# P0252: INJECTION PUMP FUEL METERING CONTROL A RANGE/PERFORMANCE (CAM/ROTOR/INJECTOR)

OVERVIEW

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|---|---|---|
| **Severity** | : | Medium |
| **DIY Difficulty Level** | : | Intermediate |
| **Repair Cost** | : | **$50-$200** |
| **Can I Still Drive?** | : | **Yes** (Short-term only) |

## What Does The P0252 Code Mean?

This generic powertrain/engine diagnostic trouble code can typically apply to all diesel fueled OBD-II equipped engines (e.g. Ford, Chevy, GMC, Ram, etc.), but shows up more often in certain Mercedes Benz and VW vehicles.

Although generic, the exact repair steps may vary depending on year, make, model and powertrain configuration.

The Injection Pump Metering Control Circuit “A” is usually found mounted inside / on the side of the injection pump bolted to the engine. The Injection Pump Metering Control Circuit “A” is usually made up of a Fuel Rack Position (FRP) Sensor and a Fuel Quantity Actuator.

The FRP sensor converts the amount of diesel fuel being delivered by the Fuel Quantity Actuator to the injectors into an electrical signal for the Powertrain Control Module (PCM).

The PCM receives this voltage signal to determine how much fuel it will put into the engine based on engine operating conditions.

This code is set if this input does not match normal engine operating conditions stored in the PCM’s memory, even for a second, as this diagnostic trouble code demonstrates. It also looks at the voltage signal from the FRP sensor to determine if it is correct at initial Key On.

The code P0252 Injection Pump Fuel Metering Control A Range/Performance (Cam/Rotor/Injector) could have been set because of mechanical (typically EVAP system mechanical issues) or electrical (FRP sensor circuit) issues.

These cannot be overlooked in the troubleshooting stage, especially when dealing with an intermittent problem. Refer to a vehicle-specific repair manual to determine which is the “A” part of the circuit for your particular application.

Troubleshooting steps may vary depending on the manufacturer, type of FRP sensor and wire colors.

## What Are The Symptoms Of The P0252 Code?

Symptoms of a P0252 trouble code may include:

- Malfunction Indicator Lamp (MIL) illumination
- Decrease in fuel economy

## What Are The Potential Causes Of The P0252 Code?

Causes for this P0252 code may include:

- Open in the signal circuit to the FRP sensor – possible
- Short to voltage in the signal circuit to the FRP sensor – possible
- Short to ground in the signal circuit to the FRP sensor – possible
- Open in power or ground at FRP sensor – possible
- Failed FRP Sensor – likely
- Failed PCM – unlikely

## How Can You Fix The P0252 Code?

A good starting point is always to check for technical service bulletins (TSB) for your vehicle. Your issue may be a known issue with a known fix put out by the manufacturer and can save you time and money during diagnosis.

Next, locate the FRP sensor on your vehicle. This sensor is usually found mounted inside/on the side of the injection pump bolted to the engine. Once located, visually inspect the connector and wiring. Look for scraping, rubbing, bare wires, burn spots or melted plastic. Pull the connector apart and carefully inspect the terminals (the metal parts) inside the connector. See if they look burned or have a green tint indicating corrosion. Use electrical contact cleaner and a plastic bristle brush if cleaning of the terminals is needed. Let dry and apply electrical grease where the terminals contact.

If you have a scan tool, clear the diagnostic trouble codes from memory, and see if the P0252 code returns. If it does not, then the connections were most likely your problem.

If the P0252 code does return, we will need to test the FRP sensor and its associated circuits. With the Key Off, disconnect the electrical connector at the FRP sensor. Connect a Digital Voltmeter black lead to the ground terminal at the FRP sensor wiring harness connector.

Connect the red lead of the Digital Voltmeter to the power terminal at the FRP sensor wiring harness connector. Turn Key On Engine Off. Check manufacturer's specifications; voltmeter should read either 12 volts or 5 volts. If not, repair the power or ground wire, or replace the PCM.

If the prior test passed, we will need to test the signal wire. With the connector still disconnected, move the red lead of the voltmeter from the power wire terminal to the signal wire terminal. The voltmeter should now read 5 volts. If not, repair the signal wire, or replace the PCM.

If all prior tests have passed and you continue to get a P0252, this would most likely indicate a failed FRP sensor / Fuel Quantity Actuator, although a failed PCM could not be ruled out until the FRP sensor / Fuel Quantity Actuator had been replaced. If unsure, seek assistance from a trained automotive diagnostician. PCMs must be programmed, or calibrated to the vehicle to be installed correctly.

## Severity Description

Severity depends upon the failure. If a mechanical failure; severe. If an electrical failure, not as severe, as the PCM can compensate adequately for it.

## Reference Sources

P0252: Injection Pump Fuel Metering Control A Range, OBD-Codes.