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**For Trade Use Only**

# **"HIS MASTER'S VOICE"**

## **CIRCUIT DIAGRAM AND PARTS LIST**

*for*

### **CHASSIS TYPE J8**

### **TRANSISTOR PORTABLE RADIO RECEIVER**



MANUFACTURED AND DISTRIBUTED  
*by*  
E.M.I. (AUSTRALIA) LIMITED  
*(Incorporated in N.S.W.)*



**PART No. 683-2821**

## TECHNICAL SPECIFICATION

### FREQUENCY RANGE:

525 - 1650 Kc/s.

572 - 182 Metres

### INTERMEDIATE FREQUENCY:

455 Kc/s.

### BATTERY:

One Eveready Type 276-P.

### BATTERY CONSUMPTION:

Zero Audio Output—

Approximately 10 milliamperes.

50 Milliwatts Audio Output—

Approximately 30 milliamperes.

### TRANSISTORS:

1 type OC170S ... R.F. Amplifier

1 type OC170 ..... Converter

1 type OC169 ..... I.F. Amplifier

1 type OC975 ..... A.F. Amplifier

1 type OC75 ..... Audio Driver

1 type AC127 ..... \*Output NPN

1 type AC132 ..... \*Output PNP

\*Matched Pair

### CRYSTAL DIODES, TYPE 0A91

1 Audio Detector

1 AVC Diode

### LOUDSPEAKER:

7 x 4 inch Permanent Magnet—

V/C Impedance at 400 c/s, 30 ohms.

Undistorted Power Output (approx.)—

320 mW.

### CONTROLS:

Tuning Control: Top right side of cabinet.

On-Off Switch/Volume Control: Top left side of cabinet.

Tone Control: Middle of the cabinet above the dial scale.

### DIMENSIONS:

Height .....  $5\frac{3}{4}$  inches.

Width .....  $10\frac{5}{8}$  inches

Depth .....  $3\frac{1}{2}$  inches

Weight with Battery .....  $5\frac{1}{4}$  lbs.

### BATTERY REPLACEMENT:

Unscrew the two screws at the rear of the cabinet and slide the front assembly out. The battery is to the left of the printed board (viewed from rear). Use care when replacing the battery and ensure that the trimmers or leads associated with the R.F. section of the board are not disturbed.

### SERVICING THE RECEIVER:

Normal servicing and alignment can be done with only the cabinet back removed from the front assembly. For removal, unscrew the two screws at the rear of the cabinet. This enables the front assembly to slide out, giving complete access to all components.

The printed circuit board can be serviced from both sides without disconnecting leads. Care should be taken, however, not to disturb the trimmers or leads associated with the R.F. section of the board.

### PRELIMINARY TESTS:

Regardless of what the stated complaint may be, the following overall conditions should be checked:

- Condition of the battery (voltage with the set turned on).
- Overall current drain with no signal input (should be 9 - 12 mA).
- Sensitivity by listening test.
- Distortion by listening test.

## ALIGNMENT TABLE

<i>Order of Operations</i>	<i>Connect High Side of Generator To</i>	<i>Tune Generator To</i>	<i>Tune Receiver To</i>	<i>Adjust for Maximum Peak Output</i>
1	R.F. Section of Gang	455 Kc/s	L.F. Limit	Core T7
2	R.F. Section of Gang	455 Kc/s	L.F. Limit	Core T6
3	R.F. Section of Gang	455 Kc/s	L.F. Limit	Core T5
4	R.F. Section of Gang	455 Kc/s	L.F. Limit	Core T4
Repeat steps 1 - 4 until maximum output is obtained.*				
5	—	—	L.F. Limit	Pointer should lie on the Black line on the dial.
6	Aerial Input**	600 Kc/s	Black Line at 600 Kc/s	Core Osc. Coil (T3) ***
7	Aerial Input	1500 Kc/s	Black Line at 1500 Kc/s	Osc. Trimmer (VC5)
	Repeat 6 and 7			
8	Aerial Input	1500 Kc/s	Black Line at 1500 Kc/s	Aerial Trimmer (VC1)
9	Aerial Input	1500 Kc/s	Black Line at 1500 Kc/s	R.F. Trimmer (VC3)
10	Aerial Input	600 Kc/s	Black Line at 600 Kc/s	Aerial Coil (T1) ****
11	Aerial Input	600 Kc/s	Black Line at 600 Kc/s	Core R.F. Coil ****
	Repeat steps 8 - 11			

\* These transformers are a very high Q miniature type. It should be appreciated then, that the amount of travel, for the tuning core to cover its tuning range, is much less than in normal I.F. transformers. Tuning the I.F. thus becomes more critical, and the following hints will prove useful.

- (a) The tuning tool used should be a small metal screwdriver, whose tip fits cleanly into the tuning core.
- (b) When turning the core, do not use any downward pressure, as the thread in the former has enough resilience to detune the I.F. when the pressure is removed.
- (c) The thread in the former may be damaged if the core is wound in and forced against the printed board. This should never happen, as only a light torque is normally required to turn the tuning core.

\*\* Use a resistor of 4.7K ohms in series with the generator for accurate alignment.

\*\*\* Rock the tuning control back and forth through the signal and allow for a maximum of

1 pointer width error between the white line and 600 Kc/s generator frequency for maximum output.

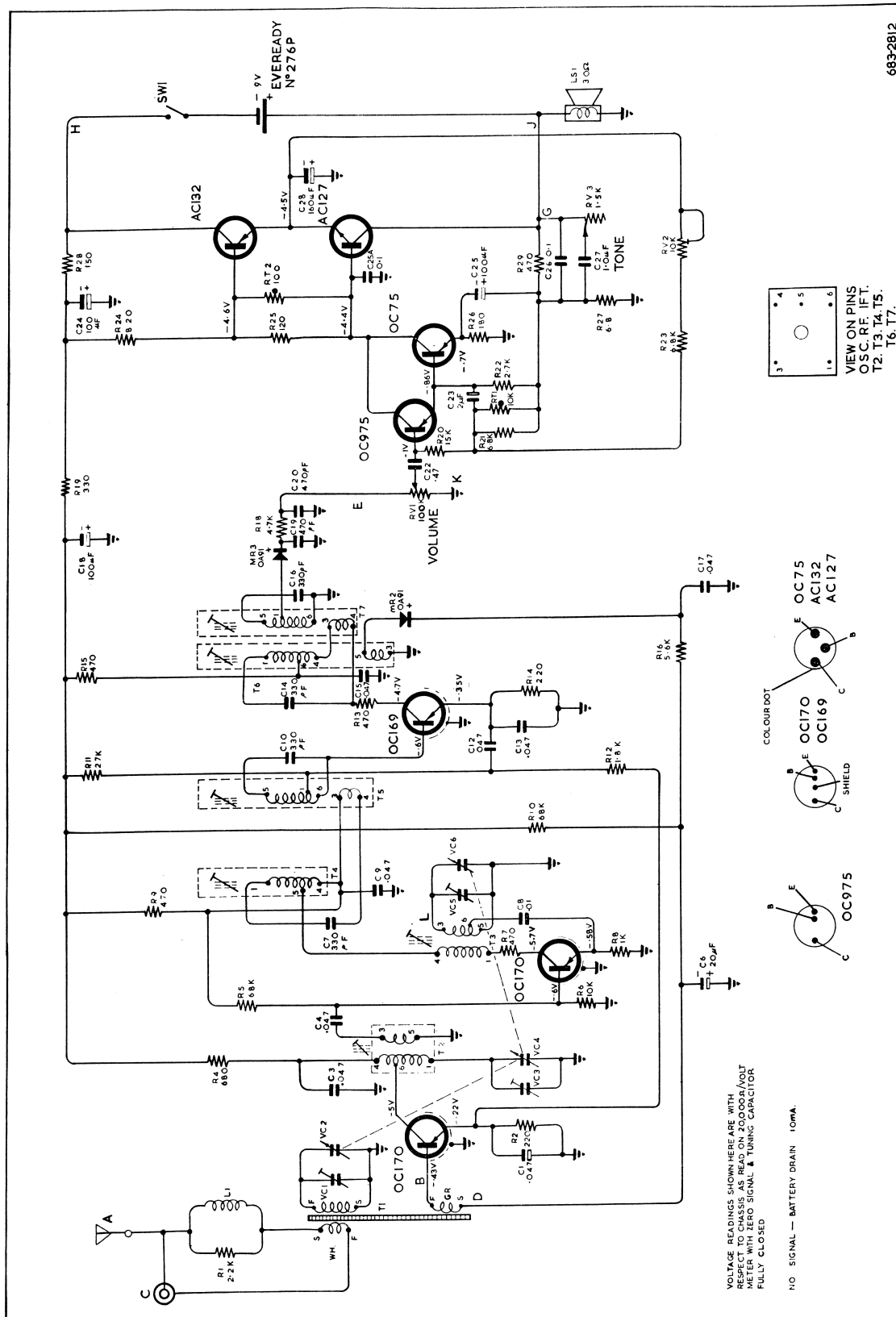
\*\*\*\* These coils have been pre-aligned in production and under normal conditions no adjustment is necessary. To find if these coils are aligned, place a piece of ferrite and then a piece of brass near the loopstick and into the top of the former of the R.F. coil. If the coils are properly aligned, the receiver's output will drop. If the output increases at any stage in this check, re-alignment of these coils is necessary.

### NOTE:

During the course of production of these receivers, the Company reserves the right, without notice, to make any modifications or improvements in design which may be necessary to meet prevailing conditions.

Information concerning changes, which are likely to be of benefit to retailers and servicemen, will be notified, as far as possible, by issuing a Technical Data Sheet.

Any further service information may be obtained by addressing an inquiry to "The Service Division," E.M.I. (Australia) Limited, 575-577 Parramatta Road, Leichhardt (Tel. LM 0291).



CIRCUIT DIAGRAM — J8



# COMPONENT PARTS LIST

## R E S I S T O R S

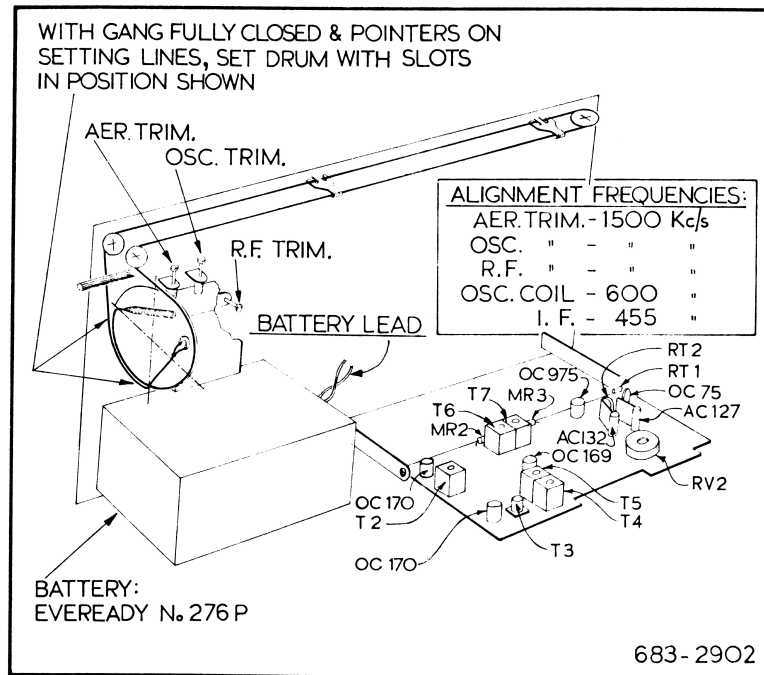
REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
R1	742-0511	2.2K ohms 1 watt with L1.	R16	740-1372	5.6K ohms $\pm 5\%$ $\frac{1}{2}$ Watt
R2	740-1012	220 ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R17		
R3			R18	740-0072	4.7K ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R4	740-1293	680 ohms $\pm 5\%$ $\frac{1}{2}$ Watt Morganite	R19	740-0922	330 ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R5	740-1222	68K ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R20	740-0092	15K ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R6	740-0962	10K ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R21	740-0382	6.8K ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R7	740-0012	470 ohms $\pm 10\%$ $\frac{1}{2}$ Watt	R22	740-0043	2.7K ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R8	740-1182	1K ohm $\pm 5\%$ $\frac{1}{2}$ Watt			Morganite
R9	740-0012	470 ohms $\pm 10\%$ $\frac{1}{2}$ Watt	R23	740-0382	6.8K ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R10	740-1222	68K ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R24	740-0412	820 ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R11	740-0992	27K ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R25	740-1412	120 ohms $\pm 5\%$ $\frac{1}{2}$ Watt
R12	740-1382	1.8K ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R26	740-1162	180 ohms $\pm 10\%$ $\frac{1}{2}$ Watt
R13	740-0012	470 ohms $\pm 10\%$ $\frac{1}{2}$ Watt	R27	740-1243	6.8 ohms $\pm 10\%$ $\frac{1}{2}$ Watt Morganite
R14	740-1012	220 ohms $\pm 5\%$ $\frac{1}{2}$ Watt	R28	740-0273	150ohms $\pm 10\%$ $\frac{1}{2}$ Watt Morganite
R15	740-0012	470 ohms $\pm 10\%$ $\frac{1}{2}$ Watt	R29	740-0012	470 ohms $\pm 10\%$ $\frac{1}{2}$ Watt

## C A P A C I T O R S

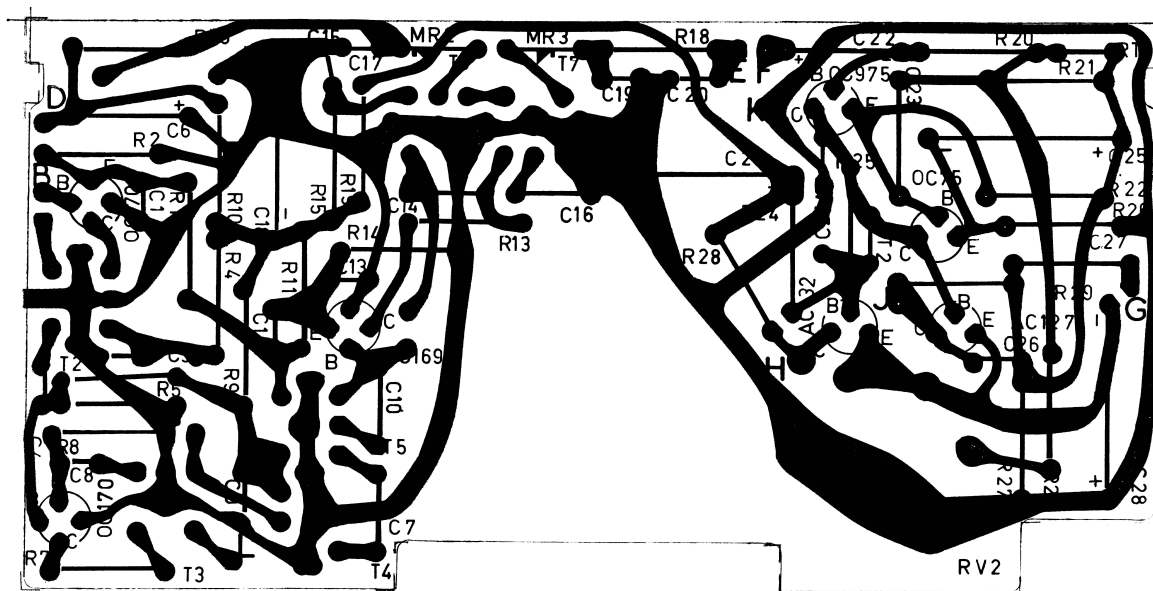
REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
C1	271-0731	.047 uF 25V. Redcap Ceramic	C17	271-0731	.047 uF 25V. Redcap Ceramic
C2			C18	269-0691	100 uF 12 V.W. Electrolytic
C3	271-0731	.047 uF 25V. Redcap Ceramic	C19	271-0841	470 pF $\pm 20\%$ Hi-K Style A
C4	271-0731	.047 uF 25V. Redcap Ceramic			Ceramic Disc
C5			C20	271-0841	470 pF $\pm 20\%$ Hi-K Style A
C6	269-0811	20 uF 6.4V. Electrolytic			Ceramic Disc
C7	280-3081	330 pF $\pm 5\%$ 125V. Styroseal	C21		
C8	271-0741	.01 uF 25V. Redcap Ceramic	C22	271-0871	.47 uF +80% -20% Redcap
C9	271-0731	.047 uF 25V. Redcap Ceramic			Ceramic
C10	280-3081	330 pF $\pm 5\%$ 125V. Styroseal	C23	269-0841	2 uF 3V. Non-polarised Electrolytic
C11			C24	269-0691	100 uF 12 V.W. Electrolytic
C12	271-0731	.047 uF 25V. Redcap Ceramic	C25	269-0541	100 uF 3 V.W. Electrolytic
C13	271-0731	.047 uF 25V. Redcap Ceramic	C25a	271-0761	0.1 uF 25 V.W. Redcap Ceramic
C14	280-3081	330 pF $\pm 5\%$ 125V. Styroseal	C26	271-0761	0.1 uF 25 V.W. Redcap Ceramic
C15	271-0731	.047 uF 25V. Redcap Ceramic	C27	271-0831	1.0 uF +80% -20% 1V. Ceramic
C16	280-3081	330 pF $\pm 5\%$ 125V. Styroseal	C28	269-0831	160 uF 10V. AM/D160 Electrolytic

## M I S C E L L A N E O U S

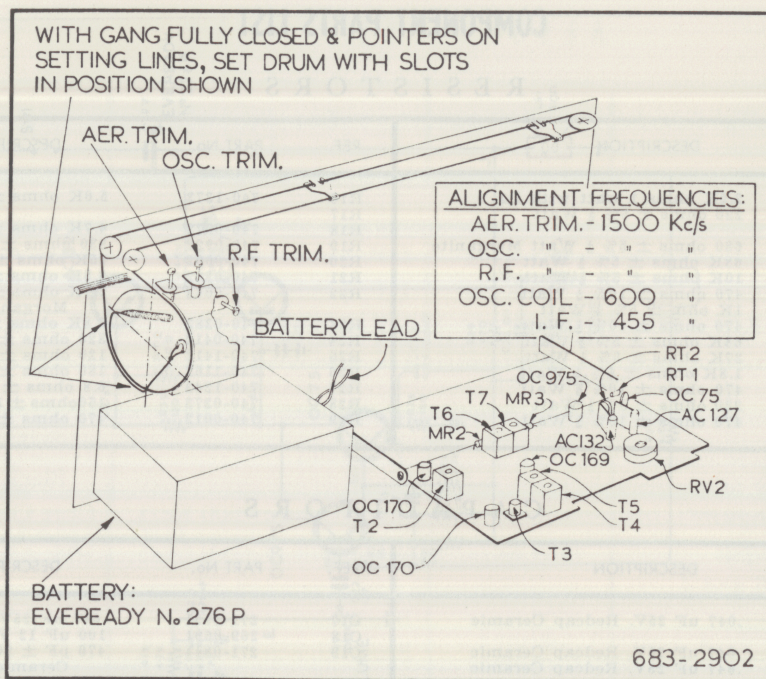
REF.	PART No.	DESCRIPTION	REF.	PART No.	DESCRIPTION
RV1 )		100K ohms $\pm 30\%$ Curve 'A'	LS1	831-1551	4in. x 7in. Loudspeaker 30 ohms
) S1 )	677-1071	Potentiometer with SPST			V.C. Impedance E.M.I.
) RV2 )	677-1131	Switch	MR1	932-2071	OA91 Diode—AVC
		10K ohms curve 'A' Potentiometer	MR2	932-2071	OA91 Diode—Audio Detector
		IRC type E.C. for printed	MR3	932-1681	Transistor OC170—R.F. Amplifier
		circuits or Ducon with No. 4		932-1681	Transistor OC170—Converter
		terminal		932-1691	Transistor OC169—I.F. Amplifier
RV3	677-1081	1.5K ohms $\pm 30\%$ Curve 'AC'		932-1961	Transistor OC975—A.F. Amplifier
		potentiometer		932-1311	Transistor OC75—Audio Driver
RT1	752-0091	10K ohms $\pm 20\%$ CZ10 Thermistor		932-1971	Transistors AC132/AC127 Matched
RT2	752-0081	100 ohms $\pm 10\%$ Ducon			Pair—Audio Output
		Thermistor			
VC2 )		3-Gang Variable Capacitor MSP		132-0091	Printed Circuit Board
VC4 )	281-0272	(Special)		132-0081	Printed Circuit Board Assembly
VC6 )				297-0101	Dial Cord (Black)
VC1	281-0031	Trimmer Capacitor—Philips		381-0171	Dial Drum Assembly
VC3	281-0031	Trimmer Capacitor—Philips		517-1981	Volume and Tuning Knobs
VC5	281-0031	Trimmer Capacitor—Philips		517-1991	Tone Control Knob
L1	259-0712	Aerial Loading Coil (on R1)		526-4831	Aerial Lead Assembly
T1	253-0283	Aerial Rod Assembly		671-0651	Pointer
T2	255-0052	R.F. Coil (White and grey dots)		754-0201	Aerial Rod Bracket—Left-hand
T3	257-0224	M/W Oscillator Coil (Black dot)		754-0211	Aerial Rod Bracket—Right-hand
T4	906-0481	1st I.F. Transformer (Red and		794-1371	Clear Dial Scale
		grey dots)		794-1381	Printed Dial Scale
T5	906-0491	2nd I.F. Transformer (Orange and		814-1211	Cabinet Back Fixing Screw
		grey dots)		824-0961	Aerial Socket
T6	906-0501	3rd I.F. Transformer (Green and		837-1651	Spindle Assembly
		grey dots)		840-0801	Dial Drive Spring
T7	906-0511	4th I.F. Transformer (Yellow			
		and grey dots)			



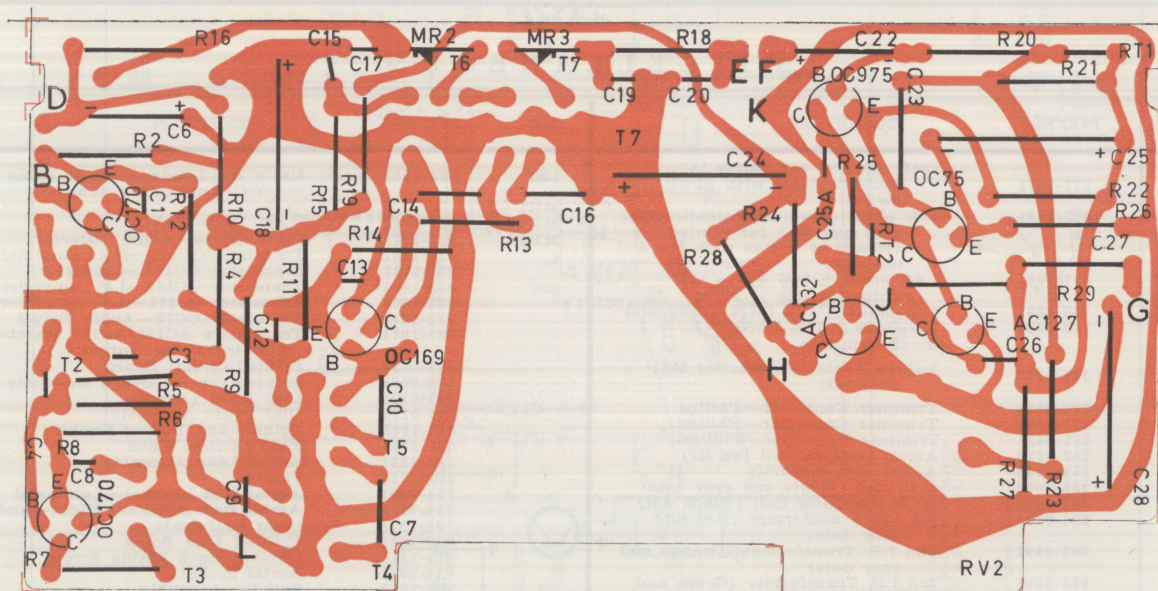
TRANSISTOR LOCATION AND DIAL CORD  
DIAGRAM.



COMPONENT LAYOUT — J8



TRANSISTOR LOCATION AND DIAL CORD DIAGRAM.



COMPONENT LAYOUT — J8

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