

GENERIC · POWERTRAIN

P041E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P041E

EGR Temperature Sensor B Circuit Intermittent/Erratic

P041E indicates that the powertrain control module has detected an intermittent or erratic signal from the exhaust gas recirculation temperature sensor B circuit, which is typically the sensor monitoring the EGR cooler outlet or the EGR passage temperature. The computer expects a stable, plausible voltage or resistance value from this sensor, and it flags the code when the reading jumps, drops out, or behaves in a way that does not match other engine data.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Intermittent rough idle or slight hesitation during light acceleration
- Occasional surging or stumbling when the EGR valve opens
- A faint sulfur or exhaust smell from the engine bay in some cases
- Poor fuel economy or slightly elevated emissions during the erratic periods
- In rare cases, a brief misfire or stalling when the EGR system is active

Common causes, most likely first

- 1 Faulty EGR temperature sensor B, such as an internal short or open circuit that comes and goes with heat or vibration
- 2 Damaged or corroded wiring and connector pins in the sensor circuit, often from heat exposure or chafing
- 3 Loose or poor ground connection for the sensor or the engine block
- 4 Exhaust leaks near the sensor that cause temperature fluctuations and erratic readings
- 5 Carbon buildup or soot contamination on the sensor tip, insulating it from the exhaust flow
- 6 A failing EGR cooler or restricted EGR passage that creates unstable temperature conditions
- 7 Intermittent signal interference from a failing alternator or ignition component in rare cases



How to diagnose and fix it

- 1 Inspect the EGR temperature sensor B connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 2 Check the sensor's ground circuit and clean any corroded ground points on the engine block
- 3 Measure the sensor's resistance or voltage with a multimeter while wiggling the harness and warming the engine to catch intermittent faults
- 4 Remove and inspect the sensor for carbon buildup or physical damage, and clean or replace it if contaminated
- 5 Check for exhaust leaks around the EGR cooler and sensor mounting area using a smoke test or visual inspection
- 6 Verify the EGR cooler and passages are not restricted by performing a flow test or inspecting for soot blockage
- 7 Clear the code and perform a road test with live data to confirm the sensor signal is stable before returning the vehicle

Intermittent EGR sensor faults that fool technicians

- A sensor that tests perfectly on a cold engine can still be faulty once exhaust heat expands internal components, so always test the circuit while the engine is at operating temperature.
- The code often sets because of a poor ground rather than a failed sensor, and replacing the sensor without checking grounds frequently leads to a repeat failure.
- Carbon buildup on the sensor tip can dampen the temperature response just enough to trigger an erratic signal without setting a hard circuit code.
- An exhaust leak upstream of the sensor can cause rapid temperature swings that the computer interprets as an erratic sensor signal, so a smoke test is a smart early step.
- The EGR temperature sensor B circuit is sometimes shared with other sensors on a common reference voltage, so a fault in a neighbouring circuit can corrupt this signal.

Can I keep driving with P041E?

The vehicle is generally safe to drive with P041E because the fault is intermittent and does not usually affect drivability, but avoid long trips or heavy towing until the cause is found. If you notice rough running, stalling, or a flashing check engine light, stop driving and have the vehicle inspected promptly.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Smoke machine for exhaust leak testing
- Socket set and wrenches for sensor removal
- Contact cleaner and dielectric grease
- Infrared thermometer for checking EGR temperature readings



Reading P041E

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 1E** The exact fault within that area.

Often seen with

P0400 Exhaust Gas Recirculation Flow Malfunction · **P0401** EGR Flow Insufficient Detected · **P0402** EGR Flow Excessive Detected · **P041D** EGR Temperature Sensor B Circuit High · **P041F** AIR System Switching Valve A Circuit Low

See it working

Watch the animated explainer [How a Rotary Engine Works: Wankel in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p041e/>

