

EB: Engine Brake

This pinpoint test is intended to diagnose the following:

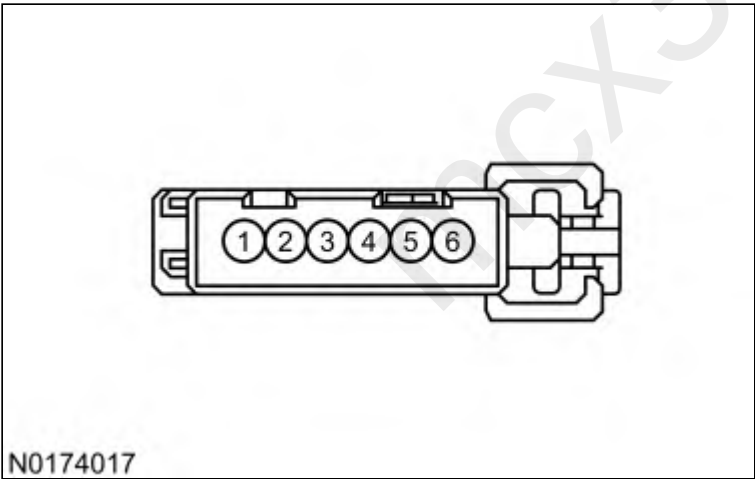
- Engine brake switch
- Harness circuits: EBIS and VPWR
- PCM (12A650)

Engine Brake Switch Connector

A



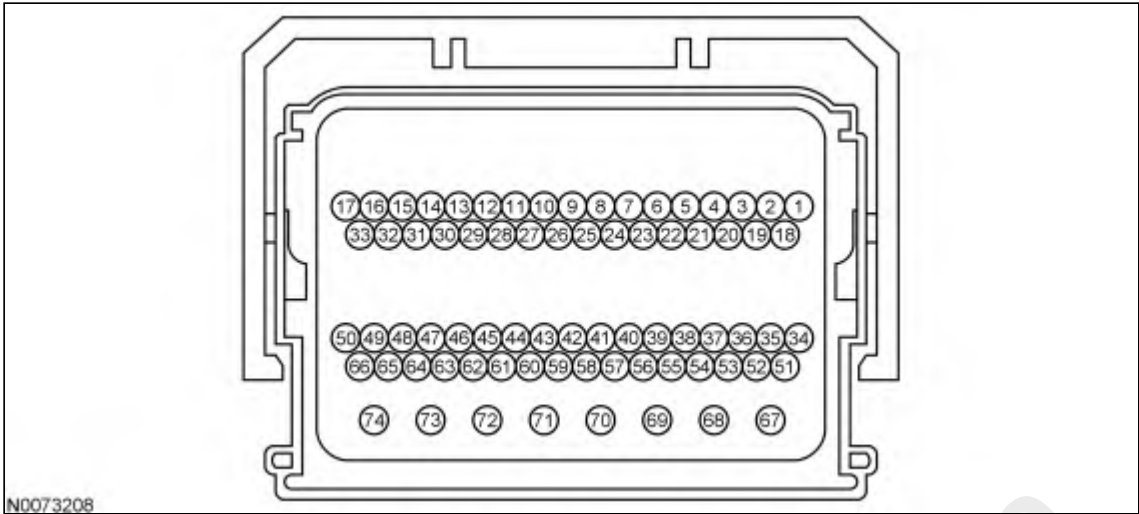
B



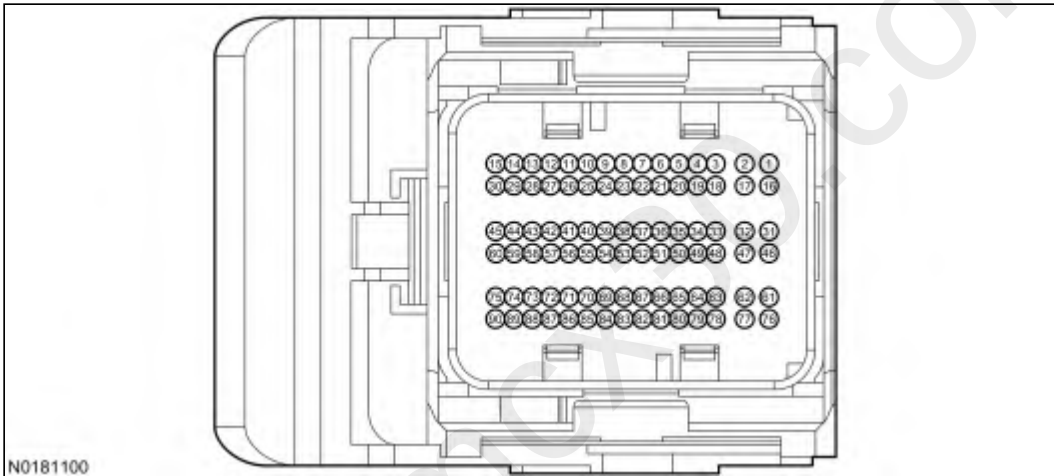
Vehicle	Connector	Pin	Circuit
F-650 / F-750	A	2 6	EBIS VPWR
F-Series Super Duty	B	4 1	EBIS VPWR

Powertrain Control Module-B (PCM-B) Connector

A



B



Vehicle	Connector	Pin	Circuit
F-650 / F-750	A	26	EBIS
F-Series Super Duty	B	6	EBIS

EB1 CHECK FOR DTCS
Is DTC P04D7 present?

Yes	GO to EB2 .
No	RETURN to Section 3, Symptom Charts for further direction.

EB2 CHECK THE ENGINE BRAKE SWITCH OPERATION

- Ignition ON, engine OFF.
- Access the PCM and monitor the EXHAUST_BRK (MODE) PID.
- Press the engine brake switch.

Does the EXHAUST_BRK PID state change when the engine brake switch is pressed?

Yes	Unable to duplicate the condition. CHECK for a loose connection, and damaged or corroded terminals. Wiggle the harness attempting to recreate the concern. REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.
No	GO to EB3 .

EB3 CHECK FOR CIRCUIT VOLTAGE

- Ignition OFF.
- Engine Brake Switch connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) Engine Brake Switch Connector, Harness Side	(-)
VPWR	Ground

Is the voltage greater than 10.5 V?

Yes	GO to EB4 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

EB4 CHECK THE ENGINE BRAKE SWITCH FOR CORRECT OPERATION

- Ignition OFF.
- Press and release the engine brake switch while measuring the resistance.
- Measure the resistance between:

(+) Engine Brake Switch Connector, Component Side	(-) Engine Brake Switch Connector, Component Side
VPWR	EBIS

Is the resistance greater than 10,000 ohms with the engine brake switch released and less than 5 ohms with the engine brake switch pressed?

Yes	GO to EB5 .
No	INSTALL a new Engine Brake switch. REFER to the Workshop Manual Section 206-09, Anti-Lock Brake System (ABS) and Stability Control. Clear the PCM DTCs. REPEAT the self-test.

EB5 CHECK THE EBIS CIRCUIT FOR AN OPEN

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

(+) PCM-B Connector, Harness Side	(-) Engine Brake Switch Connector, Harness Side
EBIS	EBIS

Is the resistance less than 5 ohms?

Yes	GO to EB6 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

EB6 CHECK THE EBIS CIRCUIT FOR A SHORT TO GROUND

- Measure the resistance between:

(+) Engine Brake Switch Connector, Harness Side	(-)
EBIS	Ground

Is the resistance greater than 10K ohms?

Yes	GO to EB7 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

EB7 CHECK THE EBIS CIRCUIT FOR A SHORT TO VOLTAGE

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

(+) Engine Brake Switch Connector, Harness Side	(-)
EBIS	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	GO to EB8 .

EB8 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Visually inspect for:
 - pushed out pins
 - corrosion
- Connect all the PCM connectors and make sure they seat correctly.
- Carry out the PCM self-test.
- Verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) .
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

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