

07/05/10

6.0L - RUNS ROUGH, LACKS POWER, HARD START, NO START

FORD:

2003-2005 Excursion

2003-2007 F-Super Duty

2004-2010 E-350, E-450

ISSUE

Some 2003-2007 F-Super Duty, 2003-2005 Excursion and 2004-2010 E-Series vehicles equipped with a 6.0L engine may exhibit a runs rough, lacks power, hard start, no start concern with or without diagnostic trouble code (DTC) P0611 code or various injector circuit codes. This concern may be caused by a DC-DC converter located in one half of the Fuel Injector Control Module (FICM) or by the main circuit board in the other half of the FICM.

ACTION

Follow the Service Procedure steps to correct the condition.

SERVICE PROCEDURE

FICM Information:

The FICM contains two major internal components, the main circuit board and a DC-DC converter. The DC-DC converter is the device that amplifies battery voltage to 48 volts to operate the injectors.

Low FICM supply voltage results in increased FICM operating loads, potentially damaging or shortening the life of the FICM.

For contribution codes without circuit codes, go to Powertrain Controls/Emissions Diagnosis (PC/ED) pinpoint test P. Do not continue with this procedure.

1. Connect Integrated Diagnostic System (IDS) scan tool and confirm battery voltage is greater than 11.5 volts key on engine off (KOEO).

a. If battery voltage is less than 11.5 volts KOEO, do not continue with this article. Refer to Workshop Manual (WSM), Section 414-00.

b. If battery voltage is 11.5 volts KOEO or higher, continue to Step 2.

2. Remove the FICM relay.

3. Perform a programmable module installation (PMI) on the FICM to correct possible corrupt FICM memory.

a. IDS scan tool software must be at release level 65.18, or higher.

b. Select module programming on the IDS menu screen.

c. Select PMI and click on the tick button at the bottom right corner of the screen.

d. Follow the directions on the screen until it states to install the new module. At this point, click on the tick button again and continue to follow the on screen directions to complete the PMI procedure.

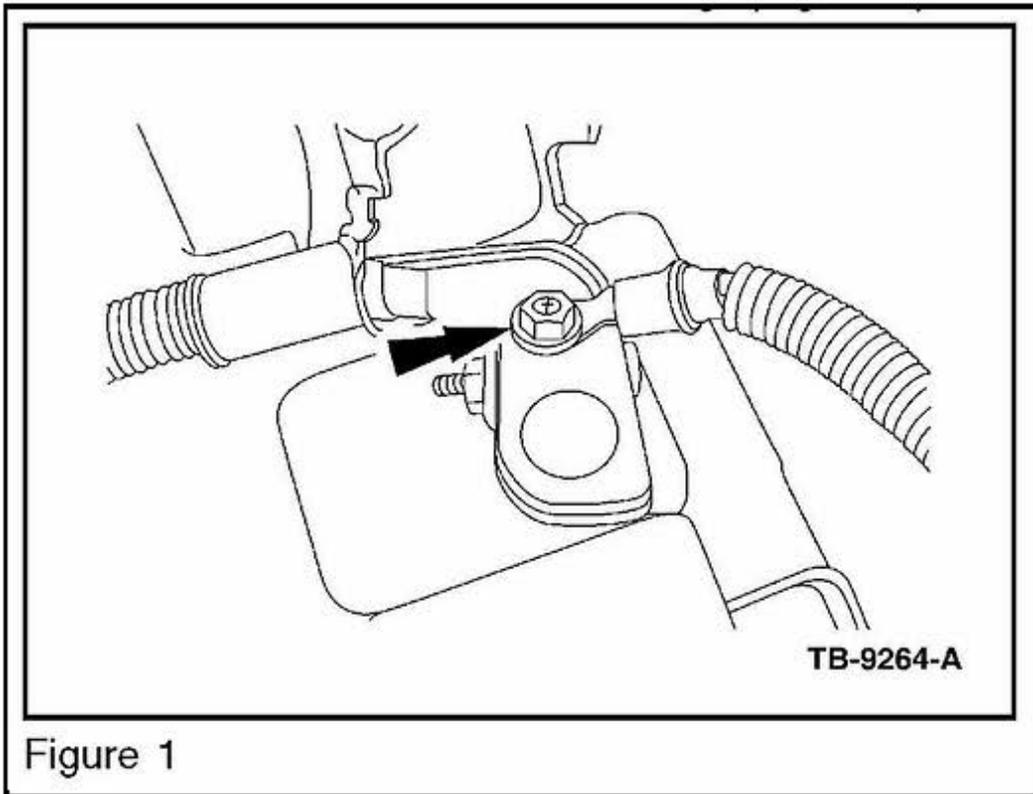
4. Reinstall the FICM relay.

5. Monitor the FICM_M power parameter identification (PID) per the following instructions:

a. Disconnect the glow plug control module (GPCM) VPWR circuit to isolate the GPCM and alternator from the FICM and provide more consistent FICM testing. (Figure 1)

b. Disconnect the fuel heater relay, if equipped.

c. With IDS already installed, turn ignition to run position.



6. Monitor engine oil temperature (EOT) PID.

- a. If EOT reads 32 °F (0 °C) or less, proceed to Step 11
- b. If EOT reads greater than 32 °F (0 °C), proceed to Step 7.

7. Turn ignition off.

8. Disconnect the EOT sensor.

9. Using Rotunda Technician Tool Program Universal Gauge and Component Tester (OTC3385) or equivalent, adjust setting to 100,000 ohms resistance. Verify tester resistance using a digital volt ohm meter (DVOM) with 10 mega ohm minimum impedance.

10. Connect the instrument gauge system tester between the EOT signal and SIGRTN circuits at the harness side of the EOT connector.

- a. Failure to apply exactly 100,000 ohms of resistance at this location may result in inaccurate test results.

11. With key on and engine off, monitor the FICM_MPWR PID and record the value.

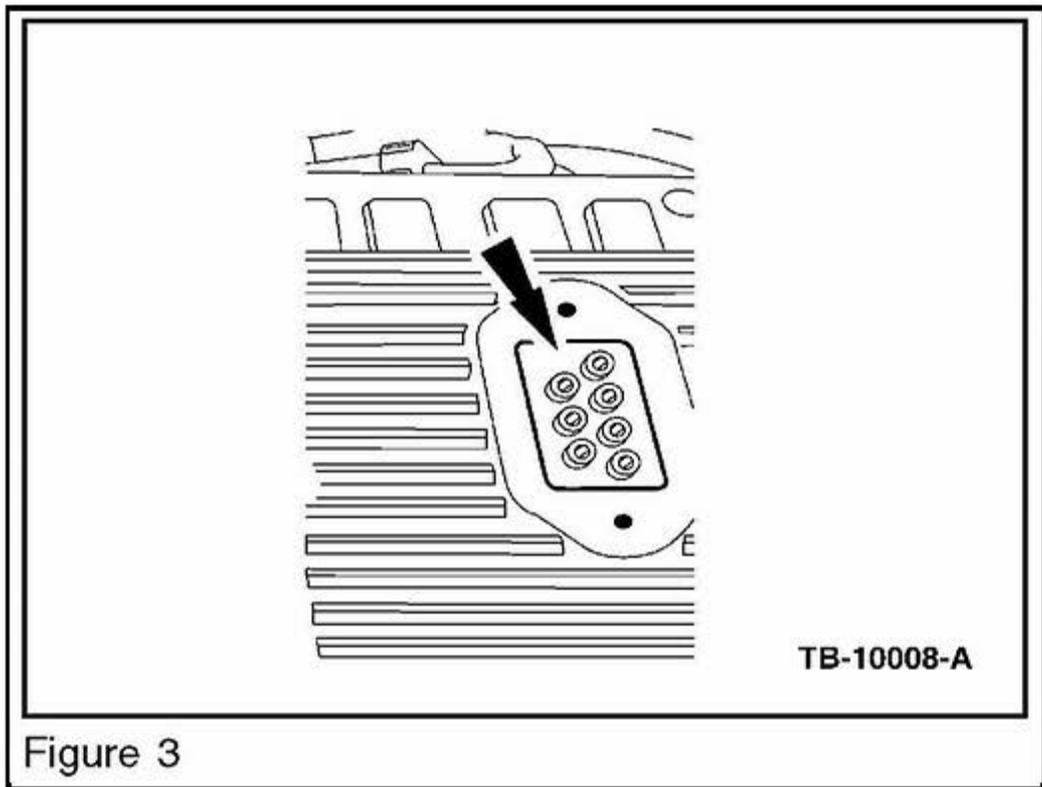
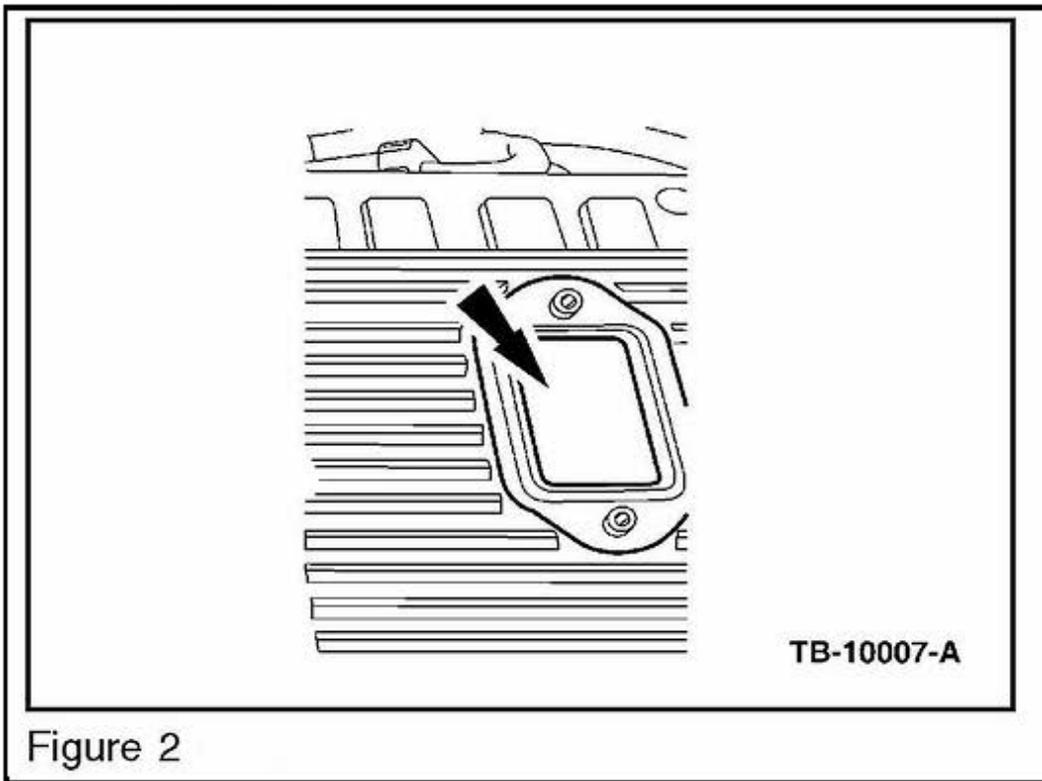
12. Cycle the ignition to off and back to run position to activate the injector pre-cycle. Monitor the FICM_MPWR PID and ensure voltage reading is greater than 45 volts during the entire duration of the last 10 seconds of the fuel injectors clicking.

- a. If FICM_M power is 45 volts or greater, the PMI repaired the concern. Reassemble the EOT circuits if previously removed. Return vehicle to customer.
- b. If FICM_MPWR drops below 45 volts during pre-cycle, reassemble the EOT circuits if removed previously and proceed to FICM Half Shell Replacement procedure.

FICM Half Shell Replacement

Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage can result. Extreme care should be taken when performing this repair.

1. Remove FICM from the vehicle and clean off any debris using shop air. Refer to WSM, Section 303-14B.
2. Remove the two (2) Torx T20 retaining screws and inspection plate from the back of the FICM. (Figure 2)



3. Inspect the buss connector screws.
 - a. If FICM is an early style with seven (7) connector screws, do not disassemble. Replace the FICM assembly. (Figure 3)

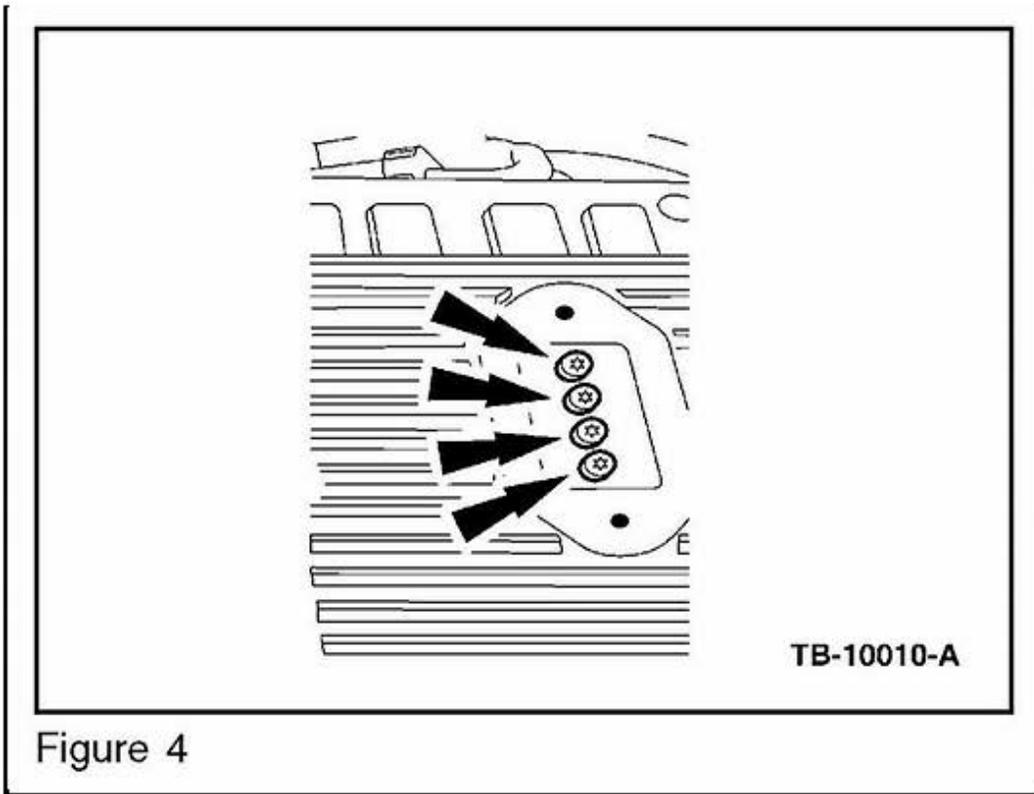


Figure 4

b. If FICM has four (4) connector screws, proceed to Step 4 for inspection and repair. (Figure 4)

4. Remove the four (4) Torx 110 buss post retaining screws . (Figure 4)

a. When removing the screws from the FICM, you may find metallic shavings. Be sure to clean any debris from the screws before reinstalling.

PART NUMBER	PART NAME
4C3Z-12B599-BARM	FICM Half Shell
4C3Z-12B599-ABRM	FICM

5. Remove the eight (8) Torx T20 half shell retaining screws.

6. Carefully separate the top and bottom half shells of the FICM. The upper half (with the three main FICM harness connectors) contains the main circuit board. The lower half contains the DC-DC board. They are sealed by a molded perimeter gasket. Gentle prying may be required to separate. Retain the gasket for reuse.

7. Inspect the main circuit board for burning and/or damaged components

a. If any evidence of loose or burned components is found, replace the FICM assembly.

b. If no evidence of loose or burned components are found, proceed to Step 8.

8. Install the original half shell gasket that was removed in Step 6 in the new lower FICM half shell.

a. Before putting the two FICM half shells together, be sure to clean any dust or debris using compressed air.

9. Assemble the upper and lower FICM half shells. Install eight (8) case screws and torque to 18 lb-in (2 N.m).

10. Install the four (4) buss screws removed in Step 4 and torque to 9 lb-in (1 N.m)

11. Install inspection plate, seal and retaining screws and torque to 18 lb-in (2 N.m).
12. Install four (4) replacement mounting grommets.
13. Install FICM. Refer to WSM, Section 303-14B.
14. Clear all DTCs.

WARRANTY STATUS: Eligible Under Provisions Of New Vehicle Limited Warranty Coverage And Emissions Warranty Coverage

IMPORTANT: Warranty coverage limits/policies are not altered by a TSB. Warranty coverage limits are determined by the identified causal part.

OPERATION	DESCRIPTION	TIME
101206A	2004-2010 Econoline 6.0L: Perform PMI, Resistor Installation Not Necessary (Do Not Use With Any Other Labor Operations)	0.5 Hr.
101206B	2004-2010 Econoline 6.0L: Perform PMI, Resistor Installation Necessary (Do Not Use With Any Other Labor Operations)	1.1 Hrs.
101206C	2004-2010 Econoline 6.0L: Perform PMI, Resistor Installation Not Necessary, Replace FICM Half Shell Or Entire FICM (Do Not Use With Any Other Labor Operations)	1.1 Hrs.
101206D	2004-2010 Econoline 6.0L: Perform PMI, Resistor Installation Necessary, Inspect And Replace FICM Half Shell Or Entire FICM (Do Not Use With Any Other Labor Operations)	1.8 Hrs.
101206E	2003-2007 F-Super Duty 6.0L: Perform PMI Install Resistor If Necessary (Do Not Use With Any Other Labor Operations)	0.5 Hr.
101206F	2003-2007 F-Super Duty 6.0L: Perform PMI, Install Resistor If Necessary, Inspect And Replace FICM Half Shell Or Entire FICM (Do Not Use With Any Other Labor Operations)	1.7 Hrs.

DEALER CODING	CONDITION CODE
BASIC PART NO. 12B599	42

NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your car or truck. Contact a Ford, Lincoln, or Mercury dealership to determine whether the Bulletin applies to your vehicle.