

GENERIC · POWERTRAIN

P045B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P045B

### EGR B Control Circuit Range/Performance

The powertrain control module (PCM) monitors the electrical circuit that controls the exhaust gas recirculation (EGR) valve on bank B, which is the side of the engine that does not contain cylinder number one. The code is set when the PCM detects that the voltage or current on the EGR B control circuit is outside the expected range for the commanded state, indicating a performance or range fault rather than a simple open or short.

|            |                     |          |                |                             |
|------------|---------------------|----------|----------------|-----------------------------|
| SYSTEM     | CODE TYPE           | SEVERITY | FIX DIFFICULTY | AREA                        |
| Powertrain | Generic (all makes) | Medium   | Intermediate   | Auxiliary emission controls |

### Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight hesitation or stumble during light acceleration when the EGR valve should open.
- Rough idle or idle surge if the valve is stuck partially open.
- Reduced fuel economy because the EGR system is not functioning optimally.
- Elevated combustion temperatures that may lead to pinging or knock under load.
- Failed emissions test due to increased oxides of nitrogen (NOx) output.

### Common causes, most likely first

- 1 Carbon buildup or sludge on the EGR valve pintle or seat causing it to stick or move sluggishly.
- 2 Wiring damage such as chafed insulation, corroded terminals, or a broken wire in the EGR B control circuit.
- 3 A failing EGR valve position sensor or actuator solenoid that cannot respond correctly to PCM commands.
- 4 A faulty PCM driver for the EGR B circuit, though this is less common.
- 5 Vacuum supply issues if the EGR valve is vacuum-operated, such as a cracked hose or leaking diaphragm.
- 6 Exhaust backpressure problems or a clogged EGR passage that restricts valve movement.



## How to diagnose and fix it

- 1 Inspect the EGR valve and its electrical connector for physical damage, corrosion, or loose pins.
- 2 Use a scan tool to command the EGR valve open and closed while watching the position sensor data to see if it follows the command.
- 3 Check the resistance and continuity of the EGR B control circuit wiring between the PCM and the valve, repairing any opens or shorts.
- 4 Test the EGR valve actuator with a known-good signal or vacuum source to confirm it moves freely through its full range.
- 5 Remove the EGR valve and clean carbon deposits from the pintle and seat, then reinstall and retest.
- 6 If the valve fails to respond correctly, replace the EGR valve assembly and clear the code.
- 7 Verify repair by clearing codes and performing a drive cycle that commands the EGR valve, confirming the code does not return.

## What the EGR B range code hides

- A sticking EGR valve due to carbon buildup is the most frequent cause of this code, yet many technicians replace the valve before attempting a thorough cleaning.
- The code can be set by a lazy EGR valve that moves but does not reach the commanded position within the expected time, which a simple resistance check will not reveal.
- On vehicles with two EGR valves, bank B refers to the side of the engine opposite cylinder one, so misidentifying the correct valve leads to replacing the wrong part.
- A restricted EGR passage in the intake manifold can mimic a faulty valve by preventing proper flow and causing the position sensor to report an out-of-range condition.
- Intermittent wiring faults that only appear when the engine is hot or vibrating can set this code without any hard failure, so wiggle tests and voltage drop checks are essential.

## Can I keep driving with P045B?

You can usually continue driving with this code, but avoid heavy acceleration and long trips at high speed until it is repaired, because a malfunctioning EGR system can increase combustion temperatures and cause engine knock. Have the fault diagnosed soon to prevent potential damage to the catalytic converter or engine components.

## Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Vacuum pump and gauge
- Hand tools for removing the EGR valve
- Carbon cleaner and brushes



## Reading P045B

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 5B** 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 · **P045A** EGR B Control Circuit · **P045C** EGR B Control Circuit Low

## See it working

Watch the animated explainer [Helicopter Simulator: Take Off, Hover and Land](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p045b/>

