

## P2801: TRANSMISSION RANGE SENSOR "B" CIRCUIT RANGE/PERFORMANCE

### OVERVIEW

Severity	:	<div><div></div></div> High
DIY Difficulty Level	:	<div><div>Intermediate</div></div>
Repair Cost	:	\$35-\$350
Can I Still Drive?	:	No

### What Does The P2801 Code Mean?

P2801 is a generic powertrain DTC in the transmission controls sub system group. This is a "C" type DTC. "C" type DTC'S are non-emission related so the powertrain control module (PCM) does not turn on the check engine light or store freeze frame data.

The transmission range sensor may be referred to as the park/neutral switch (PN), or the neutral safety switch. Its purpose is to inform the PCM of the position of the gear shifter and to allow the engine to start only in the park and neutral positions. The PCM sends a voltage reference to the sensor and the sensor sends a different voltage back the PCM depending on which gear the shifter is in. If the return voltage is not what it is supposed to be this code will set.

### What Are The Symptoms Of The P2801 Code?

Because the neutral safety switch is part of the transmission range sensor the vehicle may start in any gear position and/or the PCM will force the transmission in to "limp" mode. In this mode there is an obvious lack of power, especially from a complete stop.

### What Are The Potential Causes Of The P2801 Code?

Potential causes for this code to set are:

- Faulty transmission range sensor "B"
- Misadjusted transmission range sensor "B"
- Open or shorted transmission range sensor harness
- Faulty PCM

## How Can You Fix The P2801 Code?

There are two possible conditions that will cause this code to set:

**Condition #1**– The PCM detects drive or reverse at vehicle start-up

**Condition #2** – The PCM detects park or neutral and the following conditions exist for 10 seconds or more: >Throttle position is 5% or more: >engine torque is greater than 50ft.lbs. >Vehicle speed is greater than 20 MPH

In my experience this code is most common on four wheel drive trucks that have been out "4-wheelin" and have had damage inflicted to the range sensor and/or harness. It would be very rare to have a faulty PCM be the cause of this code. diagnosis of this code is pretty straight forward. SET THE PARKING BRAKE.

Begin with a thorough visual inspection of the range sensor and wiring harness. Repair any damage found. Does the vehicle start in reverse/drive? If it does start, unplug the range sensor and try and start it in reverse/drive again. If it still starts, suspect a short in the harness. If it does not start, suspect a faulty or misadjusted range sensor.

Related Transmission Range Sensor codes: [P2800](#), [P2802](#), [P2803](#), and [P2804](#).

## Severity Description

There is a serious safety concern when this code is present due to the possibility of the vehicle starting in gear causing it to start moving upon start up. This problem should be corrected immediately.

## Reference Sources

[P2801 Transmission Range Sensor B Circuit Range/Performance](#), OBD-Codes.