

## 2.6 INSTRUMENT TESTS

### SPEEDOMETER AND TACHOMETER

The following checks of the speedometer and tachometer involves the use of Tool No. E7114 and two to the three instrument cluster instrument harness connectors. These connectors can be obtained from a discarded main wiring harness (previous 'V' car models) or from a VR model instrument harness.

1. Remove instrument cluster, refer [2.1. INSTRUMENT CLUSTER - REMOVE](#) in this Section.

**CAUTION:** If vehicle is equipped with SRS (Air Bag), disable the system. Refer to 'DISABLING THE SRS', [Section 12M](#), SRS in the VS Series Service Manual.

2. Using two instrument cluster instrument connectors, attach leads together as shown in Fig. 12C-65, and then connect into the white harness connector terminals of E7114.

**NOTE:** The wiring to the two instrument harness connectors is unique to instrument clusters used in VR models. Therefore, the wiring connections between the instrument harness connectors and E7114 used for previous 'V' car instrument clusters cannot be used for VR.

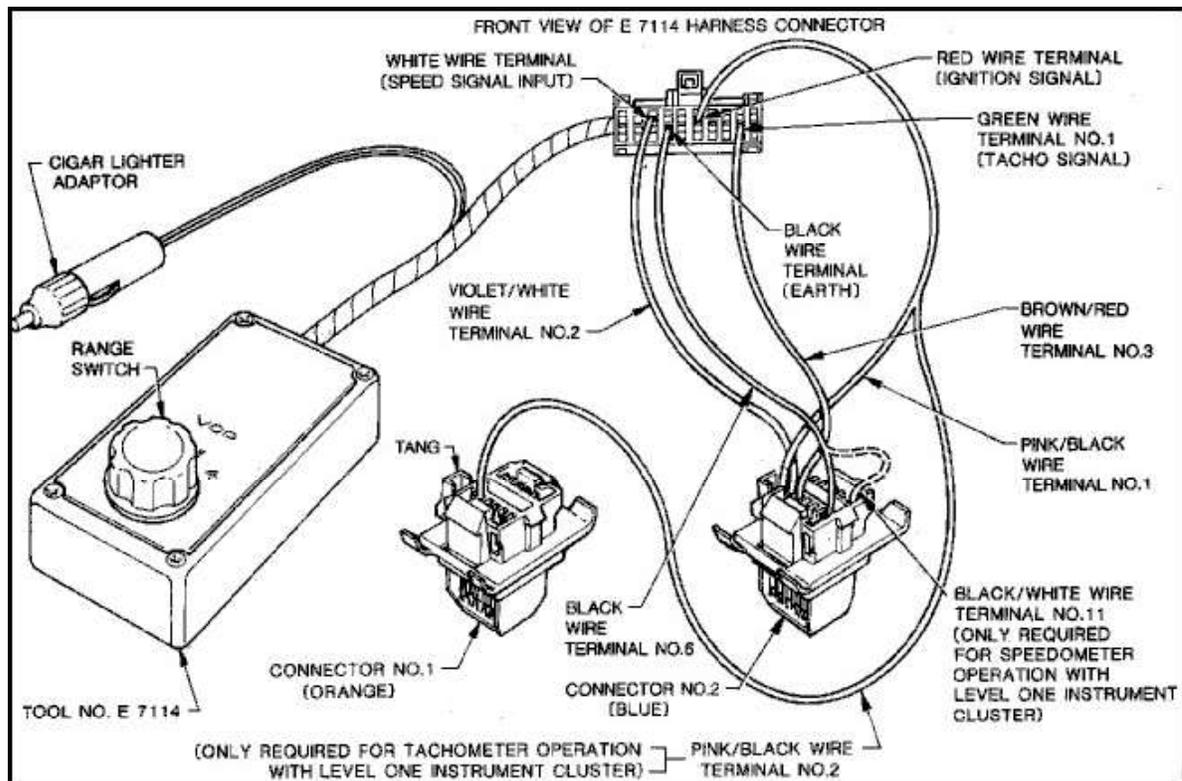


Figure 12C-65

3. Install instrument connectors into rear of instrument cluster with connector tangs facing toward the left hand end of instrument cluster.
4. Plug cigar lighter adaptor of E7114 into

4. Plug cigar lighter adaptor of E7114 into vehicle cigar lighter socket, or apply 12 volts via an external voltage source to adaptor terminals.
5. Rotate the range switch on E7114 to each of the four settings and note speedometer, and if fitted, tachometer readings.

The readings should be as specified in the following chart.

**NOTE: DO NOT USE THE SPECIFIED READINGS ON E7114. THESE ARE NOT CALIBRATION SETTINGS FOR VR SERIES SPEEDOMETER AND TACHOMETER.**

After connecting power to E7114, or when rotating the range switch, lightly tap the instrument case so as to settle the speedometer and/or tachometer instrument gauge needle. This will ensure correct needle positioning when taking test readings.

RANGE SWITCH POSITION NO.	TACHOMETER READING - V6	TACHOMETER READING - V8
ONE	570 - 850 rpm	410 - 690 rpm
TWO	1210 - 1490 rpm	890 - 1120 rpm
THREE	2490 - 2770 rpm	1850 - 2130 rpm
FOUR	5050 - 5330 rpm	3770 - 4050 rpm

RANGE SWITCH POSITION NO.	SPEEDOMETER READING (Assembly Without Trip Computer)	SPEEDOMETER READING (Assembly With Trip Computer)
ONE	16.5 - 22.5 km/h	16.5 - 22.5 km/h
TWO	37 - 42 km/h	37 - 42 km/h
THREE	72 - 76.5 km/h	73 - 77 km/h
FOUR	146 - 153 km/h	147 - 152 km/h

## FUEL AND TEMPERATURE GAUGES

Should there be a fault in either or both the fuel and temperature gauge circuits, the following tests will help isolate the cause of the problem.

The fuel and temperature gauges are the bi-metal thermal type and operate as follows:

With the ignition on, current flows through a PCB voltage regulator (which regulates output to 10 volts) to windings on a bi-metal arm in the gauge. The current flowing through the bi-metal arm heats the arm which deflects the pointer of the gauge. The amount of current to heat the arm and change the gauge reading is controlled by the variable resistance of the individual sender units.

**CAUTION: The gauge sender unit wire, once removed, should never be earthed onto the engine or vehicle body when the ignition is on.**

Earthing the wire is the incorrect way to check if the gauge is working, as it puts 10 volts across the gauge which in turn burns out the windings or changes the properties of the bi-metal element in the gauge. Checking gauge operation in this way will certainly cause the gauge to become inoperative or inaccurate.

Check fuel and temperature gauges as follows:

1. Turn ignition on.
2. Using a voltmeter, check that each sender unit is earthed by checking voltage between body of sender and battery earth. If voltage reading is not zero, repair bad earth connection.

**NOTE: 1.** On vehicles with 80 litre fuel tank, the stone guard in front of the fuel gauge tank unit must be removed to gain access to the sender unit. Refer [2.7. SENDER UNITS](#) - Fuel Gauge Tank Unit in this Section.

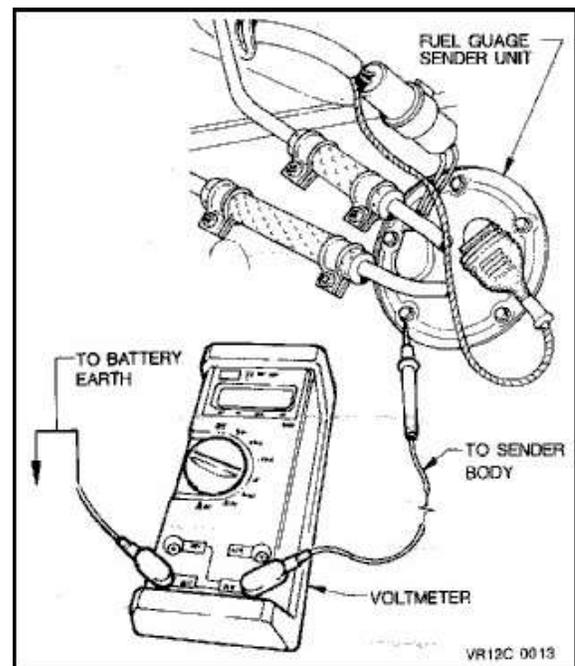


Figure 12C-66