

GENERIC · POWERTRAIN

**P2E19**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P2E19

# Intermediate Shaft Selection Actuator Position Sensor Circuit Intermittent/Erratic

P2E19 indicates that the powertrain control module has detected an intermittent or erratic signal from the position sensor inside the intermediate shaft selection actuator, which is part of the variable valve timing or variable intake system on many modern engines. The computer expects a smooth, consistent voltage or digital position report as the actuator moves, but instead sees dropouts, spikes, or implausible jumps that do not match commanded position.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

## Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or unstable engine speed at a stop
- Reduced engine power or a limp-home mode during acceleration
- Hesitation or stumble when the engine transitions between low and high valve lift or intake runner length
- Intermittent misfire-like shudder that comes and goes with temperature or vibration
- Poor fuel economy or increased emissions over time

## Common causes, most likely first

- 1 Worn or chafed wiring in the sensor circuit, especially near connectors or where the harness bends with engine movement
- 2 Corroded, loose, or water-intruded electrical connector at the actuator or sensor
- 3 Internal failure of the position sensor inside the intermediate shaft selection actuator
- 4 Mechanical binding or excessive play in the intermediate shaft or actuator linkage, causing erratic sensor readings
- 5 Faulty actuator motor or solenoid that fails to hold commanded position, confusing the sensor feedback
- 6 Engine oil contamination or sludge affecting the actuator mechanism on oil-controlled systems
- 7 Rarely, a software calibration issue or a failing powertrain control module driver circuit



## How to diagnose and fix it

- 1 Inspect the actuator and sensor harness for chafing, loose pins, and corrosion, then clean and reseal connectors with dielectric grease
- 2 Measure sensor reference voltage and ground at the connector with a multimeter, comparing to manufacturer specifications
- 3 Back-probe the sensor signal wire and watch live data on a scan tool while wiggling the harness and tapping the actuator to catch intermittent dropouts
- 4 Remove the actuator and inspect the intermediate shaft and linkage for binding, excessive play, or debris that could cause erratic position feedback
- 5 Test the actuator motor or solenoid with a bidirectional scan tool to command movement and compare commanded versus actual position
- 6 Replace the intermediate shaft selection actuator or sensor assembly if electrical and mechanical checks pass but the erratic signal persists
- 7 Clear the code and perform a relearn or adaptation procedure if required, then road-test under the conditions that originally set the fault

## Intermittent sensor faults that fool good technicians

- A intermittent position sensor code often sets because of a stretched or oxidized connector terminal that only loses contact during engine torque movement, not because the sensor itself has failed.
- Technicians who replace the actuator without first graphing the sensor signal at the connector frequently find the new part sets the same code because the fault was in the harness a few inches away.
- On oil-controlled variable valve timing systems, degraded oil or a partially clogged oil passage can make the actuator respond slowly and erratically, which the position sensor reports as an implausible signal.
- The code can be stored by a momentary glitch that lasts less than a second, so a road test with a scan tool recording live data is often more useful than a static bench test of the sensor.
- A weak battery or poor engine ground can cause voltage spikes that corrupt the sensor signal on some vehicles, so check charging system health before condemning the actuator.

## Can I keep driving with P2E19?

You can usually drive the vehicle short distances to a repair shop, but avoid aggressive acceleration and sustained high speeds because an erratic actuator can cause poor engine response or a sudden limp-home mode. If the engine runs rough, misfires, or loses power noticeably, stop driving and have it towed to prevent damage to the valve train or catalytic converter.



## Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with back-probe pins
- Wiring diagram and connector pinout for the specific vehicle
- Hand tools for removing engine covers and the actuator
- Dielectric grease and electrical contact cleaner

## Reading P2E19

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

## Often seen with

**P0011** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P2E18** Intermediate Shaft Selection Actuator Position Sensor Circui · **P2E1A** Drive Motor A Inverter Voltage Sensor A/B Correlation

## See it working

Watch the animated explainer [Helicopter Flight Simulator: Learn the Three Controls](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e19/>

