P0488-EGR AIRFLOW THROTTLE CONTROL CIRCUIT PERFORMANCE

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

The Exhaust Gas Recirculation (EGR) Airflow Control Valve is a smart device. The Engine Control Module (ECM) uses a Pulse Width Modulated (PWM) signal to input commands to the EGR Airflow Control Valve. The EGR Airflow Control Valve sends feedback to the ECM over the Status Line. At key-on, the ECM toggles the EGR Airflow Control Valve Output Signal and verifies that the Status Line matches the command. The performance portion checks the Status Line for a feedback that matches the EGR Airflow Control Valve Output Signal. The ECM will illuminate the MIL lamp after the diagnostic runs and fails in two consecutive drive cycles. During this time the ECM will not control the EGR Airflow control valve. If able, the EGR Airflow control valve will go to the default open position. This may cause active Exhaust Aftertreatment regenerations to last longer. The ECM will turn off the MIL lamp after the diagnostic runs and passes in four consecutive drive cycles.

- **When Monitored:**
  
  Ignition on.

- **Set Condition:**

  Status Line feedback voltage is outside of a calibrated range.

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

1. **DTC P0488 ACTIVE**
   1. Ignition on, engine not running.
   2. With the scan tool, read DTCs.

   Is DTC P0488 active?

   **Yes**
   - Go To 2

   **No**
   - Perform the INTERMITTENT CONDITION - 6.7L diagnostic procedure. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).
2. **(K158) EGR AIRFLOW CONTROL VALVE STATUS LINE SHORTED TO VOLTAGE**

1. Turn the ignition off.
2. Disconnect the EGR Airflow Control Valve harness connector.

**NOTE:** Check connectors - Clean/repair as necessary.

3. Turn the ignition on.
4. Measure the voltage on the (K158) EGR Airflow Control Valve Status Line circuit at the EGR Airflow Control Valve harness connector.

Is there any voltage present?

**Yes**  
- Repair the short to voltage on the (K158) EGR Airflow Control Valve Status Line circuit.
- Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

**No**  
- Go To 3

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3. **(K158) EGR AIRFLOW CONTROL VALVE STATUS LINE SHORTED TO GROUND**

1. Turn the ignition off.
2. Disconnect the ECM C1 harness connector.

**NOTE:** Check connectors - Clean/repair as necessary.

3. Measure the resistance between ground and the (K158) EGR Airflow Control Valve Status Line circuit at the EGR Airflow Control Valve harness connector.

Is the resistance below 10k Ohms?

**Yes**  
- Repair the short to ground in the (K158) EGR Airflow Control Valve Status Line circuit.
- Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

**No**  
- Go To 4
4. **(K158) EGR AIRFLOW CONTROL VALVE STATUS LINE OPEN/HIGH RESISTANCE**

1. Measure the resistance of the (K158) EGR Airflow Control Valve Status Line circuit between the EGR Airflow Control Valve harness connector and the ECM C1 harness connector.

   Is the resistance below 10.0 Ohms?

   **Yes**
   - Go To 5

   **No**
   - Repair the open or high resistance in the (K158) EGR Airflow Control Valve Status Line circuit.
   - Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

5. **EGR AIRFLOW CONTROL VALVE**

1. Turn the ignition off.
2. Reconnect the ECM harness connector.
3. Reconnect the EGR Airflow Control Valve harness connector.
4. Ignition on, engine not running.
5. With the scan tool, erase DTCs.
6. While monitoring the scan tool, disconnect the EGR Airflow Control Valve harness connector.
7. With the scan tool, read DTCs.

   Is DTC P0487 active?

   **Yes**
   - Replace the EGR Airflow Control Valve.
   - Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

   **No**
   - Replace the ECM in accordance with the service information.
   - Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).