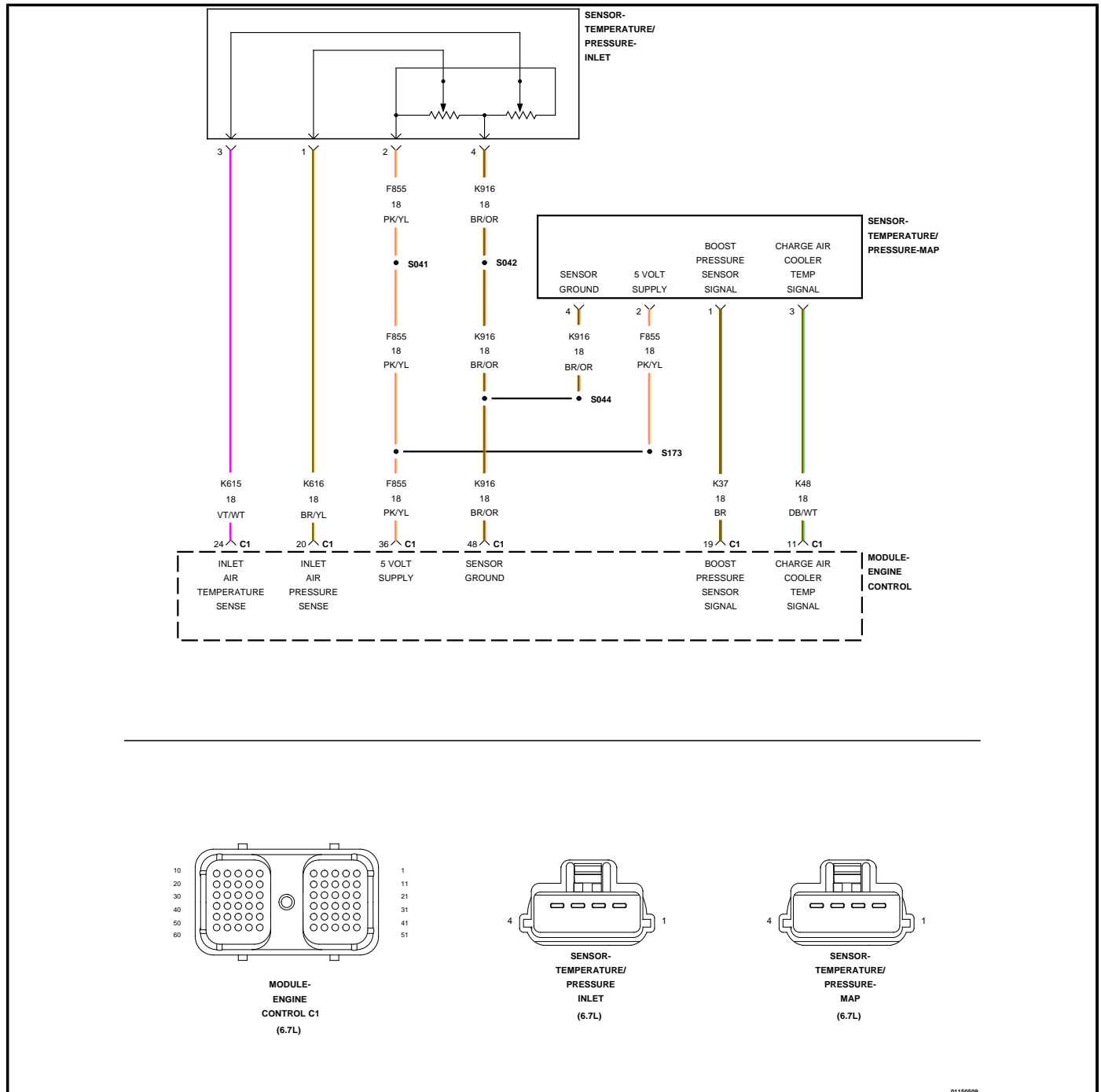


# P0106-MANIFOLD ABSOLUTE PRESSURE SENSOR PERFORMANCE



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 Engine Control Module (ECM) provides a 5-Volt supply and sensor ground for the Boost Pressure Sensor. The Boost Pressure Sensor provides a signal back to the ECM on the Boost Pressure Sensor Signal circuit. The ECM will

detect a low signal voltage at operating conditions such as during an idle or a deceleration. The ECM 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 ECM estimates the Boost Pressure Sensor value using other fuel system related inputs. The ECM 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 ECM turns off the MIL when the diagnostic runs and passes in 4 consecutive drive cycles.

- **When Monitored:**

Continuously with key on or engine running.

- **Set Condition:**

The boost pressure recorded at key on is not within a calibrated range of the Inlet Air Pressure Sensor or the boost pressure reading is not within a calibrated range of the of the estimated boost pressure value with engine running.

Possible Causes
PLUGGED AIR FILTER
INTAKE AIR SYSTEM LEAK
EGR AIRFLOW THROTTLE CONTROL VALVE
BOOST PRESSURE SENSOR

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

## 1. ACTIVE DTC

**NOTE:** If EGR Airflow Control Valve DTCs P0487 or P0488 are present, repair those DTCs before proceeding. If the customer states that there was an EVIC message "Service Air Filter", or if the Freeze Frame Data shows "Air Filter Plugged Error = ON", service the Air Filter 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 on for 30 seconds.
5. Start the engine and let idle.
6. With the scan tool, read DTCs.

### **Did the DTC return?**

**Yes** • Go To 2

**No** • Perform the INTERMITTENT CONDITION diagnostic procedure. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

## 2. INTAKE AIR SYSTEM LEAK

1. Perform the INTAKE AIR SYSTEM PRESSURE TEST. (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing).

**Where any leaks found?**

- Yes**
- Repair the leak 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).

- No**
- Go To 3

**3. EGR AIRFLOW THROTTLE CONTROL VALVE**

1. Remove the boot from the EGR Airflow Throttle Control Valve.
2. Using a mirror, look at the butterfly valve on the inside of the EGR Airflow Throttle Control Valve.
3. Start the vehicle, let idle for 10 seconds.
4. Turn the ignition off.

**NOTE:** If functioning properly the EGR Airflow Throttle Control Valve will cycle closed immediately after the engine is shut down.

**Did the EGR Airflow Throttle Control Valve cycle closed immediately after the engine was shut down?**

- Yes**
- Go To 4

- No**
- Replace the EGR Airflow Throttle Control Valve 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).

**4. BOOST PRESSURE SENSOR**

1. Turn ignition switch on. Wait five seconds after ignition switch is turned on.
2. Using the scan tool, read DTCs.

**Is P0106 stored?**

- Yes**
- Go To 5

- No**
- 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, Engine Control (ECM) - Standard Procedure).

**5. BOOST PRESSURE SENSOR**

1. Erase the DTC with the scan tool.
2. Start the engine and let it idle for one minute.
3. With the scan tool, monitor the boost pressure reading.

**Does the Boost Pressure Sensor fluctuate slightly, indicating the sensor is not stuck?**

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

- No**
- 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, Engine Control (ECM) - Standard Procedure).