

GENERIC · POWERTRAIN

P0739

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0739

TCM Engine Speed Output Circuit High

P0739 means the transmission control module (TCM) has detected an abnormally high voltage on the engine speed output circuit, which is the signal the TCM uses to monitor engine RPM during gear changes. The TCM expects a varying voltage that tracks engine speed, and a sustained high reading indicates an open circuit, a short to voltage, or a faulty sensor or module.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- Illumination of the check engine light or transmission warning light, often with no other noticeable symptoms
- Harsh or delayed gear shifts as the TCM loses accurate engine speed data
- The transmission may enter limp mode, limiting you to a single gear or a reduced set of gears
- Erratic or inconsistent shift points during acceleration or deceleration
- In some cases, the engine may stall or hesitate when coming to a stop
- A stored code P0739 may be the only sign if the fault is intermittent and the circuit momentarily reads high

Common causes, most likely first

- 1 Damaged or disconnected wiring in the engine speed output circuit, such as a broken wire or loose connector
- 2 A short to voltage on the signal wire, often from chafed insulation against a power wire
- 3 A faulty engine speed sensor (often the crankshaft position sensor) that outputs an incorrect high voltage
- 4 Poor electrical connection at the TCM or sensor due to corrosion or pin tension loss
- 5 A failed TCM driver circuit that incorrectly reads or reports high voltage
- 6 Aftermarket electrical accessories improperly tapped into the circuit causing interference



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P0739 is current and not a history code from a previous repair
- 2 Visually inspect the engine speed sensor and its wiring harness for obvious damage, corrosion, or loose connectors
- 3 Use a digital multimeter to check the signal wire voltage at the sensor and at the TCM connector, comparing to the manufacturer's specification
- 4 Perform a wiggle test on the harness while monitoring live data to catch intermittent opens or shorts
- 5 Check for continuity and resistance on the signal and ground circuits, repairing any open or high-resistance faults
- 6 If the circuit tests good, substitute a known-good engine speed sensor and clear the code to see if it returns
- 7 As a last step, verify the TCM is not faulty by checking for updated software or testing with a known-good unit

What the TCM is really seeing on P0739

- A high voltage reading on the engine speed output circuit often means the signal wire is open, not shorted, because the TCM pulls the line up to a reference voltage when no sensor signal is present.
- Many technicians replace the TCM first, but a simple chafed wire near the exhaust or a corroded connector pin is a far more common cause of this code.
- The engine speed output circuit may share a connector with other sensors, so a single damaged pin can set multiple codes that seem unrelated.
- In some vehicles, the engine speed signal is derived from the crankshaft position sensor, so a failing crank sensor can set P0739 without any misfire code.
- After clearing the code, always drive the vehicle through several shift cycles because the TCM may only run the rationality check for this circuit during specific driving conditions.

Can I keep driving with P0739?

You can usually drive the vehicle to a repair shop, but avoid aggressive acceleration or heavy loads because the transmission may shift harshly or enter limp mode without warning. If the vehicle is already in limp mode or the check engine light is flashing, stop driving and have it towed.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with back-probing pins
- Wiring diagram for the specific vehicle
- Test light or jumper wires for circuit testing
- Socket set and trim removal tools for accessing sensors and connectors



Reading P0739

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

Often seen with

P0335 Crankshaft Position Sensor A Circuit Malfunction · **P0336** Crankshaft Position Sensor A Circuit Range/Performance · **P0715** Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction · **P0730** Incorrect Gear Ratio

See it working

Watch the animated explainer [Four-Stroke Engine Notebook: The Otto Cycle Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0739/>

