

## P0231: FUEL PUMP SECONDARY (FEEDBACK) CIRCUIT LOW VOLTAGE

### OVERVIEW

Severity	:	<div><div>Medium</div></div>
DIY Difficulty Level	:	<div><div>Intermediate</div></div>
Repair Cost	:	<b>\$400-\$600</b>
Can I Still Drive?	:	<b>Yes</b> (Short-term only)

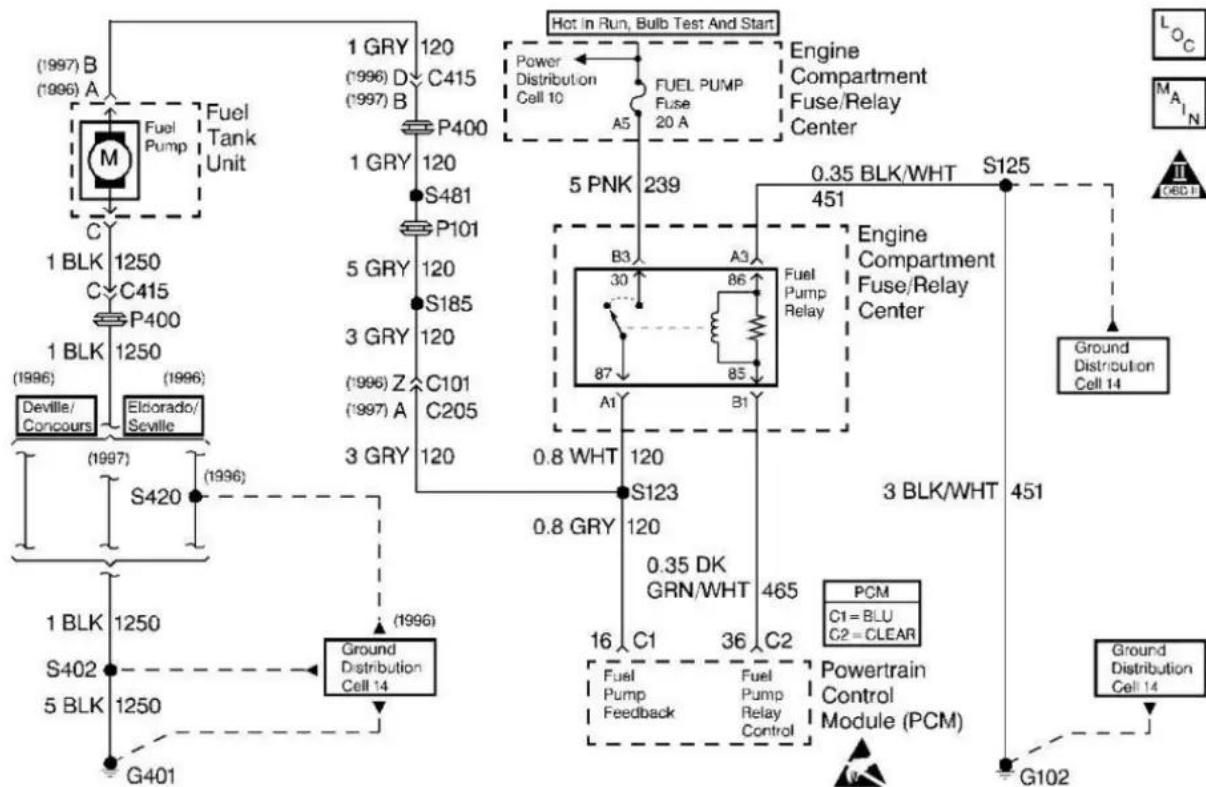
### What Does The P0231 Code Mean?

The fuel pump is powered by the fuel pump relay. When the PCM (powertrain control module) activates the fuel pump relay, voltage is supplied to the fuel pump and it pressurizes the fuel system.

Some vehicles have a feedback on the fuel pump supply circuit. This is simply a circuit spliced into the voltage feed to the fuel pump. The splice is usually located close to the PCM.

The PCM monitors this feedback circuit to ensure that there is proper voltage being sent to the fuel pump. As it activates the fuel pump relay, it expects to see battery voltage on the feedback circuit.

If it sees voltage that is too low or no voltage at all, it may set P0231.



P0231 wiring diagram

## What Are The Symptoms Of The P0231 Code?

Symptoms of a P0231 DTC may include:

- No start Start and stall
- Misfire
- Inadequate fuel supply

## What Are The Potential Causes Of The P0231 Code?

Potential causes of a P0231 code include:

- Bad FP (fuel pump) relay
- Harness chafing causing open in fuel pump supply circuit
- Loose/damaged connectors
- Open in feedback circuit
- Fuel pump fuse blown due to short to ground

NOTE: If no drivability complaints are present and P0231 code is stored, suspect open in feedback

circuit between splice and PCM

## How Can You Fix The P0231 Code?

### Step 1

To diagnose fuel pump circuits there's no replacement for a good wiring diagram. Try to locate one before attempting a complex repair.

If the vehicle will start and run and no drivability complaints are present, then suspect an open in the feedback circuit between the PCM and where it splices into the fuel pump supply voltage circuit. Repair as necessary.

### Step 2

If the vehicle doesn't start or starts and dies due to low fuel pressure, check the fuel pump fuse. If it's blown check for a short to ground on the fuel pump voltage supply circuit. Do this by removing the FP relay and then check the resistance between the voltage supply circuit at the fuel pump connector and ground.

If you have little resistance indicating a short to ground, unplug the fuel pump and check again. If it shows high or infinite resistance after unplugging the fuel pump, replace the shorted fuel pump. If the resistance is still low after unplugging the fuel pump then repair short in the FP voltage supply circuit.

### Step 3

If the resistance check is showing that the fuel pump supply circuit is okay then re-check between the FP fuse and the FP relay. There has to be a short somewhere. Check for wiring harness chafing in certain areas. Repair as necessary. If the fuel pump fuse isn't blown and the vehicle won't start or starts and stalls due to low fuel pressure then remove the fuse and check that voltage is present to the fuse. Then check that voltage is traveling from the fuse to the FP relay by re-installing the FP fuse and checking for battery voltage at the FP relay.

If the FP fuse or the FP relay doesn't have voltage supplied to it, the fuel pump will not operate. Find the open in the circuit and repair as necessary. If both the FP fuse and the FP relay have sufficient voltage, remove the FP relay and install a fused jumper wire to complete the FP voltage supply circuit (Usually you do this by jumping terminals 30 & 87 in most relays-check a wiring diagram to be sure). If the fuel pump runs, replace the faulty FP relay and recheck.

If the fuel pump doesn't run check for voltage present (with jumper connected or by cycling the ignition key with FP relay installed) at the fuel pump connector at the fuel tank. If voltage is present verify that the ground circuit is intact. If both are okay, replace the fuel pump. If voltage isn't

present at the fuel pump with fused jumper wire installed, repair open in fuel pump voltage supply circuit.

## Reference Sources

[Diagnostic Trouble Code \(DTC\) Charts and Descriptions for P0231](#) - Pages 49-50.