

GENERIC · POWERTRAIN

P2E05

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E05

Gear Lever Position Sensor B Range/Performance

P2E05 indicates that the powertrain control module (PCM) has detected an out-of-range or performance fault in the signal circuit for the gear lever position sensor B, which is a secondary sensor used to confirm the selected gear or range. The PCM compares this sensor's input against expected values from other gear position sensors and the vehicle speed, and it sets the code when the signal does not match the commanded gear or falls outside the valid voltage window.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- The check engine light or service transmission message illuminates on the dashboard.
- The transmission may shift harshly or fail to engage the correct gear, especially when selecting drive or reverse.
- The gear indicator on the instrument cluster may flash, show the wrong range, or fail to display the selected gear.
- The vehicle may start in the wrong gear or refuse to start unless the lever is jiggled or moved to a different position.
- Some vehicles enter limp mode, limiting engine power and restricting shifting to a single gear.
- Often no symptoms besides the warning light, particularly if the primary gear position sensor still provides a plausible signal.

Common causes, most likely first

- 1 A faulty gear lever position sensor B, worn internally or contaminated with debris, causing erratic or out-of-range output.
- 2 Damaged, chafed, or corroded wiring in the sensor B circuit, including the signal, ground, or reference voltage wires.
- 3 Loose or corroded electrical connector pins at the sensor or at the transmission control module (TCM) or PCM.
- 4 A misadjusted or mechanically binding gear selector mechanism that prevents sensor B from reaching its expected position.
- 5 A failing transmission control module or powertrain control module, though this is less common and should be diagnosed last.
- 6 Voltage drops or grounds shared with other sensors that corrupt the sensor B reference signal.



How to diagnose and fix it

- 1 Verify the battery voltage and charging system are within specification, then clear the code and test-drive to confirm it returns.
- 2 Inspect the gear lever position sensor B connector and harness for corrosion, loose pins, or chafed wires, and repair as needed.
- 3 Check the sensor B signal voltage with a scan tool or multimeter while moving the gear lever through all ranges, comparing it to the manufacturer's expected values.
- 4 Inspect the gear selector cable or linkage for binding, misadjustment, or wear that prevents the lever from reaching the correct detent.
- 5 If the signal is out of range at the sensor, remove and inspect sensor B for contamination or mechanical damage, and replace it if faulty.
- 6 Perform a relearn or calibration procedure for the gear position sensors using a scan tool, as many vehicles require this after sensor or module replacement.
- 7 If all external checks pass, test the TCM or PCM circuits and replace the module only after confirming a module fault with a factory diagnostic procedure.

Gear position sensor B diagnostic traps

- A misadjusted shift cable or worn selector detent can set this code even when sensor B is perfectly functional, so always verify the mechanical linkage before condemning the sensor.
- Some vehicles use a single sensor with two redundant outputs; a fault in only one output may set P2E05 while the other output keeps the transmission shifting normally, leading drivers to ignore a real problem.
- After replacing sensor B or the TCM, many manufacturers require a gear position relearn or adaptation reset, and skipping this step will cause the code to return immediately.
- Corrosion inside the connector can create a voltage drop that only appears under vibration or temperature change, so a static multimeter test may pass while the code still sets during driving.
- This code can be set by a low or unstable reference voltage shared with other sensors on the same 5-volt bus, so check for other sensor codes that might point to a common power or ground fault.

Can I keep driving with P2E05?

You can usually drive the vehicle to a repair shop if the transmission still shifts and the vehicle does not enter limp mode, but avoid aggressive acceleration, towing, or long trips until the fault is diagnosed. If the transmission slips, refuses to engage a gear, or the vehicle enters limp mode, stop driving and arrange a tow to prevent further damage.



Tools that help

- OBD-II scan tool with live data and transmission module access
- Digital multimeter with back-probing pins
- Factory service information for sensor voltage specifications and relearn procedures
- Socket set and trim removal tools for accessing the sensor and linkage
- Contact cleaner and dielectric grease for connector repair

Reading P2E05

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 05** 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 · **P2E04** Gear Lever Position Sensor B Circuit · **P2E06** Gear Lever Position Sensor B Circuit Low

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/p2e05/>

