P0404-EGR Position Sensor Performance

For a complete wiring diagram Refer to the Wiring Information.

Theory of Operation

The EGR valve has a position sensor and the EGR position rationality is designed to make sure that the valve moves freely within its operating range. Closed valve position reference check verifies that the valve is within its allowable upper and lower limits. The EGR position rationality test looks for a sustained error relative to commanded valve position.

- **When Monitored:**
  - Engine running.

- **Set Condition:**
  - The EGR flow or valve movement is not what is expected.

### Possible Causes

- EXCESSIVE RESISTANCE IN THE (F856) 5-VOLT SUPPLY CIRCUIT
- (K35) EGR SOLENOID CONTROL CIRCUIT EXCESSIVE RESISTANCE
- (K34) EGR SENSOR SIGNAL CIRCUIT EXCESSIVE RESISTANCE
- (K900) SENSOR GROUND CIRCUIT OPEN
- (Z335) EGR SOLENOID GROUND CIRCUIT OPEN
- EGR SOLENOID ASSEMBLY
- POWERTRAIN CONTROL MODULE (PCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1).

### Diagnostic Test

**ACTIVE DTC**

**NOTE**

Diagnose and repair any EGR signal circuit high or low DTCs before continuing with this procedure.

Turn the ignition on.
With the scan tool, select View DTCs. Record DTC and Freeze Frame information.

Start the engine and allow it to reach operating temperature.

WARNING
When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.

WARNING
The normal operating temperature of the EGR system is very high. Never work around or attempt to service any part of the EGR system until it has cooled. Failure to follow these instructions can result in possible serious or fatal injury.

NOTE
Attempt to operate the vehicle under conditions similar to which the DTC was set.

NOTE
It may be necessary to test drive the vehicle within the DTC monitoring conditions in order for this DTC to set.

With a scan tool, select View DTCs.

**Is the DTC Active or Pending at this time?**

*Yes*
- • Go To >>>

*No*
- • Refer to the INTERMITTENT CONDITION Diagnostic Procedure. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure) (Refer To List 1)

Refer To List:

**(F856) 5 VOLT SUPPLY CIRCUIT HIGH RESISTANCE**

![Diagram](image)

Turn the ignition off.

CAUTION
Do not probe the PCM harness connectors. Probing the PCM harness connectors will damage the PCM terminals resulting in poor terminal to pin connection. Install the PCM Pinout Box Kit, NGC, 38 Position along with the Adapter PCM Pinout Box Adapter to perform the diagnosis.

Using a voltmeter, perform a voltage drop test by backprobing the (F856) 5 Volt Supply circuit at the EGR Valve Assembly harness connector and probing the appropriate terminal of the special tool #
Kit, NGC, 38 Position

. Make sure the voltmeter leads are connected so that positive polarity is displayed on the voltmeter.

WARNING
When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.

Start the engine.

**Is the voltage below 0.5 volts?**

**Yes**
- Go To >>>

**No**
- Repair the (F856) 5 Volt Supply circuit for high resistance.
- Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

Refer To List:

**(K34) EGR SIGNAL CIRCUIT HIGH RESISTANCE**

Turn the ignition off.

**CAUTION**
Do not probe the PCM harness connectors. Probing the PCM harness connectors will damage the PCM terminals resulting in poor terminal to pin connection. Install the PCM Pinout Box Kit, NGC, 38 Position along with the Adapter PCM Pinout Box Adapter to perform the diagnosis.

Using a voltmeter, perform a voltage drop test by backprobing the (K34) EGR Signal circuit at the EGR Valve Assembly harness connector and probing the appropriate terminal of the special tool #

Kit, NGC, 38 Position

. Make sure the voltmeter leads are connected so that positive polarity is displayed on the voltmeter.

**WARNING**
When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.

Start the engine.

Is the voltage below 0.5 volts?

Yes

• Go To >>>

No

• Repair the (K34) EGR Signal circuit for high resistance.

• Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

Refer To List:

(K900) SENSOR GROUND CIRCUIT HIGH RESISTANCE

Turn the ignition off.

CAUTION
Do not probe the PCM harness connectors. Probing the PCM harness connectors will damage the PCM terminals resulting in poor terminal to pin connection. Install the PCM Pinout Box Kit, NGC, 38 Position along with the Adapter PCM Pinout Box Adapter to perform the diagnosis.

Using a voltmeter, perform a voltage drop test by backprobing the (K900) Sensor Ground circuit at the EGR Valve Assembly harness connector and probing the appropriate terminal of the special tool #

Kit, NGC, 38 Position

. Make sure the voltmeter leads are connected so that positive polarity is displayed on the voltmeter.

WARNING
When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.

Start the engine.

Is the voltage below 0.5 volts?
Yes
• Go To >>>

No
• Repair the (K900) Sensor Ground circuit for high resistance.
• Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

Refer To List:
(Z335) GROUND CIRCUIT OPEN OR HIGH RESISTANCE

Turn the ignition off.

Disconnect the EGR Valve Assembly harness connector.

Using a 12 volt test light connected to the 12 volts, check the (Z335) Ground circuit in the EGR Valve Assembly harness connector.

NOTE
The test light should be illuminated and bright. Compare the brightness to that of a direct connection to the battery.

Is the test light illuminated and bright?
Yes
• Go To >>>

No
• Repair the (Z335) Ground circuit for an open circuit of high resistance.
• Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

Refer To List:
(K35) EGR CONTROL CIRCUIT HIGH RESISTANCE

Turn the ignition off.

Connect the EGR Valve Assembly connector.

CAUTION
Do not probe the PCM harness connectors. Probing the PCM harness connectors will damage the PCM terminals resulting in poor terminal to pin connection. Install the PCM Pinout Box Kit, NGC, 38 Position along with the Adapter PCM Pinout Box Adapter to perform the diagnosis.

Using a voltmeter, perform a voltage drop test by backprobing the (K35) EGR Control circuit at the EGR Valve Assembly harness connector and probing the appropriate terminal of the special tool #
Kit, NGC, 38 Position

Make sure the voltmeter leads are connected so that positive polarity is displayed on the voltmeter.

Start the engine and allow it to reach operating temperature.

WARNING
When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts or fan. Do not wear loose clothing. Failure to follow these instructions may result in possible serious or fatal injury.

With the scan tool, perform the EGR System Test.
Select OPEN to open the EGR valve.
Monitor the circuit voltage on the voltmeter.

Is the voltage below 0.5 volts when the valve was opened during the system test?

Yes
• Go To >>>

No
• Repair the (K35) EGR Control circuit for excessive resistance.
• Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

Refer To List:

EGR VALVE ASSEMBLY

Using the wiring diagram/schematic as a guide, inspect the wiring and connectors between the EGR Valve Assembly and the Powertrain Control Module (PCM).

Verify that there is good pin to terminal contact in the Solenoid and the Powertrain Control Module connectors.

Look for any chafed, pierced, pinched, or partially broken wires.

Look for broken, bent, pushed out or corroded terminals.

Refer to any Technical Service Bulletins that may apply.

Were any problems found?

Yes
• Repair as necessary.
• Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

No
• Replace the EGR Valve Assembly in accordance with the Service Information if no problems were found with the connectors.
• Perform the POWERTRAIN VERIFICATION TEST. (Refer to DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure)(Refer To List 1)

List 1
• 28 - DTC-Based Diagnostics / MODULE, Powertrain Control (PCM), NGC / Standard Procedure
• 28 - DTC-Based Diagnostics / MODULE, Powertrain Control (PCM), 545RFE / Standard Procedure
• 28 - DTC-Based Diagnostics / MODULE, Powertrain Control (PCM), 42RLE / Standard Procedure