91 VEHICLE HARNESS

91.1 DESCRIPTION OF VEHICLE HARNESS +5 VOLT SUPPLY

Referral to this section indicates a fault within the vehicle interface harness.

NOTE:
It is suggested that the vehicle interface module be installed for test. If the fault(s) clear, you may wish to contact the vehicle manufacturer for instructions on troubleshooting. Otherwise, continue with this section.

91.2 TROUBLESHOOTING VEHICLE HARNESS +5 VOLT SUPPLY

The following procedure will troubleshoot vehicle harness.

91.2.1 Check for Low Battery Voltage

Perform the following steps to check for low battery voltage.

1. Plug in the diagnostic data reader (DDR).
   [a] If flash code 168/1 is logged, refer to section 46.3.1.
   [b] If flash codes 168/1 is not logged, refer to section 91.2.2.

91.2.2 Check for +5 Volts

Perform the following steps to check for +5 volts at the Throttle Position Sensor (TPS).

1. Turn vehicle ignition switch OFF.
2. Disconnect the TPS (disconnect the VSG and PGS, if applicable).
3. Turn vehicle ignition switch ON.
4. Measure voltage on the TPS and VSG harness connector, pin C (#916) (red lead) to pin A (#952) (black lead), and pin A to pin B at the PGS connector, if applicable..
   [a] If the voltage measurement is between 4.7 and 5.2 volts, the voltage reading is correct. Check voltage at the next connector. If all connector voltage readings are correct, refer to section 91.2.5.
   [b] If the voltage measurement is less than 4.7 volts, refer to section 91.2.3.
   [c] If the voltage measurement is greater than 5.2 volts at all connectors, refer to section 91.2.8.

91.2.3 Check for +5 volts or Return Open

Perform the following steps to check for +5 volts or return open.

1. Turn vehicle ignition switch OFF.
2. Disconnect the vehicle harness connector at the ECM.
3. Install a jumper wire between pins A and C of the TPS harness connector.
4. Measure resistance between sockets A3 and C3 of the vehicle harness connector.
   [a] If the resistance measurement is less than or equal to 5 Ω, refer to section 91.2.4.
   [b] If the resistance measurement is greater than 5 Ω or open, either the vehicle +5 volt line (#916) or the sensor return line (#952) is open. Refer to section 91.2.9.

91.2.4 Check for +5 Short to Ground

Perform the following steps to check for +5 short to ground.

1. Remove jumper wire.
2. Measure resistance between pins A and C of the TPS harness connector.
3. Measure resistance between pin C of the TPS harness connector and a good ground (battery–).
   [a] If the resistance measurement for both readings is greater than 1,000 Ω, or open, refer to section 91.2.7.
   [b] If either resistance measurement is less than or equal to 1,000 Ω, wire (#916) is shorted to wire (#952), or battery ground. Repair the short and refer to section 91.2.9.

91.2.5 Vehicle Harness 5V Check TPS

Perform the following steps to check TPS.

1. Turn vehicle ignition switch OFF.
2. Reconnect the TPS connector.
3. Turn vehicle ignition switch ON.
4. Select Throttle Sensor percentage on the DDR.
5. Observe throttle percentage at both no throttle and full throttle (engine not running).
   [a] If the percentage is between 0 and 100%, refer to section 91.2.7.
   [b] If not getting a reading between 0 and 100%, refer to section 91.2.6.

91.2.6 Vehicle Harness 5V Check Throttle Position Sensor Connectors

Perform the following steps to check TPS connectors.

1. Turn vehicle ignition switch OFF.
2. Disconnect the TPS.
3. Inspect terminals at the TPS connectors (sensor side and harness side) for damage; bent, corroded and unseated pins or sockets.
   [a] If the terminals and connectors are not damaged, replace TPS. Refer to section 91.2.9.
   [b] If the terminals and connectors are damaged, repair them. Refer to section 91.2.9.

91.2.7 Check ECM Connectors

Perform the following steps to check the ECM connectors.

1. Turn vehicle ignition switch OFF.
2. Disconnect the vehicle harness connector at the ECM (if not already disconnected).
3. Check terminals at the ECM vehicle harness connector (both the ECM and harness side) for damage; bent, corroded and unseated pins or sockets (especially terminals #952, #916, #417 and #510). Install new terminal if in doubt.
   [a] If the terminals and connectors are not damaged, refer to section 90.2.2.
   [b] If the terminals and connectors are damaged, repair them. Refer to section 91.2.9.

91.2.8 Check for Short to Battery (+)

Perform the following steps to check for a short to battery (+).

1. Turn vehicle ignition switch OFF.
2. Remove both fuses or circuit breakers to the ECM.
3. Disconnect the vehicle harness and the 5-pin power harness connectors at the ECM.
4. Measure resistance between sockets A3 and B3 on the vehicle harness connector.
5. Measure resistance between socket A3 on the vehicle harness connector and the battery (+).
   [a] If the resistance measurement for all readings is greater than 1,000 Ω, or open, refer to section 91.2.7.
   [b] If the resistance measurement is less than 1,000 Ω, a short exists between the vehicle +5 volt line (#916) and the lines where less than 1,000 was read (either circuit #240, #241 or #439). Repair the short and refer to section 91.2.9.

91.2.9 Verify Repairs

Perform the following steps to verify repairs.

1. Turn vehicle ignition switch OFF.
2. Reconnect all connectors.
3. Reconnect fuses (or circuit breakers) if previously disconnected.
4. Turn ignition ON.
5. Clear codes.
6. If Check Engine Light (CEL) does not stay on, start engine and run for one minute.
7. Stop engine.
8. Read inactive codes with the DDR.
   [a] If no codes are logged, troubleshooting is complete.
   [b] If codes that brought you to this section are still logged, all system diagnostics are complete. Review this section from the first step to find the error. Refer to section 91.2.1.
   [c] If codes except those which brought you to this section are logged, refer to section 9.1.