

GENERIC · POWERTRAIN

P20C3

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P20C3

Reductant Heater C Control Circuit Low

P20C3 means the engine control module has detected a low-voltage condition on the control circuit for the reductant heater C, which is one of the heating elements inside the diesel exhaust fluid tank. The computer commands the heater on and expects to see voltage on the control wire, but the circuit stays near ground, indicating a short to ground, an open circuit, 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 pending or stored P20C3 code with no driveability complaint in many cases
- Extended diesel exhaust fluid thaw times in cold weather, leading to a reductant system warning
- Possible derate or limp mode if the fault persists and the module cannot verify heater operation
- A diesel exhaust fluid warning message on the dashboard in some vehicles

Common causes, most likely first

- 1 Failed reductant heater C element with an open or shorted internal circuit
- 2 Damaged or corroded wiring harness between the control module and the heater connector
- 3 Loose, backed-out, or corroded terminals at the heater or module connector
- 4 Short to ground on the heater control wire where it rubs against chassis metal
- 5 Water intrusion into the heater connector or module connector causing corrosion
- 6 Failed driver inside the reductant control module or engine control module
- 7 Blown fuse or relay supplying power to the heater circuit, though this often sets additional codes



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm when the low condition occurs and whether other reductant heater codes are present
- 2 Inspect the heater connector and module connector for corrosion, water intrusion, and loose terminals before any electrical testing
- 3 Measure resistance of the reductant heater C element at the heater connector and compare to the manufacturer's specification
- 4 Check the control wire for a short to ground with a multimeter while the circuit is disconnected, and repair any chafed or pinched section
- 5 Verify power and ground at the heater connector with the key on and the heater commanded on using a bidirectional scan tool
- 6 If the circuit and heater test good, substitute a known-good module only after confirming all wiring and power feeds are intact
- 7 Clear codes and run the reductant heater monitor to confirm the repair, then road-test in cold conditions if possible

What the low circuit code really means

- A low control circuit code often results from an open heater element rather than a shorted wire, because the module sees no voltage pull-up when the element is broken.
- Technicians frequently replace the heater element without checking the connector for water intrusion, which is a common repeat failure point on tank-mounted heaters.
- This code can be set by a weak or failing battery if the module logs the fault during low-voltage cranking, so check battery health before condemning parts.
- Some vehicles set P20C3 only after a cold-start heater test, so the fault may not appear during a warm bay inspection and requires a cold soak to reproduce.
- A shorted control wire can damage the driver in the control module, so always repair the harness before installing a new module to avoid repeat failure.

Can I keep driving with P20C3?

You can usually drive with P20C3, but avoid long trips in freezing weather because the reductant may not thaw and the vehicle can enter a derate or no-start condition. Have the circuit inspected soon to prevent secondary reductant system faults.



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
- Terminal pick and connector release tools
- Heat gun or cold spray for temperature-related testing

Reading P20C3

- 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.
- C3** The exact fault within that area.

Often seen with

P20B9 Reductant Heater A Control Circuit/Open · **P20BA** Reductant Heater A Control Performance · **P20BD** Reductant Heater B Control Circuit/Open · **P20C2** Reductant Heater C Control Circuit Performance · **P20C4** Reductant Heater C Control Circuit High

See it working

Watch the animated explainer [How Hydraulic Brakes Work: Pedal to Caliper](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p20c3/>

