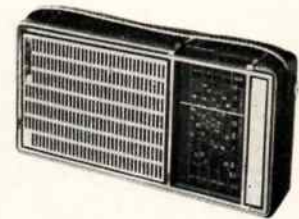




A.W.A. RADIOLA
SEVEN TRANSISTOR PORTABLE
MODELS B46 AND B46Z



ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Ranges: 520-1770 Kc/s.
 Intermediate Frequency 455 Kc/s.
 Battery Complement 9 V Eveready type 2364

Battery Consumption:

Zero Output	13mA
50mW 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 2½"
 Weight (with battery) 2 lbs. 2 oz.

Transistor and Diode Complement:

A.W.V. 2N1639	Converter
A.W.V. 2N406	A.G.C. Amplifier
A.W.V. 2N1638	1st. I.F. Amplifier
A.W.V. 2N1638	2nd I.F. Amplifier
A.W.V. 2N408	Driver
A.W.V. 2N217S	Output
A.W.V. 2N217S	Output
A.W.V. 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 the four screws and the slotted spacer holding the chassis assembly to the cabinet.
 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.

Drive Cord Replacement:

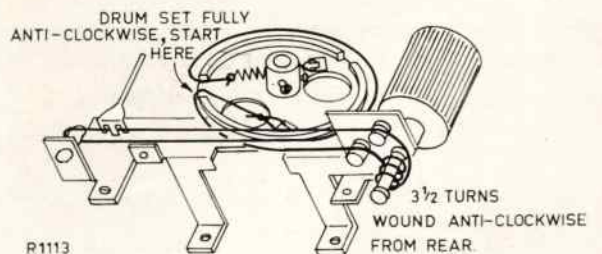


Fig. 2.

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
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.

† 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.

MECHANICAL REPLACEMENT PARTS

ITEM	PART No.	ITEM	PART No.
Cabinet, Back Assembly	66611	Nameplate, Tuning Control	66657
Cabinet Body	60276	Panel, Jack	66463
Cover, Dial Scale	66617	Pointer	66647
Dial Scale	65029	Screw, Retaining, Cabinet Back	66412
Drum, Drive	66642	Spacer, Slotted, Board Mtg.	66619
Earphone	307003	Spring, Drive Cord	44189
Earphone, Clip	61558	Strap Carrying, Long	66605
Fret, Moulded, Assembly	66607	Strap Carrying, Short	66604
Knob, Tuning	66633	Support, Ferrite Aerial, Chassis Mtg.	66471
Knob, Volume	66643	Support, Ferrite Aerial, Board Mtg.	66470
Nameplate, "A.W.A."	66610		

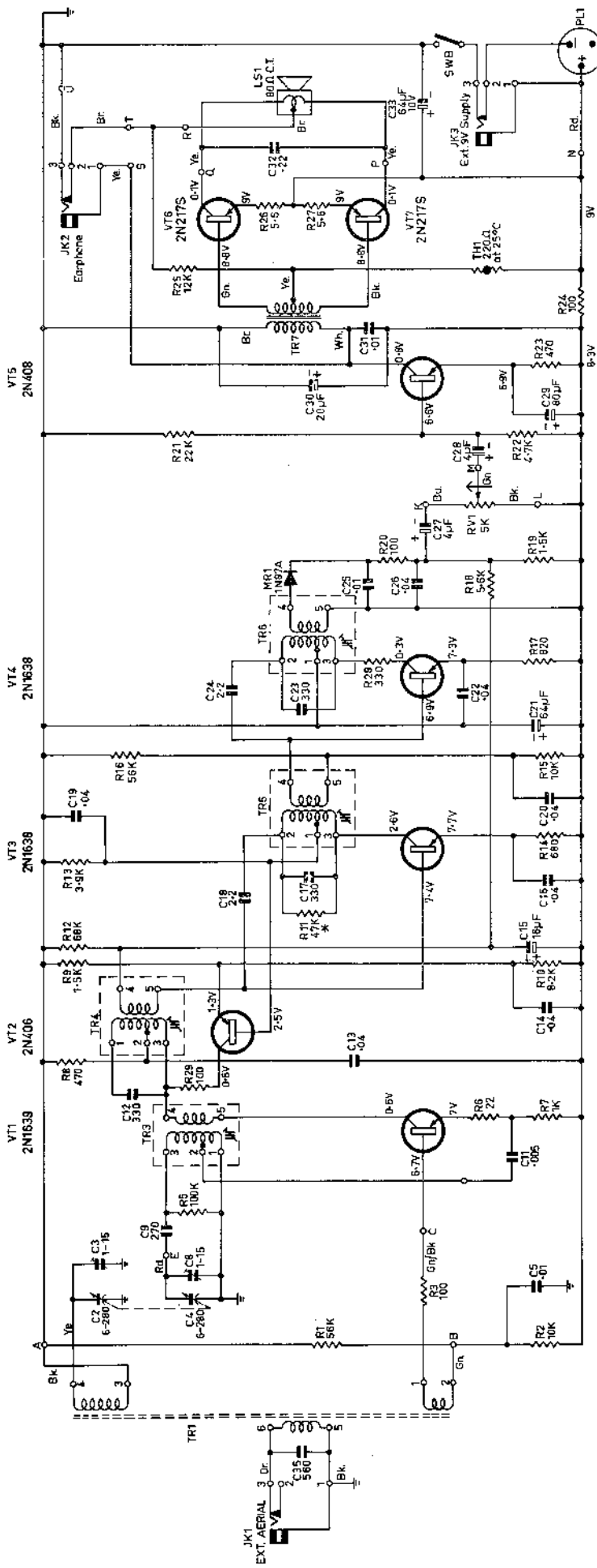
NOTE: When ordering spares, always quote the above Part Numbers, and in the case of coloured parts such as knobs, etc., also quote colour.

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)	
Oscillator Transformer (TR3)		Primary	2.5
Primary	3	Secondary	*
Secondary	*	3rd I.F. Transformer (TR6)	
1st I.F. Transformer (TR4)		Primary	2.5
Primary	2.5	Secondary	*
Secondary	*	Driver Transformer (TR7)	
		Primary	300
		Secondary	300

* Less than 1 ohm.

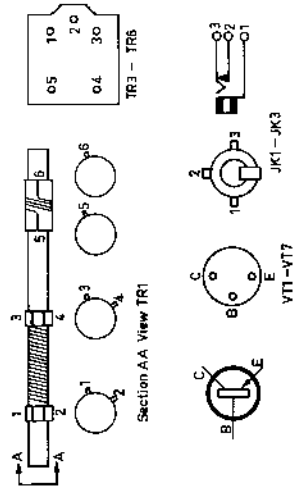
The above readings were taken on components from a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.



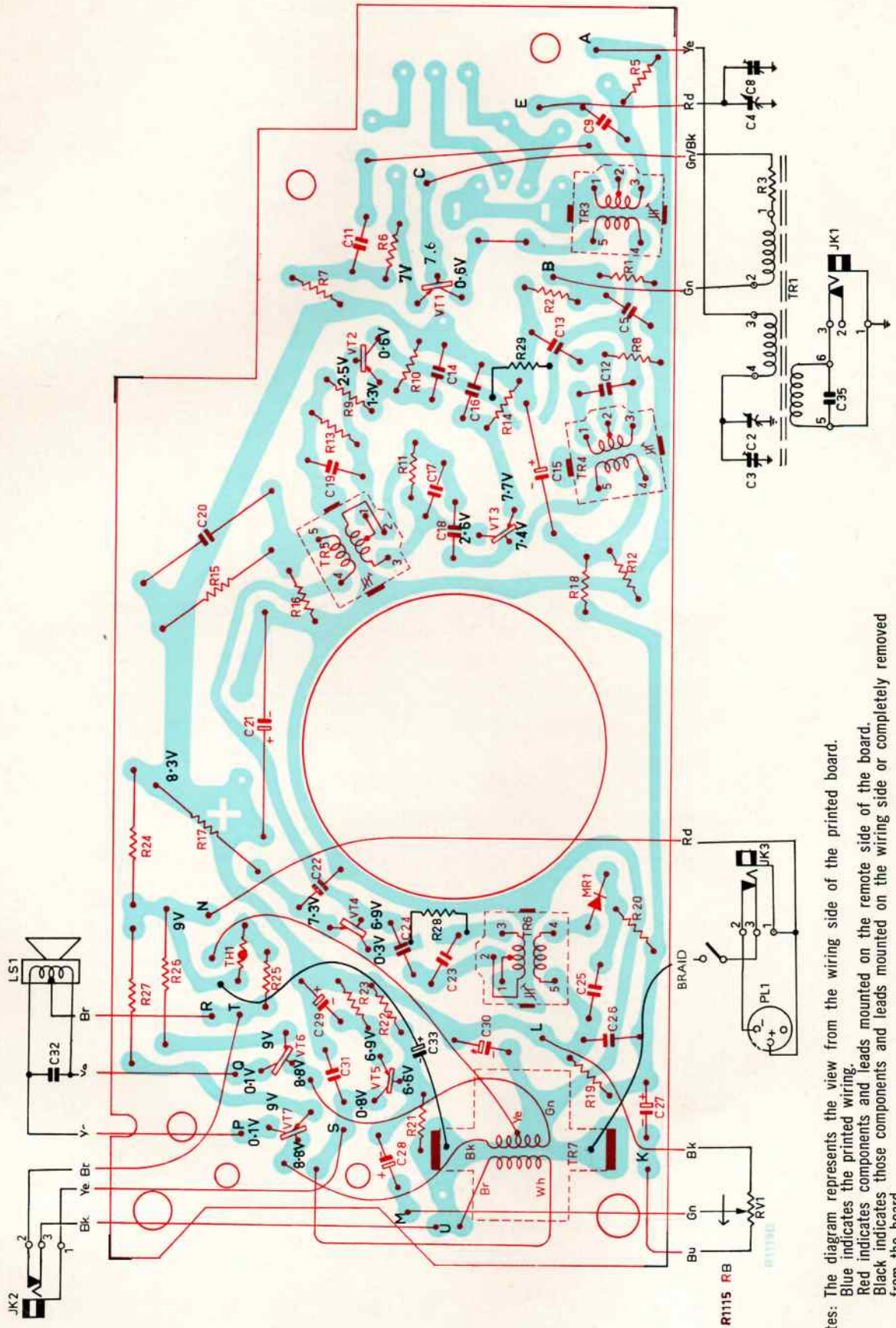
9 Volt Battery
Eveready Type 2364

NOTES— ARROW ON POTENTIOMETER INDICATES DIRECTION OF CLOCKWISE ROTATION
VOLTAGES MEASURED WITH NO SIGNAL INPUT AND VOLUME MAXIMUM
VOLTAGES SHOWN ARE POSITIVE WITH RESPECT TO CHASSIS (BATTERY
NEGATIVE TERMINAL) AND ARE MEASURED WITH 20,000 OHM/VOLT METER.
* MAY VARY IN PRODUCTION

CONNECTIONS



In the "Z" model a piece of copper braid is used to bridge the top of the housings of TR4, TR6 and TR7 causing a substantial reduction in 910 Kc/s whistle. The gain of the receiver was then increased by changing the shunt resistor R11 to 150K ohms and slightly modifying the existing ferrite rod aerial.



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 reverse 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.	CODE No.	DESCRIPTION	PART No.
RESISTORS					
All Resistors composition type unless otherwise stated.					
R1	56K ohms	1/2 watt	C15	16 μ f 10VW Electrolytic	228878
R2	10K ohms	1/2 watt	C16	0.04 μ f \pm 20% 200VW AEE W99	228750
R3	100 ohms	1/2 watt	C17	330pf \pm 5% N750 disc	223715
R4	Not used		C18	2.2pf \pm 20% NPO disc	221494
R5	100K ohms	1/2 watt	C19	0.04 μ f \pm 20% 200VW AEE W99	228750
R6	22 ohms	1/2 watt	C20	0.04 μ f \pm 20% 200VW AEE W99	228750
R7	1K ohms	1/2 watt	C21	64 μ f 10VW Electrolytic	229629
R8	470 ohms	1/2 watt	C22	0.04 μ f \pm 20% 200VW AEE W99	228750
R9	1.5K ohms	1/2 watt	C23	330pf \pm 5% N750 disc	223715
R10	8.2K ohms	1/2 watt	C24	2.2pf \pm 20% NPO disc	221494
R11	47K ohms	1/2 watt	C25	0.01 μ f \pm 20% 200VW AEE W99	228609
R12	150K ohms	1/2 watt (Z mod.)	C26	0.04 μ f \pm 20% 200VW AEE W99	228750
R13	68K ohms	1/2 watt	C27	4 μ f 10VW Electrolytic	228189
R14	3.9K ohms	1/2 watt	C28	4 μ f 10VW Electrolytic	228189
R15	10K ohms	1/2 watt	C29	80 μ f 2.5VW Electrolytic	229672
R16	680 ohms	1/2 watt	C30	20 μ f 12VW Electrolytic	229307
R17	56K ohms	1/2 watt	C31	0.01 μ f \pm 20% 200VW AEE W99	228609
R18	820 ohms	1/2 watt	C32	0.22 μ f \pm 80% -20% 25VW Hi-K disc	227343
R19	5.6K ohms	1/2 watt	C33	64 μ f 10VW Electrolytic	229629
R20	1.5K ohms	1/2 watt	C34	Not used	
R21	100 ohms	1/2 watt	C35	560 pf \pm 5% 160VW polystyrene	224485
R22	22K ohms	1/2 watt	TRANSFORMERS		
R23	4.7K ohms	1/2 watt	TR1	Ferrite Rod Assembly (incl. C1)	53217
R24	470 ohms	1/2 watt	TR2	Not used	
R25	100 ohms	1/2 watt	TR3	Oscillator Transformer	53221
R26	12K ohms	1/2 watt	TR4	1st I.F. Transformer	51272
R27	5.6 ohms	1/2 watt	TR5	2nd I.F. Transformer	51268
R28	330 ohms	1/2 watt	TR6	3rd I.F. Transformer	51270
R29	100 ohms	1/2 watt	TR7	Driver Transformer	51161C
RV1	5K ohms curve C carbon, Volume W/S		TRANSISTORS & DIODES		
CAPACITORS					
C1	Not used		VT1	AWV 2N1639	
C2	6—280pf tuning, Aerial	} Assy.	VT2	AWV 2N406	
C3	1—15pf trimmer, Aerial		VT3	AWV 2N1638	
C4	6—280pf tuning, Oscillator		VT4	AWV 2N1638	
C5	0.01 μ F \pm 20% 200VW AEE W99		VT5	AWV 2N408	
C6	Not used		VT6	AWV 2N217S	
C7	Not used		VT7	AWV 2N217S	
C8	1—15pf trimmer, Oscillator		MRI	AWV 1N87A	
C9	270pf \pm 2 $\frac{1}{2}$ % 100VW polystyrene		MISCELLANEOUS		
C10	Not used		LS1	4" x 2 $\frac{1}{2}$ " Speaker	50277
C11	0.005 μ f \pm 20% 200VW AEE W99		TH1	220 ohms at 25°C NTC thermistor	893709
C12	330pf \pm 5% N750 disc		JK1	External Aerial Jack	417019
C13	0.04 μ f \pm 20% 200VW AEE W99		JK2	Earphone Jack	417019
C14	0.04 μ f \pm 20% 200VW AEE W99		JK3	Battery Saver Jack	417405
			PL1	Battery Plug	CF 691—6—4
			SWB	On/Off Switch (on RV1)	