

GENERIC · POWERTRAIN

P2C25

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C25

Exhaust Heat Exchanger Exhaust Bypass Valve A Position Sensor Circuit High

P2C25 indicates that the powertrain control module has detected an abnormally high voltage on the signal circuit of the exhaust bypass valve position sensor, which is part of the exhaust heat exchanger assembly. The sensor normally reports the physical position of the bypass valve so the computer can command exhaust flow through or around the heat exchanger for faster engine warm-up and cabin heating.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced or absent cabin heat during cold starts because the bypass valve may default to a fixed position
- Slightly longer engine warm-up times in cold weather
- In some vehicles, a message on the driver information center about exhaust system service
- Possible poor fuel economy if the engine stays in warm-up mode longer than necessary
- Intermittent operation of the heat exchanger function, leading to inconsistent heater performance

Common causes, most likely first

- 1 Open circuit or high resistance in the sensor signal wire, such as a broken wire or corroded connector terminal
- 2 Failed position sensor inside the exhaust bypass valve actuator, reading higher than actual voltage
- 3 Shorted sensor reference voltage circuit to voltage, pulling the signal high
- 4 Poor ground connection for the sensor or actuator, causing a floating high signal
- 5 Sticking or mechanically binding bypass valve that prevents the sensor from sweeping its normal range
- 6 Damaged or melted wiring harness near the exhaust heat exchanger due to heat exposure
- 7 Faulty powertrain control module, though this is rare and should be confirmed last



How to diagnose and fix it

- 1 Use a scan tool to read the bypass valve position sensor voltage and compare it to the commanded position to confirm the high signal
- 2 Visually inspect the sensor connector and wiring for corrosion, chafing, or heat damage, and repair as needed
- 3 Back-probe the sensor signal circuit at the connector and measure voltage with the key on, engine off, to check for a high reference or short to voltage
- 4 Check the sensor ground circuit for excessive resistance using a voltage drop test while the circuit is loaded
- 5 Remove the bypass valve actuator and manually operate the valve to verify it moves freely without binding
- 6 If the wiring and valve are good, replace the exhaust bypass valve position sensor or actuator assembly as required
- 7 Clear the diagnostic trouble code and perform a road test to verify the repair and ensure the monitor runs to completion

When the sensor is not the real culprit

- A high signal voltage often comes from a poor ground rather than a failed sensor, so always check ground integrity before condemning parts.
- Heat exchanger bypass valves on some vehicles are vacuum-operated, and a leaking vacuum line can cause the valve to sit in a position that makes the sensor read out of range.
- The code can set intermittently due to a wiring harness that rubs against the heat shield only during certain engine movements, so wiggle tests are essential.
- Replacing the sensor without checking for a binding valve will often lead to a repeat failure because the new sensor will be forced to read the same stuck position.
- Some vehicles use a shared reference voltage for multiple sensors, and a short in another sensor on that circuit can pull the bypass sensor signal high and set this code.

Can I keep driving with P2C25?

The vehicle remains safe to drive because the bypass valve defaults to a position that does not affect engine reliability, but you may notice reduced heater performance and slightly higher fuel consumption until repaired. Avoid extended idling in cold weather and have the fault diagnosed soon to prevent potential catalytic converter or exhaust system issues from prolonged rich warm-up operation.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with back-probe pins
- Wiring diagram for the exhaust heat exchanger circuit
- Hand tools for removing the actuator or sensor
- Vacuum pump and gauge if the valve is vacuum-operated



Reading P2C25

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- C** Hybrid propulsion.
- 25** The exact fault within that area.

Often seen with

P2C24 Exhaust Heat Exchanger Exhaust Bypass Valve A Position Senso · **P2C26** Fuel Injector Group B Supply Sense Circuit · **P2C27** Fuel Injector Group B Supply Sense Circuit Low · **P2C28** Fuel Injector Group B Supply Sense Circuit High · **P2C29** Turbocharger/Supercharger Bypass Valve B Stuck

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/p2c25/>

