

GENERIC · POWERTRAIN

P06A4

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P06A4

Sensor Reference Voltage D Circuit Low

P06A4 indicates that the powertrain control module (PCM) has detected a low voltage condition on the sensor reference voltage D circuit, which is a regulated 5-volt supply used by multiple sensors. The PCM monitors this circuit and sets the code when the voltage falls below a calibrated threshold, typically because of a short to ground, an open circuit, or a faulty sensor drawing excessive current.

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 (malfunction indicator lamp) with no other obvious symptoms
- Rough running or stalling if the affected sensors include the throttle position or manifold absolute pressure sensor
- Reduced engine performance or limp mode due to lost sensor data
- Poor fuel economy or erratic shifting if the reference voltage feeds transmission sensors
- Intermittent misfire or hesitation if the camshaft or crankshaft sensor shares the circuit
- Often no symptoms besides the warning light when the fault is intermittent or affects a non-critical sensor

Common causes, most likely first

- 1 Short to ground in the reference voltage D circuit wiring, often due to chafed insulation or pinched harness
- 2 Faulty sensor connected to the reference voltage D circuit internally shorted, pulling the voltage low
- 3 Open circuit or high resistance in the reference voltage D wire, such as a broken wire or corroded connector
- 4 Poor ground connection for the PCM or sensors causing reference voltage to drop under load
- 5 Water intrusion or corrosion in a connector that supplies the reference voltage D circuit
- 6 Failed PCM voltage regulator internal to the module, though this is less common



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to identify which sensors share the reference voltage D circuit
- 2 Visually inspect the harness and connectors for the affected sensors for damage, corrosion, or loose pins
- 3 Measure reference voltage at each sensor connector with the key on, engine off, comparing to the specified 5 volts
- 4 Disconnect sensors one at a time to see if the voltage returns to normal, isolating a shorted sensor
- 5 Perform a voltage drop test on the ground circuit and check for excessive resistance in the reference voltage wire
- 6 Repair or replace the faulty wiring, connector, or sensor as identified by the tests
- 7 Clear codes and verify the repair by running the vehicle through a complete drive cycle

Reference voltage D circuit pitfalls

- A single shorted sensor on the shared 5-volt reference line can pull down the voltage for all sensors on that circuit, causing multiple unrelated codes and misleading you into replacing good parts.
- The code does not always mean the PCM is faulty; in fact, PCM failure is rare, and most cases trace to wiring or a sensor internal short.
- Check for aftermarket accessories or recent repairs that may have pinched or tapped into the reference voltage wiring, as these are common causes of intermittent low voltage.
- The reference voltage D circuit may be shared with the throttle position sensor, accelerator pedal sensor, or transmission sensors, so drivability symptoms can vary widely.
- A low reference voltage can also be caused by a poor ground at the sensor or PCM, so never overlook ground integrity during diagnosis.

Can I keep driving with P06A4?

If the vehicle runs normally, you can drive it to a repair shop, but avoid heavy acceleration or towing. If the engine runs rough, stalls, or enters limp mode, stop driving and have it towed to prevent unsafe operation.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Back probe pins or breakout box
- Contact cleaner and dielectric grease



Reading P06A4

- 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.
- A4** The exact fault within that area.

Often seen with

P0641 Sensor Reference Voltage 'A' Circuit/Open · **P0651** Sensor Reference Voltage 'B' Circuit/Open · **P06A3** Sensor Reference Voltage D Circuit/Open · **P06A5** Sensor Reference Voltage D Circuit High · **P06A6** Sensor Reference Voltage A Circuit Range/Performance

See it working

Watch the animated explainer [How Crank and Cam Position Sensors Work](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p06a4/>

