



P20BD

Reductant Heater B Control Circuit/Open

P20BD indicates that the powertrain control module has detected an open circuit or excessive resistance in the control circuit for reductant heater B, which is part of the diesel exhaust fluid injection system. The heater is responsible for thawing frozen DEF in cold weather, and the PCM monitors the circuit for expected voltage and current to confirm proper operation.

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 dash indicating a DEF system fault or reduced engine power
- Possible reduction in engine power or speed limiting if the fault persists
- In cold weather, the DEF system may not thaw properly, leading to further faults or nox reduction inefficiency
- In some cases, the vehicle may enter limp mode or prevent restart after shutdown

Common causes, most likely first

- 1 Open or damaged wiring in the reductant heater B control circuit, such as a broken wire or corroded connector
- 2 Failed reductant heater B element, causing an open circuit
- 3 Faulty reductant heater control module or relay, if equipped
- 4 Poor electrical connection at the heater or control module, including loose pins or water intrusion
- 5 Blown fuse or fusible link supplying power to the heater circuit
- 6 PCM internal fault, though rare, causing incorrect circuit monitoring

How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in the reductant system
- 2 Inspect the reductant heater B circuit wiring and connectors for damage, corrosion, or looseness
- 3 Check the resistance of the reductant heater B element with a multimeter and compare to specifications
- 4 Test the control circuit for voltage and continuity from the PCM to the heater, looking for opens or shorts
- 5 Check the fuse and relay supplying power to the heater circuit and replace if faulty
- 6 If the heater element is open, replace the reductant heater assembly as needed
- 7 Clear the code and perform a road test to verify the repair, ensuring the heater activates under cold conditions if possible



Common Missteps in Reductant Heater Diagnosis

- A common oversight is assuming the heater element itself is faulty without first checking the control circuit wiring, which often suffers from corrosion or damage due to its location under the vehicle.
- The code can be set by a poor connection at the heater connector even if the heater tests good, so always perform a voltage drop test under load rather than just a continuity check.
- On some vehicles, the reductant heater B is part of a combined heater and sensor assembly, and replacing just the heater may not be possible, leading to unnecessary parts replacement if not researched.
- Environmental conditions such as extreme cold can cause the heater to draw higher current, temporarily setting the code, but if the code returns after clearing, a hard fault is present.
- The PCM may set P20BD if the heater circuit is open, but a shorted heater circuit might set a different code, so do not assume the heater is always at fault when this code appears.

Can I keep driving with P20BD?

You can generally continue driving with this code, but avoid long trips or cold weather operation until repaired, as the DEF system may not function properly and could lead to reduced engine power or limp mode. If the vehicle enters limp mode, seek repair promptly.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools for connector and component access
- Fuse puller and test light

Reading P20BD

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.
BD	The exact fault within that area.

Often seen with

P20BA Reductant Heater A Control Performance · **P20BB** Reductant Heater A Control Circuit Low · **P20BC** Reductant Heater A Control Circuit High · **P20BE** Reductant Heater B Control Circuit Performance · **P20BF** Reductant Heater B Control Circuit Low



See it working

Watch the animated explainer [Disc Brake Trainer: How Car Brakes Stop a Wheel](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p20bd/>

