



P2C20

Cold Start Fuel Pressure Regulator A Exceeded Control Limits - Pressure Too High

P2C20 indicates that the powertrain control module has detected the cold start fuel pressure regulator A is unable to maintain the commanded pressure, with actual pressure exceeding the control limit. The regulator is being commanded to reduce pressure, but the system remains too high, often due to a stuck regulator or restricted return path.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Extended cranking or rough idle during cold starts
- Black smoke or strong fuel odor from the exhaust during cold operation
- Reduced fuel economy and poor cold driveability
- Possible misfire codes or hesitation under light load when the engine is cold

Common causes, most likely first

- 1 Fuel pressure regulator A stuck closed or mechanically binding
- 2 Restricted fuel return line or kinked hose preventing pressure relief
- 3 Faulty fuel pressure sensor providing an inaccurate high reading
- 4 Wiring damage or corrosion at the regulator connector or PCM pins
- 5 PCM software calibration issue misinterpreting the pressure signal
- 6 Contaminated fuel or debris lodged in the regulator valve

How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data to confirm when the code sets and what pressure is reported
- 2 Inspect the fuel pressure regulator A connector and wiring for corrosion, chafing, or loose pins
- 3 Measure actual fuel pressure with a mechanical gauge and compare it to the commanded value
- 4 Check the fuel return line for restrictions, kinks, or a collapsed hose
- 5 Test the regulator A solenoid or actuator with a bidirectional scan tool to verify it responds to commands
- 6 If the regulator does not respond or is stuck, replace the cold start fuel pressure regulator A
- 7 Clear the code and perform a cold start drive cycle to verify the repair



Cold start regulator faults that fool technicians

- A stuck-closed regulator is often misdiagnosed as a faulty fuel pump because both can cause rich running, but the pump usually causes low pressure, not high.
- The fuel pressure sensor can report a high value even when actual pressure is normal, so always verify with a mechanical gauge before replacing parts.
- Cold start fuel pressure regulator A is separate from the main pressure regulator on many systems, and a failure here may only appear during the first few minutes after a cold start.
- A restricted return line can mimic a failed regulator, so inspect the entire return path before condemning the regulator.
- Some vehicles require a PCM reflash or calibration update to correct a false P2C20 setting when no mechanical fault is found.

Can I keep driving with P2C20?

The vehicle is usually safe to drive to a repair shop, but avoid aggressive acceleration and prolonged idling until the fault is repaired. If you notice strong fuel odors or black smoke, stop driving and have the vehicle towed to prevent fuel dilution and catalytic converter damage.

Tools that help

- OBD-II scan tool with bidirectional control and live data
- Fuel pressure test kit with mechanical gauge
- Digital multimeter for wiring and sensor testing
- Service information for fuel system specifications and cold start strategy

Reading P2C20

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
C	Hybrid propulsion.
20	The exact fault within that area.

Often seen with

P0087 Fuel Rail/System Pressure - Too Low · **P0088** Fuel Rail/System Pressure - Too High · **P0172** System Too Rich (Bank 1) · **P2C21** Engine Oil Temperature Sensor A/B Correlation · **P2C22** Exhaust Heat Exchanger Exhaust Bypass Valve A Position Senso



See it working

Watch the animated explainer [How a Starter Motor Works: Pre-Engaged Starter](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2c20/>

