

GENERIC · POWERTRAIN

P2E17

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E17

Intermediate Shaft Selection Actuator Position Sensor Circuit Low

P2E17 indicates that the powertrain control module (PCM) has detected an abnormally low voltage signal from the position sensor integrated into the intermediate shaft selection actuator. This actuator is responsible for mechanically engaging or disengaging the intermediate shaft in the transfer case or driveline, and the sensor provides feedback on its actual position. The low signal suggests a short to ground, an open circuit, or a failed sensor, preventing the PCM from confirming the actuator's commanded position.

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

Symptoms you may notice

- Illumination of the check engine light or service four-wheel-drive light, often with no other noticeable symptoms.
- Inability to shift into or out of four-wheel-drive modes, or the transfer case remaining stuck in one mode.
- A flashing or solid four-wheel-drive warning indicator on the dashboard.
- Audible clicking or whirring from the actuator area when attempting a mode change, but no engagement.
- The vehicle may default to a fail-safe mode, limiting power or disabling four-wheel-drive functionality.
- In rare cases, a slight driveline vibration or noise if the intermediate shaft is not fully engaged.

Common causes, most likely first

- 1 Damaged or corroded wiring harness or connector at the intermediate shaft selection actuator.
- 2 Failed position sensor internal to the actuator assembly.
- 3 Short to ground in the sensor signal circuit.
- 4 Open circuit in the sensor reference voltage or ground circuit.
- 5 Contamination or mechanical binding of the actuator mechanism, causing the sensor to read out of range.
- 6 Faulty transfer case control module (TCCM) or PCM, though less common.



How to diagnose and fix it

- 1 Inspect the actuator connector and wiring for corrosion, chafing, or loose pins; clean and repair as needed.
- 2 Measure resistance and voltage on the sensor signal circuit to verify a short to ground or open circuit.
- 3 Check the sensor reference voltage (typically 5 volts) and ground at the actuator connector with the key on.
- 4 Remove the actuator and inspect for mechanical binding or debris; clean or replace the actuator if binding is found.
- 5 Perform a bidirectional scan tool test to command the actuator and observe sensor voltage for smooth operation.
- 6 If the sensor signal remains low with a known-good circuit, replace the intermediate shaft selection actuator.
- 7 Clear codes and perform a relearn or calibration procedure if required by the manufacturer.

Don't overlook the transfer case actuator wiring

- A common misdiagnosis is replacing the actuator when the real fault is a rubbed-through wire in the harness near the transfer case, often caused by road debris or vibration.
The position sensor is often integrated into the actuator and not sold separately, so a sensor failure requires replacing the entire actuator assembly.
- Low sensor voltage can also be caused by a poor ground connection at the transfer case, which affects the sensor's reference ground.
- Some vehicles will set this code only after a failed four-wheel-drive engagement attempt, and the code may not reappear if the driver never uses four-wheel-drive again.
A scan tool that can read live sensor voltage while commanding the actuator is essential; a simple code reader cannot confirm whether the sensor is stuck low or the circuit is faulty.

Can I keep driving with P2E17?

You can usually continue driving in two-wheel-drive mode, but avoid using four-wheel-drive until the fault is repaired, as the system may not engage or disengage properly. If the vehicle is stuck in four-wheel-drive, avoid dry pavement and sharp turns to prevent driveline binding.

Tools that help

- OBD-II scan tool with bidirectional control and live data capability
- Digital multimeter
- Wire piercing probes or backprobe pins
- Socket set and trim removal tools
- Manufacturer service information for wiring diagrams and actuator removal



Reading P2E17

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 17** The exact fault within that area.

Often seen with

- P1870** Transmission Component Slipping · **P2E16** Intermediate Shaft Selection Actuator Position Sensor Range/
- **P2E18** Intermediate Shaft Selection Actuator Position Sensor Circuit

See it working

Watch the animated explainer [Fuel Trims Explained: Short-Term and Long-Term](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e17/>

