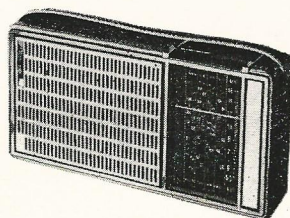


WESTINGHOUSE SERVICE MANUAL

FOR MODEL W744P



RADIO



This model is an eight transistor, battery operated superheterodyne portable receiver designed for the reception of the Medium Wave Broadcasting Band. Provision is made for battery saver operation.

ISSUED BY

EMAIL LIMITED
CONSUMER PRODUCTS DIVISION (SYDNEY)
Joynton Avenue, Waterloo. 69-0411

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range 520-1,620 Kc/s
Intermediate Frequency 455 Kc/s
Battery Complement 6V
4 Eveready type 1050 Batteries

Battery Consumption:
For Zero audio output 17 mA
For 50 mW audio output 50 mA
For full audio output 155 mA

Loudspeaker: 5" x 3" 50070

V.C. Impedance 56 ohms (centre tapped) at 400 c.p.s.

Undistorted Power Output 330 mW

Controls:
On/Off Volume—front left-hand.
Tuning—front right-hand

Transistor and Diode Complement:

AWV 2N1639	Converter
AWV 2N1638	1st I.F. Amplifier
AWV 2N1638	2nd I.F. Amplifier
AWV 2N408	Audio Amplifier
AWV 2N408	Driver
AWV AS128	Output
AWV AS128	Output
AWV AS22	Compensating Diode
AWV IN87A	Overload Diode
AWV IN87A	Detector

Dimensions:

Height	4 $\frac{3}{4}$ "
Width	10 $\frac{1}{2}$ "
Depth	2 $\frac{1}{4}$ "
Weight (with batteries)	3lb. 4oz.

CHASSIS REMOVAL

Remove two screws holding the back to the cabinet body and remove the back.

Remove the batteries.

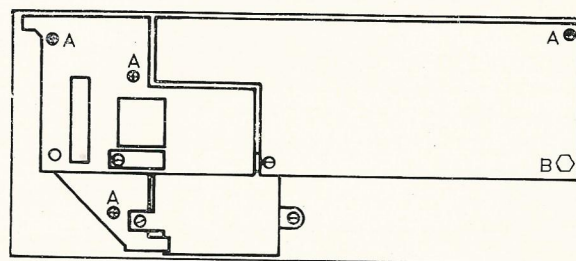
Referring to Fig. 1 remove four screws (marked "A") and one hexagon spacer (marked "B").

Lift the chassis and printed board assembly as far from the cabinet as possible and tilt it back.

Remove the dial backing plate by unscrewing the two retaining screws.

The wiring side of the printed board is now exposed for service checks.

Re-assembly is the reverse of the above.

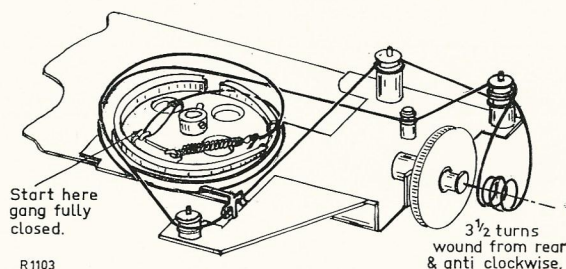


R. 1110

fig. 1

Drive Cord Replacement:

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 especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

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 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 measurements must be made with either the speaker connected or with two 28 ohms 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 5000 ohms and connected across the collectors, should be adequate. For a true reading of power output, an a.c. meter, with neither probed earthed, connected similarly will measure 1.2 volts for 50 mW (the effective load being 28 ohms).

I.F. Alignment Tool Part No. 39462.

ALIGNMENT TABLE

ORDER	CONNECT 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 TR5†, TR4 and TR3
Repeat adjustment until maximum output is obtained.				
2	Inductively Coupled to Rod Aerial*	600 Kc/s	600 Kc/s	Osc. Core (TR2) †
3	Inductively Coupled to Rod Aerial*	1,650 Kc/s	Gang fully open	Osc. Trimmer (C5)
4	Inductively Coupled to Rod Aerial*	1,500 Kc/s	1,500 Kc/s	Aer. Trimmer (C4)

Repeat Steps 2, 3 and 4.

* 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.

‡ Peak TR5 with core toward the board.

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 TR4:	
		Primary	3
Oscillator Transformer TR2:		Secondary	*
Primary	1	3rd I.F. Transformer TR5:	
Secondary	4.7	Primary	3
		Secondary	*
1st I.F. Transformer TR3:		Driver Transformer TR6:	
Primary	3	Primary	50
Secondary	*	Secondary (each half)	25

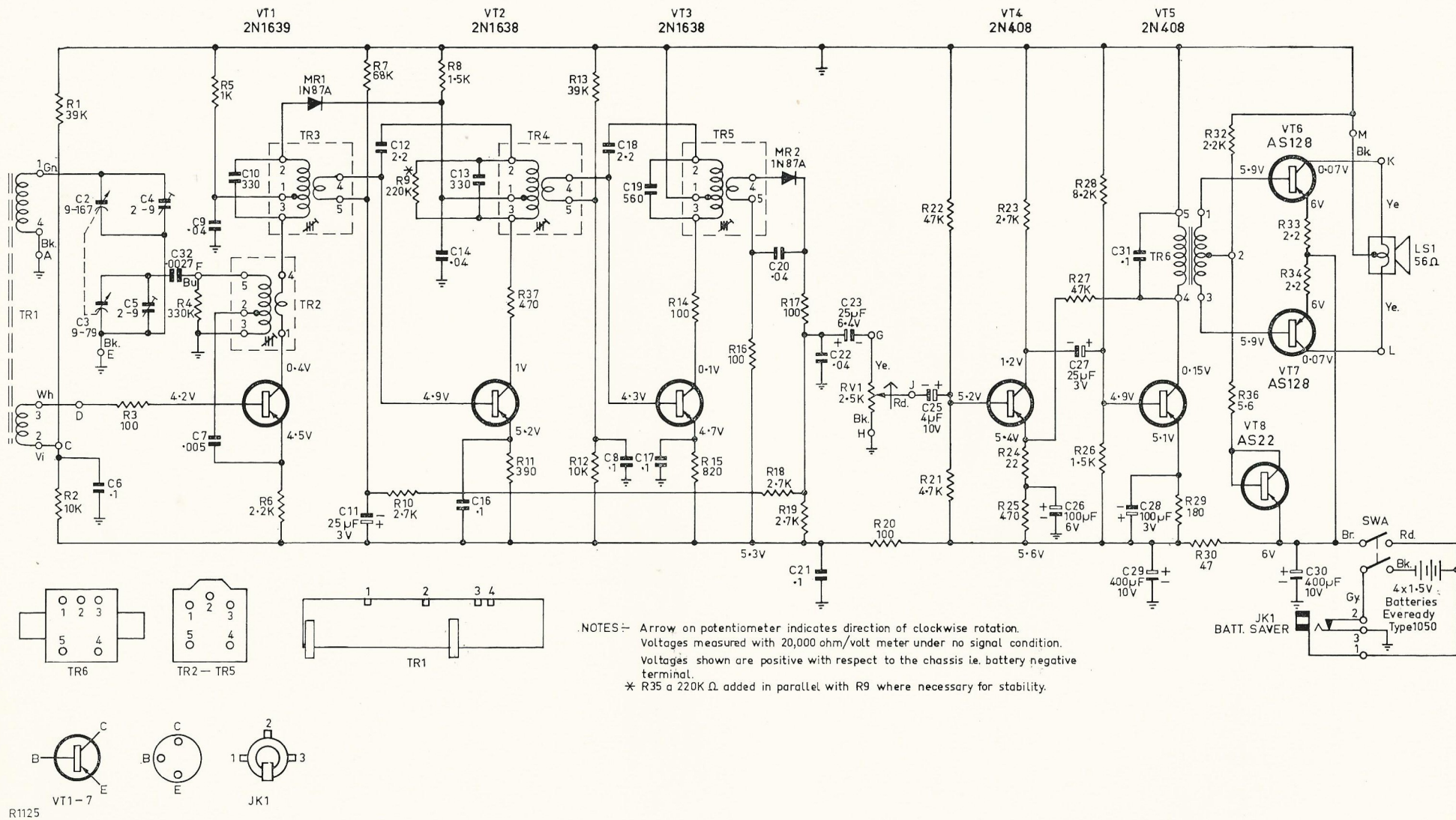
* Less than 1 ohm.

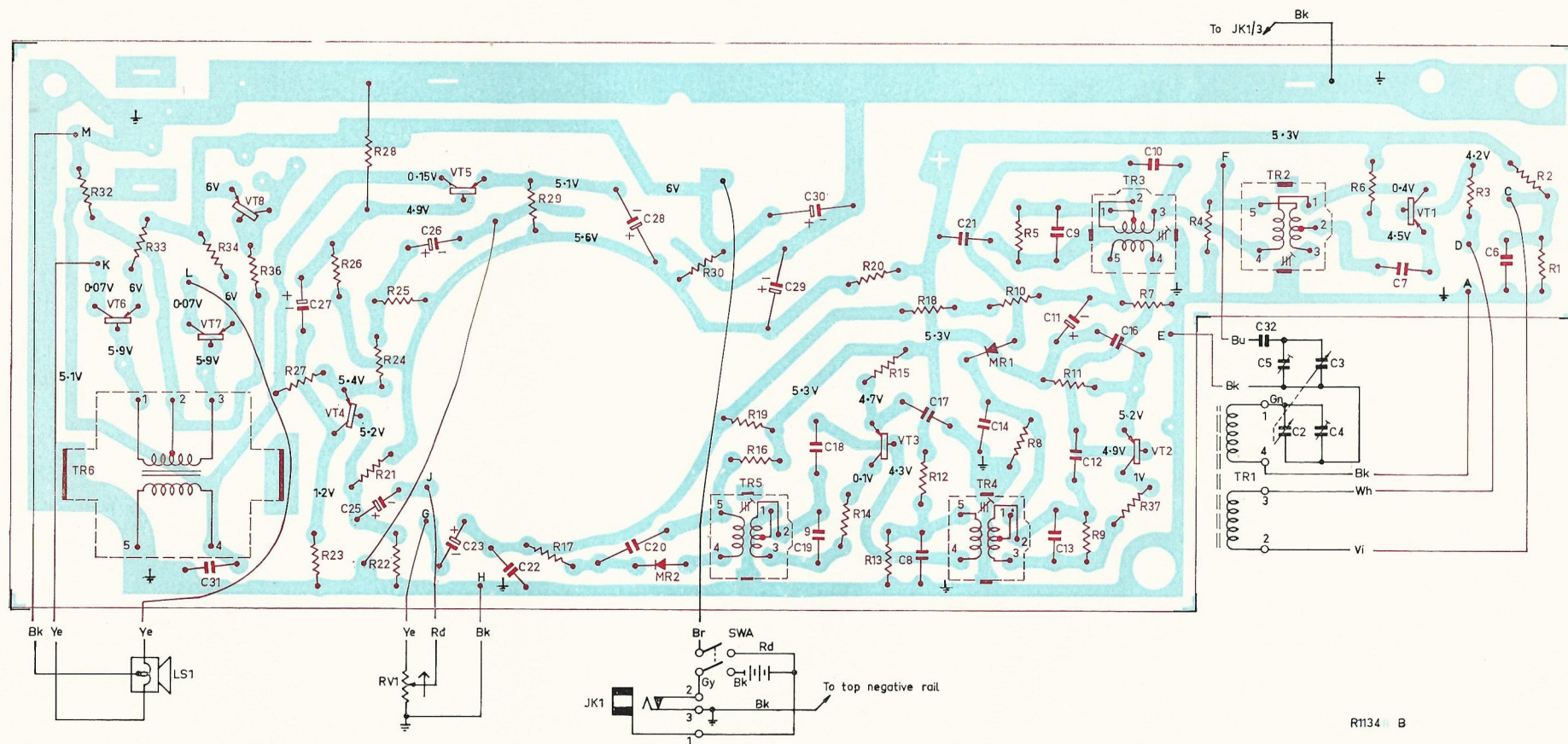
The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

MECHANICAL REPLACEMENT PARTS

Item	Part No.	Item	Part No.
Cabinet, Back	66674	Holder, Battery	66673
Cabinet, Body	60296	Knob, Tuning	66468
Cabinet, Front	66677/003	Knob, Volume	66464
Cover, Dial	66447	Nameplate	66428
Dial Scale	65026B	Plate, Contact, Negative	66473
Drum, Drive	64700	Plate, Contact, Positive	66475
Fret, Cloth	66438	Pointer, Tuning	66476
Fret, Moulded	66437	Pulley, Large (2)	66626
Gang Mounting:		Pulley, Small	17716
Gang	66351	Spindle, Drive	66469
Grommet (3)	63199	Spring, Battery Contact	44188
Screw, 6BA x 9/32" Ch. Hd. (3)	716009	Spring, Drive Cord	44189
Spacers (3)	39110	Trim, Handle	66432
Washers, 6BA Flat (3)	15722		
Washer, 6BA ITL	921206		

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





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.	CODE No.	DESCRIPTION	PART No.
RESISTORS					
All resistors composition type unless otherwise stated.					
R1	39K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C8	0.1 μ F +80% -20% 25VW Hi-K disc	
R2	10K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C9	0.04 μ F $\pm 20\%$ 200VW AEE W99	
R3	100 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C10	330pF $\pm 5\%$ N750 disc	
R4	330K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C11	25 μ F 3VW Electrolytic	229428
R5	1K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C12	2.2pF $\pm 20\%$ NPO disc	
R6	2.2K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C13	330pF $\pm 5\%$ N750 disc	
R7	68K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C14	0.04 μ F $\pm 20\%$ 200VW AEE W99	
R8	1.5K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C15	Not used	
R9	220K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C16	0.1 μ F + 80% -20% 25VW Hi-K disc	
R10	2.7K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C17	0.1 μ F +80% -20% 25VW Hi-K disc	
R11	390 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C18	2.2pF $\pm 20\%$ NPO disc	
R12	10K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C19	560pF $\pm 5\%$ 100VW polystyrene	
R13	39K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C20	0.04 μ F $\pm 20\%$ 200VW AEE W99	
R14	100 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C21	0.1 μ F + 80% -20% 25VW Hi-K disc	
R15	820 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C22	0.04 μ F $\pm 20\%$ 200VW AEE W99	
R16	100 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C23	25 μ F 6.4VW Electrolytic	229254
R17	100 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C24	Not used	
R18	2.7K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C25	4 μ F 10VW Electrolytic	228189
R19	2.7K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C26	100 μ F 6VW Electrolytic	229733
R20	100 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C27	25 μ F 3VW Electrolytic	229428
R21	4.7K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C28	100 μ F 3VW Electrolytic	229706
R22	47K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C29	400 μ F 10VW Electrolytic	229786
R23	2.7K ohms $\pm 10\%$	$\frac{1}{2}$ watt	C30	400 μ F 10VW Electrolytic	229786
R24	22 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C31	0.1 μ F +80% -20% 25VW Hi-K disc	
R25	470 ohms $\pm 10\%$	$\frac{1}{2}$ watt	C32	0.0027 μ F $\pm 2\frac{1}{2}\%$ 50VW polystyrene	
R26	1.5K ohms $\pm 10\%$	$\frac{1}{2}$ watt	TRANSFORMERS		
R27	47K ohms $\pm 10\%$	$\frac{1}{2}$ watt	TR1	Ferrite Rod Ass'y	53285
R28	8.2K ohms $\pm 10\%$	$\frac{1}{2}$ watt	TR2	Oscillator Transformer	53200
R29	180 ohms $\pm 10\%$	$\frac{1}{2}$ watt	TR3	1st I.F. Transformer	51268
R30	47 ohms $\pm 10\%$	$\frac{1}{2}$ watt	TR4	2nd I.F. Transformer	51268
R31	Not used		TR5	3rd I.F. Transformer	53290
R32	2.2K ohms $\pm 10\%$	$\frac{1}{2}$ watt	TR6	Driver Transformer	53075
R33	2.2 ohms $\pm 10\%$	$\frac{1}{2}$ watt W.W.	TRANSISTORS AND DIODES		
R34	2.2 ohms $\pm 10\%$	$\frac{1}{2}$ watt W.W.	VT1	AWV 2N1639	
R35*	220K ohms $\pm 10\%$	$\frac{1}{2}$ watt	VT2	AWV 2N1638	
R36	5.6 ohms $\pm 10\%$	$\frac{1}{2}$ watt	VT3	AWV 2N1638	
R37	470 ohms $\pm 10\%$	$\frac{1}{2}$ watt	VT4	AWV 2N408	
RV1	2.5K ohms curve C, Volume W/S		VT5	AWV 2N408	
* Fitted when necessary			VT6	AWV AS128	
			VT7	AWV AS128	
			VT8	AWV AS22	
			MR1	AWV 1N87A	
			MR2	AWV 1N87A	
CAPACITORS			MISCELLANEOUS		
C1	Not used		LS1	5" x 3" Speaker	50070
C2	9-167pF tuning Aerial	} Ass'y	JK1	Battery Saver Jack	417405
C3	9-79pF tuning Oscillator		SWA	On/Off Switch (on RV1)	
C4	2-9pF trimmer Aerial				
C5	2-9pF trimmer Oscillator				
C6	0.1 μ F +80% -20% 25VW Hi-K disc				
C7	0.005 μ F $\pm 20\%$ 200VW AEE W99				

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