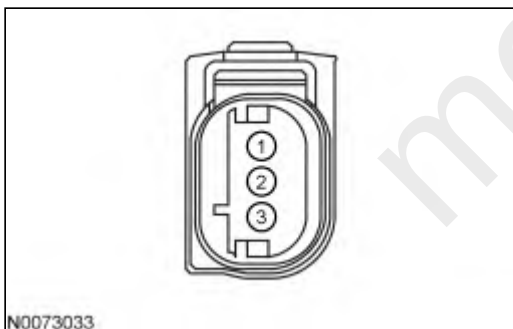
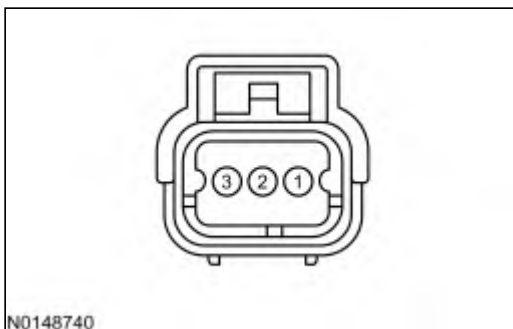


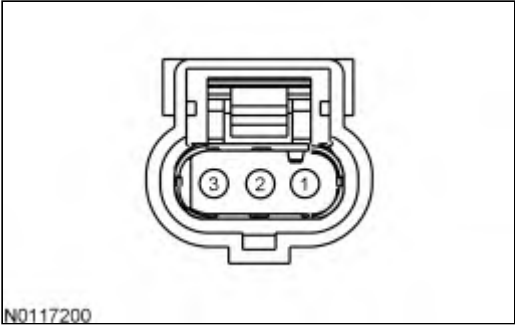
D: Crankshaft Position (CKP) Sensor

Note: Regeneration may occur during normal operation. During regeneration, diagnostic procedures may display biased values. If a regeneration occurs during diagnostic procedures, allow the process to complete before continuing diagnostics.

This pinpoint test is intended to diagnose the following:

- CKP sensor (6C315)
- harness circuits: CKP, SIGRTN and VREF
- PCM (12A650)

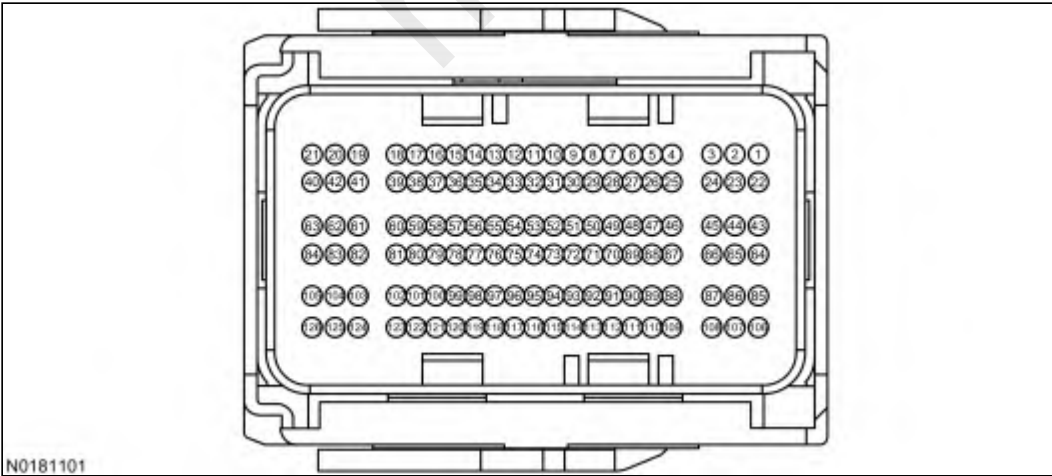
Crankshaft Position (CKP) Sensor Connector**A****B****C****D**



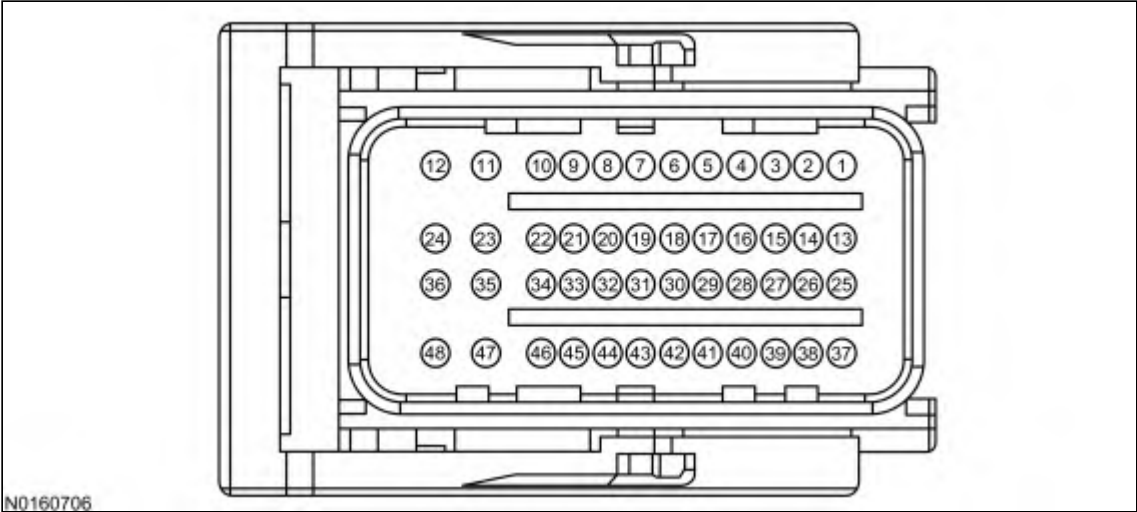
Vehicle	Connector	Pin	Circuit
F-150	A	2 3 1	CKP SIGRTN VREF
F-650 / F-750	B	3 2 1	CKP SIGRTN VREF
Transit Connect	C	3 2 1	CKP SIGRTN VREF
All other vehicles	D	3 2 1	CKP SIGRTN VREF

Powertrain Control Module-E (PCM-E) Connector

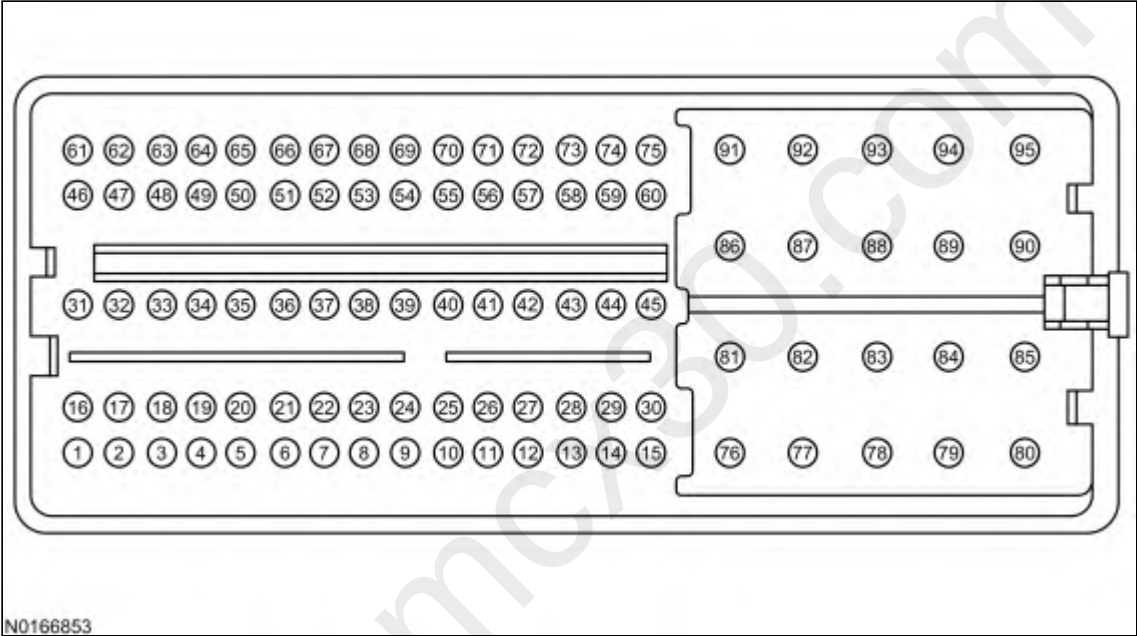
A



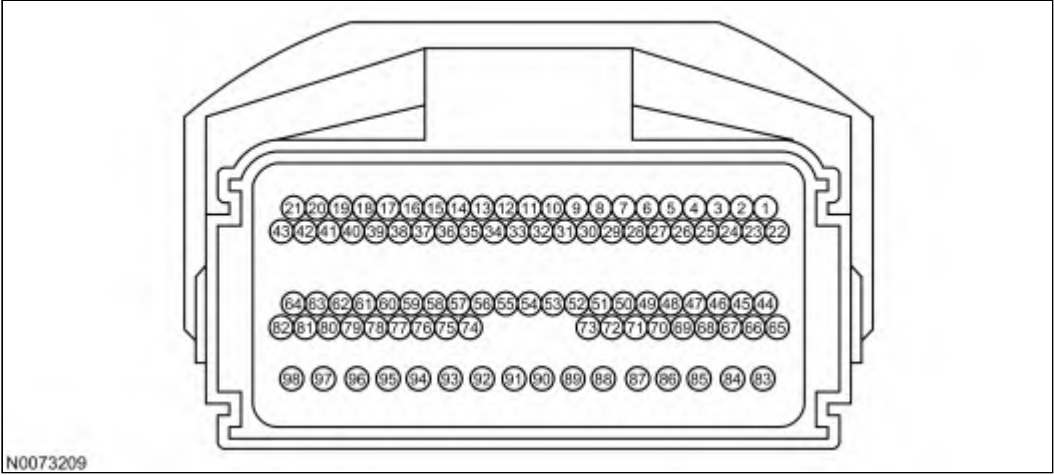
B



C



D



Vehicle	Connector	Pin	Circuit
F-Series Super Duty	A	80	CKP
Transit	B	32	CKP
Transit Connect	C	64	CKP
All other vehicles	D	33	CKP

D1 PRELIMINARY DIAGNOSIS

Are DTCs P0016, P0315, P0335, P0336, P0339, P033F, P034B, P061C, P1177 or P262A present?

Yes	GO to D2 .
No	For symptoms without DTCs, GO to D2 . For all others, RETURN to Section 3, Symptom Charts for further direction.

D2 CHECK THE CKP SENSOR SIGNAL SENT TO THE PCM

Note: The battery should be fully charged and the starting system should be functioning correctly.

- Ignition ON, engine OFF.
- Access the PCM and monitor the RPM (RPM) PID.
- Crank the engine.

Is the RPM greater than 150 RPM?

Yes	For DTCs P0016, P0315, P0335, P0336, P0339, P033F, P034B, P061C, P1177 or P262A, GO to D3 . For all others, The CKP, PCM, and harness are operating correctly. RETURN to Section 3, Symptom Charts for further direction.
No	GO to D3 .

D3 CHECK FOR VOLTAGE AT THE SENSOR

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

(+) CKP Sensor Connector, Harness Side	(-) CKP Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	GO to D4 .
No	GO to Pinpoint Test B .

D4 CHECK FOR AN OPEN

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

(+) CKP Sensor Connector, Harness Side	(-) PCM-E Connector, Harness Side
CKP	CKP

Is the resistance less than 5 ohms?

Yes	GO to D5 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

D5 CHECK FOR A SHORT TO GROUND

- Measure the resistance between:

(+) CKP Sensor Connector, Harness Side	(-)
CKP	Ground

- Measure the resistance between:

(+) CKP Sensor Connector, Harness Side	(-) CKP Sensor Connector, Harness Side
CKP	SIGRTN

Are the resistances greater than 10K ohms?

Yes	GO to D6 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

D6 CHECK FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.
- Measure the voltage between:

(+) CKP Sensor Connector, Harness Side	(-)
CKP	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	GO to D7 .

D7 INTERMITTENT CHECK

Note: Chafed CKP or camshaft position 11 (CMP11) sensor wires or other physical damage to the harness may cause an intermittent short in the CKP or CMP11 circuit.

- Ignition OFF.
- CKP Sensor connector connected.
- PCM-E connector connected.

- Visually check for chafed CKP and CMP11 wires or other physical damage to the CKP or CMP11 harness.

Is a concern present?

Yes	REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.
No	For DTC P0016, GO to Pinpoint Test V . For DTC P061C, GO to YA4 . For all others, GO to D8 .

D8 CHECK THE PHYSICAL CONDITION OF THE CKP SENSOR

- Check the CKP sensor for damage.

Is the CKP sensor damaged?

Yes	For Transit, INSTALL a new CKP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. Clear the PCM DTCs. REPEAT the self-test. For all others, INSTALL a new CKP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CARRY OUT the Reset And Clear The Specified Function Crankshaft Position Sensor on the scan tool. REFER to Section 2, Clear The Continuous Diagnostic Trouble Codes (DTCs) And Reset The Emission Monitors Information in The Powertrain Control Module (PCM) . Clear the PCM DTCs. REPEAT the self-test.
No	GO to D9 .

D9 CHECK THE PHYSICAL CONDITION OF THE IGNITION PULSE CRANKSHAFT SENSOR RING

- Check the ignition pulse crankshaft sensor ring for damage.

Is the ignition pulse crankshaft sensor ring damaged?

Yes	INSTALL a new ignition pulse crankshaft sensor ring. REFER to the Workshop Manual Section 303-01, Engine, In-Vehicle Repair, Crankshaft Rear Seal for additional information.
No	For all others, GO to D10 .

D10 CHECK FOR SYNCHRONIZATION

- Access the PCM and monitor the SYNC (MODE) PID.
- Crank the engine while viewing the SYNC PID.

Does the SYNC PID read YES?

Yes	GO to Pinpoint Test V .
No	GO to Pinpoint Test ZZ .

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