

GENERIC · POWERTRAIN

P20C4

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P20C4

Reductant Heater C Control Circuit High

P20C4 means the engine control module (ECM) has detected an abnormally high voltage on the control circuit for the reductant heater C, which is part of the diesel exhaust fluid (DEF) system. The ECM expects the control wire to pull to a specific voltage when the heater is commanded on, and a high reading indicates an open circuit, a short to voltage, or a failed heater element.

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 driver information message indicating a DEF system fault or emissions system service required
- Reduced engine power or limp mode after a certain number of fault occurrences
- Longer DEF thaw times in cold weather, potentially preventing DEF injection until the heater circuit is repaired
- Possible failure to meet emissions readiness monitors, causing an inspection failure

Common causes, most likely first

- 1 Open or high-resistance wiring in the reductant heater C control circuit, such as a broken wire or corroded connector
- 2 Failed reductant heater C element (open heater coil)
- 3 Short to voltage on the control circuit, often from chafed wiring contacting a power source
- 4 Faulty engine control module (ECM) driver for the heater control circuit
- 5 Poor ground connection for the reductant heater circuit, causing a voltage offset that the ECM interprets as high
- 6 Aftermarket or incorrect DEF heater replacement part with different resistance characteristics



How to diagnose and fix it

- 1 Scan all modules for related fault codes and record freeze-frame data to understand when the fault sets
- 2 Visually inspect the reductant heater C connector and wiring for damage, corrosion, or loose pins
- 3 Measure resistance of the reductant heater C element and compare to the manufacturer's specification
- 4 Check for voltage on the control circuit with the heater commanded off and on to identify a short to voltage
- 5 Perform a voltage drop test on the ground circuit for the reductant heater C to rule out a bad ground
- 6 If wiring and heater are good, test the ECM control circuit output with a bidirectional scan tool or oscilloscope
- 7 Repair or replace the faulty component, clear codes, and verify the heater operates correctly with a scan tool

Reductant heater C circuit high-voltage traps

- A high-voltage code on a heater control circuit often results from an open heater element rather than a short to voltage, because the ECM sees the control line float high when no current flows.
- Corrosion inside the reductant heater connector can create a high-resistance path that mimics an open circuit, so always inspect the terminals closely before condemning the heater.
- The ECM may set P20C4 only after a cold-start heater test, so the fault may not be present during a warm shop visit; freeze-frame data is critical.
- Replacing the reductant heater without checking the ground circuit can lead to a repeat failure if the ground is corroded or loose.
- Some aftermarket DEF heaters have different resistance values that fall outside the ECM's expected range, triggering a high-voltage code even though the heater functions.

Can I keep driving with P20C4?

You can usually drive with P20C4, but the vehicle may enter limp mode or fail to start after a set number of fault cycles, and cold-weather DEF thawing will be impaired. Avoid long trips or cold starts until the circuit is repaired, and do not ignore the warning if the engine derates.

Tools that help

- OBD-II scan tool with bidirectional control and live data
- Digital multimeter with resistance and voltage measurement
- Wiring diagram for the reductant heater circuit
- Test light or load probe
- Oscilloscope (optional for control circuit analysis)



Reading P20C4

- 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.
- C4** The exact fault within that area.

Often seen with

P20B9 Reductant Heater A Control Circuit/Open · **P20BA** Reductant Heater A Control Performance · **P20BB** Reductant Heater A Control Circuit Low · **P20C3** Reductant Heater C Control Circuit Low · **P20C5** Reductant Heater D Control Circuit/Open

See it working

Watch the animated explainer [Car Won't Start? Step-by-Step No-Start Diagnosis](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p20c4/>

