

 F-Series/Excursion Powerstroke 2001 7.3 Power Stroke Diesel Engine Diagnostic Guide	-NOTE- IF CONCERN IS FOUND, SERVICE AS REQUIRED. IF THIS CORRECTS THE CONDITION, IT IS NOT NECESSARY TO COMPLETE THE REMAINDER OF THE DIAGNOSTIC PROCEDURE.	CUSTOMER NAME <hr/> MODEL YEAR VEHICLE SERIAL NO.(VIN) <hr/> CHASSIS STYLE
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Customer Concerns (Please list in this box)

DEALER NAME	P & A CODE					1863 CLAIM NUMBER	DATE
	ENGINE SERIAL NUMBER				ODOMETER		TYPE OF SERVICE
VEHICLE GVW	TRANSMISSION		AMBIENT TEMPERATURE			PERSONAL <input type="checkbox"/>	COMMERCIAL <input type="checkbox"/>

Hard Start/No Start Diagnostics

NOTE: A hard start/ No start concern with EOT Temp. below 60F perform step 10 first.

1. Visual Engine/Chassis Inspection 6005E

Fuel Oil Coolant Electrical Hoses Leaks	
Method	Check
Visual	

2. Check Engine Oil Level See Fig. C 6005E

- Check for contaminants (fuel, coolant).
- Correct Grade/Viscosity.
- Miles/Hours on oil ,correct level.
- Check level in reservoir.

Method	Check
Visual	

3. Intake/Exhaust Restriction See Fig. B & L 6005E

- Inspect air filter and ducts - exhaust system
- Inspect exhaust back pressure device

Method	Check
Visual	

4. Sufficient Clean Fuel See Fig. A 6005E6

- Check if the WATER IN FUEL lamp has been illuminated.
- After verifying that there is fuel in the tank, drain a sample from fuel filter housing at key on.

NOTE: Fuel pump will run for 20 sec. at key on.

Method	Check
Visual	

5. Electric Fuel Pump Pressure See Fig. I 6005E7

- Verify that the fuel pump has voltage and gnd. present at key on.
- Measure fuel pressure at the top of the right cylinder head with a (0-160 PSI) gauge at key on.

Instrument	Spec.	Measurement
0-160 PSI Gauge	45 PSI min.	

If pressure fails low, Go to step 8c on the Performance side of this sheet to identify cause.

6. Perform KOEO On Demand Test See Fig. E 6005E2

- Use the NGS Tester
- DTCs set during this test are current faults.

Note: IDM DTCs displayed here could be current or historical faults.

Diagnostic Trouble Codes	
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7. Retrieve Continuous Trouble Codes See Fig. E 6005E2

- DTCs retrieved during this test are historical faults.

Note: IDM DTCs are cleared when codes are cleared

Diagnostic Trouble Codes	
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8. KOEO Injector Electrical Self-Test See Fig. E 6005E3

- Use the NGS Tester.
- All injectors will momentarily buzz, then individual injectors will buzz in sequence 1 through 8.
- IDM DTCs may be transmitted after test is completed.

Note: IDM DTCs may be historical if not cleared above.

Injector Trouble Codes	
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9. NGS Tool - Data List Monitoring See Fig. E 6005E4

- NGS Tester may reset below 9.5 volts.
- Select the parameters indicated from the NGS parameter list and monitor while cranking engine.

Parameter	Spec.	Measurement
V PWR	7 volt min.	
RPM	100 RPM minimum	
ICP	500 PSI or 3.4mPa min.	
FUEL PW	1 mS to 6 mS	

You may need to use a outside power source for the NGS

A V PWR - If indicating a low voltage condition, check battery voltage, charging system or power and ground circuits to the PCM.
GO TO PINPOINT TEST A

B RPM - Low RPM could be an indication of starting/charging system problems, No RPM indicated with the engine cranking - could be CMP circuit fault, check for Diagnostic Trouble Codes.
GO TO PINPOINT TEST DG

C ICP - A minimum of 500 PSI (3.4 mPa) is required before the injectors are enabled. No or low oil in the reservoir, system leakage, injector O-Rings or faulty IPR could cause pressure loss.
Go to section 4 step 9c in the PC/ED Manual for a detailed description on how to perform this test.
Note: If no RPM signal is received, IPR duty cycle will default to 14%

D FUEL PW - Even though a 1 to 6 mS FUEL PW is shown, its possible the IDM did not receive the signal due to a CI or FDCS circuit fault or internal IDM failure.

10. Glow Plug System Operation See Fig. E & G 6005E5

Relay Operation

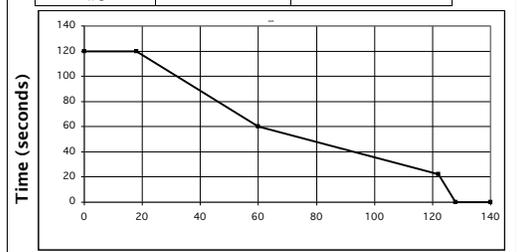
- Glow Plug ON time is dependent on oil temperature and altitude. The Glow Plug relay/Glow Plug Control Module (GPCM) comes on between 1 and 120 sec. and does not come on at all if oil temp is above 131 F
- On GPCM equipped vehicles, check continuous and KOEO codes. If codes are present go to pinpoint test QB.
- On Glow Plug Relay equipped vehicles verify that B+ is being supplied on the large BK/WH wire.
- Install a voltmeter to the glow plug feed terminal (two brown wires)
- Using the NGS GPCTM and EOT pids, verify glow plug "on" time .
- Turn key to run position, measure voltage ("on" time) (Dependent on oil temperature and altitude)

Relay on time	Spec.	Measurement
1 to 120 seconds	B +	

Note: Wait to Start Lamp "on" time (1 - 10 sec.) is independent from Glow Plug "on" time

- Glow Plug Resistance**
- Remove both 9 pin connectors from valve covers
 - Measure each Glow Plug resistance to Bat. ground.
 - Measure engine harness resistance to relay or GPCM

Glow Plug Number	Glow Plug to Ground .1 to 2 ohms	Connector to relay or GPCM connector 0 to 1 ohms
#1		
#3		
#5		
#7		
#2		
#4		
#6		
#8		



- Add 5 seconds to glow plug on time when above 7000 feet in altitude, but not to exceed 120 seconds.

See PC/ED manual, Section 4A for more detail on all of the above test steps.

When troubleshooting a Hard Start/No Start or Performance concern, this form must be filled out to the point of repair and returned to receive warranty credit and diagnostic time for the following parts: Fuel Injectors (9E527), regulator-injection control pressure(9C968), pump assemblyhigh pressure oil (9A543), turbo charger assembly/pedestal (6K684), fuel pump (9350), IDM (12B599) and PCM (EEC)(12A650) Labor operations listed more than once are a continuation of the diagnostic procedure and should be claimed only once.

What problems were found and what repairs were performed?

List Part Name, Number and Serial Number of parts replaced.