



## P033B

# Knock/Combustion Vibration Sensor D Circuit Range/Performance

P033B indicates that the engine control module has detected an abnormal signal from the knock sensor circuit designated as 'D', which is typically the sensor monitoring the engine block or a specific cylinder bank for combustion vibration. The computer compares the sensor's output against expected values and flags this code when the signal falls outside the normal range or performance criteria, potentially affecting ignition timing and engine protection.

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

## Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced engine power or sluggish acceleration due to the computer retarding ignition timing as a precaution
- Audible engine knocking or pinging, especially under load, if the sensor is not detecting knock correctly
- Poor fuel economy as the engine management system defaults to a safer timing strategy
- Intermittent rough running or hesitation during acceleration
- In some cases, the engine may enter limp mode to protect against potential damage

## Common causes, most likely first

- 1 Faulty knock sensor D, such as internal damage or degradation from heat and vibration
- 2 Damaged or corroded wiring and connectors in the knock sensor circuit, including open or short circuits
- 3 Poor electrical connection at the sensor or engine control module, often due to loose pins or contamination
- 4 Engine mechanical issues like excessive carbon buildup or abnormal combustion that produce signals outside the expected range
- 5 Failed engine control module, though this is less common and should be diagnosed last
- 6 Aftermarket or incorrect knock sensor installation that does not meet OEM specifications



## How to diagnose and fix it

- 1 Perform a visual inspection of the knock sensor D and its wiring for obvious damage, corrosion, or loose connections
- 2 Use a scan tool to check for related codes and freeze-frame data to understand the conditions when the fault was set
- 3 Test the knock sensor circuit with a multimeter to check for continuity, shorts to ground, and proper resistance according to the manufacturer's specifications
- 4 Inspect the sensor mounting area for proper torque and cleanliness, as incorrect installation can affect signal quality
- 5 If the sensor is suspect, replace it with a known-good unit and clear the codes to see if the fault returns
- 6 Check for technical service bulletins or software updates for the engine control module that may address false knock detection
- 7 As a final step, diagnose the engine control module and its connections if all other components test within specifications

## Knock sensor D pitfalls and hidden causes

- A common oversight is assuming the knock sensor itself is always at fault, but wiring harness damage from heat, rodents, or chafing often causes this code and is cheaper to fix.
- Engine mechanical problems such as a failing harmonic balancer or loose internal components can create vibrations that mimic knock, leading to a false P033B without any sensor fault.
- Some vehicles use a knock sensor that is shared between banks or functions, and a code for sensor D may actually indicate a problem with the sensor's ground circuit rather than the signal wire.
- After replacing a knock sensor, failing to clear adaptive learning values can cause the code to reappear immediately, so a relearn procedure or battery disconnect may be necessary.
- P033B can be set by a low battery or charging system issue that causes voltage spikes, so always verify battery and charging system health before condemning the sensor.

## Can I keep driving with P033B?

You can generally drive with P033B, but avoid heavy acceleration or towing until it is repaired, as the engine may be running with reduced timing advance and could be more prone to damage if knock is not properly detected. If the check engine light is flashing or you hear loud knocking, stop driving and seek professional help immediately.



## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Socket set and torque wrench for sensor removal
- Wiring diagram for the specific vehicle
- Oscilloscope for advanced signal analysis

## Reading P033B

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| <b>P</b>  | Powertrain: engine, transmission and emissions.                      |
| <b>0</b>  | Generic (SAE) code: it means the same thing on every OBD-II vehicle. |
| <b>3</b>  | Ignition system and misfire.                                         |
| <b>3B</b> | 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 Rotary Engine Works: Wankel in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p033b/>

