P0107-MANIFOLD ABSOLUTE PRESSURE SENSOR CIRCUIT LOW

For a complete wiring diagram, refer to the Wiring Information.

Theory of Operation

The Charge Air Cooler Temperature Sensor (CAC) and the Boost Pressure Sensor are combined in one sensor and are located near the EGR Airflow Throttle Control Valve. The Boost Pressure Sensor is used to measure pressure in the intake manifold. The Powertrain Control Module (PCM) provides a 5-Volt supply and sensor ground for the Boost Pressure Sensor. The Boost Pressure Sensor provides a signal back to the PCM on the Boost Pressure Sensor Signal circuit. The
PCM will detect a low signal voltage at operating conditions such as during an idle or a deceleration. The PCM will detect a high signal voltage during high engine load operating conditions. At key on, the readings for the Boost Pressure Sensor, Exhaust Gas Pressure Sensor, and Barometric Pressure Sensor are compared. This fault code occurs if the boost pressure reading is different from the others. During normal engine operation, the PCM estimates the Boost Pressure Sensor value using other fuel system related inputs. The PCM compares the actual Boost Pressure Sensor reading to this estimated value. If the two values are out of range for a calibrated period of time, an error is recorded. The key-on portion of the rationality will light the MIL immediately after the diagnostic runs and fails. The rationality portion will light the MIL immediately and the ETC lamp will also be illuminated. The PCM turns off the MIL when the diagnostic runs and passes in four consecutive drive cycles.

- **When Monitored:**
  
  With the ignition on and battery voltage greater than 10.4 Volts.

- **Set Condition:**
  
  The (K37) Boost Pressure Sensor Signal circuit drops below 0.25 Volts for five seconds.

### Possible Causes

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Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

### 1. ACTIVE DTC

**NOTE:** If there are any 5-Volt supply DTCs present, repair those DTCs before proceeding.

1. Turn the ignition on.
2. With the scan tool, record all Freeze frame data.
3. With the scan tool, erase DTCs.
4. Turn the ignition off for 75 seconds.
5. Turn the ignition on.
6. With the scan tool, read DTCs.

**Did the DTC reset?**

**Yes**

- Go To 2

**No**

- Perform to the INTERMITTENT CONDITION diagnostic procedure. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).
2. **CHECK THE (F857) 5-VOLT SUPPLY CIRCUIT FOR AN OPEN/HIGH RESISTANCE**

1. Ignition on.
2. Disconnect the Boost Pressure Sensor harness connector.
3. With a voltmeter, measure the voltage of the (F857) 5-Volt Supply circuit at the Boost Pressure Sensor harness connector.

   **Is the voltage reading between 4.9 and 5.1 volts?**

   **Yes**  
   • Go To 3

   **No**  
   • Repair the (F857) 5-Volt Supply circuit for an open or high resistance.
   • Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

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3. **CHECK THE BOOST PRESSURE SENSOR**

1. While monitoring the scan tool, connect a jumper between the (F855) 5-Volt Supply circuit and the (K37) Boost Pressure Sensor Signal circuit at the Boost Pressure Sensor harness connector.

   **Did the P0108 DTC set?**

   **Yes**  
   • Replace the Boost Pressure Sensor in accordance with the service information.
   • Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

   **No**  
   • Go To 4
4. **CHECK FOR THE (K37) BOOST PRESSURE SENSOR SIGNAL CIRCUIT SHORTED TO THE (K916) BOOST PRESSURE SENSOR RETURN CIRCUIT**

1. Turn the ignition off.
2. Disconnect the PCM C1 harness connector.
3. Measure the resistance between the (K37) Boost Pressure Sensor Signal circuit and (K916) Boost Pressure Sensor Return circuit at the Boost Pressure Sensor harness connector.

**Is the resistance below 10k Ohms?**

Yes  
• Repair the short between the (K37) Boost Pressure Sensor Signal circuit and (K916) Boost Pressure Sensor Return circuit.
  
• Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

No  
• Go To 5

5. **CHECK THE (K37) BOOST PRESSURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND**

1. Measure the resistance between ground and the (K37) Boost Pressure Sensor Signal circuit.

**Is the resistance below 10k Ohms?**

Yes  
• Repair the (K37) Boost Pressure Sensor Signal circuit for a short to ground.
  
• Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

No  
• Go To 6
6. **CHECK THE (K37) BOOST PRESSURE SENSOR SIGNAL CIRCUIT FOR AN OPEN/HIGH RESISTANCE**

1. Measure the resistance of the (K37) Boost Pressure Sensor Signal circuit between the Boost Pressure Sensor and the PCM C1 harness connectors.

**Is the resistance below 5.0 Ohms?**

**Yes**
- Replace the Powertrain Control Module in accordance with the service information.
- Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

**No**
- Repair the (K37) Boost Pressure Sensor Signal circuit for an open or high resistance.
- Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).