

P0093: FUEL SYSTEM LARGE LEAK DETECTED

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$150 - 600
Can I Still Drive?	:	Yes (Short-term only)

What Does The P0093 Code Mean?

When the computer sets this code it senses a large fuel leak in the high pressure section of the engine. The ECM in a diesel always monitors and controls the fuel pressure from the fuel injector pump to the injectors as long as the engine is running.

To set a code P0093 the ECM must sense a sudden large drop in fuel pressure within the system. This drop in fuel pressure can be internal, external or caused by a faulty sensor signal to the ECM.

When this happens, the ECM sets the code, goes into fail-safe mode which will suspend the fuel injector pump operation and allow one minute to pull over before it shuts the engine down. It will remain in fail-safe mode until the key is off.

The engine may run again but investigate the problem first. This problem will not correct itself or go away. The engine could shut down at any time or speed.

Unlike gasoline engines with fuel injection pressures of 30 to 50 PSI, diesel engine fuel pressure runs up in the Megapascal range, from 4,500 to 30,000 PSI. It takes very high fuel pressure to force fuel into the high compression cylinder of a diesel.

As you progress in diagnosing the problem be always mindful of the fuel pressure when the engine is running. It is ridiculously high! You have a code P0093 stating there is a large fuel leak in the system. Use caution when sticking your nose under the hood of a running engine with this code, or wrenching on the fuel system.

What Are The Symptoms Of The P0093 Code?

Symptoms of a P0093 diagnostic trouble code may include:

- Code set and malfunction indicator lamp illumination (check engine light)
- Engine will enter fail-safe mode and shut down within one minute
- Possible large loss of power above idle

What Are The Potential Causes Of The P0093 Code?

Potential causes for this DTC include:

- Fuel injector failure
- Fuel line common rail leak
- Fuel pressure sensor malfunction
- Fuel pump or lift pump failure
- Fuel heater constantly on
- Fuel temperature sensor failure
- Leaks at any point in the high pressure circuit
- Electrical connector corrosion or seating problems
- Fuel pressure regulator malfunction
- Fuel filter plugged dropping the fuel line volume
- Injector pump leak
- Fuel control actuator failure
- Cascade overflow valve malfunction
- Short in the electrical harness at the injectors or to the ECM
- Fuel pressure limiting valve
- ECM failure

How Can You Fix The P0093 Code?

- Start with the engine off and doing a walkaround inspection for obvious fuel leaks between the fuel tank and the engine.
- Lift the hood and check the oil and level. If the oil level has risen, smell the oil. If it is heavily contaminated by fuel, an injector most likely failed in the open position. Do not start the engine again until the oil and filter is changed.
- Look under the hood for leaks. Start at the injector pump and follow the fuel lines to the fuel injector rail. Look at the injectors for signs of leaks.
- Pull the electrical connector off the fuel pressure sensor and look for fuel in the connector. A failed sensor will allow fuel up through the sensor into the connector.
- Check when you last changed the fuel filter. A plugged fuel filter will drop the volume enough to set the code.

- Check all electrical connectors on the sensors and wiring harness to the injectors for missing insulation, corrosion or loose connections. If no obvious leaks have been found, go online and look up the TSBs (technical service bulletins) for your year and make vehicle. Diesels have no lack of problems as the TSBs will indicate.

Look for the code and associated repair procedures and probable causes. Chevy and Dodge reads like a book. The TSBs will include recalls on various items as well.

Look at your warranty. Most diesel engines have long warranty periods for various items. Many cover injectors for 7 years or better and 200,000 miles.

The dealer is the next step if no deficiencies are found. Checking the fuel pressure and the operation of the ECM takes special tools for a diagnosis.

Tip: Diesels outlast a normal gasoline powered engine when properly serviced. But they demand service at specific intervals to operate properly.

There is no free lunch with these. Do not use any seals or gaskets that are not OEM. The pressures and temperatures call for the use of certain materials resistant to these temperatures and pressures.

See also: [P0094](#) Fuel System Leak Detected – Small Leak

Reference Sources

[Diagnostic Trouble Code \(DTC\) Guide for P0058](#) - Ominitek Advanced Technologies, pages 30-31.