CHRYSLER/JEEP 42RE
WRONG GEAR STARTS
(MAY OR MAY NOT UPSHIFT)

COMPLAINT: Any Chrysler/Jeep vehicles equipped with the 42RE transmission may display one of the following complaints: ***(A)*** The vehicle exhibits a second or third gear start, ***with*** an upshift into fourth gear. ***(B)*** The vehicle exhibits a third gear start, ***with no*** upshift into fourth gear.

CAUSE:

(A) If the vehicle has a wrong gear start, and ***does*** upshift into fourth gear, the cause may be a stuck 1-2 shift valve in the valve body, a defective governor pressure sensor, a defective governor pressure solenoid, or a defective computer.

(B) If the vehicle starts in third gear and ***does not*** upshift into fourth gear, the cause may be, either a power loss to the computer, or the computer is defective.

CORRECTION (A):

(1) If the vehicle has a wrong gear start and upshifts to fourth gear, place a pressure gauge on the governor tap, as shown in Figure 1. Should 0 PSI be observed while taking off in second gear, a sticking 1-2 shift valve is the cause. To correct this condition will require removing the valve body and freeing the 1-2 shift valve.
Should 7 to 12 PSI be seen at 0 MPH, the governor pressure sensor or the governor pressure solenoid may be the problem. If a DRB III scanner ***is*** available, go to Step 2 as the next diagnostic procedure. If a DRB III scanner ***is not*** available, go to Step 3.

(2) Chryslers dedicated DRB III scanner displays governor pressure sensor values that the computer moniters. The governor pressure sensor provides information to the computer as to the approximate pressure in the governor circuit. If at a stop, the sensor tells the computer that 0 PSI is in the governor circuit, but a pressure gauge reveals that there is actually 12 PSI in the governor circuit, the computer does not know to cycle the governor solenoid to a lower pressure since it already thinks it is at 0 PSI. If the sensor indicates that 12 PSI is in the governor circuit, and the pressure gauge verifies it, this means that the sensor is working properly and the governor pressure solenoid is most likely defective and will need to be replaced.

(3) Without the DRB III scanner, voltage checks will have to be made on the governor pressure solenoid wire, and the governor pressure sensor wire with your DVOM, while a pressure gauge is attached to the governor pressure port as shown in Figure 1. Following is the procedure for these tests.

(a) Orient yourself to the transmissions case connector and the vehicle harness connector as shown in Figure 2.

(b) Once oriented to the case connector and vehicle harness connector, locate terminal number 4 and connect the vehicle harness back onto the case connector. With your DVOM set on DC volts, place the negative lead to a known good ground. Carefully backprobe into wire number 4 with the positive lead, as shown in Figure 3.

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CORRECTION (A): (Continued)

(c) Now compare vehicle speed, governor pressure from the gauge, and governor sensor signal voltage from your DVOM, to that which is indicated in the chart in Figure 4. If at 0 MPH, your pressure gauge indicates 12 PSI, while the sensor voltage reads .66 volts, the governor pressure sensor is defective and will need to be replaced.
If governor pressure sensor voltage corresponds to the pressure seen on the gauge, and agrees with the chart shown in Figure 4, move on to the next step.
(Example:) Pressure gauge indicates 12 PSI, at 0 MPH, while the sensor voltage indicates .95 volts. This example shows that the sensor is okay.

(d) Maintain the ground lead to a known good ground and carefully backprobe into wire number 5 (Governor Pressure Solenoid) with the positive lead (See Figure 3). Again using the chart in Figure 4, compare the voltage values for the governor pressure solenoid, to the actual governor pressure indicated on the gauge.
If for example at 0 MPH, the pressure gauge indicates 12 PSI, and the DVOM shows that governor pressure solenoid voltage reads 8.30 volts, The solenoid is mechanically bad (Debris) and will need to be replaced. If the pressure gauge reads 12 PSI, and 8.70 volts is seen, the VSS or the computer is malfunctioning. Unplug the Vehicle Speed Sensor and see if governor pressure drops to 0 PSI. If it does, replace the VSS. If it does not, the computer will need to be replaced.

CORRECTION (B):

(1) If the vehicle is stuck in third gear, with no upshifts to fourth gear, turn the engine off and place the ignition switch to the ON position, unplug the transmission harness connector and perform the following tests.

(a) Check pin cavity number 1 in the vehicle harness connector for battery voltage, as shown in Figure 5. If 0 volts is seen, the computer is either defective, or the computer has lost its power source, or the wire from the computer down to pin number 1 is broken. First locate the computer which is under the dash on the drivers side, and unplug the connector as seen in Figure 6, and continue to the next step.

(b) Locate pin cavity number D16 in the transmission control module connector, as shown in Figure 7. Perform a continuity test between cavity number D16 and pin cavity number 1 in the vehicle harness connector, as shown in Figure 8. There should be 5 ohms or less. If there is an open reading (Infinity), the wire is broken and will need to be repaired. If there is more than 5 ohms resistance observed, there is corrosion somewhere in the wiring, or a short to ground may have occured, which means the wire will have to be replaced as well. If 5 ohms or less is seen, move on to the next step.

(c) With the engine off and the ignition switch in the ON position, check for battery voltage in the transmission control module connector, om pins C8, C9 and D8, as shown in Figure 9. If battery voltage is lost at ***any*** one of these terminals, check for blown fuses in the power distribution center, located on the passenger side fender shield by the battery. Check fuses F2, F3, F6, F15, and replace as necessary, as shown in Figure 10. If battery voltage is seen at all three locations, continue on to the next step.

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CORRECTION (B): (Continued)

(d) Plug the transmission control module connector back into the computer, and with the engine off and ignition switch in the ON position, check for 5 volts at cavity number 2 in the vehicle harness connector, as shown in Figure 11. If no voltage is seen, unplug the transmission control module connector and test for continuity between cavity C10 at the transmission control module connector and terminal number 2 at the vehicle harness connector, as shown in Figure 12. If 5 ohms or less is indicated, the computer will need to be replaced. If an open circuit is indicated, repair or replace the broken wire between C10 and terminal 2.

SERVICE INFORMATION:

Governor Pressure Sensor	56027562
Governor Pressure Solenoid	4617210

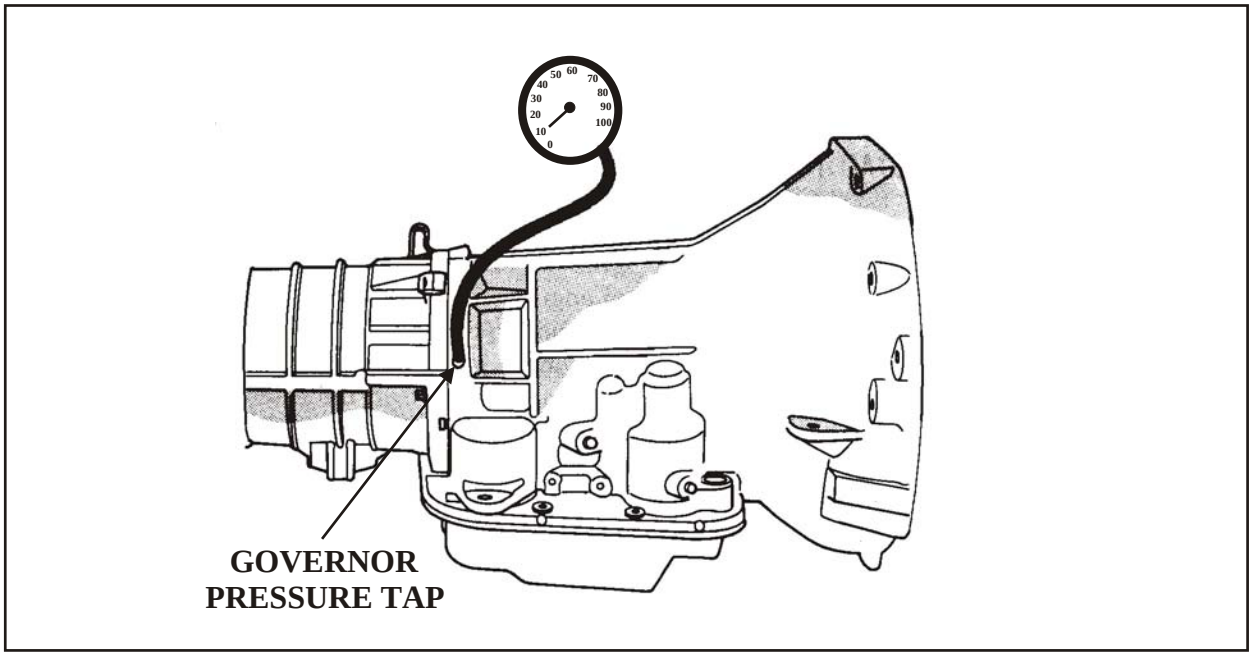

Figure 1

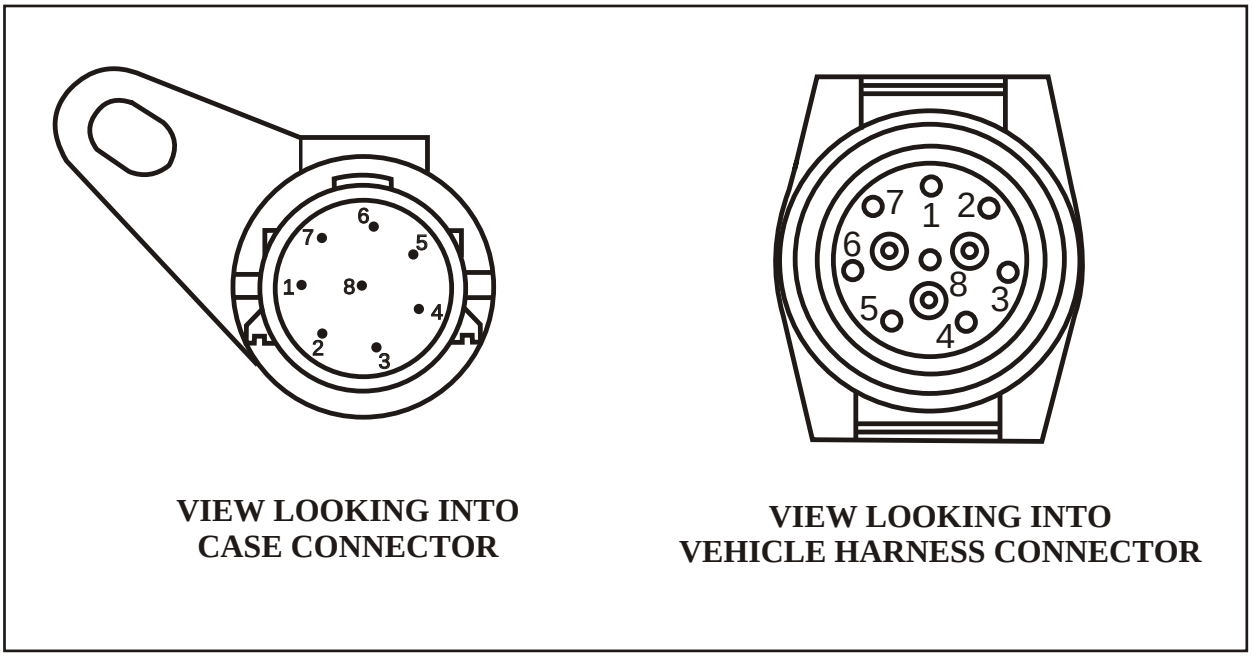

Figure 2

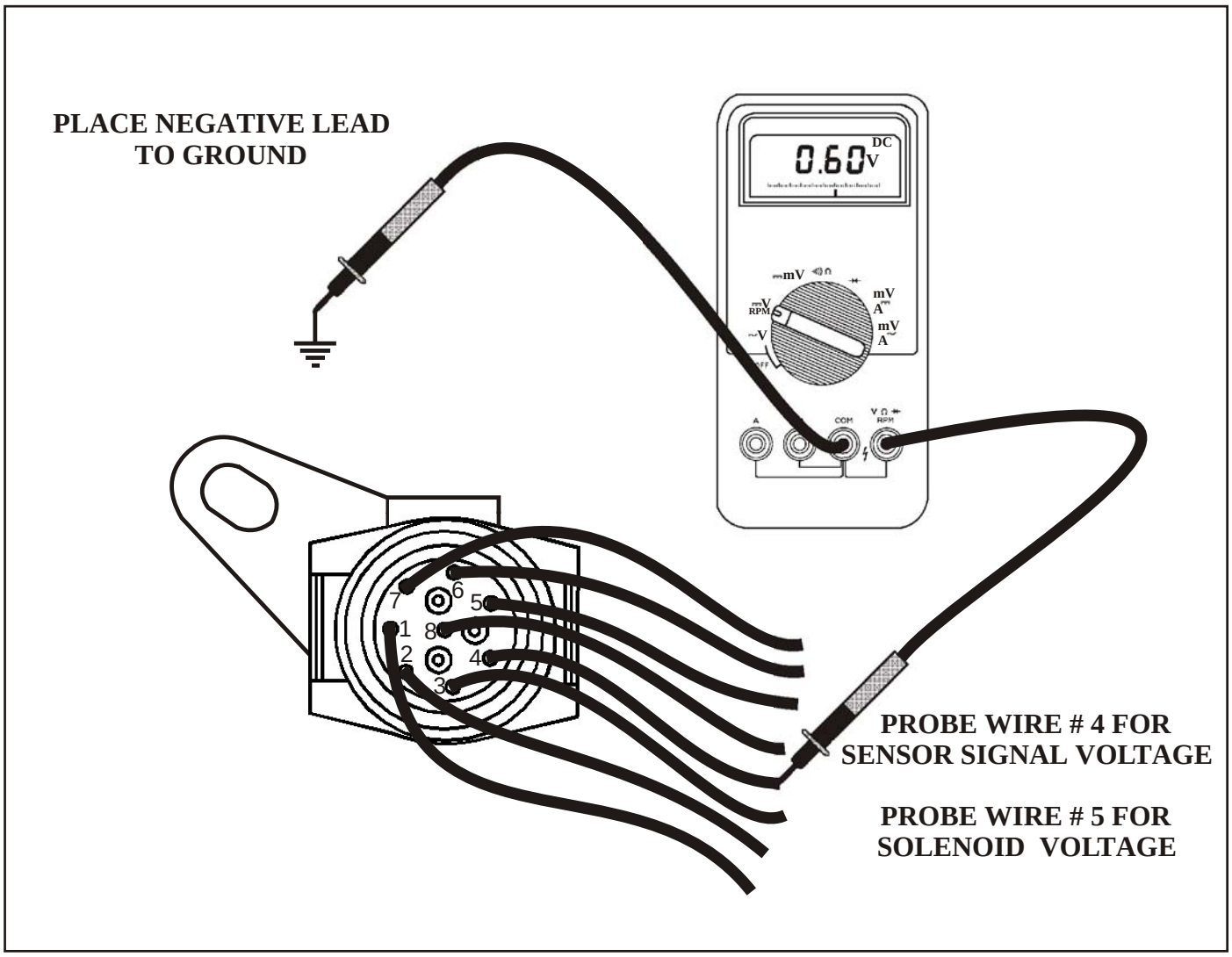

Figure 3

MPH	0	10	20	30	40	50	60
SENSOR SIGNAL VOLTAGE WIRE # 4	.66	.90	1.10	1.45	1.80	2.15	2.95
SOLENOID VOLTAGE WIRE # 5	8.30	8.60	9.45	9.80	10.30	10.80	13.80
APPROXIMATE GOVERNOR PRESSURE	0	10	20	30	40	50	60

Figure 4

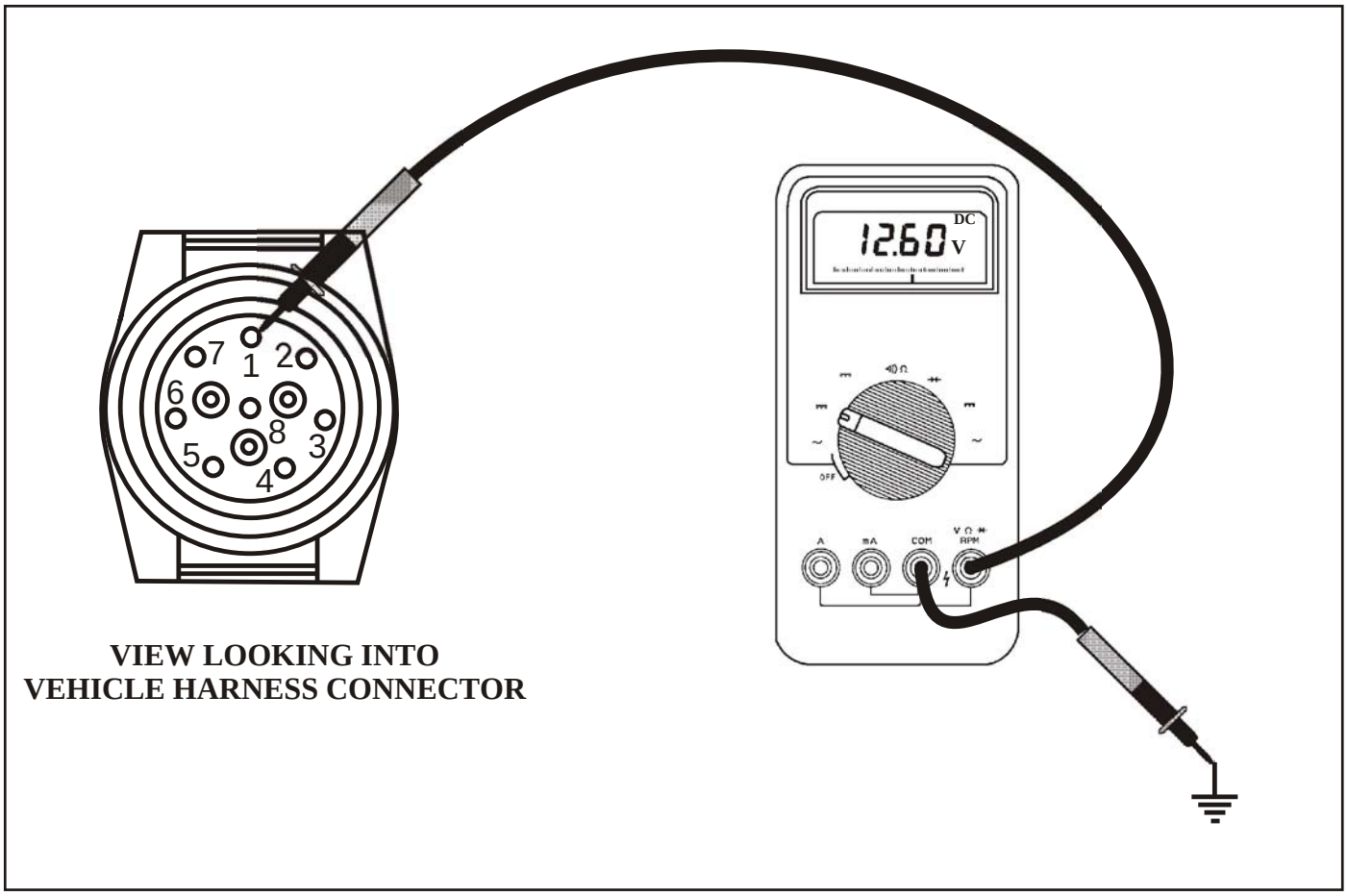

Figure 5

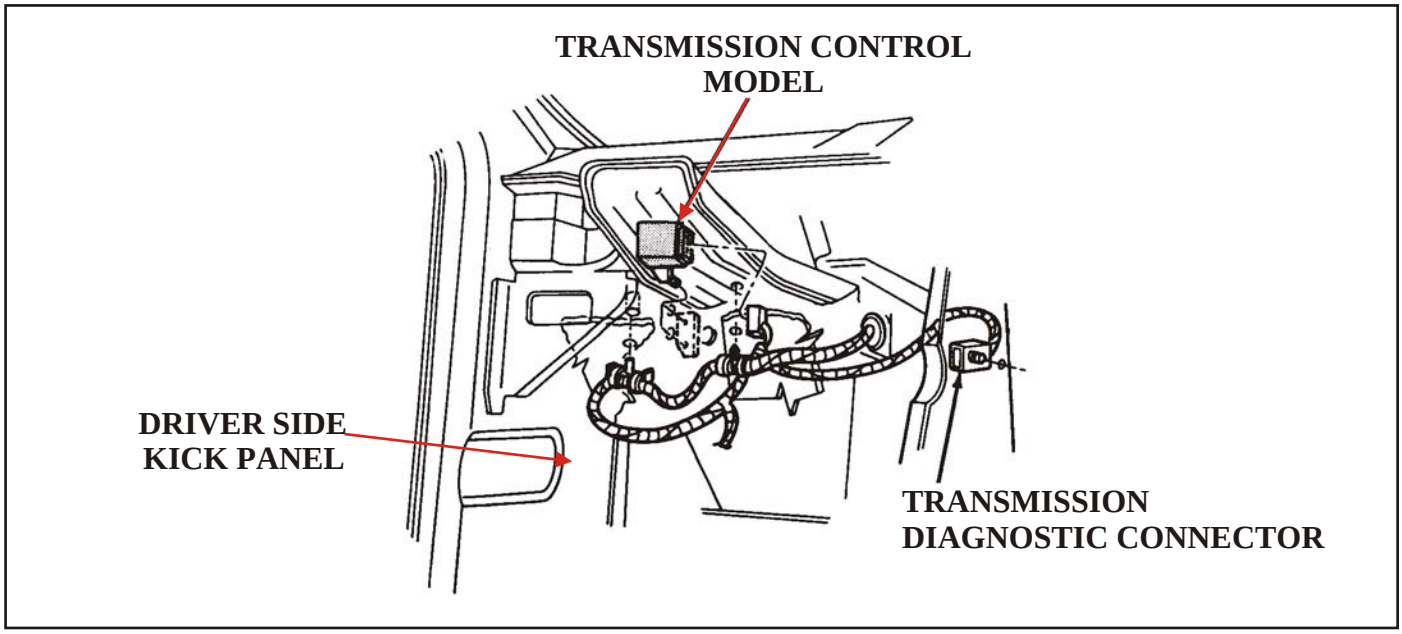

Figure 6

TRANSMISSION CONTROL MODULE CONNECTOR

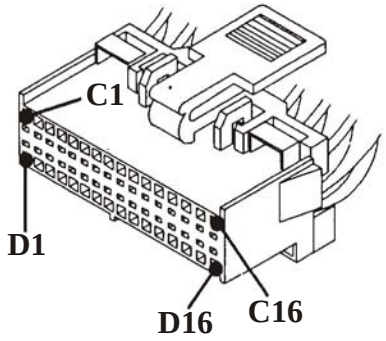

Figure 7

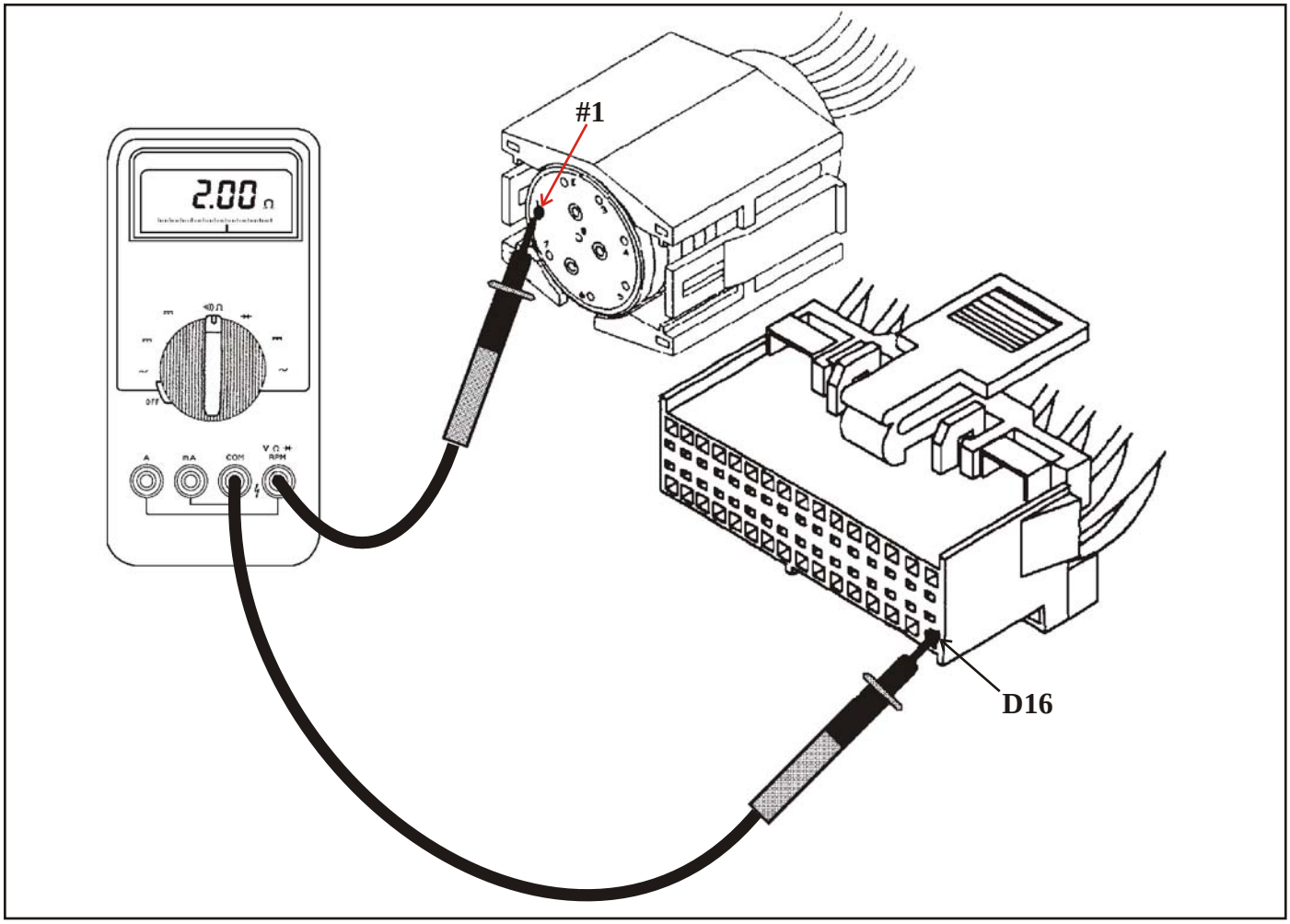

Figure 8

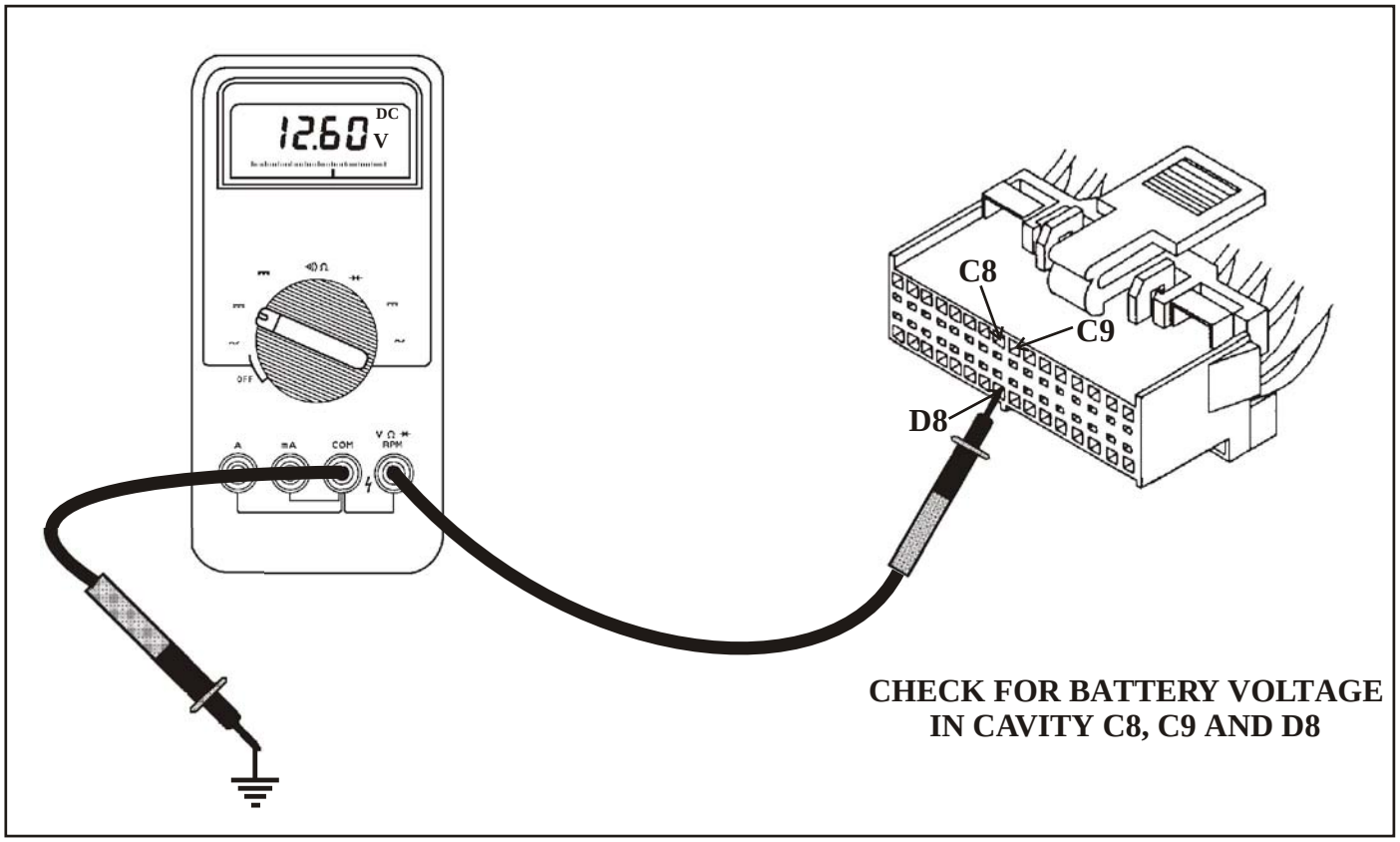

Figure 9

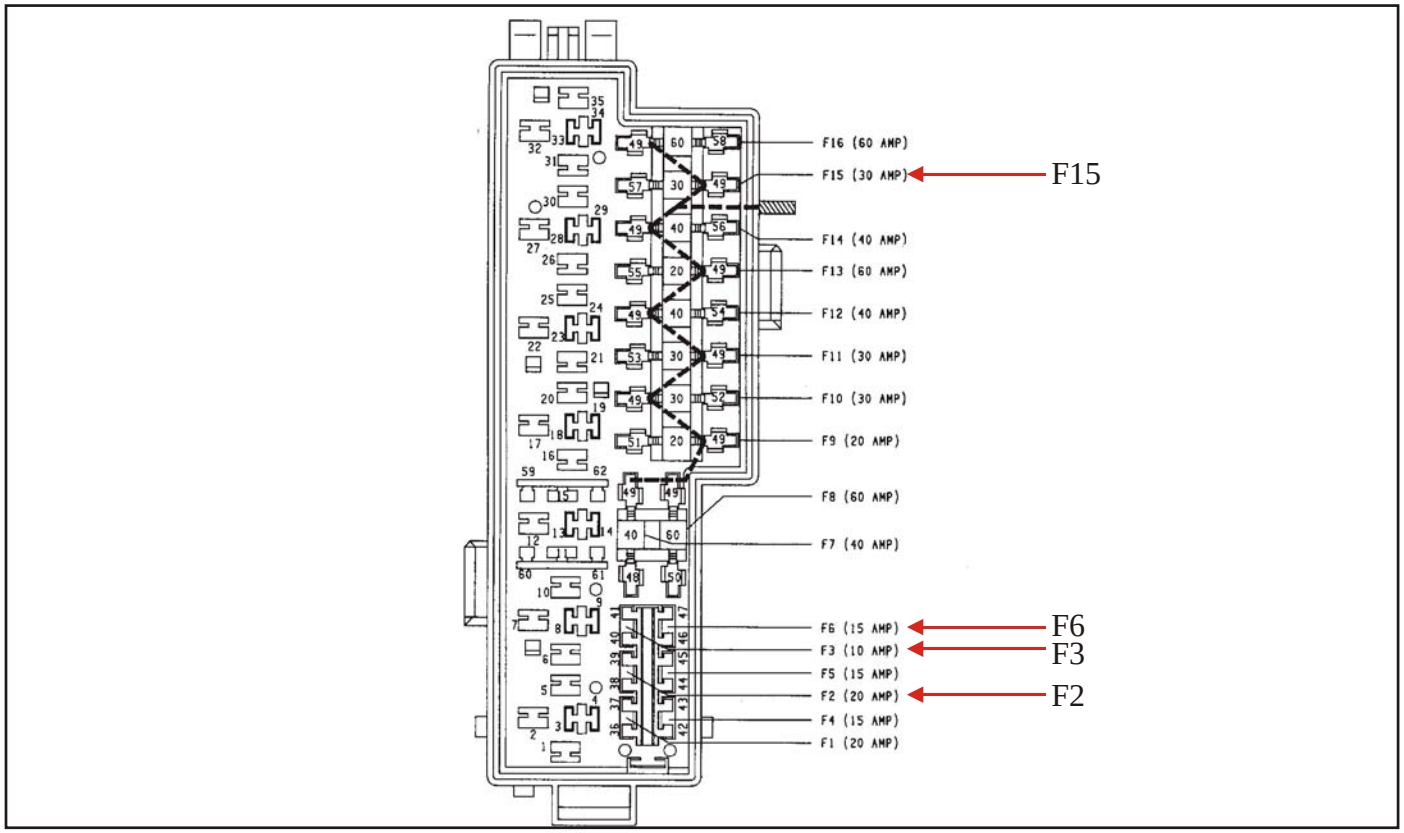

Figure 10

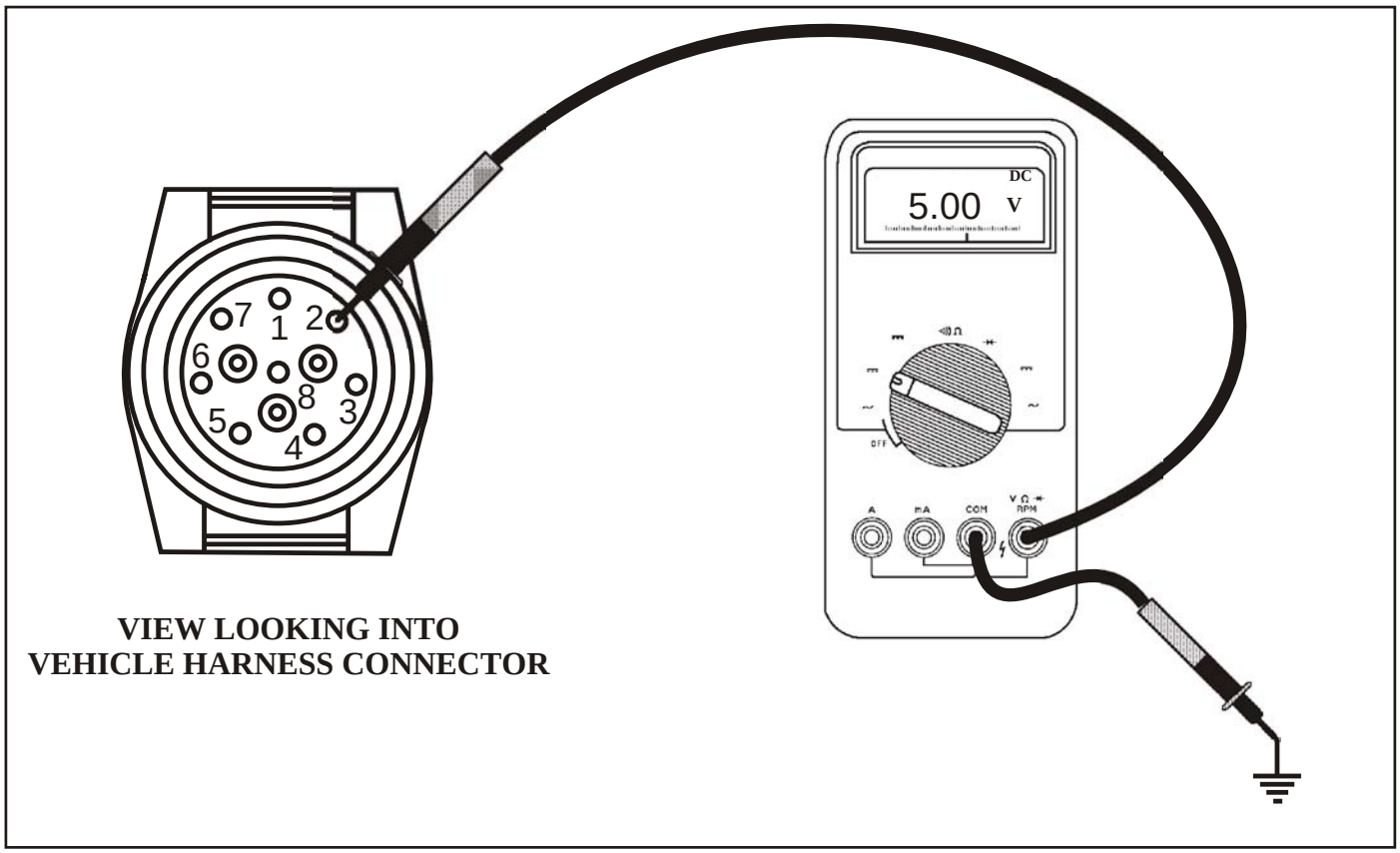

Figure 11

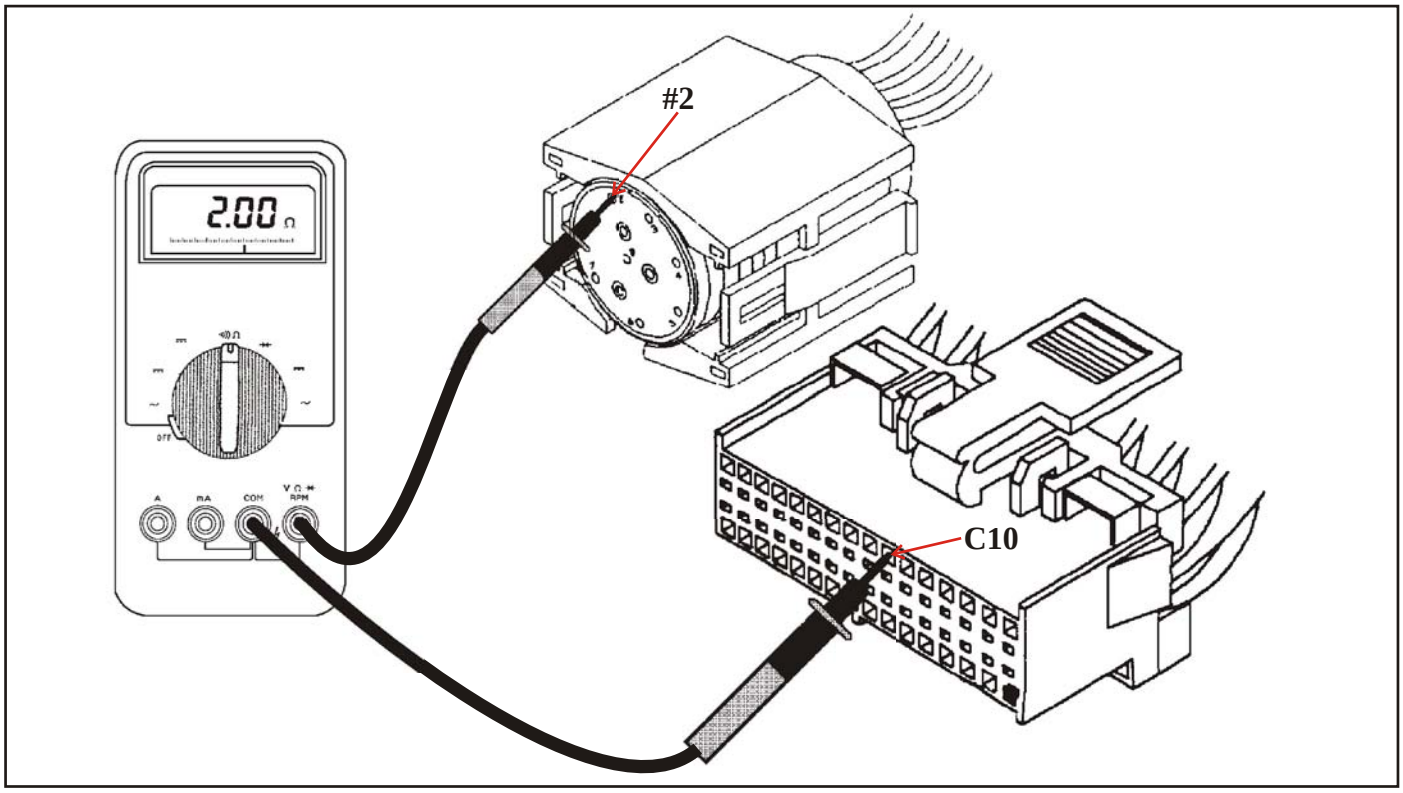

Figure 12