

POWER STROKE DIESEL V8



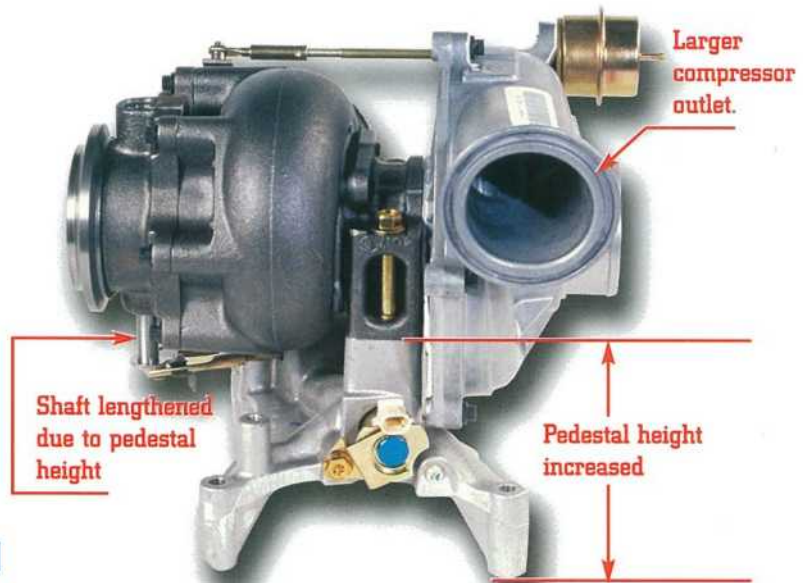
**1999.5
DIT Engine
Update**



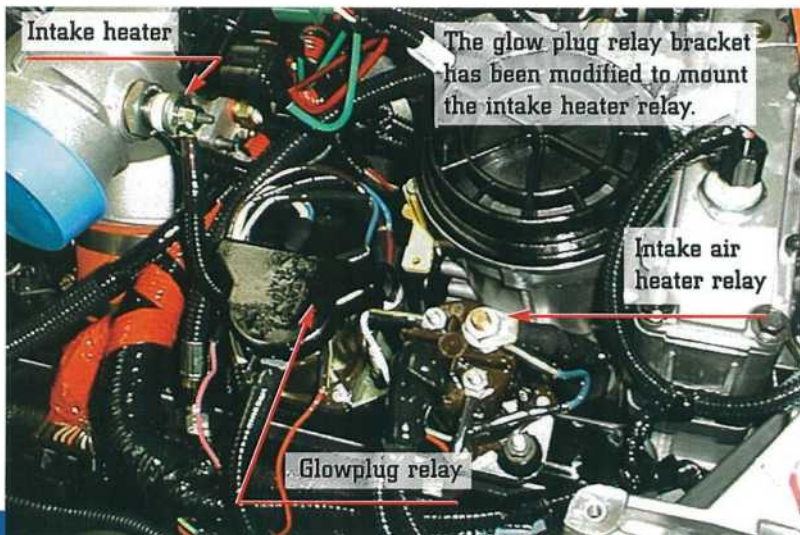
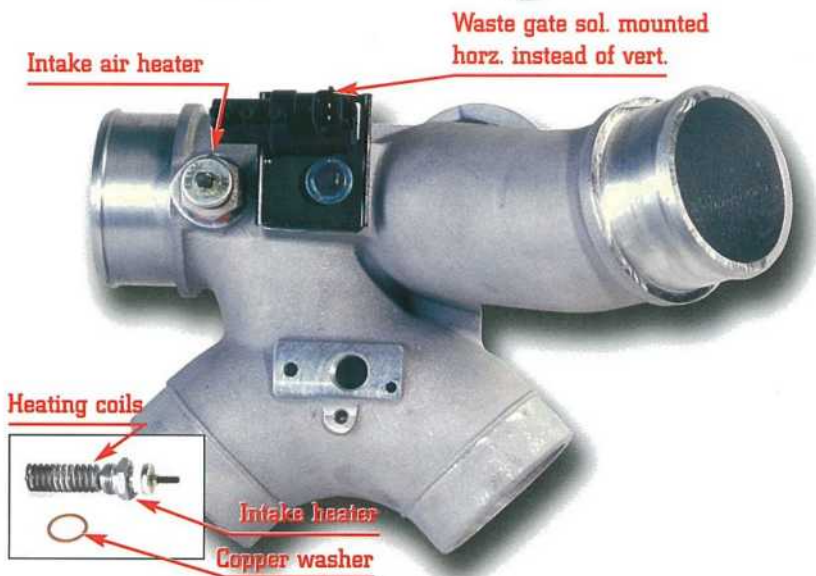
1999.5 FORD CHANGES

All changes listed are for engine serial number 896812 and above unless otherwise noted. This publication is intended to provide technicians and service personnel with the latest technical advancements incorporated in the 7.3 DIT Diesel Engine. The information contained in this publication will supplement information contained in available service literature.

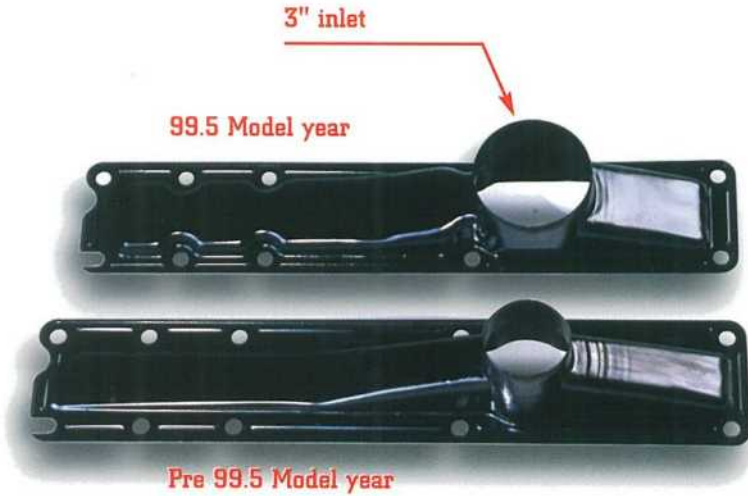
The turbo charger has been changed to improve efficiency. The diameter of the turbo compressor outlet, and the size of the compressor have increased to improve air flow capabilities of the turbo. Due to the increase in size, the new turbo is mounted on a taller pedestal to provide adequate clearance. A new exhaust inlet adapter has been designed to allow access to the fuel pressure test port at the rear of the head. The new exhaust inlet requires new exhaust up-pipes. The Econoline uses the new larger, taller turbo without the waste-gate or charge air cooling provisions.



A new CAC crossover has been developed for the new turbo and incorporates a PCM controlled intake air heater. The heater is installed in the air inlet to the engine (after the charge air cooler) side of the CAC crossover. On the Econoline the heater is in the "Y" pipe downstream of the turbo. The new intake heater is used to heat the air before it reaches the combustion chamber in the engine during cold startup to reduce cold smoke. Current to the intake heater is switched on/off by a PCM controlled relay, similar to the glow plug relay. In order for the relay to be activated the following conditions must be met: fast idle must be engaged, glow plugs must be off, PCM voltage must be between 11.8–15 volts, EOT (Engine Oil Temperature) must be below 55°C (131°F), and engine speed must be above 1000 RPM. In order for fast idle to be engaged the following conditions must be met: the vehicle must be in park or on a manual transmission the parking brake must be set, EOT must be below 70°C (158°F), IAT (Intake Air Temperature) must be below 0°C (32°F) for 1000 RPM and -10°C (14°F) for 1100 RPM, brake pedal must not be depressed, and accelerator pedal must be at idle. A 90° angled fitting for the map hose has also been installed so that a common straight MAP hose can be used for both the Econoline and the "F" series. With the increased turbo height and repositioning of the waste gate solenoid the wastegate hoses have also changed to fit the relocated components.

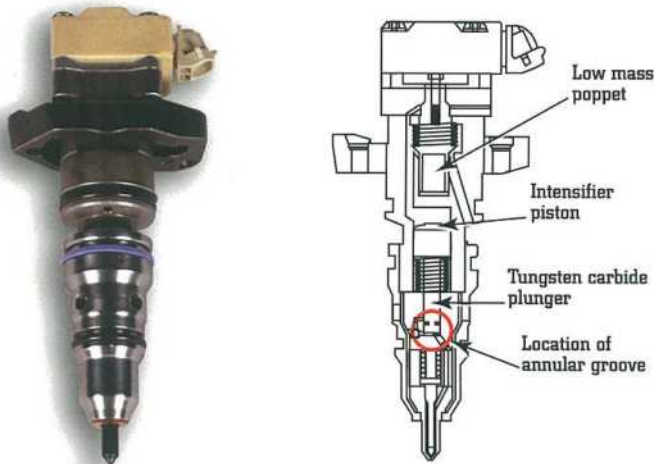


1999.5 FORD CHANGES



Both the Econoline and the "F" Series use a new intake cover with 3" inlets into the heads for better flow to the combustion chambers. The new cover has had no modifications to length or bolt pattern. With this change, the CAC to intake hoses are now straight with 3" diameters on both ends. These hoses have no hump between the two components. On the non charge air cooled Econoline engines, an aluminum "Y" pipe with 3" inlets and outlets is now used.

Due to the changes in turbo height, the turbo air inlet duct for both the Econoline and "F" Series have changed.



A new injector has been released with the following changes:

- Low mass poppet to increase efficiency and lessen noise.
- Tungsten carbide coating on the injector plunger and barrel. This coating lessens the chance of injector damage caused by low lubricity fuel and water.
- The annular groove that is cut into the plunger is wider than in previous models so that the time between the first and second shot of injection is increased, this helps emissions.

Due to the injector changes a new high pressure oil pump is being used. The new high pressure pump has a higher flow rate (from 6.8cc per revolution to 7.2cc).

Note: The new injectors and/or pump can not be used in pre-1999.5 MY engines and pre-1999.5 MY pump & injector can not be utilized in 1999.5 MY engines.



During the 99 model year a dual element fuel filter was incorporated to filter the fuel that is returned to the tank via the fuel filter regulator. The Ford Replacement Part Number for this filter is unchanged: F81Z-9N184-AA.

1999.5 FORD CHANGES

A new fuel pressure regulator was also incorporated during the 1999 model year. The new regulator has a brass poppet with a captured seal made of improved material. Regulator poppet seal failures will cause low fuel pressure and increase engine noise. Fuel pressure on all Powerstroke engines built since 1/1/98 or engine serial #661496 should be 51 ± 4.5 PSI @ idle. The fuel lines have been modified to allow clearance for the new 3" intake covers.



If a leak occurs at the high pressure oil gallery plug, a service plug for the high pressure oil rail that places the sealing o-rings deeper into the gallery is now available. The new plug can be identified by a circular groove cut into the face of the plug. The new plug went into production prior to 1999.5 MY on engine S/N 751869.



High pressure oil rail service plug

EBP (Exhaust Back Pressure) OPERATION (If Vehicle is Equipped With)

PCM controlled based on following parameters: IAT (Intake Air Temperature) Below 10°C (50°F) to activate EBP
EOT (Engine Oil Temperature) Below 70°C (158°F) to activate EBP

A high pitched whine, in exhaust system, will be heard when EBP device is active.

At the turbo exhaust outlet is a butterfly that when actuated will restrict the exhaust flow, this causes the engine to work harder in cold ambients and generate engine coolant temperature quicker for cab heat. The actuation of this device is controlled by the PCM and the EBP regulator located in the turbo pedestal. The EBP regulator restricts lube oil flow out of the turbo (center housing) and directs oil to the turbo pedestal which pushes the EBP actuator arm outward causing the butterfly to close or restrict exhaust flow. The PCM uses the EBP sensor to monitor the exhaust restriction. The EBP sensor is connected to the right exhaust manifold using a pipe and fitting. The exhaust back pressure device will open when the accelerator pedal is depressed and the exhaust back pressure increases. When the exhaust back pressure decreases or the vehicle is in a steady state, exhaust back pressure decreases per the EBP sensor, the EBP regulator can and will activate the EBP device again even while going down the highway as long as the EOT temperature is below the specifications.

PARTS DESCRIPTION

Air Heater Relay	F81Z-66015-AA
Air Heater	F81A-9N424-AA
Air Heater Insulator	1831643-C1 (N*)
Air Heater Sealing Washer	1827886-C1 (N*)
Air Heater Wave Washer	1831644-C1 (N*)
CAC Duct to Intake Manifold	F81A-6K889-CA
Cylinder Head	F81A-6049-BRM
Cylinder Head Covers (E/F)	F81A-9E434-CA
Engine Wiring Harness - Fed (F)	F81A-12B637-EA
Engine Wiring Harness - Cal (F)	F81A-12B637-DA
Engine Wiring Harness - Fed (E)	XCD25-12B637-EA
Engine Wiring Harness - Cal (E)	XC25-12B637-FA
Fuel Filter Element Package	F81A-9N184-AB
Fuel Supply & Return Lines	F81A-9J338-NB
Ground Cable (E/F)	F81A-12B568-AA
High Pressure Oil Pump	F81A-9A543-CA
Injector (Tungsten Carbide)	F81A-9E527-BRM
Manifold Air Heater Power Cable	F81A-6F089-AA
Oil Rail End Plug Package	1827535-C1 (N*)
Regulating Valve Package	F81Z-9B249-BB
Turbocharger Exh. Inlet Adapter	1827597-C91 (N*)
Turbo Pedestal w/EBP	F81A-6N639-CA
Turbo Pedestal (F) w/o EBP	F81A-6N639-DA
Turbocharger (F) w/EBP	F81A-6K682-BA
Turbocharger (F) w/o EBP	F81A-6K682-CA
Turbocharger (E) w/o EBP	XC25-6K682-AA