

**A.W.A. ALL TRANSISTOR CRUISER DE LUXE CAR RADIO****Model MJ15 Series**

ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

**GENERAL DESCRIPTION**

This model is a nine transistor, permeability tuned superheterodyne car radio designed for the reception of the Medium Wave Broadcasting Band. The receiver operates from a 12 volt supply a polarity switch selecting either positive or negative earth.

**ELECTRICAL AND MECHANICAL SPECIFICATIONS**

Frequency Range .....	525-1,620 Kc/s
Intermediate Frequency .....	455 Kc/s
Battery Voltage .....	12 Volts
Battery Polarity .....	+ or — Earth
Battery Consumption .....	0.8 Amps
Loudspeakers:	
MJ15A 6" x 4" .....	52837
MJ15B 7" x 5" .....	52838
MJ15C 9" x 6" .....	52839
MJ15X Basic Receiver without speaker.	
V.C. Impedance 15 ohms at 400 C.P.S.	
Undistorted Power Output .....	2 Watts

**Controls:**

Tuning, Volume, Pressbutton Power, Pressbutton Tone (Set of 3).

**Transistor and Diode Complement:**

AWV 2N1637 .....	R. F. Amplifier
AWV 2N1639 .....	Oscillator
AWV 2N1638 or AS34 .....	A. G. C. Clamp
AWV 2N1639 .....	Converter
AWV 2N1638 .....	1st I.F. Amplifier
AWV 2N1638 .....	2nd I.F. Amplifier
AWV 2N408 .....	1st Audio Amplifier
AWV 2N649 .....	2nd Audio Amplifier
AWV 2N301 .....	Audio Output
AWV 1N87A .....	Detector

**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.

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.

A second speaker with a fader control may be used as shown in fig. 1.

For this purpose a special kit No. 34787, is available comprising a 7" x 5" 15 ohms speaker, baffle and fader control unit.

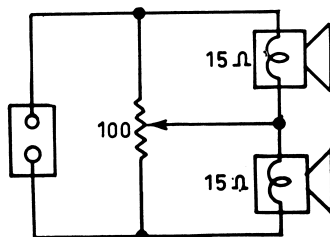


FIG. 1

**ALIGNMENT PROCEDURE****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 seals over the adjusting screws have been broken.

It is especially important that the adjustments should not be altered unless the correct instruments, listed below, are used.

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. Also, keep the volume control in the maximum clockwise position.

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

**Testing Instruments:**

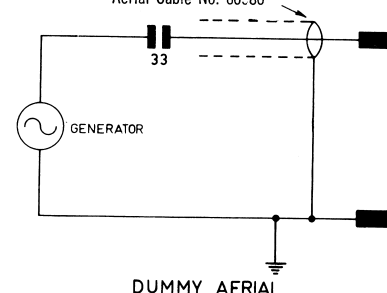
Signal Generator—Modulated 400 c.p.s. or Modulated Oscillator.

Dummy Aerial—See diagram.

Output Meter—15 ohms impedance.

I.F. Alignment Tool No. 39462.

Aerial Cable No. 60580

**A. GENERAL.****ALIGNMENT TABLE**

ALIGN. ORDER	CONNECT GENERATOR TO:	TUNE GENERATOR TO:	TUNE RECEIVER TO:	ADJUST FOR MAX. PEAK OUTPUT
1	R. F. 2 Trimmer (C10)*	455 Kc/s	H. F. Limit	TR4 Primary Core (Bottom)
2	R. F. 2 Trimmer (C10)*	455 Kc/s	H. F. Limit	TR3 Secondary Core (Top)
3	R. F. 2 Trimmer (C10)*	455 Kc/s	H. F. Limit	TR3 Primary Core (Bottom)
4	R. F. 2 Trimmer (C10)*	455 Kc/s	H. F. Limit	TR2 Secondary Core (Top)
5	R. F. 2 Trimmer (C10)*	455 Kc/s	H. F. Limit	TR2 Primary Core (Bottom)
Repeat the above adjustments until		maximum output is obtained.		
6	Aerial Terminal via Dummy Aerial	1,620 Kc/s (Accurate)	H. F. Limit	Oscillator Trimmer (C16)
7	Aerial Terminal via Dummy Aerial	1,500 Kc/s	1,500 Kc/s	R. F. 1 Trimmer (C8)
8	Aerial Terminal via Dummy Aerial	1,500 Kc/s	1,500 Kc/s	R. F. 2 Trimmer (C10)
9	Aerial Terminal via Dummy Aerial	1,500 Kc/s	1,500 Kc/s	Aerial Trimmer (C1)
10	Aerial Terminal via Dummy Aerial	600 Kc/s	600 Kc/s	Osc. Padder (L2) †
Repeat adjustments 6, 7, 8, 9 and 10 until no further improvement is possible.				

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

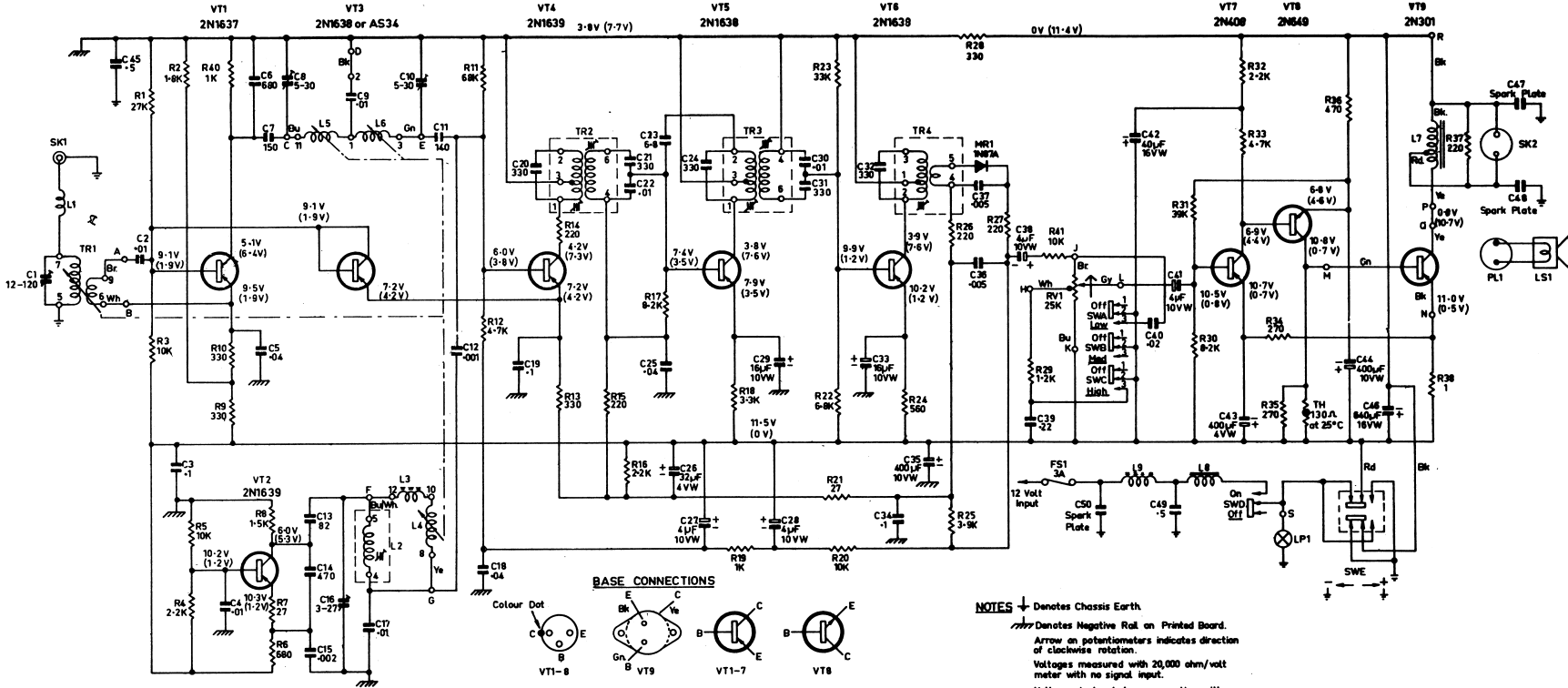
† Rock the tuning control back and forth through the signal.

**B. CALIBRATION ALIGNMENT:** With the receiver connected to an aerial, the dial scale calibration may be checked and corrected if necessary. The pointer may be moved relative to the dial scale by sliding it along the dial cord.

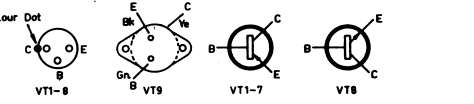
**C. TUNER ALIGNMENT.**

Adjustment of the tuner cores should not be made unless a coil has been replaced or it is suspected that the alignment has been interfered with, in which case, carefully follow the procedure below:

- Adjust the tuner to the H.F. end stop and back all cores out of the coils as far as possible.
- Tune the signal generator accurately to 1,620 Kc/s and adjust the oscillator, R.F. and aerial trimmers for maximum output.
- Tune the signal generator accurately to 600 Kc/s and the core carriage to a point 0.680" from the H.F. end stop. Adjust the oscillator, R.F. and aerial cores for maximum output.
- Tune the signal generator to 1,620 Kc/s and tuner to the H.F. end stop and re-adjust the oscillator trimmer for maximum output.
- Tune the signal generator to 1,500 Kc/s and adjust the R.F. and aerial trimmers for maximum output.
- Repeat steps 3, 4 and 5 until no further improvement is obtained.
- Check the L.F. end frequency with the carriage fully in. This should be  $520 \pm 5$  Kc/s. If necessary adjust the oscillator padder coil to tune to 520 Kc/s and repeat steps 3, 4 and 5 above until no further improvement is obtained.
- Seal the tuning core studs.



### BASE CONNECTIONS



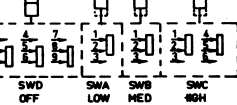
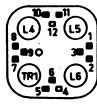
**NOTES** † Denotes Chassis Earth.

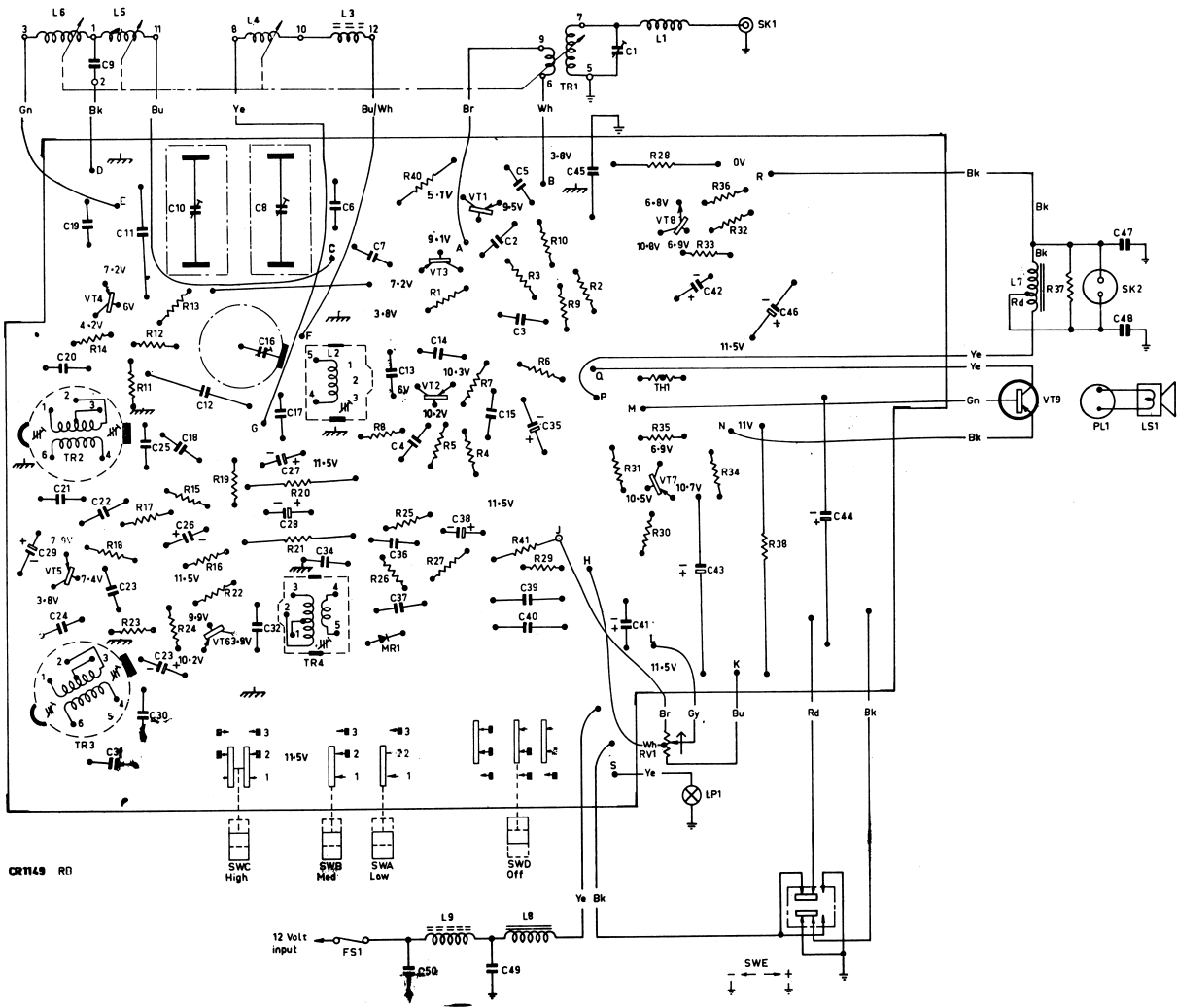
↗ Denotes Negative Rail on Printed Board.

Arrow on potentiometers indicates direction of clockwise rotation.

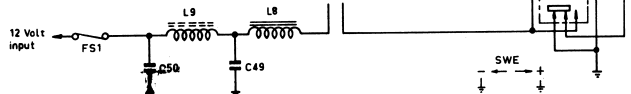
Voltages measured with 20,000 ohm/volt meter with no signal input.

Voltages in brackets are negative with respect to chassis earth † i.e. when SWE on † position.





CR1149 RD



SWE