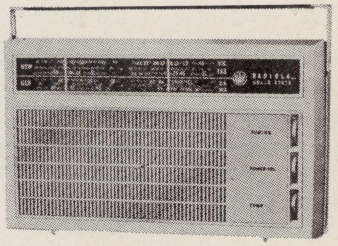
MANUFACTURERS AWA SUPERVISED SERVICE

A.W.A. EIGHT TRANSISTOR PORTABLE

Model B58



ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

The B58 is an eight transistor, battery operated superheterodyne portable receiver designed for the reception of the Medium, Wave Broadcasting Band. This model incorporates separate R.F. and A.F. printed circuit boards and provision is made for battery saver operation and external aerial and earth connection.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range ..... 525 - 1620 kHz

Intermediate Frequency ..... 455 kHz

Battery Complement ..... 9 volts Eveready type 276P

Battery Consumption:

- For zero audio output 14mA
- For 50mW audio output 42mA
- For full audio output 100mA

Loudspeaker 6" x 4" 53379

V.C. Impedance ..... 15 ohms at 400 Hz

Controls:

- Top — Tuning.
- Centre — Volume, ON/OFF.
- Bottom — Tone.

Dimensions:

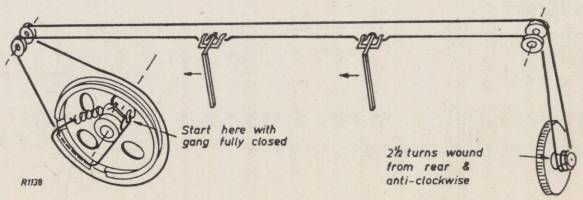
Height	$6\frac{5}{8}$"
Width	$10\frac{5}{8}$"
Depth	3"
Weight	4 lbs. with battery

Transistor and Diode Complement:

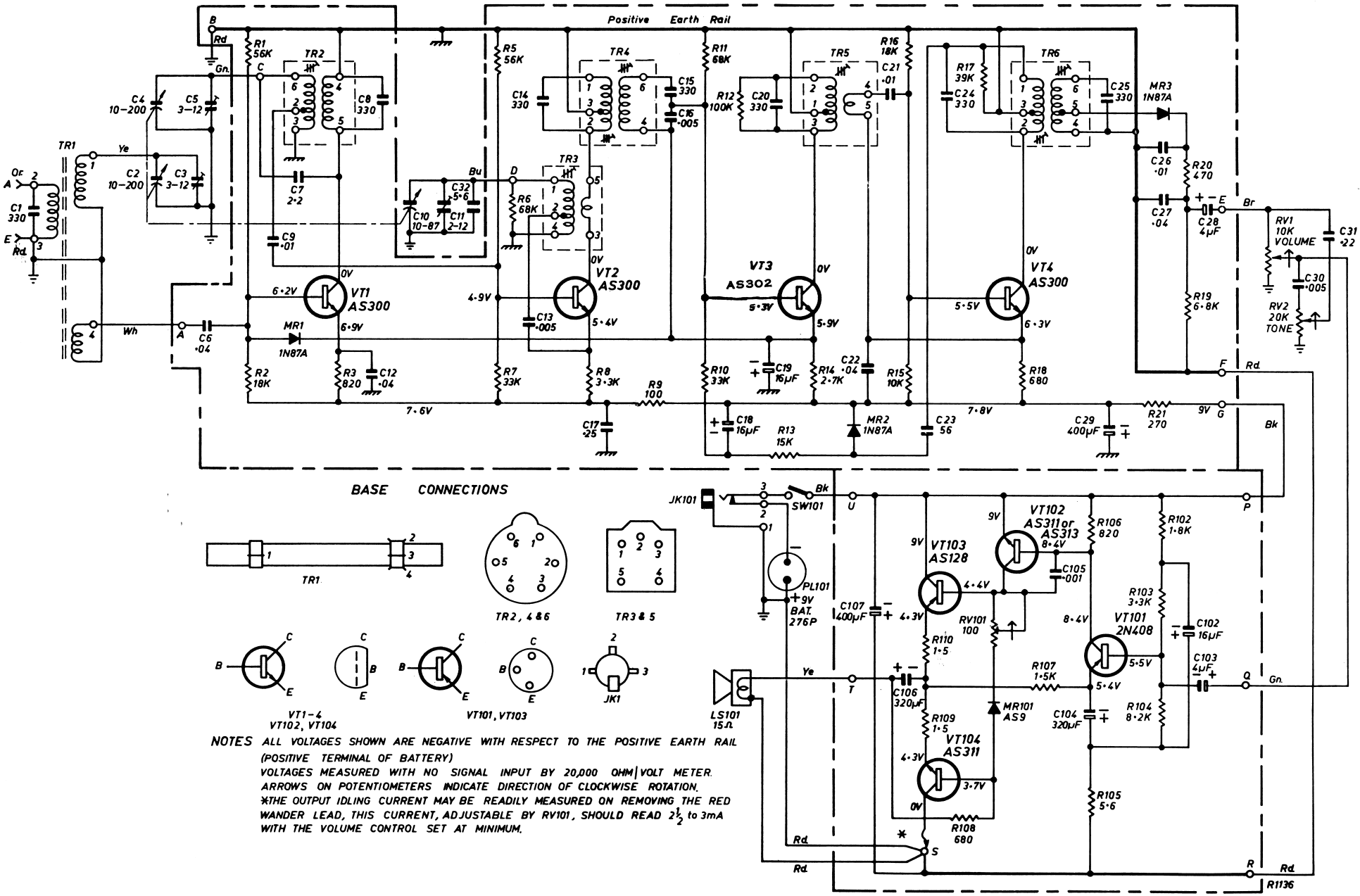
AWV AS300	R.F. Amplifier
AWV AS300	Converter
AWV AS302	1st I.F. Amplifier
AWV AS300	2nd I.F. Amplifier
AWV 2N408	Audio Amplifier
AWV AS311 or AS313	Driver
AWV AS128	Audio Output
AWV AS311	Audio Output
AWV 1N87A	Overload Diode
AWV 1N87A	A.G.C. Diode
AWV IN87A	Detector Diode
AWV AS9	Compensating Diode

Drive Cord Replacement:

Fig. 1 shows the route of the cord and the method of attachment.



EIGHT TRANSISTOR PORTABLE MODEL B58



NOTES ALL VOLTAGES SHOWN ARE NEGATIVE WITH RESPECT TO THE POSITIVE EARTH RAIL (POSITIVE TERMINAL OF BATTERY)
VOLTAGES MEASURED WITH NO SIGNAL INPUT BY 20,000 OHM/VOLT METER.
ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION.
*THE OUTPUT IDLING CURRENT MAY BE READILY MEASURED ON REMOVING THE RED WANDER LEAD, THIS CURRENT, ADJUSTABLE BY RV101, SHOULD READ 2½ to 3mA WITH THE VOLUME CONTROL SET AT MINIMUM.

R1136

Chassis Removal (Refer to Fig. 2.):

Remove four chassis mounting screws marked "A".

Unsolder aerial and earth leads at "B" and "C".

Disconnect the speaker leads.

The complete chassis assembly may now be lifted from the cabinet front.

To gain access to the wiring side of the A.F. board, straighten the four mounting pins and lift the board clear of the chassis.

Re-assembly is the reverse of the above procedure. However, take note of the following points:

When replacing the four chassis mounting screws do not over-tighten them.

Make sure that the battery lead clamp is replaced under the screw near the battery saver jack.

Adjustment of Output Idling Current:

An adjustment is provided in the audio board for controlling the output idling current. This adjustment is made during manufacture and need only be checked if any of the following conditions arise:—

1. The receiver idling current at minimum volume is greater than 14mA.

2. Cross-over distortion is present.

3. Any transistor or resistor is replaced in the audio board.

The adjustment is as follows:—
Disconnect the red wander lead at the test point provided and insert an ammeter between the test point and wander lead. With the volume control set in its minimum (anti-clockwise) position, adjust RV101 to give a reading of 2.5 to 3mA on the meter.

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Ferrite Rod Assembly (TR1) Tuned Winding	2
R.F. Transformer (TR2)	
Primary	11
Secondary	16
Oscillator Transformer (TR3)	
Primary	4
Secondary	*
1st I.F. Transformer (TR4)	
Primary	5
Secondary	5
2nd I.F. Transformer (TR5)	
Primary	3
Secondary	*
3rd I.F. Transformer (TR6)	
Primary	5
Secondary	5

* 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.

MECHANICAL REPLACEMENT PARTS

Item	Part No.
Back, Assembly Cabinet	68824
Bracket, Speaker Mounting (2)	68807
Chassis, Moulded	68808
Circlip, Handle Retaining (2)	2537
Clamp, Battery Lead	211067
Drum Assembly, Gang	64732
Front Assembly, Cabinet:	
Comprising:	
Dial Scale	65043/002
Fret Assembly	68802
Front, Cabinet	68505
Gang Mounting:	
Gang Assembly	21378
Grommet (3)	36826/002
Screw, Ch./Hd. 4 BA x ¼" (3)	714008
Spacer (3)	35923
Washer, Flat, 4 BA (3)	15731
Handle Assembly	68836
Knob, Tone	68815
Knob, Tuning	68813
Knob, Volume	68814
Nut, Spire, Back Retaining (2)	492148
Pointer (2)	68816
Screw, Back Retaining (2)	760596
Spring, Drive Cord	44189
Speed Nut, Tuning Knob Retaining	492094

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

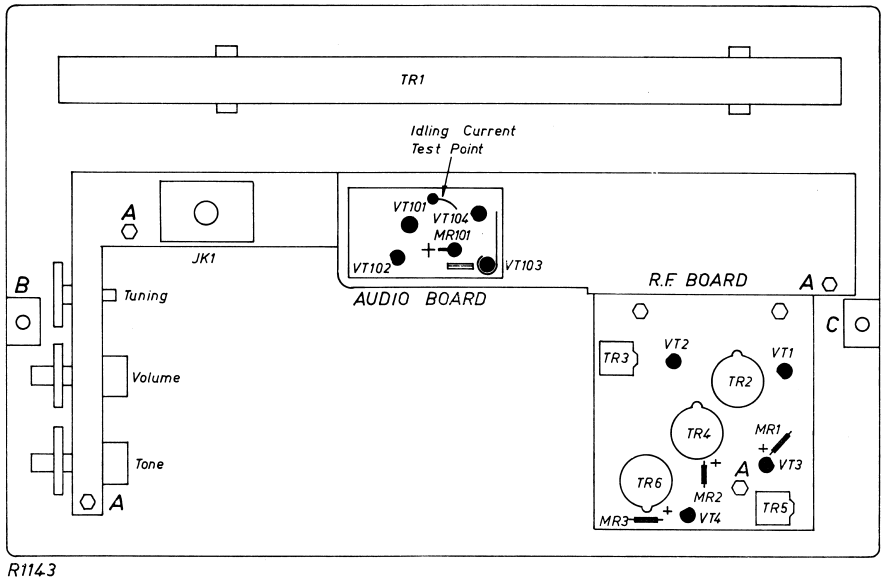


Fig. 2

Alignment Procedure:

Under no circumstances should the plates of the ganged tuning capacitor be bent, as the unit is accurately aligned during manufacture and can only be re-adjusted by skilled operators using special equipment.

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 400Hz or Modulated Oscillator.

If the Modulated Oscillator is used, connect a 220K ohms non-inductive resistor across the output terminals.

Output Meter — 15 ohms impedance.

I.F. Alignment Tool No. 39462.

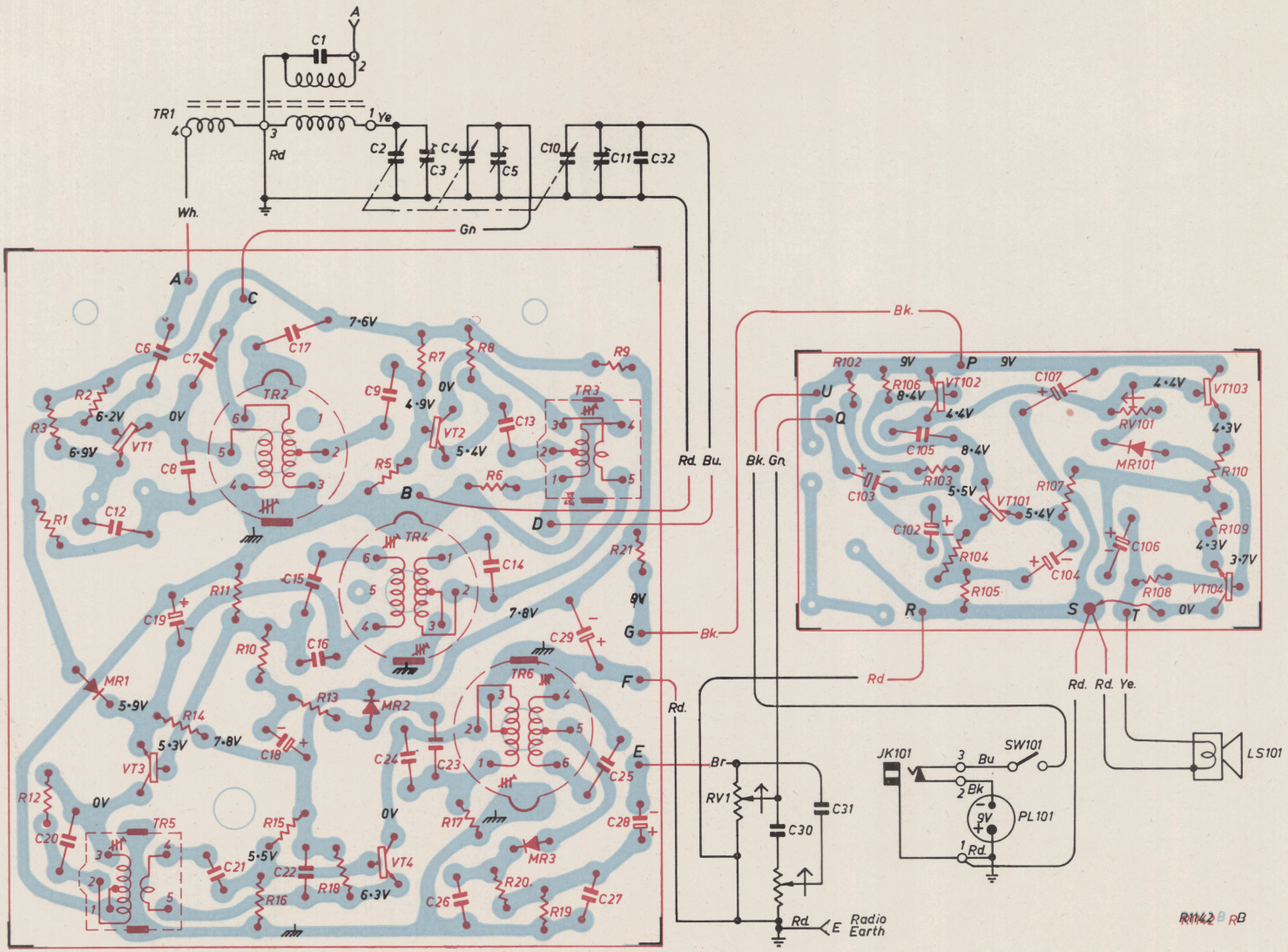
ALIGNMENT TABLE

ORDER	CONNECT "HIGH" SIDE OF GENERATOR TO:	TUNE GENERATOR TO:	TUNE RECEIVER TO:	ADJUST FOR MAX. PEAK OUTPUT:
1	R.F. Section of Gang	455 kHz	Gang fully closed	Cores in TR6, TR5 and TR4
Repeat adjustment until maximum output is obtained. Shunt R. F. Section of gang with a 2.2K ohms resistor.				
2	Inductively coupled to Rod Aerial *	1,620 kHz	Gang fully open	Osc. Trimmer (C11)
3	Inductively coupled to Rod Aerial *	1,500 kHz	1,500 kHz	Aerial Trimmer (C3)
4	Inductively coupled to Rod Aerial *	600 kHz	600 kHz	Osc. Core Adj. (TR3) †
Repeat adjustments 2, 3 and 4 as required and then remove shunt network.				
5	Inductively coupled to Rod Aerial *	600 kHz	600 kHz	R.F. Core Adj. (TR2)
6	Inductively coupled to Rod Aerial *	1,500 kHz	1,500 kHz	R.F. Trimmer (C5)
Repeat adjustments 5 and 6 as required.				

* A coil comprising 3 turns of 16 gauge D.C.C. wire, about 12″ 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.

N.B.: At the completion of the alignment, turn the tuning control until a known local station is accurately received. If necessary slide the pointer along the drive cord until that station is accurately indicated. Turn the tuning control until the above pointer correctly indicates station 2CR (550kHz). As station 2CR appears on both scales, the other pointer may now be repositioned if necessary to ensure correct tracking on both sections.



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 negative with respect to the board earth (positive 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	
R2	18K ohms ± 10% ½ watt	
R3	820 ohms ± 10% ½ watt	
R4	Not used.	
R5	56K ohms ± 10% ½ watt	
R6	68K ohms ± 10% ½ watt	
R7	33K ohms ± 10% ½ watt	
R8	3.3K ohms ± 10% ½ watt	
R9	100 ohms ± 10% ½ watt	
R10	33K ohms ± 10% ½ watt	
R11	68K ohms ± 10% ½ watt	
R12	100K ohms ± 10% ½ watt	
R13	15K ohms ± 10% ½ watt	
R14	2.7K ohms ± 10% ½ watt	
R15	10K ohms ± 10% ½ watt	
R16	18K ohms ± 10% ½ watt	
R17	39K ohms ± 10% ½ watt	
R18	680 ohms ± 10% ½ watt	
R19	6.8K ohms ± 10% ½ watt	
R20	470 ohms ± 10% ½ watt	
R21	270 ohms ± 10% ½ watt	
R101	Not used.	
R102	1.8K ohms ± 10% ½ watt	
R103	3.3K ohms ± 10% ½ watt	
R104	8.2K ohms ± 10% ½ watt	
R105	5.6 ohms ± 5% ½ watt	
R106	820 ohms ± 10% ½ watt	
R107	1.5K ohms ± 5% ½ watt	
R108	680 ohms ± 10% ½ watt	
R109	1.5 ohms ± 10% ½ watt	
R110	1.5 ohms ± 10% ½ watt	
RV1	10K ohms curve C carbon, Volume W/S	620205
RV2	20K ohms curve A carbon, Tone	620242
RV101	100 ohms	619962
	CAPACITORS	
C1	330pf ±5% 125VW Polystyrene	
C2	10—200pf Tuning Aerial	
C3	3—12pf Trimmer Aerial	21378
C4	10—200pf Tuning R.F.	
C5	3—12pf Trimmer R.F.	
C6	0.04µf ±20% 200VW AEE W99	
C7	2.2pf ±20% NPO Disc	
C8	330 ±10% N750 Disc	
C9	0.01µf ±20% 200VW AEE W99	
C10	10—87pf Tuning Oscillator	21378
C11	2—12pf Trimmer Oscillator	23001
C12	0.04 µf ±20% 200VW AEE W99	
C13	0.005µf ±20% 200VW AEE W99	
C14	330pf ±5% N750 disc	
C15	330pf ±5% N750 disc	
C16	0.005µf ±20% 200VW AEE W99	
C17	0.25µf ±20% 200VW AEE W48	
C18	16µf 10VW Electrolytic	228878
C19	16µf 10VW Electrolytic	228878
C20	330pf ±5% N750 disc	
C21	0.01µf ±20% 200VW AEE W99	
C22	0.04µf ±20% 200VW AEE W99	
C23	33pf ±10% N750 disc	
C24	330pf ±5% N750 disc	
C25	330pf ±5% N750 disc	
C26	0.01µf ±20% 200VW AEE W99	
C27	0.04µf ±20% 200VW AEE W99	
C28	4µf 10VW Electrolytic	228189
C29	400µf 10VW Electrolytic	229786
C30	0.005µf ±20% 200VW AEE W99	
C31	0.22µf +80%—20% 25VW Hi-K disc	
C32	5.6pf ±5% N3300 Tub	
C101	Not used.	
C102	16µf 10VW Electrolytic	228878
C103	4µf 10VW Electrolytic	228189
C104	320µf 6VW Electrolytic	229773
C105	0.001µf +100%—20% K5000 disc	
C106	320µf 6VW Electrolytic	229773
C107	400µf 10VW Electrolytic	229786
	TRANSFORMERS	
TR1	Ferrite Rod Assembly	54126
TR2	R.F. Transformer	54144
TR3	Oscillator Transformer	52133
TR4	1st I.F. Transformer	52772
TR5	2nd I.F. Transformer	54146
TR6	3rd I.F. Transformer	52798
	TRANSISTORS AND DIODES	
VT1	AWV AS300	
VT2	AWV AS300	
VT3	AWV AS302	
VT4	AWV AS300	
VT101	AWV 2N408	
VT102	AWV AS311 or AS313	
VT103	AWV AS128	
VT104	AWV AS311	
MR1	AWV 1N87A	
MR2	AWV 1N87A	
MR3	AWV 1N87A	
MR101	AWV AS9	
	MISCELLANEOUS	
JK101	Battery Saver Jack	417405
LS101	Speaker 6" x 4"	53379
PL101	Battery Plug	34623