GENERIC · POWERTRAIN

P033C

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P033C

Knock/Combustion Vibration Sensor D Circuit Low

P033C means the engine control module has detected an abnormally low voltage signal on the circuit for knock sensor D, which is one of several combustion vibration sensors used to detect engine knock. The computer expects the sensor to return a signal within a specific voltage range, and a low reading tells it the circuit is likely shorted to ground or the sensor has failed.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Ignition system and misfire

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Reduced engine power or limp mode if the fault triggers a protective strategy
- Audible engine knock or pinging under acceleration because the computer can no longer retard timing effectively
- Poor fuel economy or increased emissions due to altered ignition timing
- Rough idle or hesitation on acceleration in some vehicles
- In rare cases, a no-start condition if the sensor circuit is shorted and disrupts shared reference voltage

Common causes, most likely first

1. Knock sensor D internally shorted to ground or failed
2. Damaged or chafed sensor wiring shorting to ground or to a shielded ground circuit
3. Corroded, loose, or disconnected electrical connector at the sensor or engine control module
4. Engine control module internal fault on the sensor input circuit
5. Excessive engine mechanical noise or vibration fooling the sensor signal, though this more often sets a high or performance code
6. Aftermarket or incorrect knock sensor installed that does not match the circuit specification
7. Moisture intrusion into the connector or wiring harness causing a low-resistance path to ground

How to diagnose and fix it

1. Scan all modules and record freeze-frame data to confirm P033C is the only knock-related code and note engine conditions when it set
2. Visually inspect the knock sensor D connector and wiring for corrosion, chafing, or loose pins, and repair as needed
3. Measure resistance from the sensor signal wire to ground with the sensor disconnected to check for a short to ground
4. Check the sensor's internal resistance and compare to the manufacturer's specification, replacing the sensor if out of range
5. Back-probe the sensor signal circuit at the engine control module and monitor voltage while tapping near the sensor to confirm the circuit responds
6. Inspect the engine control module connector for corrosion or pin tension issues and repair any faults found
7. Clear codes and perform a road test under load to verify the repair and confirm the code does not return

Low voltage does not always mean a bad sensor

- A shorted wiring harness is more common than a failed knock sensor on many high-mileage vehicles, so always check the circuit before replacing the sensor.
- Some engines use a shielded cable for knock sensors, and a damaged shield can create a low-voltage signal that mimics a sensor failure.
- A loose knock sensor mounting bolt or debris between the sensor and block can alter the signal enough to set a low-voltage code on some systems.
- Technicians sometimes replace the sensor only to find the connector pins have been pushed back or corroded, causing the same low-voltage reading.
- P033C is often stored alongside misfire or camshaft correlation codes when a mechanical engine problem creates abnormal vibration that the sensor circuit interprets as a fault.

Can I keep driving with P033C?

You can usually drive the vehicle with P033C set, but avoid heavy acceleration or towing because the engine may not be able to retard timing to prevent knock, which can lead to engine damage over time. Have the fault diagnosed promptly, especially if you hear knocking or notice reduced power.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage measurement
- Wiring diagram or service information for the specific vehicle
- Basic hand tools for connector and sensor access
- Oscilloscope for advanced signal analysis if available

Reading P033C

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
3	Ignition system and misfire.
3C	The exact fault within that area.

Often seen with

P0325 Knock Sensor 1 Circuit Malfunction (Bank 1) · **P0327** Knock Sensor 1 Circuit Low Input (Bank 1) · **P0330** Knock Sensor 2 Circuit · **P0332** Knock Sensor 2 Circuit Low · **P0333** Knock Sensor 2 Circuit High

See it working

Watch the animated explainer **How a Car Clutch Works: Diaphragm Clutch Cutaway** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: https://www.autoveteran.tech/dtc-codes/p033c/