

GENERIC · POWERTRAIN

P0039

OBD-II TROUBLE CODE

P0039

Turbo/Super Charger Bypass Valve Control Circuit Range/Performance

P0039 indicates that the powertrain control module (PCM) has detected an out-of-range condition in the control circuit for the turbocharger or supercharger bypass valve. The PCM monitors the circuit for expected voltage or current feedback and sets this code when the signal falls outside the manufacturer's specified range for a calibrated time, 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	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Reduced engine power or limp mode under acceleration.
- Poor fuel economy or rich-running conditions.
- Rough idle or stalling after lifting off the throttle.
- Audible hissing or fluttering from the turbocharger area during deceleration.
- Delayed or harsh turbocharger response (turbo lag).

Common causes, most likely first

- 1 Faulty bypass valve solenoid or its internal control circuit.
- 2 Damaged, corroded, or disconnected wiring or connector at the bypass valve.
- 3 Vacuum or boost leak in the hose or diaphragm that operates the bypass valve.
- 4 Sticking or mechanically binding bypass valve linkage.
- 5 Failed PCM driver for the bypass valve control circuit (rare).
- 6 Aftermarket tuning or modifications that alter boost control signals.



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and any related codes to understand the operating conditions when the fault set.
- 2 Visually inspect the bypass valve, its connector, and the wiring harness for damage, corrosion, or loose pins; repair as needed.
- 3 Test the bypass valve solenoid with a multimeter for resistance and compare to specification; replace if out of range.
- 4 Check vacuum/boost hoses and the valve diaphragm for leaks or tears using a vacuum pump or smoke machine.
- 5 Command the bypass valve with a bidirectional scan tool and observe operation; listen for clicking and verify mechanical movement.
- 6 Backprobe the control circuit at the PCM and measure voltage/current while commanding the valve to confirm circuit integrity.
- 7 If all electrical and mechanical checks pass, consult factory service information for specific pinpoint tests before replacing the PCM.

Bypass valve faults that mimic other codes

- A sticking bypass valve often sets P0039 without any driveability complaint, so the code can be overlooked during routine service.
- Many technicians replace the bypass valve only to find a chafed wire in the harness near the exhaust manifold is the real cause.
- A boost leak at the bypass valve diaphragm can trigger P0039 and also cause rich fuel trims that may set P0172 or P0175.
- Aftermarket blow-off valves or bypass valves that vent to atmosphere can cause this code because the PCM expects a closed circuit under certain conditions.
- The PCM may set P0039 if the bypass valve control circuit is electrically intact but the valve fails to change state within the expected time, so a functional test is essential.

Can I keep driving with P0039?

You can usually continue driving with P0039, but avoid heavy acceleration and towing until the fault is repaired. Prolonged driving with a faulty bypass valve can lead to turbocharger damage or poor fuel economy, so schedule diagnosis soon.



Tools that help

- OBD-II scan tool with bidirectional control
- Digital multimeter
- Vacuum pump or smoke machine
- Basic hand tools (screwdrivers, socket set)
- Factory service information or wiring diagrams

Reading P0039

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

Often seen with

P0038 HO2S Heater Control Circuit High (Bank 1 Sensor 2) · **P0040** O2 Sensor Signals Swapped Bank 1 Sensor 1/ Bank 2 Sensor 1 · **P0172** System Too Rich (Bank 1) · **P0234** Engine Overboost Condition · **P0299** Turbo/Supercharger Underboost

See it working

Watch the animated explainer **Four-Stroke Engine Cutaway: Intake to Exhaust** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0039/>

