

BMW · POWERTRAIN

P1289

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1289 · BMW

Switching Solenoid for Air Assisted Injection Valves Bank 2 Control Circuit Signal High

P1289 on a BMW means the engine control module (DME) has detected a high signal on the control circuit for the bank 2 switching solenoid that operates the air-assisted injection valves. The solenoid is commanded by the DME to open and allow secondary air into the injection stream, and a high signal indicates the circuit is seeing voltage above the expected range, often because the solenoid coil is open or the ground path is compromised.

SYSTEM

Powertrain

CODE TYPE

BMW specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Slightly rough idle or hesitation during the secondary air injection phase after a cold start
- A brief puff of black or rich-smelling exhaust on cold start if the solenoid fails to open
- Intermittent misfire codes or lean-condition codes if the air-assisted injection is disrupted
- Reduced fuel economy in some cases due to incorrect air metering during warm-up
- Failed emissions test because the secondary air system does not function as designed

Common causes, most likely first

- 1 Open or internally shorted switching solenoid coil on bank 2
- 2 Corroded, loose, or damaged electrical connector at the bank 2 solenoid
- 3 Broken or chafed wire in the control circuit between the DME and the solenoid
- 4 Poor ground connection for the solenoid circuit, often at the engine block or chassis
- 5 Failed DME driver stage for the solenoid control output
- 6 Vacuum or air supply leak affecting the air-assisted injection valve operation
- 7 Contamination or carbon buildup in the secondary air passages causing the solenoid to overheat and fail



How to diagnose and fix it

- 1 Use a scan tool to clear the code and verify it returns, then check for any related pending or stored codes
- 2 Inspect the bank 2 solenoid connector and wiring for corrosion, looseness, or physical damage
- 3 Measure the resistance of the solenoid coil with a multimeter and compare to BMW specifications
- 4 Check for battery voltage at the solenoid connector with the key on and the circuit commanded on
- 5 Perform a voltage drop test on the ground side of the circuit to confirm a clean ground path
- 6 If the circuit and solenoid test good, substitute a known-good solenoid or use a lab scope to verify the DME driver signal
- 7 Repair or replace the faulty solenoid, wiring, or connector, then clear codes and confirm the repair with a road test

What a high signal really tells you

- A high signal on this circuit often means the solenoid coil is open, so the DME sees full system voltage on the control wire instead of the expected pull-down.
Technicians sometimes replace the DME prematurely when the actual fault is a corroded ground strap on the engine block that affects multiple solenoids.
 - The bank 2 solenoid is frequently misdiagnosed as a bank 1 fault because the connectors look identical and are close together on some BMW engines.
 - A failing secondary air pump can cause the solenoid to overheat and fail, so always check pump operation before installing a new solenoid.
- This code can set intermittently due to a wire that rubs through only during engine movement, so a wiggle test of the harness is essential.

Can I keep driving with P1289?

You can usually drive the car with this code, but avoid long periods of idling and cold-start short trips until it is repaired. The engine may run slightly rough during warm-up, and continued driving with a failed solenoid can lead to secondary air system damage and emissions test failure.

Tools that help

- OBD-II scan tool with BMW-specific software
- Digital multimeter
- Lab scope for signal verification
- Wire terminal release tools
- Vacuum gauge
- Factory service information for circuit diagrams



Reading P1289

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

Often seen with

P1288 Turbocharge Bypass Valve Short To B+ · **P1288** Accelerator Pedal Position Sensor 3 Circuit High Voltage · **P1290** CNG Fuel Pressure Too High · **P1288** Cylinder Head Temperature Sensor Out of Self-Test Range · **P1290** Cylinder Head Temperature Sensor Signal Less Than Self-Test · **P1288** Intake Manifold Short Runner Solenoid Circuit Open Or Shorted · **P1290** CNG Fuel Pressure Too High · **P1288** Switching Solenoid for Air Assisted Injection Valves Bank 2 · **P0411** Secondary Air Injection System Incorrect Flow · **P0413** Secondary Air Injection System Switching Valve 'A' Circuit Open · **P0442** EVAP System Leak Detected (Small)

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-p1289/>

