



P20A0

Reductant Purge Control Valve A Circuit/Open

P20A0 indicates that the powertrain control module (PCM) has detected an open circuit or excessive resistance in the electrical path for the reductant purge control valve A, which is part of the diesel exhaust fluid (DEF) system used to reduce nitrogen oxide (NOx) emissions. The PCM monitors the valve's control circuit and sets this code when the expected current flow is not achieved, typically due to a wiring fault, connector issue, or a failed valve solenoid.

SYSTEM Powertrain	CODE TYPE Generic (all makes)	SEVERITY Medium	FIX DIFFICULTY Intermediate	AREA Fuel and air metering and auxiliary emission controls
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Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp).
- Often no noticeable performance symptoms besides the warning light.
- Possible reduction in engine power or limp mode if the vehicle's emissions system enters a protection strategy.
- A message on the dashboard indicating a DEF system fault or service required.
- Slightly increased fuel consumption in some cases due to altered regeneration strategies.
- Failure to pass an emissions inspection due to the stored fault code.

Common causes, most likely first

- 1 Open or damaged wiring in the reductant purge control valve circuit (power, ground, or control wire).
- 2 Corroded, loose, or disconnected electrical connector at the valve or PCM.
- 3 Failed reductant purge control valve solenoid (open coil or mechanical failure).
- 4 Blown fuse or faulty relay supplying power to the valve circuit.
- 5 PCM internal fault affecting the driver circuit for the valve (rare).
- 6 Contamination or blockage in the DEF lines causing the valve to overheat and fail electrically.
- 7 Poor ground connection for the valve or PCM.



How to diagnose and fix it

- 1 Perform a visual inspection of the reductant purge control valve, its connector, and the wiring harness for damage, corrosion, or loose pins.
- 2 Check the fuse and relay that supply power to the valve circuit and replace if faulty.
- 3 Measure resistance across the valve solenoid terminals and compare to the manufacturer's specification to determine if the coil is open.
- 4 Backprobe the valve connector and check for battery voltage on the power side with the key on, and verify ground integrity on the ground side.
- 5 Test the control circuit from the PCM to the valve for continuity and short-to-ground or short-to-power conditions.
- 6 If the circuit and valve are good, substitute a known-good valve or use a bidirectional scan tool to command the valve and observe operation.
- 7 Clear the code and perform a road test to verify the repair, ensuring the monitor runs and the code does not return.

Reductant purge valve circuit pitfalls

- A common oversight is assuming the valve itself is defective when the real problem is a chafed wire in the harness near the exhaust or transmission, where heat and vibration cause opens.
- The code can be set by a poor ground connection at the chassis, which mimics an open circuit and leads to unnecessary valve replacement.
- Some vehicles require a relearn or adaptation reset after valve replacement, and failing to do so may cause the code to reappear even with a new valve.
- The reductant purge control valve is often confused with the DEF injector or pump, but P20A0 specifically points to the purge valve circuit, not the entire DEF system.
- Intermittent faults can be caused by water intrusion into the connector, so dielectric grease and proper sealing are essential after repairs.

Can I keep driving with P20A0?

You can generally drive the vehicle with this code, but avoid long trips or heavy loads until repaired because the emissions system may enter a limp mode that reduces power. Prolonged driving with an open circuit can lead to more extensive DEF system damage and increased emissions.



Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Socket and ratchet set
- Electrical contact cleaner and dielectric grease
- Test light or power probe

Reading P20A0

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.
A0	The exact fault within that area.

Often seen with

P20A1 Reductant Purge Control Valve A Performance · **P20A2** Reductant Purge Control Valve A Circuit Low · **P20A3** Reductant Purge Control Valve A Circuit High · **P20B9** Reductant Heater A Control Circuit/Open · **P20BD** Reductant Heater B Control Circuit/Open

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p20a0/>

