



P20B9

Reductant Heater A Control Circuit/Open

P20B9 indicates that the powertrain control module (PCM) has detected an open circuit or excessive resistance in the control circuit for reductant heater A, which is the heating element used to keep diesel exhaust fluid (DEF) from freezing. The PCM commands the heater on and monitors the circuit for expected voltage or current feedback, and when that feedback is missing or out of range, it stores this code and may disable the heater.

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 stored freeze-frame showing the fault occurred during a cold start or heater activation command
- Possible derate or reduced engine power if the PCM limits operation to protect the aftertreatment system
- Longer DEF thaw times in freezing conditions, which may delay normal SCR operation
- In some vehicles, a message on the driver information center about the emissions system or DEF
- No driver-perceptible change in engine performance in many cases

Common causes, most likely first

- 1 Open or damaged wiring in the reductant heater A control circuit, such as a broken wire or corroded connector
- 2 Failed reductant heater element itself, typically an open heating coil inside the DEF tank or line heater
- 3 Blown fuse or failed relay that supplies power to the reductant heater control circuit
- 4 Poor ground connection for the heater circuit, causing high resistance and an open-circuit fault
- 5 Faulty PCM driver for the heater control circuit, though this is less common
- 6 Water intrusion or corrosion at the heater connector, especially on vehicles driven in wet or salty conditions



How to diagnose and fix it

- 1 Inspect the reductant heater A connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 2 Check the fuse and relay that feed the heater circuit, replacing any that are blown or faulty
- 3 Measure resistance of the heater element with a multimeter and compare to the manufacturer's specification to confirm an open heater
- 4 Perform a voltage drop test on the control circuit and ground circuit while commanding the heater on with a scan tool
- 5 If the heater element is open, replace the reductant heater assembly according to service information
- 6 Clear the code and run a heater activation test with the scan tool to verify the repair and confirm the circuit now passes self-test
- 7 If the circuit tests good but the code persists, follow the manufacturer's diagnostic flow for PCM driver testing before replacing the PCM

What a P20B9 often hides

- A heater element that tests open when cold may intermittently test good when warm, so always perform resistance checks at the temperature specified in service information.
- Corroded connector pins at the DEF heater are a frequent cause that gets missed when technicians replace the heater element without inspecting the harness.
- The PCM may set P20B9 only after a commanded heater-on test during a cold start, so the code can be stored for weeks before the driver notices a light.
- A weak battery or charging system can cause the PCM to abort a heater test and set a false open-circuit code, so check system voltage first.
- Some vehicles use a smart heater with internal electronics, and an open circuit can be inside the heater module rather than in the vehicle wiring.

Can I keep driving with P20B9?

You can generally continue driving with P20B9 because the engine will run normally, but avoid long periods in freezing temperatures where DEF may not thaw and the emissions system could derate power. Have the circuit inspected soon to prevent aftertreatment problems.

Tools that help

- OBD-II scan tool with bidirectional control and live data
- Digital multimeter with resistance and voltage drop capability
- Wiring diagram and service information for the vehicle
- Basic hand tools for connector and component access
- Fuse puller and test light



Reading P20B9

- 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.
- B9** The exact fault within that area.

Often seen with

P20B8 Reductant Metering Unit Heater Control Circuit High · **P20BA** Reductant Heater A Control Performance
 · **P20BB** Reductant Heater A Control Circuit Low · **P20BC** Reductant Heater A Control Circuit High · **P20BD**
 Reductant Heater B Control Circuit/Open

See it working

Watch the animated explainer [How a Supercharger Works: Roots Blower in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p20b9/>

