

P0731: GEAR 1 INCORRECT RATIO

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	\$300-\$1000
Can I Still Drive?	:	No

What Does The P0731 Code Mean?

Modern vehicles equipped with automatic transmissions / transaxles use a torque converter between the engine and transmission to increase the engine torque output and drive the rear wheels.

This code can show up in vehicles with an automatic transmission when there is a problem shifting into 6th gear, or while driving in 1st gear. The computer controlled automatic transmission uses multiple gear ratios to increase vehicle speed while maximizing the power output from the engine.

Newer vehicles may have more than four gear ratios to improve fuel economy. The computer determines when to shift up or down between gears based on throttle position vs. vehicle speed.

The Engine Control Module (ECM), Powertrain Control Module (PCM) or Transmission Control Module (TCM) uses input from various sensors to verify the correct operation of the transmission and its components. Engine speed is often calculated against the transmission speed sensor to determine gear ratio and torque converter slip. If the calculation does not match the desired value, the Diagnostic Trouble Code is set and the Check Engine Lamp is illuminated. Incorrect ratio codes typically require an advanced mechanical ability and diagnostic tools.

Note: This code is similar to [P0730](#), [P0732](#), [P0733](#), [P0734](#), [P0735](#) and [P0736](#). If there are other transmission codes, repair those problems first before proceeding with an incorrect gear ratio code.

What Are The Symptoms Of The P0731 Code?

Symptoms of a P0731 trouble code may include:

- Check Engine Light illuminated (Malfunction indicator lamp)
- Not starting in 1st gear, sluggish acceleration
- Transmission slipping
- Loss of fuel economy

What Are The Potential Causes Of The P0731 Code?

Causes of this DTC may include:

- Low or dirty transmission fluid
- Mechanical failure inside transmission
- Internal blockage inside transmission main control
- Faulty Shift solenoid
- Faulty transmission control module

How Can You Fix The P0731 Code?

Always be sure to check fluid level and condition before proceeding with further diagnosis. Improper fluid level or dirty fluid can may cause shifting issues that affect multiple gears. If only one incorrect ratio code is being displayed, test drive the vehicle to determine if the gear is actually working.

The transmission internal clutches and bands are usually controlled by a solenoid or using fluid pressure. If there is an electrical issue with a shift solenoid, a code specific to that fault should also be displayed. Correct the electrical issue before proceeding further. Blocked fluid passage inside the transmission can also cause the vehicle to not start out in 1st gear, if there are multiple incorrect ratio codes but the transmission performs as expected, there could be a mechanical issue with the torque converter, transmission main control, or pressure problems.

If there are multiple incorrect ratio codes and shift issues, but not all are displayed the fault may be a mechanical issue internal to the transmission, or a fluid pressure / blocked passage in the main control. A shift solenoid that controls multiple gears can also be at fault if there is an internal blockage or fluid pressure problem. If there is an electrical problem with the solenoid that controls the gears, a code should be displayed specific to the solenoid at fault.

It may be necessary to use an advanced diagnostics scan tool to determine which gear is being commanded by the transmission, and to determine if the engine speed matches with the calculated output speed from the transmission sensor.

Advanced knowledge of transmission operation and overhaul is often required to repair this type of malfunction. Consult the factory service manual for vehicle specific diagnostic procedures.

Reference Sources

[Diagnostic Chart with Trouble Code for LHD Vehicles for P0731](#) - Pagea 186-188.