

**ALL TRANSISTOR CAR RADIO**

**Model 947**

**GENERAL DESCRIPTION**

This model is a six transistor, manual, permeability tuned superheterodyne car radio designed for the reception of the Medium Wave Band. The receiver operates directly from a 12 volt supply and plugs are provided for inserting into the socket on the left hand side of the receiver for positive or negative earth operation as the case may be.

**ELECTRICAL AND MECHANICAL SPECIFICATIONS**

Frequency Range ..... 525 - 1620 Kc/s  
 Intermediate Frequency ..... 455 Kc/s  
 Battery Voltage ..... 12 Volts  
 Battery Consumption ..... 0.8 Amps.  
 Battery Polarity ..... + or - earth (plug change)

**Speaker**

Model No.	Replacement Part No.	Speaker Size	Designed For
947-C	50064W	7" x 5"	Holden EJ, EH
947-J	50158W	9" x 6"	Universal
947-K	50053W	6" x 4"	Universal

Speaker Impedance ..... 15 ohms at 400 c.p.s.  
 Undistorted Power Output ..... 2 watts

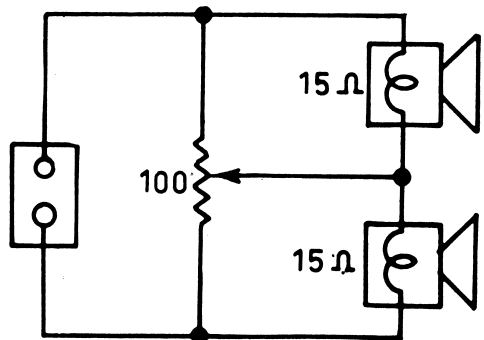
**Transistor Complement:**

AWV 2N1637 ..... R.F. Amplifier  
 AWV 2N1639 ..... Converter  
 AWV 2N1638 ..... I.F. Amplifier  
 AWV 2N408 ..... Audio Amplifier  
 AWV 2N649 ..... Driver (NPN)  
 AWV 2N301 ..... Output  
 Two OA90 (or equivalent) diodes are used as Detector and A.G.C.

**TWO SPEAKER OPERATION**

The common practice of connecting a second speaker in parallel with the existing one can be tolerated in a receiver having a valve output stage; however, impedance matching is more important in a receiver having a transistor output stage and, in this case, any reduction in the correct loading of 15 ohms will result in considerable distortion.

If a second speaker is desired, it can be connected as shown in fig. 1, utilising a fader control. For this purpose a special kit No. 36276 is available comprising a 7" x 5" 15 ohm speaker, baffle and fader unit.



**FIG. 1**

**Manufacturer's Setting of Adjustments:**

The receiver is tested by the manufacturer with precision instruments and all adjusting screws, except the aerial trimmer, are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the sea's 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.

For all alignment operations connect the "low" side of the signal generator to the receiver chassis, and keep the generator output as low as possible to avoid a.g.c. action.

When the generator is connected to the aerial terminal, use the dummy aerial as shown in the diagram.

**Testing Instruments:**

- Signal Generator—modulated 400 c.p.s. or Modulated Oscillator
- Dummy Aerial—see diagram
- Output Meter—15 ohms impedance.

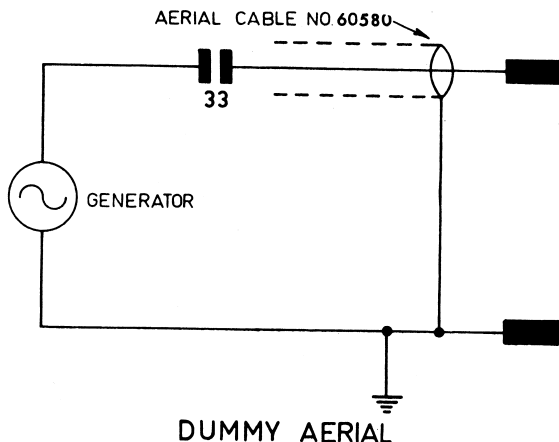


Fig. 4

**ALIGNMENT TABLE**

**A. GENERAL**

Alignment Order	Connect High Side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Max. Peak Output
1	Collector of VT1*	455 Kc/s	L.F. Limit	TR3 Sec. (Top)
2	Collector of VT1*	455 Kc/s	L.F. Limit	TR3 Prim. (Bottom)
3	Collector of VT1*	455 Kc/s	L.F. Limit	TR2 Sec. (Top)
4	Collector of VT1*	455 Kc/s	L.F. Limit	TR2 Prim. (Bottom)
Repeat the above adjustments until no further improvement is possible.				
5	Aerial Terminal via Dummy Aerial	1620 Kc/s	H.F. Limit	H.F. Osc. Adj. (C11)
6	Aerial Terminal via Dummy Aerial	1500 Kc/s	1500 Kc/s	H.F. R.F. Adj. (C7)
7	Aerial Terminal via Dummy Aerial	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C1)
8	Aerial Terminal via Dummy Aerial	600 Kc/s	600 Kc/s	L.F. Osc. Padder Adj. (L5)†

Repeat adjustments 5, 6, 7 and 8 until no further improvement.

9 Calibration Alignment: With the receiver connected to an aerial, the dial scale calibration should now be checked and corrected if necessary. The pointer may be moved relative to the dial scale by sliding it along the dial cord.

\* A 0.01µf capacitor should be connected in series with the high side of the generator.

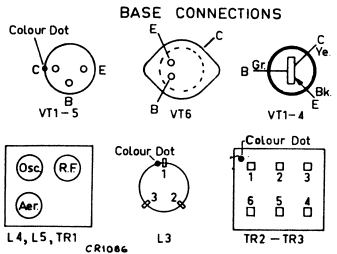
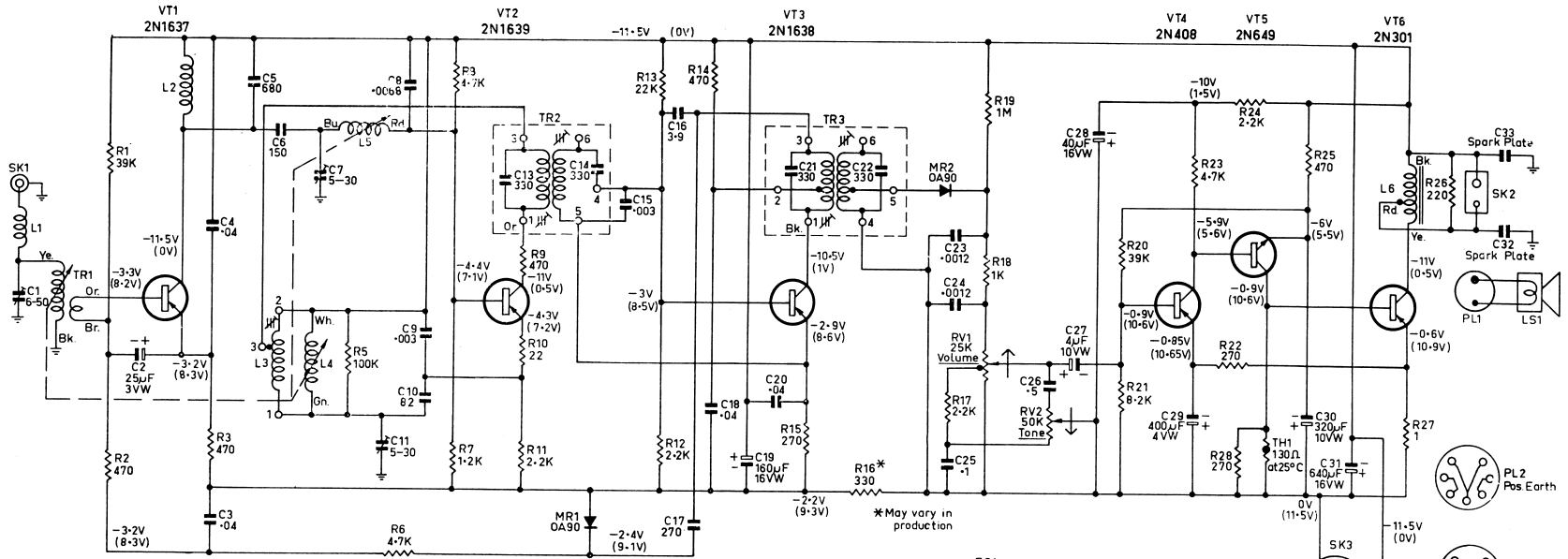
† Rock the tuning control back and forth through the signal.

**B. TUNER ALIGNMENT**

The adjustment of the tuning cores will be necessary only if a tuning core or coil has been replaced. To make this adjustment proceed as follows:—

- (1) Adjust the manual tuning control until a 0.560" gauge can be slipped between the core carriage and the front end of the slot in the tuner frame. Use the gauge in the manner of a feeler gauge.
- (2) Tune the signal generator accurately to 980 Kc/s and connect it to the aerial terminal via the dummy aerial. Adjust the oscillator core then the aerial and R.F. cores until the maximum output is obtained.
- (3) Proceed with adjustments 5, 6, 7 and 8 in Table "A" and then repeat adjustment 2 above, if necessary.
- (4) Repeat step 3 as often as necessary until no further improvement is possible.
- (5) Seal the tuning cores.

# CAR RADIO CIRCUIT 947 SERIES



NOTES:- ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION.  
 ALL PLUGS VIEWED FROM PIN SIDE, SOCKETS FROM WIRING SIDE.  
 VOLTAGES MEASURED WITH NO SIGNAL INPUT WITH 20,000 OHM/VOLT METER.  
 VOLTAGES IN BRACKETS ARE FOR NEGATIVE EARTH OPERATION.

**CR1086**

Changes since circuit was drawn.  
 C36 a 0.47  $\mu$ f + 80% - 20% 25 VW Disc capacitor, 227494 has been added from the negative line to earth. L2 has been replaced by a new choke assembly 52196, which includes a 10k ohms shunt resistor.

A.W.A. 947.

A71a