

GENERIC · POWERTRAIN

P20A4

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P20A4

Reductant Purge Control Valve A Stuck Open

P20A4 indicates that the powertrain control module has detected the reductant purge control valve A is stuck in the open position, meaning the valve is not sealing when commanded closed. This valve manages the flow of diesel exhaust fluid (DEF) during the purge cycle, and a stuck-open condition can allow unintended fluid passage or pressure loss in the selective catalytic reduction (SCR) system.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

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 persistent or intermittent diesel exhaust fluid (DEF) smell from the exhaust or engine bay
- Possible reduction in engine power or limp mode if the SCR system cannot maintain proper dosing
- Dashboard warning messages related to emissions or DEF system
- Slightly increased DEF consumption due to unintended flow
- Rough running or hesitation in some cases if the valve affects pressure regulation

Common causes, most likely first

- 1 Reductant purge control valve A mechanically stuck open due to debris, crystallization, or corrosion
- 2 Failed valve actuator or solenoid that cannot return the valve to the closed position
- 3 Wiring harness damage or poor electrical connection to the valve, causing erratic operation
- 4 Contaminated diesel exhaust fluid (DEF) leading to valve clogging and sticking
- 5 Faulty powertrain control module (PCM) driver circuit for the valve (rare)
- 6 Internal valve spring failure or wear preventing proper sealing
- 7 Freezing of DEF in cold climates causing valve deformation or sticking



How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related pending or stored codes in the SCR system
- 2 Inspect the reductant purge control valve A for external damage, leaks, or crystallization and clean if necessary
- 3 Perform a bidirectional test of the valve with the scan tool to command it open and closed while listening for proper operation
- 4 Check the electrical connector and wiring for corrosion, loose pins, or shorts; repair as needed
- 5 Measure the resistance of the valve solenoid and compare to manufacturer specifications
- 6 If the valve fails to respond or is mechanically stuck, replace the reductant purge control valve A
- 7 After repair, clear codes and perform a road test to verify the fix and ensure no pending codes return

Diagnosing a Stuck-Open Reductant Purge Valve

- A stuck-open purge valve often does not cause drivability issues, so the check engine light may be the only clue; ignoring it can lead to more serious SCR system damage.
Crystallized DEF is a common culprit; even if the valve appears clean, internal crystallization can prevent proper sealing and should be flushed.
 - The code can be set by a faulty electrical connection rather than a failed valve, so always check wiring and connectors before replacing parts.
 - On some vehicles, a stuck-open purge valve may cause excessive DEF consumption that is not immediately obvious, so monitor fluid levels after repair.
- A scan tool with bidirectional controls is essential to confirm valve operation; simply clearing the code without testing often leads to a repeat failure.

Can I keep driving with P20A4?

You can generally continue driving with this code, but avoid long trips or heavy loads until it is repaired, as the SCR system may not function optimally and could lead to reduced engine power or increased emissions. Monitor DEF levels and address the issue promptly to prevent further damage.

Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Basic hand tools (sockets, wrenches, screwdrivers)
- Inspection mirror and flashlight
- Manufacturer service information for valve testing procedures



Reading P20A4

- 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.
- A4** The exact fault within that area.

Often seen with

P20A3 Reductant Purge Control Valve A Circuit High · **P20A5** Reductant Purge Control Valve A Stuck Closed · **P20A6** Reductant Injection Air Pressure Control Valve Circuit/Open · **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/p20a4/>

