

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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FB: Power Take Off (PTO)

This pinpoint test is intended to diagnose the following:

- PTO switch
- PCM (12A650)

Powertrain Control Module (PCM) Connector

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

Vehicle	Pin	Circuit
F-Series Super Duty	B85 B98 B88 B84	PTORPM PTOIL PTOENG PTO
Transit	B33 B80 B91 B87	PTORPM PTOIL PTOENG PTO
All other vehicles	B85 B98 B88 B84	PTORPM PTOIL PTOENG PTO

FB1 PTO INDICATOR LAMP

Did you come to this pinpoint test for an always on/ never on PTO indicator?

Yes	GO to FB5 .
No	GO to FB2 .

FB2 PTO NOT WORKING CORRECTLY: CHECK THE PTO INDICATOR LAMP OPERATION

Note: The following conditions must be met before the PTO engages:

- engine at normal operating temperature
- accelerator pedal is released
- transmission fluid temperature (TFT) within normal operating temperature
- parking brake is applied
- brake pedal is released
- automatic transmission is in the PARK position
- manual transmission - the clutch pedal is released

Note: This step requires operating the PTO component. Refer to the aftermarket manufacturer for the PTO operating instructions. Follow all safety precautions.

- Ignition ON, engine running.
- Activate the PTO switch.

Does the PTO indicator illuminate?

Yes	GO to the aftermarket PTO mechanical manual.
No	GO to FB3 .

FB3 CHECK THE INTEGRITY OF THE PTO SWITCH AND THE PTO SWITCH CIRCUIT

- Access the PCM and monitor the PTO_STATUS (MODE) PID.
- Cycle the PTO switch, from off to on to off.

Does the PTO PID change state?

Yes	GO to FB4 .
No	REPAIR the PTO circuit or switch as necessary. Clear the PCM DTCs. REPEAT the self-test.

FB4 CHECK THE PTOIR_V PID STATE IN THE PCM

Note: The PTOIR_V PID represents an analog input which reflects the user requested engine speed.

- Access the PCM and monitor the PTOIR_V (VOLT) PID.
- Cycle the PTO switch,

Does the PTOIR_V PID change state?

Yes	GO to FB5 .
No	REPAIR the PTO RPM circuit or switch as necessary. Clear the PCM DTCs. REPEAT the self-test.

FB5 CHECK THE PTOIL PID STATE IN THE PCM

- Access the PCM and monitor the PTOIL (MODE) PID.
- Cycle the PTO switch,

Does the PTOIL PID change state?

Yes	GO to the aftermarket PTO mechanical manual.
No	REPAIR the circuit as necessary. Clear the PCM DTCs. REPEAT the self-test.