

Product: WHEEL TRACTOR

Model: 623F WHEEL TRACTOR 6BK

Configuration: 623F Wheel Tractor-Scraper 6BK00001-UP (MACHINE) POWERED BY 3406C Engine

Disassembly and Assembly

3406C DIESEL ENGINES FOR CATERPILLAR BUILT MACHINES

Media Number -SEN6409-02

Publication Date -01/07/2006

Date Updated -19/05/2015

SEN64090009

Fuel Injection Pumps

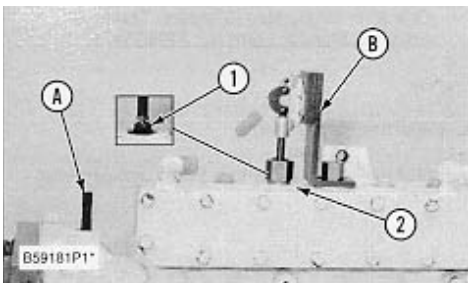
SMCS - 1251-012; 1251-017; 1251-011

Remove Fuel Injection Pumps

Tools Needed		A	B	C
6V4186	Timing Pin	1		
9U5692	Compressor Group		1	
8T5287	Wrench		1	
8S2244	Extractor			1

Start By:

a. remove fuel injection lines



1. Remove the plug, and move the rack until Tool (A) can be installed to hold the rack in the center position. The rack must be in the center position to remove the fuel injection pumps.



WARNING

To prevent possible personal injury carefully follow the steps below.

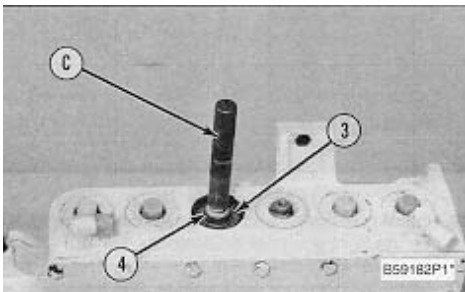
2. Put Tool (B), except for the **8T5287 Wrench**, in position on the fuel pump housing as shown. Lower the handle to center the adjusting screw with the fuel line seat. With the handle down in the locked position, the adjusting screw must just be in contact with fuel line seat (1). If force is needed to lower the handle or there is a gap, remove the tooling, and make an adjustment to the screw.

3. Loosen bushing (2) 1/4 of a turn.

4. Put Tool (B) in position on the pump housing with the handle down in the locked position as shown.

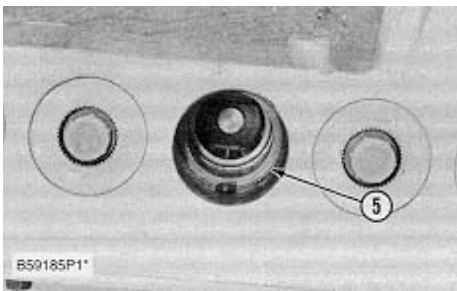
5. Remove bushing (2) from the pump housing.

6. Carefully and slowly lift the handle to release the spring force. Remove the tooling.



7. Install Tool (C) on fuel pump (4) as shown.

8. Remove seal (3) and fuel pump (4) from the fuel pump housing.



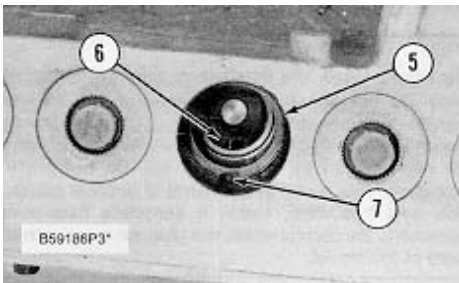
9. Remove spacers (5) from the pump housing.

NOTE: There must be a pump installed on either side of the pump to be removed to install Tool (B). If there is no pump, take a pump already removed, and remove the spring so there will be no spring force, and install it in the pump housing. See Install Fuel Pump.

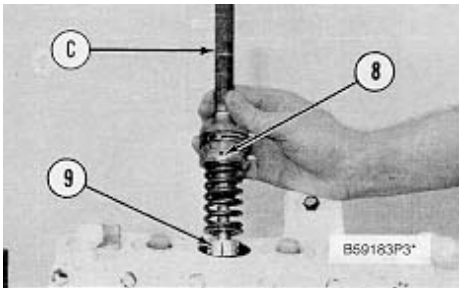
NOTE: Spacers (5) are the same thickness for each fuel injection pump so they can be mixed. The fuel injection pump plungers and barrels are sets and cannot be mixed.

Install Fuel Injection Pumps

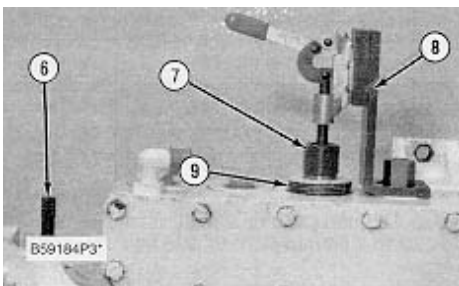
Tools Needed		A	B	C	D
6V4186	Timing Pin	1			
9U5692	Compressor Group		1		
8T5287	Wrench		1		
8S2244	Extractor			1	
9S225	Bracket Assembly**				1
6V6106	Dial Indicator**				1
5P2393	Contact Point				1



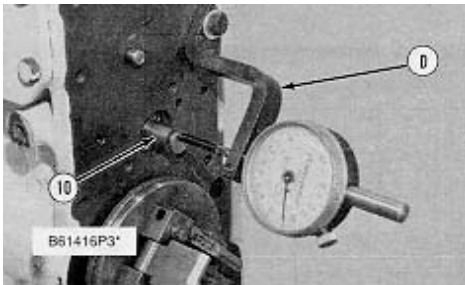
1. Install spacers (5) in the fuel pump housing.
2. Move the rack until Tool (A) can be installed to hold the rack in the center position. The rack must be in the center position to install the fuel injection pumps.
3. Install a fuel pump without its spring so that Tool (B) can be installed. See Step 5 for correct fuel pump installation.



4. Install Tool (C) on the bonnet of the fuel pump as shown.
5. Install the fuel pump in the pump housing with the saw cut (slot) (9) in the gear in alignment with small pin (6) in the lifter assembly and groove (8) in the barrel in alignment with large pin (7) in the pump housing.



6. Install the seal and bushing (2) on the fuel pump.
7. Put Tool (B) in position on the fuel pump housing as shown.
8. Lower the handle slowly and carefully. If the fuel pump is not installed correctly, the handle will not go all the way down. Do not try to use force on it. Remove and install the tooling and the fuel pump again.
9. Make sure the seal is in its correct position, and start to tighten bushing (2). Remove the tooling, and tighten the bushing to a torque of **260 ± 15 N·m (190 ± 10 lb ft)**. Back off **180 degrees** and tighten the bushing again to a torque of **260 ± 15 N·m (190 ± 10 lb ft)**.



Typical Example

10. After each fuel pump has been installed, follow the steps below to check total rack travel to make sure each pump has been installed correctly.

- a. Install Tool (D) on the fuel pump housing as shown and zero the dial indicator.
- b. Remove Tool (A) from the fuel pump housing.
- c. Move rack (10) in and out of the fuel pump housing to measure rack travel. Rack travel is approximately **9.62 mm (.379 in)** in the plus (full fuel) direction and **10.40 mm (.410 in)** in the minus (shutoff) direction. If this measurement is not obtained, center the rack, install Tool (A), and remove and install the fuel pump again.

NOTE: One tooth off and rack travel is approximately **6.35 to 6.82 mm (.250 to .269 in)** in the plus direction and **7.02 to 7.05 mm (.276 to .278 in)** in the minus direction.

End By:

- a. install fuel injection lines

Disassemble & Assemble Fuel Injection Pumps

Tools Needed		A	B
6V7870	Fixture Group*	1	
6V7872	Pliers		1

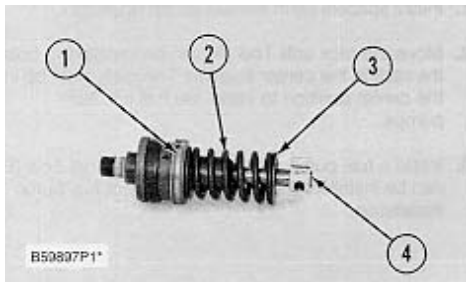
See SMHS8378 for the correct tool usage.

Start By:

a. remove fuel injection pumps

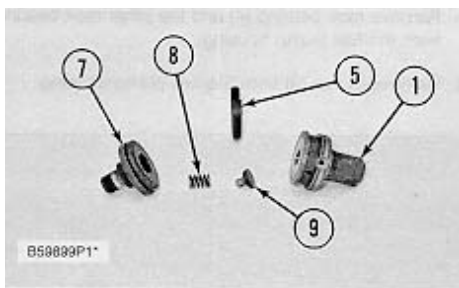
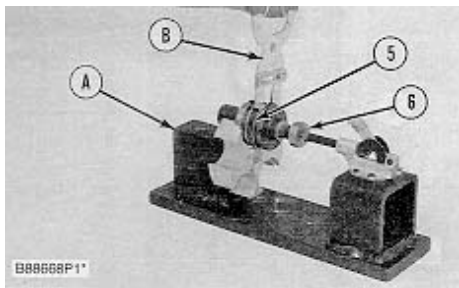
NOTICE

Be careful when the injection pumps are disassembled. Do not damage the surfaces of the plungers, barrels and bonnets. Any scratches will cause leakage inside the fuel injection pump. The plunger and barrel for each pump are made as a set. Do not put the plunger of one pump in the barrel of another pump. If one part has wear, install a complete new pump assembly. Be careful when the plunger is put into the bore of the barrel.



NOTE: Do not remove the gear from the plunger. The gear and plunger are assembled and adjusted at the factory.

1. Pull plunger (4) and washer (3) out of barrel (1) and spring (2).
2. Remove spring (2) from barrel (1).



3. Use the following procedure to put the fuel pump in position on Tool (A):
 - a. Select the correct turret position.
 - b. Place a barrel assembly into the turret.

- c. Loosen the nut on the clamp.
- d. Adjust clamp end (6) until the bonnet is almost touching the barrel when the clamp handle is in the locked position.
- e. Tighten the nut on the clamp.
- 4. Use Tool (B) to expand ring (5), and carefully lift it off the fuel pump.
- 5. Slowly release the clamp handle of Tool (A), and remove the lockring.
- 6. Remove bonnet (7), spring (8) and valve (9) from barrel (1).

NOTE: The following steps are for assembly of the fuel injection pumps.

NOTICE

Put clean fuel on all parts during assembly.

- 7. Put spring (8) and valve (9) in bonnet (7).
- 8. Put bonnet (7) barrel (1) and ring (5) in position on Tool (A).
- 9. Put the barrel assembly in position on Tool (A). Lower the handle on Tool group (A) to hold the fuel pump together.
- 10. Use Tool (B), and lower ring (5) on to the barrel and the bonnet to hold them together.
- 11. Remove the barrel assembly from Tool (B).
- 12. Install spring (2) on barrel (1).
- 13. Install washer (3) on plunger (4). Make sure the spring seat on the washer is away from the gear on the plunger.
- 14. Install plunger (4) in barrel (1). Make sure spring (2) is engaged in the spring seat on washer (3).

End By:

- a. install fuel injection pumps

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SEN64090010

Fuel Injection Pump Housing

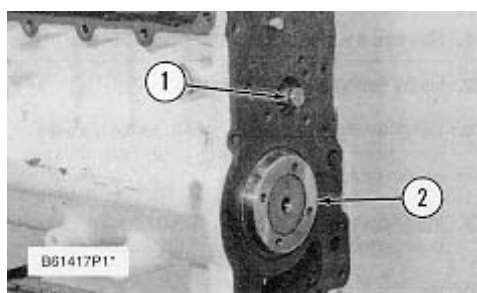
SMCS - 1253-016; 1253-015

Disassemble Fuel Injection Pump Housing

Tools Needed		A
8S2241	Tool Group	1
8B7548	Puller Assembly	1

Start By:

- a. disassemble governor
- b. remove fuel injection pumps



1. Remove the six lifters from the fuel pump housing.
2. Remove rack (1) and camshaft (2) from the fuel pump housing. If necessary, use a soft hammer to push the camshaft out the governor end.

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