

GENERIC · POWERTRAIN

P06D5

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P06D5

Sensor Reference Voltage E Circuit Range/Performance

P06D5 indicates that the powertrain control module (PCM) has detected an out-of-range or performance fault in the reference voltage circuit labeled 'E', which supplies a precise 5-volt or 3.3-volt signal to one or more sensors. The PCM monitors this circuit and sets the code when the voltage falls outside the expected operating window or behaves erratically, often affecting multiple sensors that share the same reference line.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Computer and output circuits

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough engine idle or hesitation during acceleration if the affected sensors influence fuel delivery
- Poor fuel economy or increased emissions due to skewed sensor readings
- Transmission shift quality issues if the reference voltage feeds a transmission sensor
- Intermittent stalling or no-start condition in severe cases
- Multiple sensor-related codes stored alongside P06D5

Common causes, most likely first

- 1 Chafed or shorted wiring in the reference voltage circuit, often near connectors or heat sources
- 2 Corroded or loose electrical connector pins at the PCM or at a sensor sharing the reference line
- 3 A faulty sensor internally shorting the reference voltage to ground or to another circuit
- 4 Failed PCM driver or internal reference voltage supply (less common)
- 5 Water intrusion or contamination in a connector causing intermittent voltage drops
- 6 Aftermarket accessories improperly tapped into the reference circuit



How to diagnose and fix it

- 1 Inspect the wiring harness and connectors for the affected reference circuit for obvious damage, corrosion, or loose pins
- 2 Use a digital multimeter to measure reference voltage at each sensor connector that shares circuit E, comparing to the manufacturer's specification
- 3 Disconnect sensors one at a time to see if the reference voltage returns to normal, isolating a shorted sensor
- 4 Perform a voltage drop test on the ground and power sides of the circuit to rule out high resistance
- 5 Check for technical service bulletins (TSBs) or wiring diagrams specific to the vehicle to identify all components on the reference E circuit
- 6 Repair or replace damaged wiring, connectors, or the faulty sensor as identified
- 7 Clear codes and perform a road test to verify the repair, monitoring live data for the reference voltage

Reference Voltage E Circuit Pitfalls

- A single shorted sensor on the shared reference voltage line can pull down the voltage for all sensors on that circuit, causing multiple unrelated codes and misleading diagnostics.
- The PCM may set P06D5 even when the reference voltage is only intermittently out of range, so a wiggle test of the harness while monitoring live data is often necessary to reproduce the fault.
- Aftermarket electrical accessories, such as alarm systems or audio equipment, are frequently tapped into the reference voltage circuit and can introduce noise or excessive load, leading to this code.
- Corrosion inside a connector that looks fine from the outside can cause a voltage drop that only appears under vibration or temperature changes, so a thorough pin drag test is essential.
- Do not replace the PCM based solely on this code; the vast majority of P06D5 faults trace back to wiring or sensor issues, not the controller itself.

Can I keep driving with P06D5?

The vehicle may be safe to drive short distances to a repair shop if no drivability symptoms are present, but avoid heavy loads or sustained high speeds because a failing reference voltage can cause unpredictable sensor behavior and potential stalling. If the engine runs poorly or stalls, stop driving and have the vehicle towed.

Tools that help

- Digital multimeter (DMM) with back-probing pins
- OBD-II scan tool with live data capability
- Wiring diagram and connector pinout for the specific vehicle
- Test light or jumper wires for circuit testing
- Contact cleaner and dielectric grease for connector repair



Reading P06D5

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 6** Computer and output circuits.
- D5** The exact fault within that area.

Often seen with

P0641 Sensor Reference Voltage 'A' Circuit/Open · **P0651** Sensor Reference Voltage 'B' Circuit/Open · **P06A6** Sensor Reference Voltage A Circuit Range/Performance · **P06D4** Sensor Reference Voltage E Circuit High · **P06D6** Sensor Reference Voltage F Circuit/Open

See it working

Watch the animated explainer [How a Catalytic Converter Works: 3D Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p06d5/>

