

P0278: CYLINDER 6 CONTRIBUTION/BALANCE

OVERVIEW

Severity	:	Medium
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$200-\$400
Can I Still Drive?	:	Yes (Short-term only)

What Does The P0278 Code Mean?

The OBD II trouble code P0278 is described as a cylinder number 6 contribution/balance. In essence, this code is stating that the number six cylinder in the firing order is experiencing a fuel-related problem.

This is also a generic code, meaning it is common to all manufacturers. The reference is the same, however, the manufacturer of a specific model may have experienced a defective part or error in installation.

Always access the technical service bulletins (TSBs) online for your specific year and make vehicle. Look for related TSBs and the factory recommended repair procedure.

The powertrain control module (PCM) monitors the power output from each cylinder by comparing the acceleration or increase in speed of the crankshaft during the power stroke of each cylinder.

When one or more cylinders are contributing less power than the rest of the cylinders, the fault code P0278 is set.

While the PCM performs this test to determine if a fuel injector is working properly, an auto technician can perform a similar test to locate internal engine problems. By pulling one spark plug at a time while the engine is running, he notes the RPM drop on each cylinder.

All the cylinders must be within 5-percent of each other. Any cylinder showing a lesser drop in RPM

is in need of repair. Both tests are similar in that they both compare crankshaft RPM.

This is a problem that must be addressed at your earliest convenience to prevent any possible damage from occurring.

Cross-section diagram of a typical automotive fuel injector (provided by WikipedianProlific):

What Are The Symptoms Of The P0278 Code?

The symptoms displayed for a P0278 code may include:

- Check engine light on and code P0278 set
- Reduced power and acceleration
- Rough idle
- Drop in fuel economy

What Are The Potential Causes Of The P0278 Code?

It's been my experience that this code refers to less power being produced in the number six cylinder. An electrical problem would set a code for either a high or low voltage situation for this injector.

A lack of fuel to the number six cylinder is the most likely cause. The injector may have failed altogether or it is dribbling a small amount of fuel rather than the normal conical spray. This would be due to dirt or contamination of the inlet filter on the injector.

- Possible defective electrical connector on the fuel injector due to corrosion of the terminals or pushed out pins
- Dirty or clogged fuel injector
- Fuel injector failure

How Can You Fix The P0278 Code?

- Inspect the electrical connector on the fuel injector. Look at the harness side for corrosion or pushed out pins. Check the injector for bent pins. Correct any defects and add dielectric grease to the connector terminals and reinstall the connector
- Start the engine. Use a long screwdriver with the handle to your ear and the blade to the injector, and listen for the characteristic 'ticking' noise indicating it is working. No noise means either it is not getting power or the injector has failed
- Using a wire probe on a voltmeter, probe the red power wire at the injector. It must show battery voltage. If no voltage is present there is an open in the wiring between the injector and the fuel pump relay. If voltage is present and the injector is working, it is likely clogged and needs to be cleaned

- Purchase a 'direct fuel injector flush kit' at an auto parts store. It consists of a pressurized can of injector cleaner and a hose connector to the fuel rail
- Remove the fuel pump fuse from the main fuse and relay box on the driver's side fenderwell
- Start the engine and allow it to run until the fuel pressure is exhausted and it stalls
- Pinch the fuel return line off using a needle nose vise grips
- Remove the schrader valve from the fuel pump test port on the fuel rail. Install the hose on the test port.
- Thread the can of injector cleaner on the hose and allow a few seconds for the cleaner to pressurize the fuel rail. Start the engine and allow it to run on the cleaner until it stalls.
- Remove the cleaner hose from the test port and reinstall the schrader valve. Remove the vise grips from the return line and install the fuel pump fuse.
- Erase the trouble code and reset the PCM using a common code reader
- Start the engine. If the rough idle continues and the code returns, replace the fuel injector.

Reference Sources

[Diagnostic Trouble Code \(DTC\) Guide for P0278](#) - Ominitek Advanced Technologies, pages 79-80.