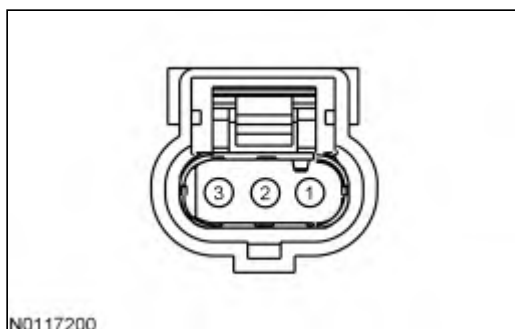


HG: Positive Crankcase Ventilation (PCV) System

This pinpoint test is intended to diagnose the following:

- positive crankcase ventilation (PCV) valve (6A666) and related vacuum lines
- crankcase pressure sensor (6758)
- PCM (12A650)

Crankcase Pressure Sensor Connector

Pin	Circuit
1	CKCP (Crankcase Pressure)
2	SIGRTN (Signal Return)
3	VREF (Reference Voltage)

Powertrain Control Module (PCM) Connector

For PCM connector views or reference values, refer to Section 6, Reference Values.

Vehicle	Connector	Pin	Circuit
Aviator, Edge 2.7L, Explorer 3.0L, F-150 2.7L, F-150 3.5L, Nautilus 2.7L, Transit	306 PIN	E73	CKCP
Escape/Kuga 1.5L	198 PIN	B17	CKCP
Expedition, F-150 3.5L High Output, Navigator	198 PIN	E18	CKCP
Mustang 5.2L	306 PIN	E75	CKCP

Vehicle	Connector	Pin	Circuit
All other vehicles	198 PIN	B72	CKCP

HG1 CHECK FOR DTCS

Are DTCs P04DB, P051A, P051B, P051C, P051D, P051E, P2282 or U060E present?

Yes	GO to HG3 .
No	For symptoms without DTCs, GO to HG2 . For all others, RETURN to Section 3, Symptom Charts for further direction.

HG2 VISUAL INSPECTION OF THE PCV SYSTEM

- Check the PCV valve, hoses and connections for leaks or restrictions.
- Verify the PCV valve maintenance schedule has been followed.
- Verify the correct PCV valve part number.
- Verify the PCV valve is clean.
- Verify the fresh air tube and related hoses are clean and routed correctly.

Is a concern present?

Yes	REPAIR as necessary. VERIFY the symptom no longer exists.
No	GO to HG10 .

HG3 CHECK FOR LEAKS

- Check for disconnected, damaged or restricted vacuum lines between the engine and any vacuum operated components.
- Check for disconnected, damaged or restricted intake air system lines between the engine and any intake air system components.
- Check for disconnected, damaged or restricted positive crankcase ventilation (PCV) system lines between the engine and any PCV components.
- Visually inspect for a damaged or pinched PCV hose o-ring seal.
- Visually inspect for a correctly installed oil level indicator or a damaged oil level indicator o-ring seal.
- Check for a correctly installed oil cap and valve cover, or valve cover component for leaks.
- Check for air leaks between the throttle body and intake valves.
- Visually inspect the intake throttle plate for sticking or binding.
- Verify the correct PCV valve part number.

Is a concern present?

Yes	REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.
No	For DTCs P04DB or P2282, GO to HG10 . For all others, GO to HG4 .

HG4 MONITOR THE CRANKCASE PRESSURE SENSOR PID

- Ignition ON, engine running.
- Access the PCM and monitor the CRNKCAS_P_V (VOLT) PID.

Is the voltage between 3.3 - 4.3 V?

Yes	GO to HG9 .
No	GO to HG5 .

HG5 CHECK FOR VOLTAGE AT THE SENSOR

- Ignition OFF.
- Crankcase Pressure Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) Crankcase Pressure Sensor Connector, Harness Side	(-) Crankcase Pressure Sensor Connector, Harness Side
VREF - Pin 3	SIGRTN - Pin 2

Is the voltage between 4.5 to 5.5V?

Yes	GO to HG6 .
No	GO to Pinpoint Test C .

HG6 CHECK FOR AN OPEN

- Ignition OFF.
- PCM connector disconnected.
- Measure the resistance between:

(+) Crankcase Pressure Sensor Connector, Harness Side	(-) PCM Connector, Harness Side
CKCP - Pin 1	CKCP

Is the resistance less than 5 ohms?

Yes	GO to HG7 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

HG7 CHECK FOR A SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between:

(+) Crankcase Pressure Sensor Connector, Harness Side	(-)
CKCP - Pin 1	Ground

Is the resistance greater than 10K ohms?

Yes	GO to HG8 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

HG8 CHECK FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.

- Measure the voltage between:

(+) Crankcase Pressure Sensor Connector, Harness Side	(-)
CKCP - Pin 1	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	For DTCP051E, GO to HG9 . For all others, INSTALL a new Crankcase Pressure sensor. Clear the PCM DTCs. REPEAT the self-test.

HG9 CHECK FOR INTERMITTENT CONCERNS

- Ignition OFF.
- Crankcase Pressure Sensor connector connected.
- PCM connector connected.
- Ignition ON, engine running.
- Access the PCM and monitor the CRNKCAS_P_V (VOLT) PID.
- Wiggle the harness from the component to the PCM.

Does a sudden change in voltage occur while monitoring the PID?

Yes	REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.
No	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

HG10 PCV SYSTEM CHECK

NOTICE: Disconnect the vacuum gauge after 20 seconds or 30.00 kpa (9 in-Hg) vacuum is reached to avoid any component damage.

- Ignition ON, engine running.
- Engine at normal operating temperature.
- Disconnect the intake air system crankcase ventilation hose from the air cleaner outlet.
- Connect a vacuum gauge to the intake air system crankcase ventilation hose.

Is any vacuum present?

Yes	For DTC P04DB, INSTALL a new Crankcase Pressure sensor. Clear the PCM DTCs. REPEAT the self-test. For all others, the PCV system is OK. RETURN to Section 3, Symptom Charts for further direction.
No	CHECK for vacuum leaks or restrictions in the PCV system (such as oil cap, PCV valve, hoses, cut grommets, valve cover bolt torque or gasket leak). REFER to the Workshop Manual Section 303-08, Engine Emission Control, Evaporative Emission (EVAP) Control System Vacuum Routing, for PCV system components and routing. REPAIR as necessary.

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