

GENERIC · POWERTRAIN

P089D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P089D

Gear Lever X Position Sensor 2 Circuit High

P089D indicates that the powertrain control module (PCM) has detected an abnormally high voltage signal from the Gear Lever X Position Sensor 2 circuit, which is part of the transmission range sensor or shift lever position sensor. The PCM expects a voltage within a specific range as the gear lever moves, and a high reading typically means the signal circuit is shorted to power or the sensor's internal resistance has failed.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Transmission

Symptoms you may notice

- Illumination of the check engine light or service transmission message
- Often no symptoms besides the warning light, especially if the fault is intermittent
- Harsh or delayed gear engagement when shifting from park or neutral
- Transmission may default to a limp mode or stay in a single gear
- Incorrect gear indicator display on the instrument cluster
- Failure to start because the PCM does not recognize park or neutral

Common causes, most likely first

- Faulty gear lever position sensor (internal short or contamination)
- Damaged or chafed wiring harness between the sensor and the PCM
- Corroded or loose electrical connector at the sensor or PCM
- Short to voltage on the signal circuit due to insulation damage
- PCM internal fault causing incorrect voltage interpretation (rare)
- Aftermarket accessories improperly tapped into the sensor circuit

How to diagnose and fix it

- Connect a scan tool and record freeze-frame data to confirm the code and check for related codes
- Visually inspect the sensor connector and wiring for corrosion, chafing, or loose pins
- Measure reference voltage and signal voltage at the sensor connector with the key on
- Disconnect the sensor and check for a short to voltage on the signal wire using a multimeter
- Compare sensor resistance or voltage output through its full range of travel against manufacturer specifications
- Replace the gear lever position sensor if it fails electrical testing
- Clear codes and perform a road test to verify the repair and ensure no pending codes return



Before you replace the sensor

- A high voltage code often results from a short to power in the wiring rather than a failed sensor, so always check the harness for rubbed insulation near sharp edges or heat sources.
- Water intrusion into the sensor connector can create a high-resistance path that mimics a sensor failure, especially on vehicles that have been driven through deep water or have clogged sunroof drains.
- Aftermarket remote starters or alarm systems tapped into the shift lever circuit can back-feed voltage and set this code without any actual sensor fault.
- The PCM may set P089D intermittently if the battery voltage is low during cranking, so verify battery and charging system health before condemning the sensor.
- On some vehicles, the gear lever position sensor is integrated into the transmission range sensor, and replacing the entire assembly is required rather than just the sensor.

Can I keep driving with P089D?

You can usually drive the vehicle to a repair shop, but avoid aggressive acceleration or towing, and be aware that the transmission may enter limp mode or fail to start if the fault worsens. If the vehicle will not start or shifts erratically, stop driving and have it towed.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire piercing probes or back-probe kit
- Service manual with wiring diagrams for the specific vehicle
- Basic hand tools (socket set, screwdrivers, trim removal tools)

Reading P089D

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
8	Transmission.
9D	The exact fault within that area.

Often seen with

P0705 Transmission Range Sensor Circuit Malfunction · **P0706** Transmission Range Sensor Circuit Range/Performance · **P0707** Transmission Range Sensor Circuit Low · **P089C** Gear Lever X Position Sensor 2 Circuit Low · **P089E** Gear Lever X Position Sensor 2 Circuit Intermittent/Erratic



See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p089d/>

