

VOLKSWAGEN · POWERTRAIN

P1531

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1531 · Volkswagen

Intake Camshaft Control Circuit Open

P1531 on Volkswagen vehicles means the engine control module (ECM) has detected an open circuit in the intake camshaft control circuit, which is the electrical path that commands the variable valve timing (VVT) solenoid. The ECM monitors the circuit for expected voltage or current and sets this code when the signal falls outside the normal range, indicating a break in the wiring or a failed component.

SYSTEM

Powertrain

CODE TYPE

Volkswagen
specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed,
idle control and
auxiliary inputs

Symptoms you may notice

- Illuminated check engine light, often with no other symptoms besides the warning light
- Rough idle or unstable engine operation, especially when cold
- Reduced engine power or sluggish acceleration due to disabled camshaft timing advance
- Poor fuel economy or increased emissions as the engine runs with fixed cam timing
- Intermittent misfire or hesitation under light throttle
- Hard starting or stalling in some cases if the camshaft is stuck in a retarded position

Common causes, most likely first

- 1 Broken or disconnected wire in the intake camshaft control circuit, often at the solenoid connector or in the harness near the cylinder head
- 2 Failed intake camshaft control solenoid (open winding or internal short)
- 3 Corroded or loose electrical connector at the solenoid or ECM
- 4 Open circuit inside the ECM driver for the camshaft control output (rare but possible)
- 5 Damaged wiring harness from heat, chafing, or rodent damage
- 6 Poor ground connection for the solenoid circuit



How to diagnose and fix it

- 1 Clear the code and test-drive to confirm it returns; note any freeze-frame data to identify when the fault occurs
- 2 Visually inspect the intake camshaft solenoid connector and wiring for damage, corrosion, or looseness
- 3 Measure resistance of the intake camshaft control solenoid with a multimeter and compare to specification
- 4 Check for battery voltage at the solenoid connector with the key on and engine off, then check continuity of the ground side
- 5 Perform a wiggle test on the harness while monitoring solenoid resistance or voltage to find intermittent opens
- 6 If wiring and solenoid test good, check continuity from the solenoid connector to the ECM pins and repair any open circuit
- 7 Replace the intake camshaft control solenoid if it fails electrical testing, then clear codes and verify repair

Don't overlook the harness before replacing the solenoid

- The most common cause of P1531 is a broken wire inside the protective boot at the solenoid connector, which can look perfectly fine from the outside until you flex the harness.
A failed solenoid can test good when cold but open when hot, so always perform resistance checks both cold and after warming the engine to operating temperature.
 - This code does not always mean the solenoid is dead; a poor ground or a damaged ECM driver can set the same open-circuit fault, so circuit integrity must be verified first.
 - Volkswagen engines with variable valve timing often share the camshaft control circuit with the oil pressure switch or other actuators, so inspect the entire harness section for chafing.
- After replacing the solenoid, some Volkswagen models require a camshaft adaptation reset or a basic setting via a scan tool to restore proper timing control.

Can I keep driving with P1531?

You can usually drive the vehicle with P1531 set because the ECM defaults to a safe camshaft timing map, but avoid heavy acceleration or towing until the fault is repaired. Prolonged driving with the circuit open may increase emissions and fuel consumption, and if the engine runs poorly, have it checked promptly.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage measurement
- Wire piercing probes or back-probe kit
- Electrical contact cleaner and dielectric grease
- Factory service information or wiring diagram for the specific Volkswagen model



Reading P1531

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

Often seen with

P1532 A/C Evaporator Temperature Sensor Circuit Low Voltage · **P1532** IMCC Circuit Malfunction Bank B · **P1532** A/C Evaporator Temperature Sensor Circuit Low Voltage · **P1532** B Camshaft Position Actuator Control Open Circuit Bank 2 · **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/volkswagen-p1531/>

