

GENERIC · POWERTRAIN

P045D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P045D

EGR B Control Circuit High

P045D indicates that the powertrain control module has detected a high-voltage condition on the control circuit for the EGR B solenoid, which is the secondary exhaust gas recirculation valve on systems with two EGR valves. The computer expects the control wire to be pulled low when the valve is commanded on, but it is seeing voltage stay at or near battery voltage, meaning the circuit is open, shorted to power, or the valve's internal coil has failed.

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 decrease in fuel economy because the EGR valve may stay closed and increase combustion temperatures
- Possible pinging or spark knock under light acceleration if the EGR valve fails to open when commanded
- An increase in nitrogen oxide emissions that may cause a state emissions test failure
- In rare cases, a rough idle or stumble if the valve sticks partially open despite the electrical fault

Common causes, most likely first

- 1 Open or broken wire in the EGR B control circuit between the PCM and the valve
- 2 Short to battery voltage on the control wire, often from chafed insulation against a hot or moving component
- 3 Failed EGR B solenoid coil with an open internal winding
- 4 Corroded or loose electrical connector at the EGR B valve or at the PCM
- 5 Faulty powertrain control module driver circuit, though this is less common than wiring or valve failure
- 6 Aftermarket electrical accessories improperly tapped into the circuit causing a voltage backfeed



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P045D to confirm the fault is active and not a history code
- 2 Visually inspect the EGR B valve connector and the harness for corrosion, chafing, or loose pins
- 3 Use a digital multimeter to measure resistance across the EGR B solenoid coil and compare to the manufacturer's specification
- 4 Backprobe the control wire at the valve and command the EGR B valve on with a scan tool to see if the PCM pulls the circuit low
- 5 Check for continuity and short-to-power on the control wire between the PCM and the EGR B valve with the key off
- 6 If the circuit and valve test good, substitute a known-good EGR B valve or perform a PCM driver test before replacing the PCM
- 7 Clear the code and verify repair by running the EGR monitor to completion and confirming no pending or stored P045D returns

Why the EGR B circuit sets this code

- Many technicians replace the EGR B valve only to find the real fault is a rubbed-through control wire near the exhaust manifold or a corroded connector pin that was missed during a quick visual check.
- A high-voltage code on a solenoid control circuit does not always mean the valve is bad; a short to power from an unrelated circuit that shares a harness can backfeed voltage and set P045D.
- On some vehicles the EGR B valve is the low-pressure EGR valve on the intake side, so a fault here can be caused by oil contamination or carbon buildup that damages the connector seal.
- The PCM driver for the EGR B circuit can be damaged by a shorted solenoid coil, so always check coil resistance before installing a new valve to avoid repeating the failure.
- P045D is often stored alongside P0400-series codes, and diagnosing only the EGR flow code can lead to replacing the wrong valve if the B circuit fault is overlooked.

Can I keep driving with P045D?

The vehicle is generally safe to drive with P045D because the EGR valve defaults to closed and does not affect braking or steering, but avoid heavy acceleration or towing until the fault is repaired to prevent possible engine knock and increased emissions.

Tools that help

- OBD-II scan tool with bidirectional control and live data
- Digital multimeter with backprobe pins
- Wiring diagram for the EGR B circuit
- Hand tools for connector and component access
- Vacuum pump or smoke machine for related EGR system checks



Reading P045D

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 5D** The exact fault within that area.

Often seen with

P0400 Exhaust Gas Recirculation Flow Malfunction · **P0401** EGR Flow Insufficient Detected · **P0404** EGR Circuit Range/Performance · **P045C** EGR B Control Circuit Low · **P045E** EGR B Control Stuck Open

See it working

Watch the animated explainer [EV Powertrain Trainer: How an Electric Car Drives](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p045d/>

