



P1287 · BMW

Switching Solenoid for Air Assisted Injection Valves Bank 2 Control Circuit Electrical

P1287 on a BMW indicates that the engine control module (DME) has detected an electrical fault in the control circuit for the bank 2 switching solenoid that operates the air-assisted injection valves. The DME monitors the solenoid's current draw and expects a specific resistance range; when the circuit is open, shorted to ground, or shorted to power, it sets this code. This solenoid is part of the secondary air injection system that helps reduce cold-start emissions by introducing extra air into the exhaust.

SYSTEM Powertrain	CODE TYPE BMW specific	SEVERITY Medium	FIX DIFFICULTY Intermediate	AREA Fuel and air metering (injector circuits)
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Symptoms you may notice

- Illumination of the check engine light (CEL) on the dashboard, often with no other noticeable symptoms.
- Rough idle or stumbling during cold starts, especially in the first minute after engine start.
- A slight decrease in fuel economy or a rich-running condition during warm-up.
- In some cases, a noticeable hissing or whistling sound from the engine bay due to a stuck-open valve.
- Occasionally, the engine may enter limp mode if the fault triggers other related codes.
- No symptoms besides the warning light in many instances, as the system is primarily for emissions control.

Common causes, most likely first

- 1 Failed switching solenoid for bank 2 air-assisted injection valves (open or shorted coil).
- 2 Damaged or corroded wiring harness connector at the solenoid.
- 3 Broken, chafed, or shorted wire in the control circuit between the DME and the solenoid.
- 4 Faulty DME (engine control module) driver circuit, though rare.
- 5 Corrosion or water intrusion in the connector or solenoid, especially on older BMWs.
- 6 Loose or missing ground connection for the solenoid circuit.
- 7 Aftermarket or incorrect solenoid installed previously, causing resistance mismatch.



How to diagnose and fix it

- 1 Clear the code and test-drive to see if it returns; note any freeze-frame data to confirm conditions.
- 2 Visually inspect the solenoid connector and wiring for corrosion, damage, or loose pins.
- 3 Measure the resistance of the bank 2 switching solenoid with a multimeter and compare to BMW specifications (typically 10–20 ohms).
- 4 Check for power and ground signals at the solenoid connector with the key on and during activation; use a noid light or oscilloscope if available.
- 5 Perform a voltage drop test on the control circuit to identify excessive resistance or a short.
- 6 If the circuit tests good, substitute a known-good solenoid and recheck for the code.
- 7 If the solenoid and wiring are intact, diagnose the DME driver circuit or reprogram/replace the DME as a last resort.

Don't overlook the secondary air system

- A P1287 code often appears alongside other secondary air injection codes like P0411 or P1421, so diagnosing the entire system is more effective than focusing on the solenoid alone.
- The switching solenoid for air-assisted injection valves is frequently misdiagnosed as a faulty secondary air pump; test the solenoid's resistance and circuit before replacing the pump.
- On many BMW models, the bank 2 solenoid is located near the exhaust manifold and is exposed to high heat, which can cause the internal coil to fail intermittently when hot.
- A stuck-open solenoid can cause a lean exhaust condition during cold start, leading to misfire codes and poor driveability that may mask the original P1287.
- Water intrusion into the solenoid connector from a clogged cowl drain is a common cause on certain BMW platforms, so always check for moisture in the harness.

Can I keep driving with P1287?

You can generally continue driving with P1287, but avoid prolonged idling and cold-start short trips until repaired, as the fault may increase emissions and slightly affect cold-start performance. If the engine runs rough or enters limp mode, have it diagnosed promptly to prevent secondary damage.

Tools that help

- OBD-II scan tool with BMW-specific software
- Digital multimeter
- Test light or noid light
- Oscilloscope (optional for advanced diagnosis)
- Socket set and screwdrivers for component access
- Electrical contact cleaner and dielectric grease



Reading P1287

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (BMW): its meaning depends on the make.
- 2** Fuel and air metering (injector circuits).
- 87** The exact fault within that area.

Often seen with

P1286 Fuel Injection Air Control Valve Circuit Short To B+ · **P1421** Secondary Air Injection Valve Circuit Short To Ground · **P1421** Exhaust Gas Recirculation Circuit High Input · **P1286** Accelerator Pedal Position (APP) Sensor 3 Performance · **P1421** Intake Air Low Pressure Switch Circuit High Voltage · **P1286** Fuel Pulse In Range But Lower Than Expected · **P1286** Accelerator Pedal Position Sensor Supply Voltage Too High · **P1421** Intake Air Low Pressure Switch Circuit High Voltage · **P1421** Secondary Air System Bank 1 · **P0171** System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0411** Secondary Air Injection System Incorrect Flow

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/bmw-p1287/>

