

FORD · POWERTRAIN

P1381

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1381 · Ford

Cam Timing Advance is Excessive

P1381 on Ford vehicles means the powertrain control module (PCM) has detected that the camshaft timing is advancing more than the commanded value during self-test or closed-loop operation. The PCM compares the actual camshaft position signal from the camshaft position sensor against the desired advance commanded to the variable camshaft timing (VCT) solenoid, and it sets this code when the measured advance exceeds the calibrated limit.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Ford specific	Medium	Intermediate	Ignition system and misfire

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or unstable engine speed, especially when cold
- Reduced engine power or sluggish acceleration
- Poor fuel economy or increased emissions
- Engine misfire or hesitation under load
- Unusual engine noise such as ticking or rattling from the timing cover area

Common causes, most likely first

- 1 Sticking or clogged variable camshaft timing (VCT) solenoid
- 2 Contaminated engine oil or incorrect oil viscosity affecting VCT operation
- 3 Failed camshaft position sensor or damaged wiring to the sensor
- 4 Timing chain stretched or jumped a tooth on the camshaft sprocket
- 5 Faulty VCT phaser or camshaft sprocket assembly
- 6 PCM calibration issue or faulty PCM (rare)

How to diagnose and fix it

- 1 Verify engine oil level and condition; change oil and filter if contaminated or incorrect viscosity
- 2 Use a scan tool to command VCT solenoid advance and observe camshaft position response
- 3 Inspect the VCT solenoid for debris or sticking; clean or replace as needed
- 4 Check camshaft position sensor signal and wiring for continuity and damage
- 5 Perform a mechanical timing check to verify timing chain alignment and condition
- 6 Inspect the VCT phaser for wear or damage and replace if necessary
- 7 Reprogram the PCM with the latest calibration if all mechanical and electrical checks pass



VCT Solenoid and Oil Quality Matter

- A dirty or sticking VCT solenoid is the most common cause of P1381 on Ford engines, and it often sets the code without any driveability complaint.
- Using the wrong oil viscosity or extending oil change intervals can cause the VCT system to advance excessively, so always verify oil maintenance history first.
- The code can be triggered by a stretched timing chain that has jumped a tooth, which is often misdiagnosed as a faulty solenoid.
- A failing camshaft position sensor may intermittently report incorrect position, leading to excessive advance commands and setting P1381.
- On some Ford models, a PCM calibration update is required to correct overly sensitive VCT diagnostics before replacing any parts.

Can I keep driving with P1381?

You can drive the vehicle with P1381 set, but avoid aggressive acceleration and high engine speeds until the fault is diagnosed. Prolonged driving with excessive cam timing advance can lead to poor fuel economy, increased emissions, and potential engine damage if the timing chain is involved.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Oil pressure gauge
- Timing light or mechanical timing verification tools
- Basic hand tools (wrenches, sockets, screwdrivers)

Reading P1381

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Ford): its meaning depends on the make.
3	Ignition system and misfire.
81	The exact fault within that area.

Often seen with

P1382 CYP Sensor A No Signal · **P1382** Camshaft Position Timing Solenoid 1 Circuit · **P1382** CYP Sensor A No Signal · **P1380** Misfire Detected Rough Road Data Not Available · **P1380** VCT Solenoid Valve Circuit Short or Open · **P1380** Misfire Detected Rough Road Data Not Available · **P0011** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0012** 'A' Camshaft Position - Timing Over-Retarded (Bank 1) · **P0340** Camshaft Position Sensor A Circuit Malfunction (Bank 1)



See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1381/>

