

MISFIRE, LACK OF POWER, BUCK/JERK, EXCESSIVE SMOKE, CRANK/NO START—6.0L ENGINE—DIAGNOSTICS FOR FUEL SYSTEM—SERVICE TIPS

TSB 04-23-3

FORD:

2003-2005 Excursion, F-Super Duty
2004-2005 E-Series, F-650, F-750

ISSUE

Some 6.0L vehicles may exhibit a misfire, lack of power, buck/jerk, excessive smoke or crank/no start. There are several potential causes for these symptoms, including injector concerns.

ACTION

If normal diagnostics lead to an injector concern, use the following diagnostics to confirm the cause of injector failure and/or to rule out other conditions which may cause the same symptoms as a failed injector.

NOTE

IF DIAGNOSING A LACK OF POWER CONDITION, BE AWARE 2005 MODEL YEAR VEHICLES HAVE A "FORCED LIMITED POWER" STRATEGY WHICH LIMITS ICP PRESSURE WHEN THE FUEL LEVEL IN THE TANK GETS VERY LOW (WELL AFTER THE LOW FUEL LIGHT COMES ON). WHEN THIS OCCURS, DTC P115A WILL BE STORED IN THE PCM.

LOW OR NEGATIVE FUEL PRESSURE

Internal injector damage can be caused by lack of fuel system supply pressure. Restricted fuel filters and/or fuel line(s), or an inoperative fuel pump can create a low or negative fuel supply pressure. Low or negative pressures may hinder the return stroke of the injector intensifier plunger to its rest position, leading to internal injector damage. To diagnose for low or negative fuel pressure and to confirm if any injectors have been damaged:

1. Perform standard diagnostic procedures including verification of supply fuel pressure while the symptom is evident.
2. Repair causes for low pressure on the supply side of the fuel system.

3. Diagnose for failed injector(s) only after rectifying fuel supply pressure.

COMBUSTION GAS ENTERING THE FUEL SYSTEM

Inert combustion gas in an injector can cause a random misfire in one or many cylinders. Combustion gas may leak past the injector's needle and seat, or the copper combustion seal. Once the combustion gas enters the fuel rail in the cylinder head, it then distributes to other injectors, typically on the same bank. To diagnose for combustion gas entering the fuel system:

1. Remove outlet fuel lines from the fuel filter housing on top of engine.
2. Install a balloon over each fuel line with a zip tie.
3. Disable the fuel pump and FICM relays.
4. Crank engine and watch for compression pulses in the balloon.
5. For each line where compression pulses are evident, remove all but one of the glow plugs from the affected cylinder head(s).
6. Crank engine and watch again for compression pulses.
7. Remove the glow plug and transfer it to the next cylinder in the head and repeat Step 6.
8. For each cylinder where compression pulses are evident remove injector(s) and inspect copper gasket and lower O-ring, replace if necessary. If gasket(s) and O-ring(s) are OK replace injector(s). Retest to confirm repair.

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. Warranty Policy and Extended Service Plan documentation determine Warranty and/or Extended Service Plan coverage unless stated otherwise in the TSB article. The information in this Technical Service Bulletin (TSB) was current at the time of printing. Ford Motor Company reserves the right to supersede this information with updates. The most recent information is available through Ford Motor Company's on-line technical resources.

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ERRATIC HIGH PRESSURE OIL SUPPLY

Erratic supply of high pressure oil to injectors may cause a rough running engine. High pressure oil flow can be disrupted by faulty check valve(s) or a faulty IPR valve.

To diagnose, first perform a slow neutral run up in park/neutral. If the engine runs rough between 1200 and 1900 RPM proceed to Check Valve Diagnosis; if the engine runs rough between 3000 and 4000 RPM replace the IPR valve.

Check Valve Diagnosis

1. To isolate the bank with the faulty check valve, disconnect all of the injector electrical connectors on one bank.
2. Perform a Power Balance test. Engine misfires should be constant on the four disconnected cylinders and the operational cylinders should be contributing evenly.

3. Repeat steps 1 and 2 on the opposite bank.
4. If the operating contribution is erratic on one bank, replace the check valve on that bank.

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

DEALER CODING

BASIC PART NO.
9E527

CONDITION
CODE
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