

GENERIC · POWERTRAIN

P0011

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0011

'A' Camshaft Position - Timing Over-Advanced or System Performance (Bank 1)

P0011 indicates that the engine computer detected the bank 1 camshaft timing being more advanced than the commanded value, or that the variable valve timing system failed to achieve the target position. The powertrain control module compares the camshaft position sensor signal to the crankshaft position sensor and sets this code when the actual cam timing deviates from the desired timing by more than a calibrated threshold.

SYSTEM Powertrain	CODE TYPE Generic (all makes)	SEVERITY Medium	FIX DIFFICULTY Intermediate	AREA Fuel and air metering and auxiliary emission controls
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Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or unstable engine operation at low speeds
- Reduced engine power or sluggish acceleration
- Poor fuel economy compared to normal
- Engine misfire or hesitation during acceleration
- Unusual engine noise such as rattling or ticking from the timing chain area

Common causes, most likely first

- 1 Dirty or contaminated engine oil causing the variable valve timing solenoid to stick
- 2 Faulty variable valve timing solenoid (oil control valve) on bank 1
- 3 Clogged or restricted oil passages feeding the camshaft phaser
- 4 Worn or failing timing chain tensioner or guides allowing timing drift
- 5 Failed camshaft phaser (VVT actuator) not holding correct timing
- 6 Electrical issue with the VVT solenoid circuit such as damaged wiring or poor connector
- 7 Engine oil level too low or incorrect oil viscosity affecting VVT operation



How to diagnose and fix it

- 1 Check engine oil level and condition; top off or change oil and filter if contaminated
- 2 Inspect the VVT solenoid connector and wiring for damage or corrosion
- 3 Remove and clean the VVT solenoid; test its resistance and operation
- 4 Verify oil pressure to the VVT system with a mechanical gauge
- 5 Inspect timing chain, tensioner, and guides for wear or slack
- 6 Replace the VVT solenoid if cleaning does not resolve the issue
- 7 If timing components are worn, replace the timing chain kit and phaser as needed

Common misdiagnosis traps for P0011

- A dirty VVT solenoid is often the culprit, but technicians frequently replace the phaser first without checking oil flow and solenoid operation.
- Low oil pressure or sludge buildup can mimic a failed phaser, so always verify oil pressure and condition before condemning hard parts.
- The code can set intermittently due to wiring harness chafing near the solenoid, which is easily overlooked during visual inspection.
- On some engines, a stretched timing chain causes P0011 without any solenoid fault, so timing chain stretch should be ruled out on higher-mileage vehicles.
- Replacing the VVT solenoid without addressing contaminated oil will lead to repeat failure, so an oil change is recommended after repair.

Can I keep driving with P0011?

Driving with P0011 is generally safe for short distances, but avoid aggressive acceleration and high speeds until diagnosed. Prolonged driving with advanced cam timing can cause poor fuel economy and potential engine damage, so schedule service soon.

Tools that help

- OBD-II scanner with live data capability
- Digital multimeter
- Oil pressure gauge
- Basic hand tools (wrenches, sockets, screwdrivers)
- Torque wrench



Reading P0011

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 11** The exact fault within that area.

Often seen with

P000A A Camshaft Position Slow Response Bank 1 · **P0010** 'A' Camshaft Position Actuator Circuit (Bank 1) · **P0012** 'A' Camshaft Position - Timing Over-Retarded (Bank 1) · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo

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/p0011/>

