This article supersedes TSB 06-14-6 to update the service procedure.

**ISSUE**

**ACTION**
Use the Service Procedure to identify a fault with the high or low pressure oil system.

**SERVICE PROCEDURE**
A minimum of 3.5 MPa (500 psi or 0.8 volts) ICP is required before the injectors are enabled. No or low oil in the system, leakage at the injector upper D-rings, high pressure pump quick connect fitting, high pressure pump discharge tube, faulty injection pressure regulator (IPR), or high pressure pump could cause low ICP pressure.

1. Perform the revised Powertrain Controls / Emissions Diagnosis (PC/ED) lead diagnostics Section 4, Hard Start/No Start Diagnostic Procedure Tests 10e and 10f. These tests were revised in January 2006.

**NOTE**
The low pressure oil system must be working properly in order for the high pressure oil system to build ICP pressure. This includes adequate pressure and good quality properly maintained oil.

**NOTE**
This TSB only applies to replacement of the high pressure branch tube or snap to connect fitting if found defective while performing PC/ED hard start / no start tests 10e and 10f.

**NOTE**
DO NOT OVER TORQUE THE FEMALE QUICK CONNECT FITTING OR DAMAGE WILL OCCUR.

**NOTE**
IT IS NOT NECESSARY TO REPLACE THE HIGH PRESSURE PUMP WHEN REPLACING THE QUICK CONNECT FITTINGS.

1. If the leak is isolated to the high pressure pump Snap to Connect (STC) quick connect fitting, replace the male and female fittings and install a STC bracket. All the necessary components are included in the STC kit. Follow the installation instructions included in the kit.

2. Torque the female quick connect fitting to 38 lb-ft (51 N·m) max.

3. Set engine at TDC both cylinder number 1 rocker arms should be loose (See rocker arm removal procedure in the appropriate online WSM, Section 303-01c).

4. If a leak is identified in the branch tube, use the following procedure to replace the branch tube if the vehicle your working on is a F-Super Duty or Excursion. For E-Series, the engine needs to be removed to replace the branch tube. When replacing the branch tube, also install the STC bracket kit.

**BRANCH TUBE REPLACEMENT FOR F-SUPER DUTY AND EXCURSION VEHICLES ONLY**

1. Remove the transmission (See the appropriate model year Workshop Manual (WSM), Section 307-01).

**NOTE**
LEAVE THE FLYWHEEL ON, IT WILL MAKE IT EASIER TO TURN THE ENGINE OVER TO TDC) THE TRANSMISSION FLUID DOES NOT NEED TO BE DRAINED.

2. Set engine at TDC both cylinder number 1 rocker arms should be loose (See rocker arm removal procedure in the appropriate online WSM, Section 303-01c).

3. Remove the right and left side high-pressure oil rails.
4. Remove and inspect both high-pressure standpipes for O-ring wear

5. Remove fuel injectors from cylinders 6, 7 and 8 (see WSM, Section 303-04C, use Ford Special Service Tool Number 303-1115)

6. Plug oil drain holes in cylinder head prior to removing the rocker arms. Remove intake and exhaust rocker arms from cylinders number 7 and number 8 then remove the push rods (See WSM, Section 303-01C, use Ford special service tool number 303-1170. The rocker arm plastic retaining clips may break upon removal. Make sure all the pieces are removed from the head.)

7. Rotate engine 1 full revolution (See WSM, Section 303-01C rocker arm removal procedure.

8. Remove exhaust rocker arm from cylinder number 6 and push rod (leave tool in place).

9. Remove the rear cover following WSM, Section 303-01C. Cut the sealant at the rear cover “T” joints for the bedplate gaskets and high-pressure pump cover gasket before fully removing.

NOTE
USE A LONG PUTTY KNIFE OR RAZOR BLADE TO SEPARATE THE BED PLATE GASKETS TO PREVENT DAMAGE. DO NOT STRETCH THE BEDPLATE GASKETS OR THE BEDPLATE WILL HAVE TO BE REMOVED.

10. Loosen the two (2) 8 mm bolts that hold the discharge tube to the branch tube. (Use open end / box end wrench thin)

11. Insert a 10” long 1/4” locking extension with a T27 locking Torx bit through cylinder number 6 exhaust push rod hole. Use a magnet through the standpipe hole in the head to remove the bolt (the extension will be on a slight angle, have someone under the vehicle watch from the rear cover area to guide the socket on the bolt head of the branch tube hold down).

CAUTION
IF THE TORX BIT IS DROPPED IT WILL BE NECESSARY TO REMOVE THE CYLINDER HEAD TO RETRIEVE IT.

12. Insert a 10” long 1/4” locking extension with a T27 locking Torx bit through cylinder number 7 exhaust push rod hole and loosen the hold down push bolt. Use a magnet through the standpipe hole to remove bolt. (The extension will be on a slight angle, have someone under the vehicle watch from the rear cover area to guide the socket on the bolt head of the branch tube hold down).

NOTE
THE BOLT HEAD IS NOT VISIBLE ON THIS SIDE.

CAUTION
IF THE TORX BIT IS DROPPED IT WILL BE NECESSARY TO REMOVE THE CYLINDER HEAD TO RETRIEVE IT.

13. Remove the branch tube from the engine (Replace high-pressure branch tube).

14. Remove the high-pressure pump discharge tube from the high-pressure outlet fitting, use Ford Special Service Tool Number 303-755 to disconnect it. (Replace high-pressure pump discharge tube).

15. Remove the outlet fitting from the high-pressure pump (Replace high-pressure pump outlet fitting).

INSTALLATION

1. Pack the branch tube bolt holes with grease and install retaining bolts in the branch tube flush with the bottom.

2. If the high pressure (H/P) pump was removed for diagnostics it needs to be installed at this point. Torque the mounting bolts to 26 lb-ft (35 N•m).

3. Install a new high-pressure pump outlet fitting from the STC Bracket Kit and torque to 38 lb-ft (51 N•m).

4. Install the two (2) 8 mm bolts into the discharge tube. Snap the new high-pressure discharge tube into the high-pressure outlet fitting. Verify that the fitting is snapped in securely.
5. Install a new high-pressure branch tube into the block. Start the two (2) 8 mm bolts from the discharge tube into the branch tube. Have someone under vehicle guide and start the hold down bolts through cylinder 7 and cylinder 6 push rod holes. While tightening the branch tube hold down bolts maintain positive outward pressure on the branch tube. Torque the retaining bolts to 10 lb-ft (14 N·m).

6. Tighten the two (2) 8 mm discharge tube bolts. Torque to 11 lb-ft (15 N·m).

7. Clean the rear engine cover. Install a new gasket. Add Motorcraft Ultra Silicone Sealant to the bedplate and the H/P pump covers joints. Install the rear engine cover. Torque to 18 ft-lb (24 N·m).

8. Install a new rear main seal using Ford Special Service Tool Number 303-770

9. Install rear main seal dust cover

10. Install the flywheel. NEW FLYWHEEL BOLTS REQUIRED.

11. Install the starter.

12. Install push rod and rocker arm in cylinder number 6.

13. Rotate engine 1 full revolution

14. Install push rods and rocker arms in cylinders number 7 and number 8

15. Install stand pipes. (Replace if damaged)

16. Install fuel injectors.

17. Install high-pressure oil rails. (WSM, Section 303-04C)

18. Install the valve covers.

19. Install the fuel injector control model (FICM).

20. Install the air filter housing.

21. Install coolant overflow tank.

22. Install right side charge air cooler (CAC) tube. (Hot Side)

23. Install the transmission.

24. Change engine oil and filter.

25. Check all fluid levels.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>PART NAME</th>
</tr>
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<tbody>
<tr>
<td>4C3Z-9B246-A</td>
<td>STC Bracket Kit</td>
</tr>
<tr>
<td>5C3Z-9J332-B</td>
<td>Branch Tube</td>
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<tr>
<td>3C3Z-6379-BA</td>
<td>Flywheel Bolt (Auto Trans - 10 per repair)</td>
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<tr>
<td>3C3Z-6379-CA</td>
<td>Flywheel Bolt (Manual - 10 per repair)</td>
</tr>
<tr>
<td>TA-29</td>
<td>Motorcraft Ultra Silicone Sealant</td>
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</tbody>
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OPERATION DESCRIPTION TIME

061706A 2005-2007 Super Duty, 4X2/4X4 All Transmissions: Perform PC/ED Lead Diagnosis, Install STC Fittings, Road Test To Verify Repair: (This Labor Operation Is All Inclusive And May Not Be Claimed With Other Labor Operations) 8.0 Hrs.

061706B 2005-2006 Econoline 6.0L: Perform PC/ED Lead Diagnosis, Install STC Fittings, Road Test To Verify Repair: (This Labor Operation Is All Inclusive And May Not Be Claimed With Other Labor Operations) 10.6 Hrs.

061706C 2005-2007 Super Duty 6.0L 4X2 Manual Transmission: Perform PC/ED Lead Diagnosis, Replace The Branch Tube, Install STC Fittings, Road Test To Verify Repair: (This Labor Operation Is All Inclusive And May Not Be Claimed With Other Labor Operations) 14.4 Hrs.
Transmission: Perform PC/ED Lead Diagnosis, Replace The Branch Tube, Install STC Bracket And/Or Replace The Snap To Connect (STC) Fittings, Road Test To Verify Repair: (This Labor Operation Is All Inclusive And May Not Be Claimed With Other Labor Operations)

Automatic Transmission: Perform PC/ED Lead Diagnosis, Replace The Branch Tube, Install STC Bracket And/Or Replace The Snap To Connect (STC) Fittings, Road Test To Verify Repair: (This Labor Operation Is All Inclusive And May Not Be Claimed With Other Labor Operations)

DEALER CODING

CONDITION

BASIC PART NO.

CODE

9B246

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