

BMW · POWERTRAIN

**P1551**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1551 · BMW

## A Camshaft Position Actuator Control Open Circuit Bank 1

P1551 on BMW vehicles indicates that the engine control module (ECM) has detected an open circuit in the electrical path for the bank 1 camshaft position actuator, which is the solenoid that adjusts camshaft timing. The ECM monitors the actuator control circuit and sets this code when the expected voltage or current is outside the normal range, typically because the circuit is broken or disconnected.

SYSTEM

Powertrain

CODE TYPE

BMW specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

### Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or stumbling, especially when the engine is cold
- Reduced engine performance and poor acceleration
- Decreased fuel economy due to incorrect camshaft timing
- In some cases, the engine may enter limp mode or exhibit hard starting

### Common causes, most likely first

- 1 Broken or chafed wire in the actuator control circuit, often near the connector or where the harness bends
- 2 Corroded, loose, or damaged electrical connector at the camshaft position actuator solenoid
- 3 Failed camshaft position actuator solenoid (open internal coil)
- 4 Faulty engine control module (ECM) driver for the actuator circuit, though rare
- 5 Oil contamination or sludge interfering with the solenoid electrical connection
- 6 Aftermarket alarm or remote start wiring that has compromised the factory harness



## How to diagnose and fix it

- 1 Perform a visual inspection of the actuator solenoid connector and wiring for damage, corrosion, or loose pins
- 2 Use a digital multimeter to check the resistance of the actuator solenoid; compare to BMW specifications
- 3 Check for battery voltage at the solenoid connector with the key on and engine off, and verify the ground circuit
- 4 Inspect the wiring harness between the ECM and solenoid for continuity and short-to-ground or short-to-power
- 5 If the circuit tests good, substitute a known-good actuator solenoid and clear the code to see if it returns
- 6 If the code persists after circuit and component checks, test the ECM driver output with an oscilloscope or consult BMW diagnostic procedures
- 7 Repair any damaged wiring by soldering and heat-shrinking, then clear the fault memory and verify the repair with a road test

## Common Misdiagnosis Traps for P1551

- A loose or corroded connector at the camshaft actuator solenoid is a frequent culprit that mimics a failed solenoid, so always inspect the pins and terminals before replacing parts.
- The code can be set by a wiring issue that only appears when the engine is hot or vibrating, so a wiggle test of the harness while monitoring live data can reveal intermittent opens.
- On some BMW engines, oil sludge or debris can clog the solenoid screen and cause an open circuit code indirectly by overheating the solenoid, so check oil condition and service history.
- Do not assume the ECM is faulty; ECM driver failures are rare, and misdiagnosing them leads to unnecessary and expensive module replacement.
- After repairs, the adaptive camshaft timing values may need to be reset with a BMW-specific scan tool to ensure the code does not reappear immediately.

## Can I keep driving with P1551?

You can usually drive the vehicle short distances to a repair shop, but avoid sustained high-speed driving or heavy loads because incorrect camshaft timing can affect engine performance and emissions. If the engine runs poorly or enters limp mode, stop driving and seek professional diagnosis.

## Tools that help

- BMW-specific OBD-II scan tool with live data capability
- Digital multimeter
- Oscilloscope (for advanced circuit testing)
- Wire repair kit (solder, heat shrink, terminals)
- Basic hand tools (socket set, screwdrivers)



## Reading P1551

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (BMW): its meaning depends on the make.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 51** The exact fault within that area.

## Often seen with

**P1552** Barometric Pressure Sensor Circuit Open Short To Ground · **P1552** Idle Air Control Valve Opening Coil Low Voltage · **P1552** A Camshaft Position Actuator Control Open Circuit Bank 1 · **P0010** 'A' Camshaft Position Actuator Circuit (Bank 1) · **P0011** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P0340** Camshaft Position Sensor A Circuit Malfunction (Bank 1)

## 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-p1551/>

