

P0471: EXHAUST PRESSURE SENSOR RANGE/PERFORMANCE

OVERVIEW

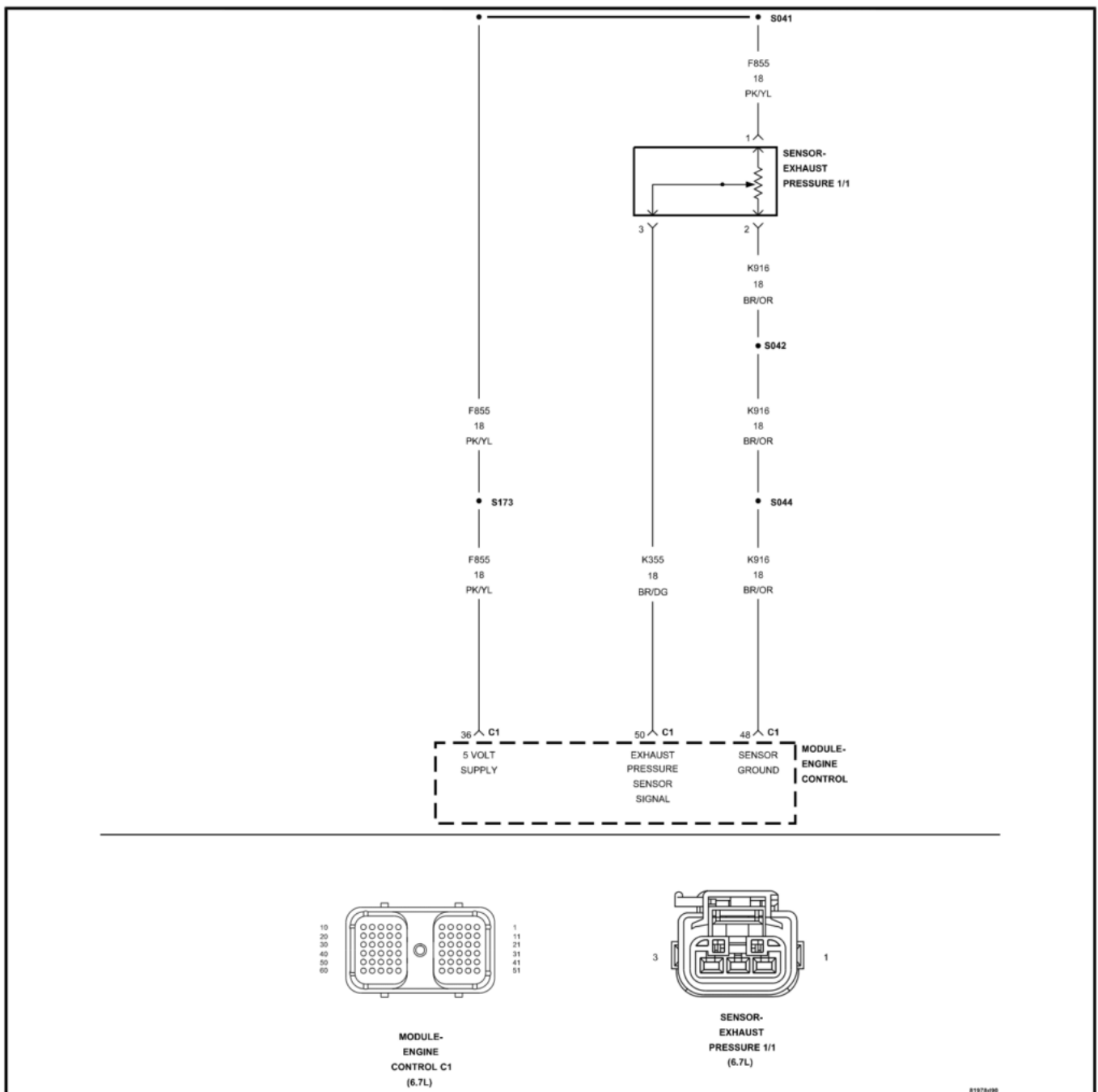
Severity	:	<div><div>Medium</div></div>
DIY Difficulty Level	:	<div><div>Intermediate</div></div>
Repair Cost	:	\$100-\$200
Can I Still Drive?	:	Yes

What Does The P0471 Code Mean?

This generic powertrain/engine diagnostic trouble code applies to all engines that use variable nozzle turbochargers (gas or diesel), starting around 2005 on Ford trucks equipped with 6.0L diesel engines, all Ford EcoBoost engines, and eventually leading to the Cummins 6.7L in 2007, the 3.0L in the Mercedes lineup in 2007 and here recently the Cummins 3.0L 6 cyl in the Nissan pickups starting in 2015. That's not to say you wouldn't necessarily get this code in a VW or other make though.

This code is strictly concerned about the incoming signal from the exhaust pressure sensor not matching intake manifold pressure or ambient air pressure at key on. This can be an electrical circuit fault or it can be mechanical.

Code P0470 may also be present at the same time as the P0470. The only difference between these 2 codes is how long the problem lasts and the type of electrical / mechanical problem that the sensor / circuit / engine controller is having. Troubleshooting steps may vary depending upon manufacturer, gas or diesel, type of exhaust pressure sensor and wire colors.



P0471 wiring diagram

Related exhaust pressure sensor trouble codes:

- [P0470 Exhaust Pressure Sensor "A" Circuit](#)
- [P0472 Exhaust Pressure Sensor "A" Circuit Low](#)
- [P0473 Exhaust Pressure Sensor "A" Circuit High](#)
- [P0474 Exhaust Pressure Sensor "A" Circuit Intermittent](#)

What Are The Symptoms Of The P0471 Code?

Symptoms of a P0471 engine code may include:

- Check Engine Light illuminated
- Lack of power
- Unable to perform manual regeneration – burn off the soot out of the particulate filter. Looks like a catalytic converter but has temp sensors and pressure sensor probes inserted into it.
- If unable to perform regeneration, eventually may become a crank-no start.

What Are The Potential Causes Of The P0471 Code?

Typically the causes for this code to set are:

- Blockage in the tube from the exhaust manifold to the pressure sensor
- Exhaust Gas Recirculation system / Air Inlet / Charge Air leaks
- Exhaust Gas Pressure Sensor
- Possibly a powertrain control module (PCM) has failed (highly unlikely)

How Can You Fix The P0471 Code?

Check Technical Service Bulletin

A good starting point is always a technical service bulletin (TSB) search for your particular vehicle. The vehicle manufacturer may have a PCM flash/reprogram to cover this issue, and it pays to check on this before you find you've gone down a long/wrong path.

Next, locate Exhaust Pressure Sensor on your particular vehicle. Once located, disconnect the tube that connects the sensor to the exhaust manifold. Attempt to blow through it. If unable to, try to run a small piece of wire through it to dislodge the carbon that is trapped inside, causing the fault code you are encountering. If you notice quite a bit of water blown out of it, this may have been the cause of the code.

Visually Inspect The Connectors And Wiring

If the tube is clear and free, visually inspect the connectors and wiring. Look for chafing, rubbing, bare wires, burn spots or melted plastic. Pull the connectors apart and carefully inspect the terminals (the metal parts) inside the connectors.

See if they look corroded, burnt or possibly green in color versus the normal metal color you are probably used to seeing. You can get some Electrical Contact cleaner at any parts store if cleaning of the terminals is needed. If this is not possible, find some 91% rubbing alcohol and a light plastic bristle brush to clean them with.

Afterwards let them air dry, get some dielectric silicone compound (same stuff they use for light bulb sockets and spark plug wires) and put some where the terminals come into contact. Next, make sure that the tube that connects the turbocharger to the intake manifold is not leaking. Visually inspect all tube connections around the turbocharger and intake manifold. Tighten all hose / band clamps.

If you have a scan tool, clear the diagnostic trouble codes from memory, and see if this code returns. If it does not, then the connections were most likely your problem.

Test The Sensor

If the code does return, we will need to test the sensor and its associated circuits. Typically there are 3 wires at the Exhaust Pressure sensor.

Disconnect the harness going to the Exhaust Pressure Sensor. With a Digital Volt Ohm Meter (DVOM), test the 5V power supply circuit going to the sensor to insure it is being powered up (Red lead to the 5V power supply circuit, black lead to a good ground).

If there is 12 volts to the sensor when there should be 5 volts, repair the wiring from the PCM to the sensor for a short to 12 volts, or possibly a bad PCM.

If that's OK, with a DVOM, check to make sure you have 5V on the Exhaust Pressure Sensor signal circuit (Red lead to the sensor signal circuit, black lead to a good ground). If there is no 5 volts to the sensor, or if you see 12 volts to the sensor, repair the wiring from the PCM to the sensor, or once again a possible bad PCM.

If that's OK, check to make sure you have a good ground at the Exhaust Pressure sensor. Connect a test light to 12V battery positive (red terminal) and touch the other end of the test light to the ground circuit going to the Exhaust Pressure Sensor circuit ground. If the test light does not light up, this would indicate the problem circuit. If it does light up, wiggle the wiring harness going to each sensor to see if the test light flickers, indicating an intermittent connection.

If all tests have passed so far, and you continue to get a P0471 code, this would most likely indicate a failed Exhaust Pressure sensor, although a failed PCM could not be ruled out until the sensor had been replaced.

Reference Sources

[P0471 Exhaust Pressure Sensor Range/Performance](#), OBD-Codes.