P0106: MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE PROBLEM

OVERVIEW

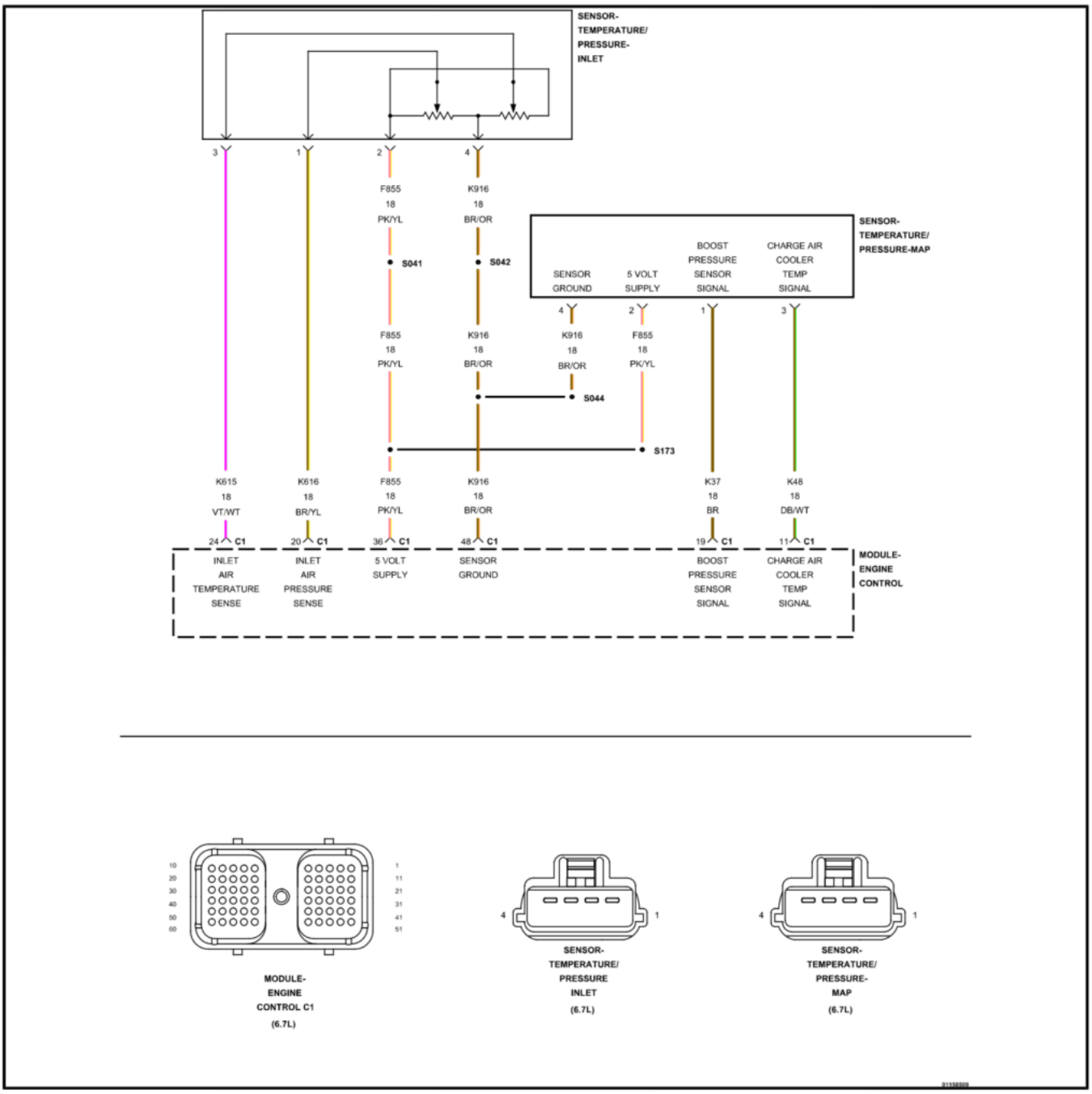
Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$130-$170**
Can I Still Drive?	:	No

What Does The P0106 Code Mean?

The Powertrain Control Module (PCM) uses the Manifold Absolute Pressure Sensor (MAP) to monitor engine load. (NOTE: Some vehicles have a Barometric Pressure (BARO) sensor that is integral to the Mass Air Flow (MAF) sensor and do not have a MAP sensor. Other vehicles have a MAF/BARO and a redundant MAP sensor where the MAP sensor functions as a backup input in case of MAF failure.

The PCM supplies a 5 Volt reference signal to the MAP sensor. Usually, the PCM also supplies a ground circuit to the MAP sensor as well. As the manifold pressure changes with load, the MAP sensor input informs the PCM. At idle the voltage should be 1 to 1.5 Volts and approximately 4.5 Volts at Wide Open Throttle (WOT).

The PCM looks for any change in manifold pressure to be preceded by a change in engine load in the form of changes in throttle angle, engine speed, or Exhaust Gas Recirculation (EGR) flow. If the PCM doesn't see any of these factors change while detecting a rapid change in MAP value, it will set a P0106.



P0106 wiring diagram

What Are The Symptoms Of The P0106 Code?

The following could be symptomatic of a P0106:

- Engine runs rough
- Black smoke at tailpipe
- Engine will not idle
- Poor fuel economy

- Engine misses at speed

What Are The Potential Causes Of The P0106 Code?

A P0106could be caused by:

- Bad MAP sensor
- Water/dirt intrusion affecting MAP sensorconnector
- Intermittent open in the reference, ground, or signal wire for the MAP sensor
- Intermittent short in the reference, ground, or signal wire for the MAP sensor
- Ground problem due to corrosion causing intermittent signal problem
- A break in the flexible air intake duct between the MAF and the intake manifold
- Bad PCM (do not assume the PCM is bad until you've exhausted all other possibilities)

How Can You Fix The P0106 Code?

Using a scan tool, watch the MAP sensor value with the key on, engine off. Compare the BARO reading with the MAP reading. They should be roughly equal. The voltage for the MAP sensor should read approx. 4.5 volts. Now start the engine and look for a significant drop in the MAP sensor voltage indicating the MAP sensor is working.

If the MAP reading doesn't change perform the following:

- With the Key on, and engine off, disconnect the vacuum hose from the MAP sensor. Pull 20 in. of vacuum on the MAP sensor using a vacuum pump. Does the voltage drop? It should. If it doesn't inspect the MAP sensor vacuum port and vacuum hose to the manifold for a restriction of some kind. Repair or replace as necessary.
- If there are no restrictions, and the value doesn't change with vacuum, then perform the following: with the Key on and engine off and the MAP sensor unplugged, check for 5 Volts at the reference wire to the MAP sensor connector with a Digital Voltmeter. If there is none, check for reference voltage at the PCM connector. If the reference voltage is present at the PCM connector but not the MAP connector, check for open or short in the reference wire between MAP and PCM and retest.
- If the reference voltage is present, then check for existing ground at the MAP sensor connector. If it isn't present, then repair open/short in the ground circuit.
- If the ground is present, then replace MAP sensor.

Other MAP sensor trouble codes include P0105, P0107, P0108 and P0109.

Reference Sources

Diagnostic Trouble Code (DTC) Charts and Descriptions for P0106 - Pages 21-22.