

GENERIC · POWERTRAIN

P2042

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2042

Reductant Temperature Sensor Circuit

P2042 indicates that the powertrain control module has detected an abnormal signal from the reductant temperature sensor, which monitors the temperature of the diesel exhaust fluid (DEF) used in selective catalytic reduction systems. The computer compares the sensor's voltage or resistance against expected values and flags the code when the reading falls outside the valid range or behaves erratically.

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 in some vehicles
- A message on the driver information display warning about the DEF system
- Increased DEF consumption or failure to inject DEF
- Rough running or poor fuel economy in severe cases
- Possible no-start condition if the vehicle is programmed to prevent operation with a faulty DEF system

Common causes, most likely first

- 1 Faulty reductant temperature sensor
- 2 Damaged or corroded wiring or connector at the sensor
- 3 Open or short circuit in the sensor signal or ground circuit
- 4 Failed DEF heater causing incorrect temperature readings
- 5 Contaminated or degraded DEF fluid affecting sensor performance
- 6 Powertrain control module software issue or internal fault



How to diagnose and fix it

- 1 Use a scan tool to retrieve the freeze-frame data and verify the sensor reading against ambient temperature after a cold soak
- 2 Visually inspect the sensor, connector, and wiring for damage, corrosion, or loose pins
- 3 Measure the sensor resistance with a multimeter and compare to the manufacturer's specification
- 4 Check the sensor signal voltage at the PCM connector to rule out wiring faults
- 5 Test the DEF heater circuit if the sensor is integrated with the heater
- 6 Replace the reductant temperature sensor if it fails electrical testing
- 7 Clear the code and perform a road test to confirm the repair

What the code does not always mean

- A P2042 can be set by a weak battery or charging system issue that causes low voltage to the sensor, so always check battery health first.
- The reductant temperature sensor is often part of the DEF tank heater assembly, and replacing just the sensor may not be possible on some designs.
- Contaminated DEF fluid from using the wrong type or diluting with water can cause sensor readings to drift without a hard failure.
- In cold climates, the DEF heater is critical, and a failed heater can cause the sensor to read incorrectly and set this code.
- Some vehicles require a relearn or adaptation reset after sensor replacement, otherwise the code may return even with a good part.

Can I keep driving with P2042?

You can usually continue driving with P2042, but avoid long trips or heavy loads until diagnosed, as the vehicle may enter limp mode or refuse to restart if the DEF system fault escalates. Do not ignore the warning light, because a failed sensor can lead to improper DEF dosing and eventual aftertreatment damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Temperature probe or infrared thermometer
- Socket set and basic hand tools
- Vehicle service information for wiring diagrams and specifications



Reading P2042

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

Often seen with

P2043 Reductant Temperature Sensor Circuit Range/Performance · **P2044** Reductant Temperature Sensor Circuit Low Input · **P2045** Reductant Temperature Sensor Circuit High Input · **P20B9** Reductant Heater A Control Circuit/Open · **P20BA** Reductant Heater A Control Performance

See it working

Watch the animated explainer [How Regenerative Braking Works in Electric Cars](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2042/>

