

**ASTOR**

**RADIO CORPORATION PTY. LTD.**

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

**TECHNICAL BULLETIN**

File: Receivers  
Portable

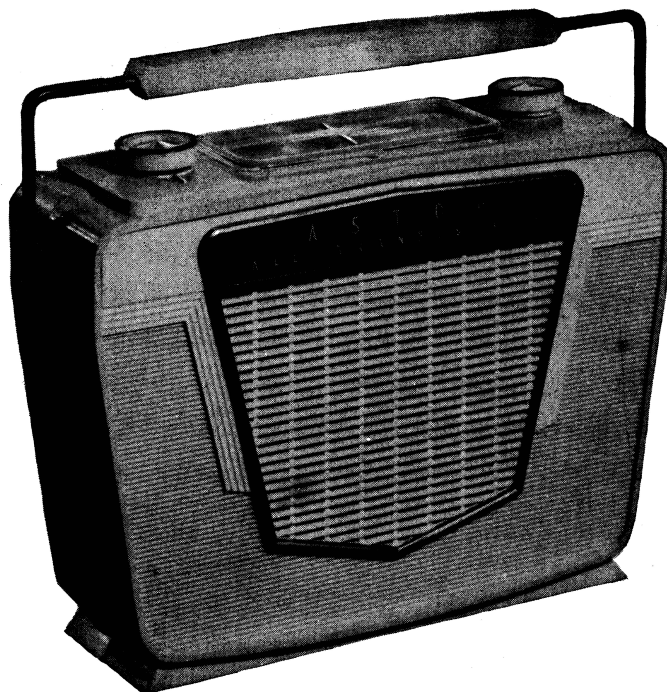
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## **ASTOR MODEL "RS"**

### **7 TRANSISTOR MEDIUM PORTABLE RECEIVER**



#### **THIS BULLETIN CONTAINS:**

1. Alignment Instructions.
2. Circuit Diagram.
3. Component Parts List.
4. IF. & RF. Trans. Connections.
5. Transistor Placement Diagram.
6. Battery Replacement Instructions and Diagram.
7. Instruction for Removing Chassis from Cabinet.
8. Receiver Serial Number.
9. Receiver Servicing Precautions.
10. Dial Cording Diagram.

## MODEL — RS

FOR OPERATION FROM:

9 Volt battery.

CURRENT CONSUMPTION:

No signal - 9 mA.

500 mW Output - 120 mA.

POWER OUTPUT:

500 Milliwatts.

TUNING RANGE:

535 to 1640 Kilocycles.

560.7 to 183.4 Metres.

INTERMEDIATE FREQUENCY:

455 Kilocycles.

## SERVICE INSTRUCTIONS (ELECTRICAL)

ALIGNMENT INSTRUCTIONS

<u>EQUIPMENT</u>	<u>ALIGNMENT CONDITIONS</u>
Signal Generator : modulated 400 CPS.	Load Impedance: Sec. load imp. 4 Ohms (output meter connected across speaker trans. sec.)
Output Meter :	
Mica Capacitor : .01MF type PC145 for IFT. alignment	Output Level: 6 Milliwatts (voice coil open circuit)
Straight Alignment Tool : type PM581 for b/cast trim adjustment.	Output Level : 2 Milliwatts (voice coil in circuit)
Flexible Alignment Tool : type 48/712 for b/cast osc. coil core adj.	Volume control: Max. volume (fully clockwise)
Hexagonal Alignment Tool : type 418/81 for IFT. core adjustment.	IF. Frequency : 455 Kc/s.
	Battery : 9 volts.

INTERMEDIATE FREQUENCY TRANSFORMER ALIGNMENT

The receiver chassis has to be removed from the cabinet for alignment purposes.

Instructions for removing the chassis from the cabinet are detailed in the Service Instructions (mechanical) section of the bulletin.

Note 1. The iron core in the IF transformers is the hexagonal bore type and may be adjusted with alignment tool Part No. 418/81.

Note 2. The correct peaks for the 1st IF. transformer are the peaks obtained when the iron cores are furthest apart. The final peaking of the iron core nearest bottom of IF transformer should be performed last. This is necessary so that the inner core will not be disturbed when withdrawing the hexagonal alignment tool.

Note 3. Two peaks may be obtained when adjusting the 2nd and 3rd IF. transformers. The correct peak is the peak obtained when the core is screwed nearest to the base.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To converter transistor BASE lead: (junction of circuit No.3, 31 and 32.)	455 Kc/s.	0.01MF mica condenser in series with generator.	Turn the cond. gang to the high frequency end of travel position. (gang cond. plates open) From bottom of 3rd IFT. peak iron core for max. output. refer note 1 and 3 above.
2.	As operation No. 1	455 Kc/s.	"	From bottom of 2nd IFT. peak iron core for max. output.
3.	As operation	455 Kc/s.	"	From bottom of 1st IFT. peak pri. and sec. iron cores for max. output. refer note 1 and 2 above.
4.	Repeat operations Nos 1, 2 and 3.			

DIAL POINTER SETTING

Fully mesh condenser gang plates and set centre of dial pointer on centre of end of travel mark on dial reading near 540 Kc/s.

BROADCAST ALIGNMENT

A. To inject a signal into the receiver rod aerial, connect to the active terminal of the signal generator approximately two feet of aerial wire, then fashion the wire into a vertical position.

- B. Place receiver chassis so that ferrite rod aerial is uppermost and horizontal and so that end of the ferrite rod points to the 2 ft. of aerial wire. A distance of not less than 1 ft. is to be between the end of the ferrite rod and the 2 ft. of vertical aerial wire attached to the signal generator.

Oper. No.	Generator Connection	Generator Frequency	Instructions
1.	Refer para. A and B.	535 Kc/s.	Turn tuning control to low freq. end of travel (cond. gang plates fully meshed.) Adjust osc. coil ind. trim. (iron core) for max. output.
2.	Refer para. A and B.	1640 Kc/s.	Turn tuning control to high freq. end of travel (cond. gang plates full open.) Adjust osc. trimmer cond. for max. output.
3.	Refer para. A and B.	1470 Kc/s.	Tune receiver to generator 1470 Kc/s signal. Adjust aerial trimmer cond. for max. output.
4.	Refer para. A and B.	600 Kc/s.	Tune receiver to generator 600 Kc/s signal. Adjust osc. coil ind. trim. (iron core) for max. output. Rock cond. gang to and fro through signal whilst adjusting.
5.	Repeat operations 3 and 4.		
6.	Tuning range after alignment 535 to 1640 Kc/s.		
7.	Check logging of dial pointer throughout the dial, if necessary adjust pointer for optimum logging of the local stations.		

Tuning range after alignment 535 to 1640 Kc/s.

#### PRECAUTIONS WHEN TESTING TRANSISTOR RECEIVERS

- A. A transistor is extremely sensitive to heat. When a defective component is to be replaced and there is danger of heat being applied to a transistor, remove the transistor from the socket before proceeding. Use a soldering iron which supplies just the required heat for unsoldering the connections.
- B. Continuity meter must not be applied to the receiver wiring with the transistors in circuit. A transistor must not be checked for continuity with an ohm meter as applied voltage and resultant excess current flow may result in permanent damage to the transistor. A voltmeter of the high impedance vacuum tube type is a safe means of measuring circuit voltages.
- C. A screwdriver or similar instrument must not be used to short components together or to the metal chassis. The use of this method of checking for the existence of voltage or signal clicks will result in permanent damage to the transistors and components.



## SERVICE INSTRUCTIONS (MECHANICAL)

### 1. TO REMOVE CHASSIS FROM CABINET.

- A. Remove push-on type control knobs.
- B. Remove screw fastening battery compartment cover to cabinet base.
- C. Remove two screws from rear section of cabinet.
- D. Remove the two spring clips located at the cabinet base. Under the clip edge nearest the rear section of cabinet insert the blade of a thin screwdriver then prise end clip upward.
- E. Remove rear section of cabinet from the front section.
- F. Two nuts, one near the volume control and one near the tuning condenser gang, fasten the chassis to the cabinet front section. Remove the two nuts then lift chassis out of cabinet.
- G. Refitting chassis to the cabinet is the reverse procedure to removal.

### 2. CHASSIS SERIAL NUMBER.

The chassis serial number is stamped into the metal chassis near the rear of the volume control and is visible when the rear section of the cabinet is removed from the front section.

Remove the rear section of the cabinet as detailed in para. 1A to E.

### 3. TO REMOVE THE BATTERY.

- A. Switch the receiver OFF.
- B. Unscrew the screw from the base of the cabinet then lift battery compartment cover out of cabinet base.
- C. Slide battery out of cabinet and remove the two pin plug.
- D. Fitting a new battery is the reverse procedure to removing it.

### 4. STORAGE WHEN OUT OF USE.

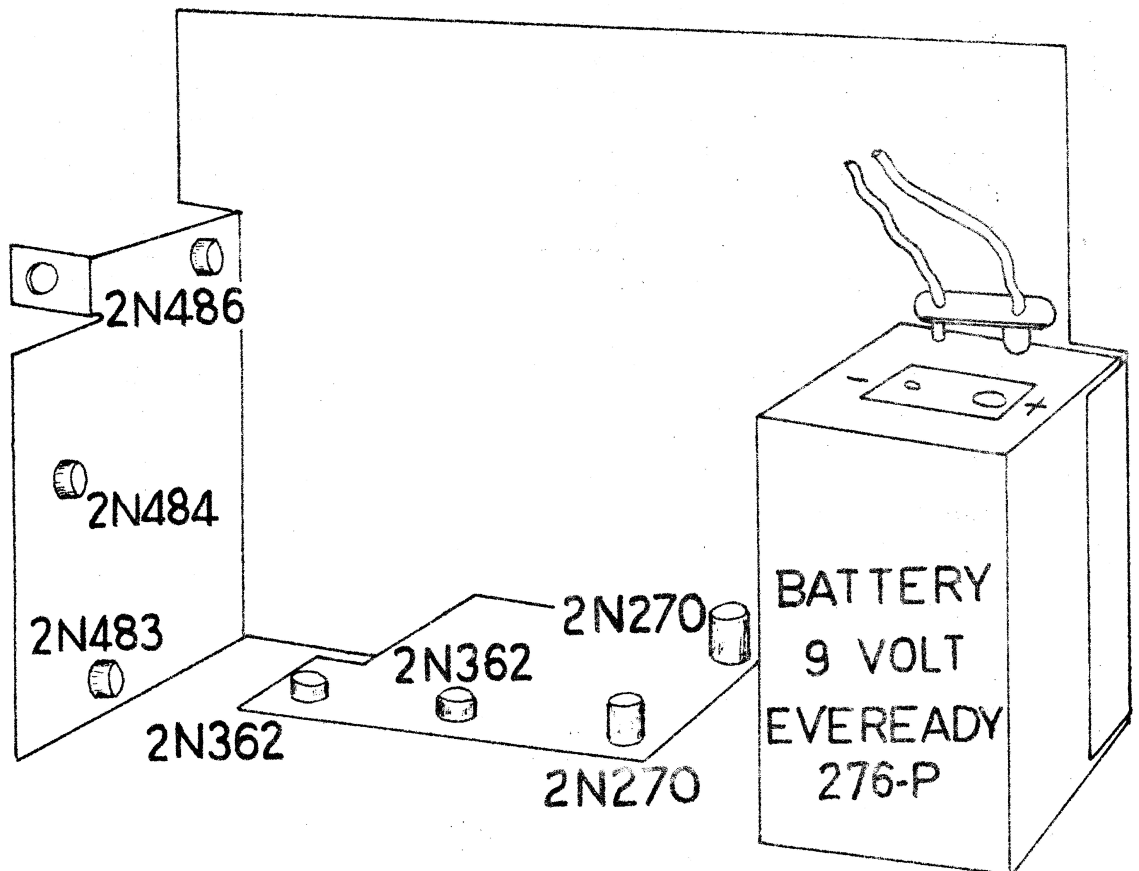
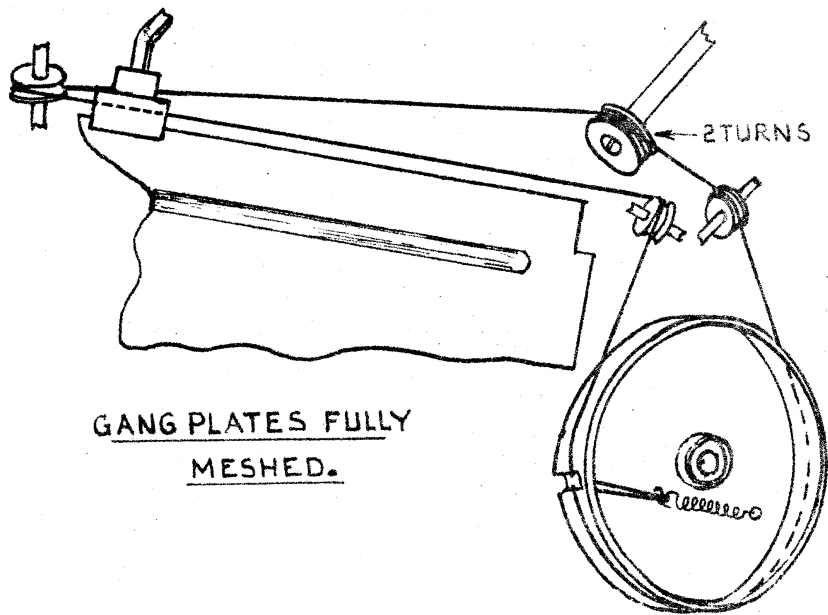
It is not advisable to leave an exhausted battery in the receiver. If the receiver is stored away or not required for long periods, even partly used batteries should be removed and stored in a dry cool place.

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.

### 5. CLEANING AGENT FOR CABINET.

Do not polish the moulded case or plastic sections with an abrasive material, motor car polish, boot polish, or similar household cleaning fluids as permanent damage may result to the finish of the case and plastic sections.

To restore the lustre of the moulded case wipe with a soft cloth dampened with water and lightly polish with a neutral wax.



Circuit No.	Description	Tol <sup>+</sup>	Rating	Part No.
1	Two gang variable condenser			C367
2	1.5-15 MMF Trimmer condenser			PC928
3	.01 MF Disc ceramicon condenser	50%	100V DCW	C326
4	.01 MF Disc ceramicon condenser	50%	100V DCW	C326
5	230 MMF Silvered mica condenser	2 $\frac{1}{2}$ %	200V DCW	C369
6	3-30 MMF Wire wound trimmer condenser			PC663
7	.04 MF Metallised paper condenser	20%	200V DCW	C142
8	.04 MF Metallised paper condenser	20%	200V DCW	C142
9	10 MF Electrolytic condenser	+250%-10%	6V DCW	C322
10				
11	6.8 MMF Disc ceramicon NPO	5%	500V DCW	C344
12	.04 MF Metallised paper condenser	20%	200V DCW	C142
13	.04MF Metallised paper condenser	20%	200V DCW	C142
14	.04 MF Metallised paper condenser	20%	200V DCW	C142
15	250 MF Electrolytic condenser	+100%-10%	16V DCW	C309
16	30 MMF Silvered mica condenser	5%	500V DCW	PC879
17	.04 MF Metallised paper condenser	20%	200V DCW	C142
18	.04 MF Metallised paper condenser	20%	200V DCW	C142
19	.04 MF Metallised paper condenser	20%	200V DCW	C142
20				
21	.04 MF Metallised paper condenser	20%	200V DCW	C142
22	2 MF Electrolytic condenser	+250%-10%	12V DCW	C306
23	50 MF Electrolytic condenser	+250%-10%	3V DCW	C307
24	2 MF Electrolytic condenser	+250%-10%	12V DCW	C306
25	2700 MF Disc ceramicon	GMV	500V DCW	C380
26	50 MF Electrolytic condenser	+250%-10%	3V DCW	C307
27	.5 MF Metallised paper condenser	20%	200V DCW	C138
28	100 MF Electrolytic condenser	+100%-10%	12V DCW	C284
*29	.0047 MF Disc ceramicon condenser	GMV	500V DCW	C327
30				
31	82,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R8232
32	12,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1232
33	2,200 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R2222
34	1,800 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1822
35	330 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3312
36	3,300 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3322
37	2,200 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R2222
38	15,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1532
39	560 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R5612
40				
41	560 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R5612
42	4,700 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R4722
43	150,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1542
44	5,000 Ohm Potentiometer. SP.ST. switch attached			R366
45	56,000 Ohm carbon resistor Morganite	10%	$\frac{1}{2}$ W	R368
46	6,800 Ohm carbon resistor Morganite	10%	$\frac{1}{2}$ W	R367
47	1,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1022
48	6,800 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R6822
49	4,700 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R4722
50				

Circuit No.	Description	Tol <sup>+</sup>	Rating	Part No.
51.	680 Ohm carbon resistor	10%	$\frac{1}{4}$ W	R6812
52.	330,000 Ohm carbon resistor	10%	$\frac{1}{4}$ W	R3342
53.	22,000 Ohm carbon resistor	10%	$\frac{1}{4}$ W	R2232
54.	10,000 Ohm carbon resistor	10%	$\frac{1}{4}$ W	R1032
55.	100 Ohm carbon resistor	10%	$\frac{1}{4}$ W	R1012
56.	4.7 Ohm wire wound resistor	5%	$\frac{1}{2}$ W	R194
57.	350 Ohm Negative temp. Coefficient resistor			R259
58.	330 Ohm carbon resistor	10%	$\frac{1}{4}$ W	R3312
59.	47 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R4702
60.				
61.	Ferrite rod aerial			L443
62.	Oscillator coil			L444
63.	No.1 IF transformer - 455 Kc/s, red spot on lug 2			L420
64.	No.2 IF transformer - 455 Kc/s, white spot on lug 4			L445
65.	No.3 IF transformer - 455 Kc/s, blue spot on lug 4			L446
66.	Driver transformer - Pri. 4300 : Sec CT. 1250 ohms impedance			T233
67.	Speaker input transformer - Pri. CT.270 : 3.5 ohms impedance			T236
68.	Speaker - 5" Diam. permag type 5F. Cone No. F75			K227
69.	ON/Off switch - SP.ST. part of vol. control circuit No.44			
70.	Plug - 2 pin, battery leads.			482/30C
71.	Battery 9 volt Eveready type 276-P			M470
	Terminal strip assy. - 2 lug type E1 (1)			A599/30C
	Terminal strip assy. - 3 lug type 1E1 (3)			A591/30C
	Terminal strip assy. - 4 lug type E3 (2)			A648/30C
	Terminal strip assy. - 2 lug type 1E (1)			A592/30C
	Spacer - hexagonal - battery cover screw			12/859
	Spacer - trimmer cond. mt. $\frac{3}{8}$ " long			21/218A-7
	Transistor socket (5)			A124/849
	Transistor socket (2) 2N270			A125/849
	Clip (7) transistor socket mt.			581/250
	Heat sink (2) 2N270 transistors			10/859
	Grommet (3) cond. gang mount			64/30A
	Bush (3) cond. gang mount			93/53-1
	Spring clip (2) 2nd & 3rd IF trans. mt.			717/250
	Spring clip - 1st IF trans mt.			510/250
	Aerial rod mount pillar - volume control end			703/81-2
	Aerial rod mount pillar - tuning control end			703/81-1
	Knob assy - volume / ON-OFF			A115/789-12
	Knob assy - tuning			A115/789-13
	Barrel nut (2)			17/304-6
	Transparent cover - dial reading			661/81
	Dial reading			738/250
	Dial background			706/81
	Dial pointer and carriage assy			A106/859
	Dial pointer			704/81
	Dial drum			711/81
	Collar - dial drum			56/678-1
	Tuning spindle assy			A107/859
	Bush - tuning spindle			6/328
	Dial cord - 40 ins.			34/754
	Spring - dial cord			508/30C
	Pulley (3) dial cord			23/71
	Terminal strip assy. 8 lug type 2E3E1 (1)			A593/30C

Stud (2) pulley	5/360-1
Stud - pulley	5/360-2
Nut (2) control bushes	542/250
Washer (2) $\frac{3}{8}$ " ext shakeproof, spindle bushes	2/562-11
Screw - battery compartment cover	236/415-1
Index plate (2) handle lock	4/859
Spring plate (2) handle lock	6/859
Steel ball (4) $\frac{3}{16}$ " dia. handle index	5/563
Spacer (2) handle mount	8/859
Split pin (2) $\frac{3}{32}$ " dia x $\frac{1}{2}$ " long	601/250-1
Screw (9) self-tapping, $\frac{3}{16}$ " x No.2 bdr.hd. escutcheon mt.	40/560-2
Washer (-) flat steel escutcheon mt.	20/57-11

### CABINET STYLING LIST

CABINET FRONT SECTION - includes grille, gasket and metal escutcheon.

CORAL	A103/859-1	DARK GREEN	A103/859-2
BLACK	A103/859-3	CHINESE RED	A103/859-4
LIME	A103/859-5	CHERRY RED	A103/859-6
TAN	A103/859-7	CHARCOAL	A103/859-8
LAWN GREEN	A103/859-9		

Metal escutcheon - used with all stylings 706/250

### CABINET REAR SECTION

CORAL	A104/859-1	DARK GREEN	A104/859-2
BLACK	A104/859-3	CHINESE RED	A104/859-4
LIME	A104/859-5	CHERRY RED	A104/859-6
TAN	A104/859-7	CHARCOAL	A104/859-8
LAWN GREEN	A104/859-9		

HANDLE ASSEMBLY - includes "ASTOR" insert.

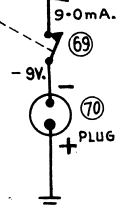
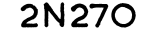
CORAL	A102/859-1	DARK GREEN	A102/859-2
BLACK	A102/859-3	CHINESE RED	A102/859-4
LIME	A102/859-5	CHERRY RED	A102/859-6
TAN	A102/859-7	CHARCOAL	A102/859-8
LAWN GREEN	A102/859-9		

"ASTOR" INSERT - handle assy.

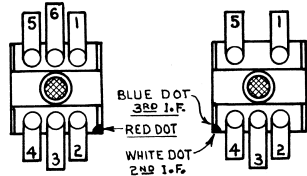
CORAL	709/81-1	DARK GREEN	709/81-2
BLACK	709/81-3	CHINESE RED	709/81-4
LIME	709/81-5	CHERRY RED	709/81-6
TAN	709/81-7	CHARCOAL	709/81-8
LAWN GREEN	709/81-9		

### BATTERY COMPARTMENT COVER

CORAL	666/81-1	DARK GREEN	666/81-2
BLACK	666/81-3	CHINESE RED	666/81-4
LIME	666/81-5	CHERRY RED	666/81-6
TAN	666/81-7	CHARCOAL	666/81-8
LAWN GREEN	666/81-9		



2<sup>ND</sup> & 3<sup>RD</sup> I.F.TRANS.



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Circuit No.29 - .0047 MF Disc ceramicon condenser tol. GMV. 500V DCW  
Part No. C327 has been added to the circuit and is wired between the  
collector of the 2N362 2nd audio driver transistor and chassis.

Although not shown on circuit diagram PB1074 all production receivers  
incorporate this addition.