

38 FLASH CODE 38 – FPS LOW

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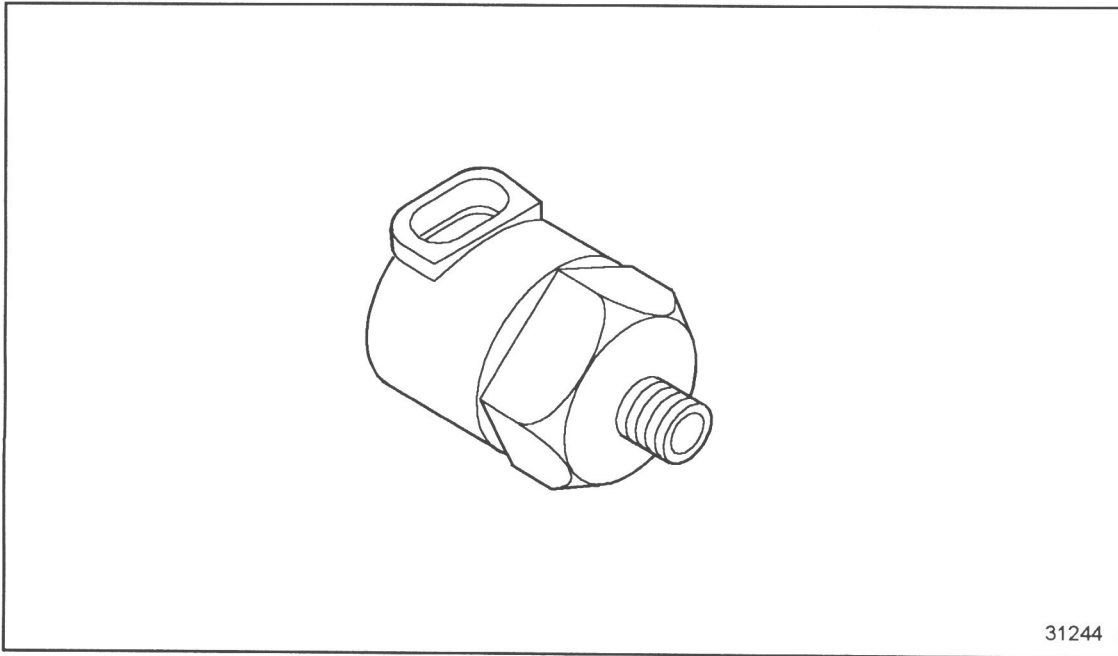


Figure 38-1 Fuel Pressure Sensor

38.1 DESCRIPTION OF FLASH CODE 38

Flash Code 38 indicates that the engine Fuel Pressure Sensor (FPS), see Figure 38-1, input to the ECM has dropped below 5% (normally < 0.25 volts) of the sensor supply voltage.

This diagnostic condition is typically:

- Open sensor signal circuit
- Open sensor +5 volt supply circuit
- Sensor signal is shorted to sensor return circuit or to ground
- Sensor +5 volt supply is shorted to the sensor return circuit

38.2 SAE J1587 EQUIVALENT CODE FOR FLASH CODE 38

The SAE J1587 equivalent code for Flash Code 38 is p 094 4.

38.3 TROUBLESHOOTING FLASH CODE 38

The following procedure will troubleshoot Flash Code 38.

38.3.1 Multiple Code Check

Perform the following steps to check for multiple codes.

1. Turn vehicle ignition switch ON.
2. Plug the diagnostic data reader (DDR) into the diagnostic data link (DDL).
3. Read active codes.
 - [a] If active code 94/4 and no other codes were logged, refer to section 38.3.2.
 - [b] If active code 94/4 and any or all of the following codes were logged, 94/3, 100/3 or 4, 101/3 or 4, 110/3 or 4, 174/3 or 4, 175/3 or 4, refer to section 90.1.
 - [c] If active code 94/4 and codes other than the following codes were logged, 94/3, 100/3 or 4, 101/3 or 4, 110/3 or 4, 174/3 or 4, 175/3 or 4, refer to section 38.3.2.

38.3.2 Sensor Check

Perform the following steps to check the sensor.

1. Turn ignition switch OFF.
2. Disconnect FPS connector and install a jumper wire between sockets B and C of the FPS harness connector. See Figure 38-2.
3. Turn ignition ON.
4. Read logged codes.
5. If active codes 94/3 or 4 are not logged, start and run the engine until either these active codes display or engine temperature (COOLANT TEMP & OIL on DDR) has been greater than 60°C (140°F) for more than one minute.
 - [a] If active code 94/4 and any other codes are logged, refer to section 38.3.4.
 - [b] If active code 94/3 and any other codes except code 94/4 are logged, check to ensure ECM and FPS connectors are wired properly. Refer to section 38.3.3.

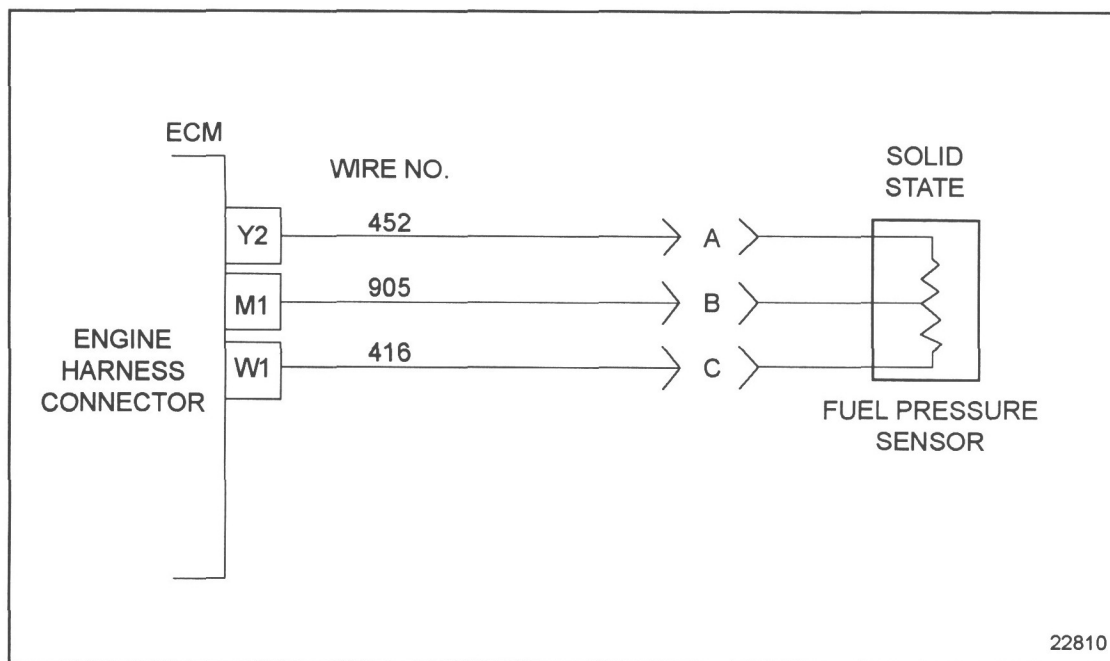


Figure 38-2 Engine Harness Connector to Fuel Pressure Sensor

38.3.3 Check Fuel Pressure Sensor Connectors

Perform the following steps to check the FPS connectors.

1. Inspect terminals at the FPS connectors (both the sensor and harness side) for damage: bent, corroded, and unseated pins or sockets.
 - [a] If the terminals and connectors are damaged, repair them and refer to section 38.3.12.
 - [b] If the terminals and connectors are not damaged, replace the FPS and refer to section 38.3.12.

38.3.4 Check for +5 Volts

Perform the following steps to check for +5 volts.

1. Turn vehicle ignition OFF.
2. Remove jumper wire.
3. Turn ignition ON.
4. Measure voltage on FPS harness connector, socket C to socket A. See Figure 38-3.
 - [a] If the voltage measurement is greater than 6 volts, refer to section 38.3.9.
 - [b] If the voltage measurement is less than 4 volts, refer to section 38.3.7.
 - [c] If the voltage measurement is between 4 and 6 volts, refer to section 38.3.5.

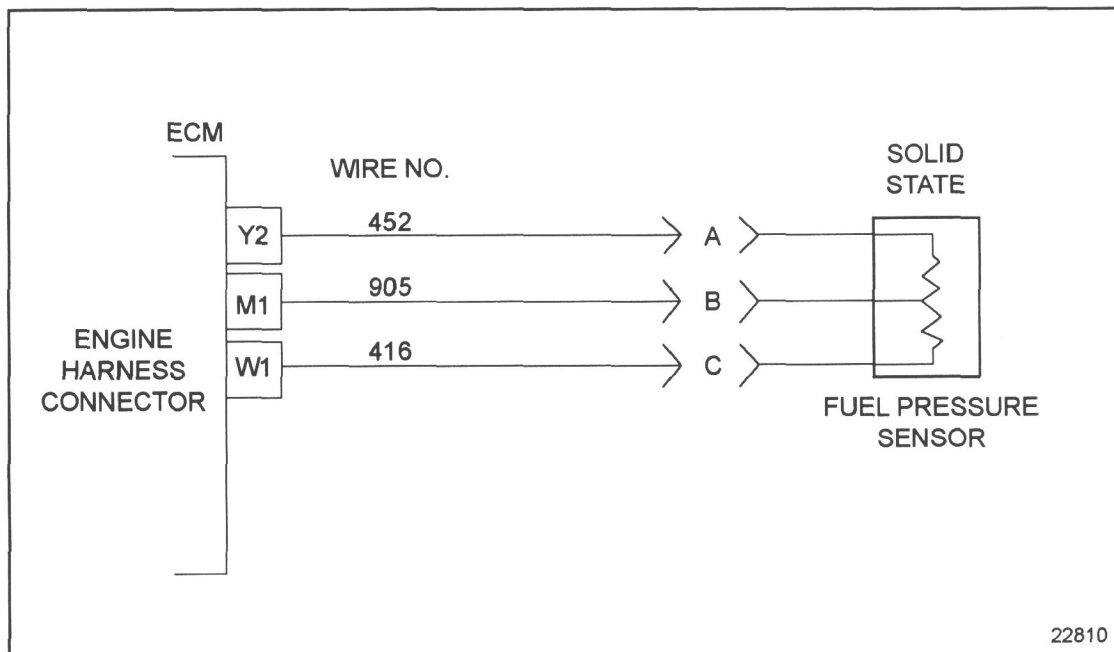


Figure 38-3 Engine Harness Connector to Fuel Pressure Sensor

38.3.5 Check for Signal Open

Perform the following steps to check for signal open.

1. Turn vehicle ignition OFF.
2. Disconnect engine harness connector at the ECM.
3. Install a jumper wire between pins A and B of the FPS harness connector.
4. Measure resistance between sockets M1 and Y2 on the engine harness connector.
 - [a] If resistance measurement is less than or equal to 5 Ω refer to section 38.3.10.
 - [b] If the resistance measurement is greater than 5 Ω or open, the signal line (#905) or return line (#452) is open. Repair the open and refer to section 38.3.12.

38.3.6 Check ECM Connectors

Perform the following steps to check the ECM connectors.

1. Check terminals at the ECM harness connector (both ECM and harness side) for damage: bent, corroded, and unseated pins or sockets. Check W1, M1 and Y2 terminals at ECM.
 - [a] If terminals and connectors are damaged, repair them. Refer to section 38.3.12.
 - [b] If terminals and connectors are not damaged, install a test ECM. Refer to section 38.3.12.

38.3.7 Check for Open +5 Volt Line

Perform the following steps to check for open +5 volt line.

1. Turn vehicle ignition OFF.
2. Disconnect the engine harness connectors at the ECM.
3. Install a jumper wire between sockets A and C of the FPS harness connector. See Figure 38-4.
4. Measure resistance between sockets W1 and Y2 on the engine harness connector.
 - [a] If resistance measurement is less than or equal to $5\ \Omega$ refer to section 38.3.8.
 - [b] If the resistance measurement is greater than $5\ \Omega$ or open, the engine +5 volt line (#416) is open. Repair the open and refer to section 38.3.12.

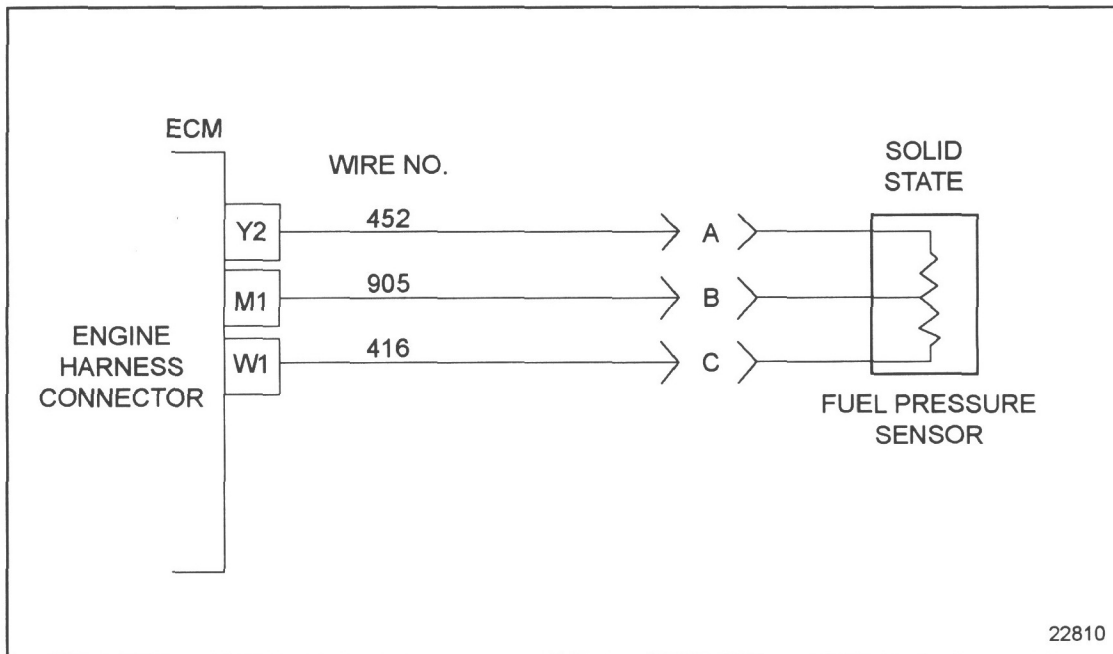


Figure 38-4 Engine Harness Connector to Fuel Pressure Sensor

38.3.8 Check for Short

Perform the following steps to check for a short.

1. Remove jumper wire.

2. Measure resistance between sockets A and C of the FPS harness connector.
 - [a] If the resistance measurement is greater than 100 Ω or open, refer to section 38.3.11.
 - [b] If the resistance measurement is less than or equal to 100 Ω , the return line (#452) is shorted to the engine +5 volt line (#416). Repair the short and refer to section 38.3.12.

38.3.9 Check for Short to Battery +

Perform the following steps to check for a short to battery.

1. Remove both fuses to the ECM.
2. Disconnect the vehicle harness and 5-way power connectors at the ECM. See Figure 38-5.
3. Measure resistance between socket W1 on the engine harness connector and socket B3 of the vehicle harness connector, and between W1 and the 5-way power harness sockets A and C.
 - [a] If the resistance measurement is greater than 1,000 Ω or open, refer to section 38.3.11.
 - [b] If the resistance measurement is less than or equal to 1,000 Ω , a short exists between sockets where less than 1,000 Ω was measured. Repair short and reinsert fuses. Refer to section 38.3.12.

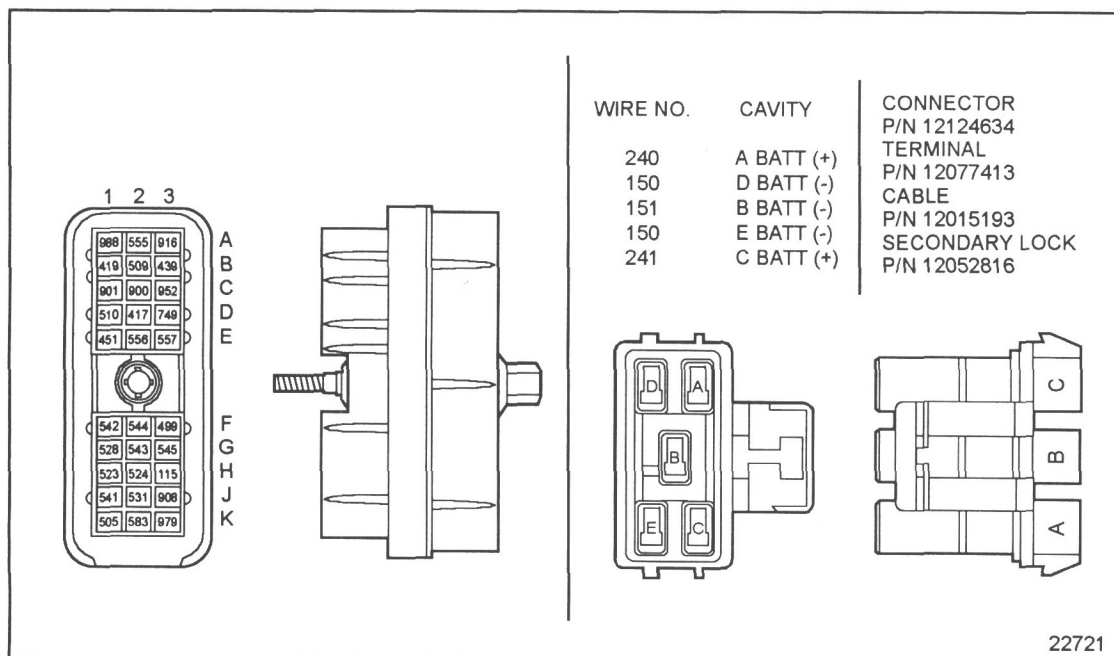


Figure 38-5 ECM Vehicle Interface Harness Connector

38.3.10 Check for Short to Ground

Perform the following steps to check for a short to ground.

1. Turn ignition switch OFF.
2. Remove jumper wires.
3. Measure resistance between sockets M1 and Y2 on the engine harness connector. Also measure resistance between socket M1 and a good ground.
 - [a] If both resistance measurements are greater than 100 Ω or open, refer to section 38.3.11.
 - [b] If either resistance measurement is less than or equal to 100 Ω , the signal line (#905) and return line (#452) are shorted together, or the signal line (#905) is shorted to battery ground. Repair short. Refer to section 38.3.12.

38.3.11 Replace Fuel Pressure Sensor

Perform the following steps to replace the FPS.

1. Turn ignition switch OFF.
2. Replace FPS.
3. Reconnect all connectors.
4. Turn ignition ON.
5. Clear codes.
6. Start and run the engine for one minute.
 - [a] If check engine light comes on, refer to section 38.3.6.
 - [b] If check engine light does not come on, refer to section 38.3.12.

38.3.12 Verify Repairs

Perform the following steps to verify repairs.

1. Turn ignition switch OFF.
2. Reconnect all connectors.
3. Turn ignition ON.
4. Clear codes.
5. Start and run the engine for one minute.
6. Stop engine.
7. Check DDR for codes.
 - [a] If no codes are logged, troubleshooting is complete.
 - [b] If code 94/4 is not logged, and other codes are logged, refer to section 9.1.
 - [c] If code 94/4 is logged, and other codes are logged, all system diagnostics are complete. Please review this section from the first step to find the error. Refer to section 38.3.1.