350PV.	PC184
24.	100MF. ,, ,,	20%	12PV. { composite	} PC807
25.	500MF. ,, ,,	20%	12PV. { type	
26.	3 Gang Varb. Cond. with gears attached			PC855
27.	1.5-18MMF. Trimmer Condenser			PC250
28.	0-30MMF. Trimmer Cond. (wire wound)			PC663
29.	1.5-18MMF. Trimmer Cond. Part No. PC250 (part of loop aerial assembly circuit No. 63)			
30.	10 Megohm Carbon Resistor	10%	1W.	PR236
31.	5 ,, ,, ,,	10%	1W.	PR355
32.	1.75 ,, ,, ,,	10%	½W.	PR248
33.	1.75 ,, ,, ,,	10%	1W.	PR297
34.	1 Megohm Carbon Resistor	10%	½W.	PR246
35.	1 ,, ,, ,,	10%	½W.	PR246
36.	1 ,, ,, ,,	10%	1W.	PR520
37.	.5 ,, ,, ,,	10%	½W.	PR245
38.	100,000 Ohm ,, ,,	10%	½W.	PR103
39.	100,000 ,, ,, ,,	10%	1W.	PR165
40.	60,000 ,, ,, ,,	10%	1W.	PR415
41.	50,000 ,, ,, ,,	10%	½W.	PR160
42.	50,000 ,, ,, ,,	10%	½W.	PR160
43.	40,000 ,, ,, ,,	10%	½W.	PR251
44.	40,000 ,, ,, ,,	10%	½W.	PR251
45.	10,000 ,, ,, ,,	10%	½W.	PR164
46.	10,000 ,, ,, ,,	10%	1W.	PR325
47.	5,000 Ohm Carbon Resistor consists of two 10,000 Ohm 1 watt resistors part No. PR325 wired in parallel.			
48.	5,000 Ohm Carbon Resistor	10%	1W.	PR304
49.	5,000 ,, ,, ,,	10%	½W.	PR250

Circuit No.	Description.	Tol.±	Rating	Part No.
50.	2,800 Ohm Wire Wound Resistor	5%	10W.	PR701
51.	1,000 Ohm Carbon Resistor	10%	1W.	PR450
52.	600 ,, ,, ,,	10%	1W.	PR658
53.	600 ,, ,, ,,	10%	1W.	PR658
54.	250 Ohm Carbon Resistor consists of two 500 Ohm 1 watt resistors, part No. PR289, wired in parallel.			
55.	400 Ohm Wire Wound Resistor	5%	3W.	PR290
56.	350 ,, ,, ,, ,,	5%	3W.	PR722
57.	250 ,, ,, ,, ,,	5%	10W.	PR721
58.	1 Megohm Carbon Potentiometer tapped at 400,000 Ohms and with switch attached	20%		DP.ST. PR734
59.	IF. Transformer			PT864
60.	IF. Transformer			PT864
61.	RF. Transformer			PT890
62.	Oscillator Coil			PT860
63.	Loop Antenna			PT941
64.	RF. Choke			PT954
65.	Speaker Input Transformer 10,000-2 Ohms Impedance			PT816
66.	Speaker, 8 inch permag.-less input transformer			K119
67.	45 Volt "B" Battery: Gen. Dry type MP-45			M130-1
68.	45 Volt "B" Battery: Gen. Dry type MP-45			M130-1
69.	9 Volt "A" Battery: Gen. Dry type P9.L			M271
70.	Switch A.C./D.C.-battery change-over			S181
71.	Rectifier—half wave			M230
	A.C. Mains lead (9ft. cord and 2 pin female plug)			PA431
72.	800 Ohms Carbon Resistor	10%	$\frac{1}{2}$ W.	PR257
73.	Primary Loading Coil (part of loop aerial, circuit No. 63)			PT942
	Supports for loop antenna			7/681
	Supports for speaker			3/681
	Two Pin Plug for "A" battery			482/30C
	Three Pin Plug for "B" battery			335/30C
	Two Pin Female Plug on A.C. lead			A117/678
	A.C. Two Pin Male Plug on receiver chassis, consists of:—			
	Bakelite Strip			29/678
	Round Pins			33/678
	Seven Pin Socket—flange mounted			A104/58
	Seven Pin Socket—rubber mounted			A104/58-1
	Rubber Base for seven pin socket			2/681
	Rivets for mounting socket rubber bases			9/681
	Cond. gang Rubber Grommet			64/30A
	Mount Clip for IF. transformer			7/670
	Mount Clip for Osci. coil			6/622
	Dial Reading, N.S.W.			42/681-2
	,, ,, VIC., TAS.			42/681-3
	,, ,, Q'LAND.			42/681-4
	,, ,, S.A., W.A.			42/681-5
	Three Lug Terminal Strip			A103/509
	Mount Strip—bakelite, insulates input trans.			348/64
	Mount Strip—paper, ,, ,, ,,			347/64
	Valve Shield			38/635
	Mains Resistor Board Terminal Strip and Lugs			A105/765
	Metal Collar-knob mounting (2)			56/678
	Grub Screw for metal collar			31/560-3
	Volume Control Mount Block			16/589
	Screws for base mounting			16/560-4