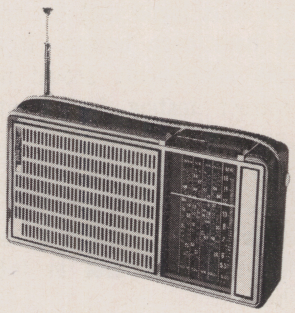
MANUFACTURERS AWA SUPERVISED SERVICE

A.W.A. RADIOLA, SEVEN TRANSISTOR, DUAL WAVE PORTABLE MODEL B47



ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Ranges:

M.W.	520-1770 Kc/s.
S.W.	3.6-10.5 Mc/s.
Intermediate Frequency	455 Kc/s.
Battery Complement	9 V Eveready type 2364

Battery Consumption:

Zero Output	13mA
50 mW Output	45mA
Full Output	140mA
Earphone Operation	7mA
Undistorted Power Output	350mW

Loudspeaker:

4" x 2½" 50277
V.C. Impedance: 80 ohms (centre tapped) at 400 c.p.s.

Dimensions:

Height ..... 4"; Width ..... 8"; Depth ..... 2¼"
Weight (with battery) ..... 2 lbs. 2 oz.

Transistor and Diode Complement:

AF116	Converter
2N406	A.G.C. Amplifier
2N1638	1st. I.F. Amplifier
2N1638	2nd I.F. Amplifier
2N408	Driver
2N217S	Output
2N217S	Output
IN87A	Detector and A.G.C. Diode

Chassis Removal:

Remove the cabinet back by unscrewing the two retaining screws.

Remove the battery.

Carefully lift the ferrite rod aerial from its supports.

Remove from the cabinet base the screw securing the telescopic aerial.

Referring to Fig. 1 remove the four screws marked "A" and the slotted spacer marked "B".

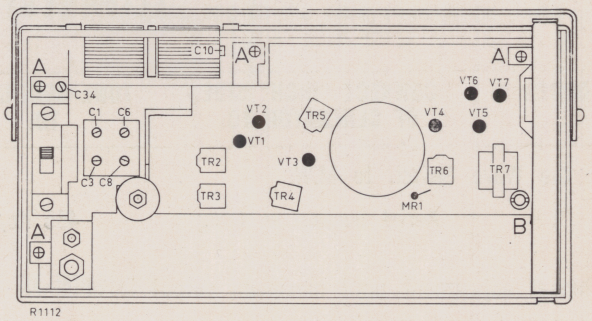


Fig. 1.

Remove the telescopic aerial.

Lift the chassis assembly free of the cabinet.

Remove the dial scale by removing the two retaining screws and the complete board will be available for service.

Re-assembly is the reverse of the above procedure, taking care of the following points.

After replacing the dial scale check the calibration and if necessary move the pointer to correct the error.

Dress the speaker and telescopic aerial leads down underneath the telescopic aerial.

Drive Cord Replacement:

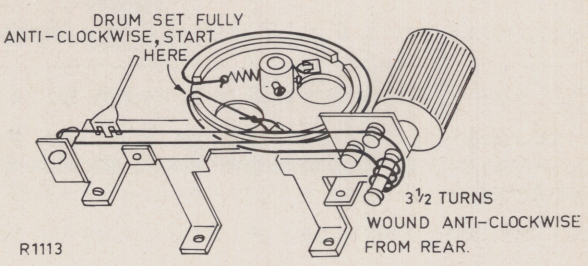


Fig. 2.

Fig. 2 shows the route of the cord and the method of attachment.

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced or when it is found that the seals over the adjusting screws have been broken. It is specially important that the adjustments should not be altered unless the correct testing instruments, listed below, are used.

For all alignment operations keep the generator output as low as possible to avoid a.g.c. action and set the volume control in the maximum clockwise position.

Testing Instruments:

Signal Generator modulated 400 c.p.s. or,
Modulated Oscillator.

If the modulated oscillator is used, connect a 0.22 megohms non-inductive resistor across the output terminals.

Output measurement must be made with either the speaker connected or with two 40 ohm resistors connected in series across the output collectors when the speaker is removed. If an indication only is required Output Meter type 2M8833, switched to 5,000 ohms and connected across the collectors, should be adequate. For a true reading of power output, an a.c. meter, with neither probe earthed, connected similarly will measure 1.4 volts for 50 mW (the effective load being 40 ohms).

I.F. Alignment Tool Part No. 39462.

ALIGNMENT TABLE

ORDER	CONNECT "HIGH" SIDE OF GENERATOR TO:	TUNE GENERATOR TO:	TUNE RECEIVER TO:	ADJUST FOR MAX. PEAK OUTPUT
Set the Wave Switch to M.W.				
1	Aerial Section of Gang	455 Kc/s	Gang fully closed	Cores in TR4, TR5‡ and TR6‡
Repeat adjustment until maximum output is obtained.				
2	Inductively coupled to Rod Aerial*	600 Kc/s	600 Kc/s	Osc. Core (TR3)†
3	Inductively coupled to Rod Aerial*	1,770 Kc/s	Gang fully open	Osc. Trimmer (C8)
4	Inductively coupled to Rod Aerial*	1,500 Kc/s	1,500 Kc/s	Aer. Trimmer (C3)
Repeat adjustment 2, 3 and 4 until no further improvement is possible.				
Set the Wave Change Switch to S.W. Set the Fine Tuning control so that the white line is central.				
5	Inductively coupled to Rod Aerial*	4 Mc/s	4 Mc/s	Osc. Core (TR2)†
6	Inductively coupled to Rod Aerial*	10.5 Mc/s	Gang fully open	Osc. Trimmer (C6)
7	Inductively coupled to Rod Aerial*	9 Mc/s	9 Mc/s	Aer. Trimmer (C34)**
Repeat adjustments 5, 6 and 7 until no further improvement is possible.				

‡ Peak these IF transformers with cores towards the board.

* A coil comprising 3 turns of 16 gauge D.C.C. wire, about 12 inches in diameter should be connected between the output terminals of the test instrument, placed concentric with the rod aerial and distant not less than 1 foot from it.

† Rock the tuning control back and forth through the signal.

** Before adjusting C34, set C1 in its mid position.

MECHANICAL REPLACEMENT PARTS

ITEM	PART No.	ITEM	PART No.
Aerial, Telescopic	103555	Knob, Volume	63643
Bearing, Tuning Knobs	66636	Nameplate, "A.W.A."	66610
Bracket, Retaining, Telescopic Aerial	66620	Nameplate, Tuning Controls	66658
Cabinet, Back Assembly	66614	Panel, Jack	66463
Cabinet Body	60276	Pointer	66647
Cover, Dial Scale	66617	Screw, Retaining, Cabinet Back	66412
Dial Scale	65030	Spacer, Slotted, Board Mtg.	66619
Drum, Drive	66642	Spring, Drive Cord	44189
Earphone	307003	Strap Carrying, Long	66605
Earphone, Clip	61558	Strap Carrying, Short	66604
Fret, Moulded, Assembly	66607	Support, Ferrite Aerial, Chassis Mtg.	66471
Knob, Fine Tuning	66631	Support, Ferrite Aerial, Board Mtg.	66470
Knob, Tuning	66629		

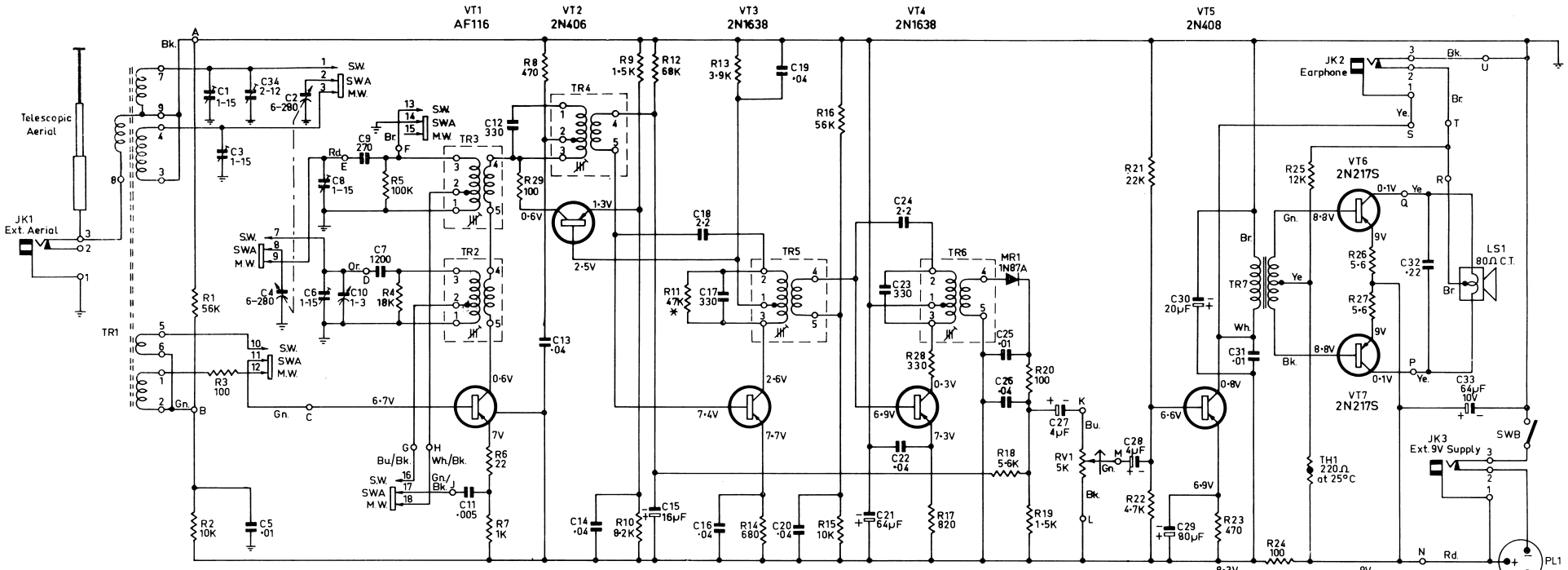
NOTE: When ordering spares, always quote the above Part Numbers, and in the case of coloured parts such as knobs, etc., also quote colour.

D. C. RESISTANCE OF WINDINGS

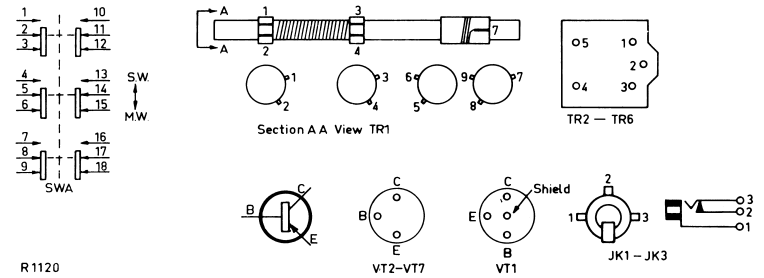
WINDING	D.C. RESISTANCE IN OHMS	WINDING	D.C. RESISTANCE IN OHMS
Ferrite Rod Assembly (TR1)	*	2nd I.F. Transformer (TR5)	
S.W. Oscillator Transformer (TR2)		Primary	2.5
Primary	*	Secondary	*
Secondary	*	3rd I.F. Transformer (TR6)	
M.W. Oscillator Transformer (TR3)		Primary	2.5
Primary	3	Secondary	*
Secondary	*	Driver Transformer (TR7)	
Ist I.F. Transformer (TR4)		Primary	300
Primary	2.5	Secondary	300
Secondary	*		

* Less than 1 ohm.

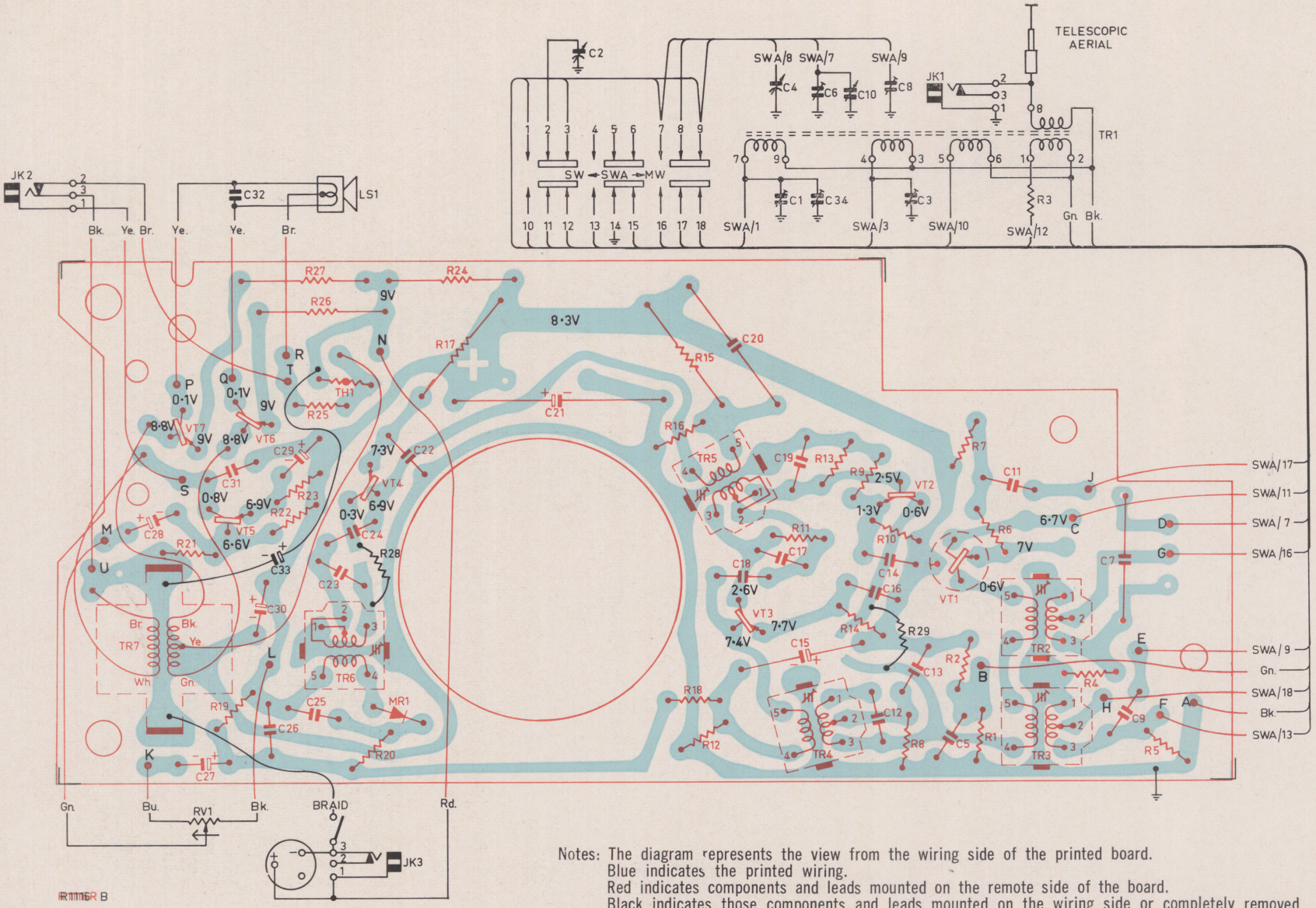
The above readings were taken on components from a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.



CONNECTIONS



NOTES:- ARROW ON POTENTIOMETER INDICATES DIRECTION OF CLOCKWISE ROTATION.
VOLTAGES MEASURED ON MW POSITION WITH NO SIGNAL INPUT AND VOLUME MAXIMUM. VOLTAGES SHOWN ARE POSITIVE WITH RESPECT TO CHASSIS (BATTERY NEGATIVE TERMINAL.)
*MAY VARY IN PRODUCTION.



Notes: The diagram represents the view from the wiring side of the printed board.
Blue indicates the printed wiring.
Red indicates components and leads mounted on the remote side of the board.
Black indicates those components and leads mounted on the wiring side or completely removed from the board.
All voltages shown are positive with respect to the board earth (negative terminal of the battery) and measured with no signal input and volume maximum clockwise using a 20,000 ohm/volt meter.

CIRCUIT CODE

CODE No.	DESCRIPTION	PART No.
	RESISTORS	
	All Resistors composition type unless otherwise stated.	
R1	56K ohms ±10% ½ watt	615161
R2	10K ohms ±10% ½ watt	612025
R3	100 ohms ±10% ½ watt	604031
R4	18K ohms ±10% ½ watt	613360
R5	100K ohms ±10% ½ watt	616017
R6	22 ohms ±10% ½ watt	602320
R7	1K ohms ±10% ½ watt	608025
R8	470 ohms ±10% ½ watt	606588
R9	1.5K ohms ±10% ½ watt	608705
R10	8.2K ohms ±10% ½ watt	611846
R11	47K ohms ±10% ½ watt	614961
R12	68K ohms ±10% ½ watt	615494
R13	3.9K ohms ±10% ½ watt	610556
R14	680 ohms ±10% ½ watt	607281
R15	10K ohms ±10% ½ watt	612025
R16	56K ohms ±10% ½ watt	615161
R17	820 ohms ±10% ½ watt	607665
R18	5.6K ohms ±10% ½ watt	611293
R19	1.5K ohms ±10% ½ watt	608705
R20	100 ohms ±10% ½ watt	604031
R21	22K ohms ±10% ½ watt	613653
R22	4.7K ohms ±10% ½ watt	610932
R23	470 ohms ±10% ½ watt	606588
R24	100 ohms ±10% ½ watt	604031
R25	12K ohms ±10% ½ watt	612507
R26	5.6 ohms ±10% ½ watt	600724
R27	5.6 ohms ±10% ½ watt	600724
R28	330 ohms ±10% ½ watt	605959
R29	100 ohms ±10% ½ watt	604031
RV1	5K ohms curve T carbon, Volume W/S	620041
	CAPACITORS	
C1	1—15pf trimmer, Aerial (S.W.)	
C2	6—280pf tuning, Aerial	
C3	1—15pf trimmer, Aerial (M.W.)	Assy. 230122
C4	6—280pf tuning, Oscillator	
C5	0.01μF ±20% 200VW AEE W99	228609
C6	1—15pf trimmer, Osc. (S.W.) (on gang)	
C7	1,200pf ±2½% 200VW polystyrene	225309
C8	1—15pf trimmer, Osc. (M.W.) (on gang)	
C9	270pf ±2½% 100VW polystyrene	223564
C10	1—3pf Fine Tuning	66651
C11	0.005μf ±20% 200VW AEE W99	226005
C12	330pf ±5% N750 disc	223715
C13	0.04μf ±20% 200VW AEE W99	228750
C14	0.04μf ±20% 200VW AEE W99	228750
C15	16μf 10VW Electrolytic	228878
C16	0.04μf ±20% 200VW AEE W99	228750
C17	330pf ±5% N750 disc	223715
C18	2.2pf ±20% NPO disc	221494
C19	0.04μf ±20% 200VW AEE W99	228750
C20	0.04μf ±20% 200VW AEE W99	228750
C21	64μf 10VW Electrolytic	229629
C22	0.04μf ±20% 200VW AEE W99	228750
C23	330pf ±5% N750 disc	223715
C24	2.2pf ±20% NPO disc	221494
C25	0.01μf ±20% 200VW AEE W99	228609
C26	0.04μf ±20% 200VW AEE W99	228750
C27	4μf 10VW Electrolytic	228189
C28	4μf 10VW Electrolytic	228189
C29	80μf 2.5VW Electrolytic	229672
C30	20μf 12VW Electrolytic	229307
C31	0.01μf ±20% 200VW AEE W99	228609
C32	0.22μf +80%—20% 25VW Hi-K disc	227343
C33	64μf 10VW Electrolytic	229629
C34	2—12pf trimmer, Aerial (S.W.)	231001
	TRANSFORMERS	
TR1	Ferrite Rod Assembly (incl. R3)	53215
TR2	Oscillator Transformer (S.W.)	53219
TR3	Oscillator Transformer (M.W.)	53221
TR4	1st I.F. Transformer	51272
TR5	2nd I.F. Transformer	51268
TR6	3rd I.F. Transformer	51270
TR7	Driver Transformer	51161C
	TRANSISTORS & DIODES	
VT1	AWV AF116	
VT2	AWV 2N406	
VT3	AWV 2N1638	
VT4	AWV 2N1638	
VT5	AWV 2N408	
VT6	AWV 2N217S	
VT7	AWV 2N217S	
MR1	AWV 1N87A	
	MISCELLANEOUS	
LS1	4" x 2½" Speaker	50277
TH1	220 ohms at 25°C NTC thermistor	893709
JK1	External Aerial Jack	417019
JK2	Earphone Jack	417019
JK3	Battery Saver Jack	417405
PL1	Battery Plug CF 691—6—4	
SWA	Wave Change Switch	857335
SWB	On/Off Switch (on RV1)	