GENERIC · POWERTRAIN

P2044

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2044

Reductant Temperature Sensor Circuit Low Input

P2044 means the engine control module (ECM) has detected a low voltage signal on the reductant temperature sensor circuit, which monitors the temperature of the diesel exhaust fluid (DEF) tank or lines. The sensor's signal is below the expected range, so the ECM cannot reliably determine the reductant temperature and sets this code.

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
- A warning message on the dashboard indicating a reductant system fault or low DEF temperature
- Possible reduction in engine power or torque as a protective measure
- The vehicle may enter limp mode or limit vehicle speed after a certain number of ignition cycles
- Difficulty starting the engine in cold weather due to incorrect temperature readings affecting DEF heating

Common causes, most likely first

1. Faulty reductant temperature sensor, which may be internally shorted or have a failed thermistor
2. Damaged or corroded wiring harness between the sensor and the ECM, causing a short to ground
3. Loose or corroded electrical connector at the sensor or ECM
4. Water or DEF intrusion into the connector or sensor, leading to signal corruption
5. Failed ECM driver circuit for the sensor, though this is less common
6. Extreme cold temperatures causing the DEF to freeze and the sensor to read abnormally low, though this should not set a code under normal operation

How to diagnose and fix it

1. Use a scan tool to verify the code and check live data for the reductant temperature sensor to see if the reading is stuck low or erratic
2. Visually inspect the sensor and its wiring for obvious damage, corrosion, or contamination, and check connector integrity
3. Disconnect the sensor and measure its resistance with a multimeter, comparing to the manufacturer's specification for the ambient temperature
4. Check the sensor signal circuit for a short to ground using a multimeter and wiring diagram, repairing any damaged wires
5. If the sensor tests out of specification, replace the reductant temperature sensor and clear the code
6. After repairs, clear the diagnostic trouble codes (DTCs) and perform a road test to confirm the code does not return
7. If the code persists, follow the manufacturer's diagnostic flow chart for ECM testing or reprogramming

Reductant Temperature Sensor Low Voltage Traps

- A common oversight is assuming the sensor itself is at fault, but a short to ground in the wiring harness is frequently the real cause, especially where the harness rubs against the frame or exhaust components.
- The reductant temperature sensor is often integrated into the DEF tank or pump assembly, so a low signal can be caused by a failing tank heater or internal wiring, not just the sensor element.
- In cold climates, DEF freezing can cause the sensor to read extremely low, but the ECM should recognize this as normal; if the code sets, it indicates a circuit fault rather than just cold temperature.
- Technicians sometimes replace the sensor without checking the reference voltage at the ECM connector, which can lead to misdiagnosis if the ECM is not supplying the correct voltage.
- This code can be set by a low battery or charging system issue that causes voltage spikes or drops, so always verify battery and charging system health before condemning the sensor.

Can I keep driving with P2044?

You can usually drive the vehicle with this code, but the ECM may limit engine power or vehicle speed after a few ignition cycles, so avoid long trips or heavy loads until it is repaired. Have the fault diagnosed promptly to prevent more severe reductant system issues.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Socket set and basic hand tools
- Heat gun or thermometer for temperature verification

Reading P2044

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.
44	The exact fault within that area.

Often seen with

P203B Reductant Level Sensor A Circuit Range/Performance · **P2043** Reductant Temperature Sensor Circuit Range/Performance · **P2045** Reductant Temperature Sensor Circuit High Input · **P2046** Reductant Temperature Sensor Circuit Intermittent · **P205B** Reductant Tank Temperature Sensor A Circuit Range/Performanc

See it working

Watch the animated explainer **How a Starter Motor Works: Pre-Engaged Starter** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: https://www.autoveteran.tech/dtc-codes/p2044/