



Service Repair Manual

Models

966D WHEEL LOADER

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Product: WHEEL LOADER

Model: 966D WHEEL LOADER 35S

Configuration: 966D WHEEL LOADER 35S02148-02522 (MACHINE) POWERED BY 3306 ENGINE

Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i01048591

Fuel Injection Nozzles - Install

SMCS - 1254-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	6V-4979	Carbon Seal Installation Tool	1
B	8S-2245	Injector Cleaning Tool	1
C	6V-4089	Reamer	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

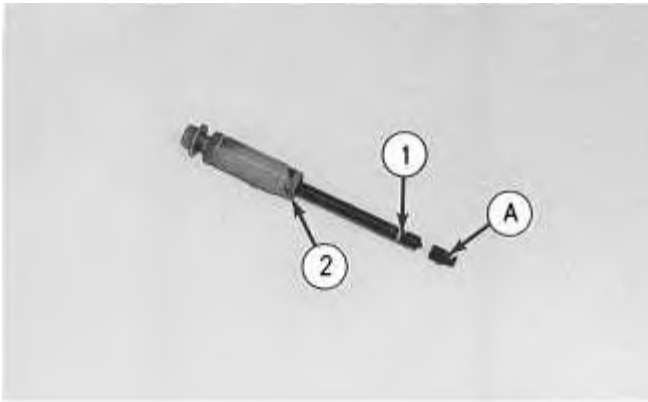


Illustration 1

g00448903

1. Put carbon dam seal (1) on the small end of Tool (A). Expand carbon dam seal (1) by sliding carbon dam seal (1) to the large end of Tool (A). Put Tool (A) against the fuel injector nozzle. Slide carbon dam seal (1) from Tool (A) to the fuel injector nozzle. Slide carbon dam seal (1) into position in the groove of the fuel injector nozzle, as shown. Use Tool (A) in order to install carbon dam seal (1).
2. To clean the fuel injector nozzles, refer to Special Instruction, SEHS7292 for the use of Tool (B) .
3. Install a new compression seal (2) on the fuel injector nozzle.



Illustration 2

g00448904

4. Use Tool (C) in order to clean the bore in the cylinder head for the fuel injector nozzle. Use a wrench in order to turn Tool (C) .

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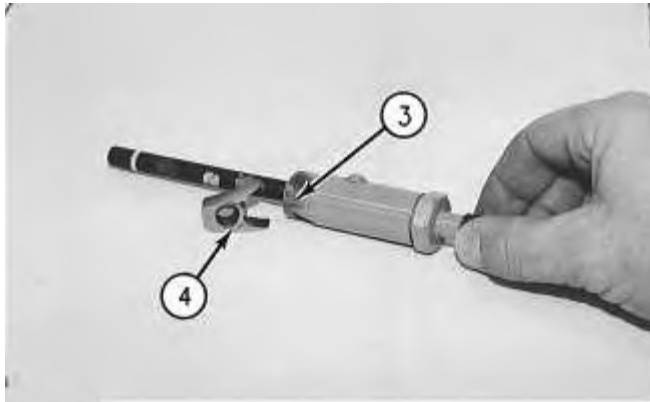


Illustration 3

g00448905



Illustration 4

g00448906

5. Align notch (3) in fuel injector nozzle (5) to the tab in clamp (4) during installation.
6. Install fuel injector nozzle (5). Ensure that the notch in the injector is aligned with the tab in clamp (4) .

End By: Install the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - Remove and Install".

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Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00903297

Fuel Ratio Control - Remove

SMCS - 1278-011

Removal Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the machine. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Caterpillar Tools and Shop Products Guide", for tools and supplies suitable to collect and contain fluids in Caterpillar machines.

Dispose of all fluids according to local regulations and mandates.

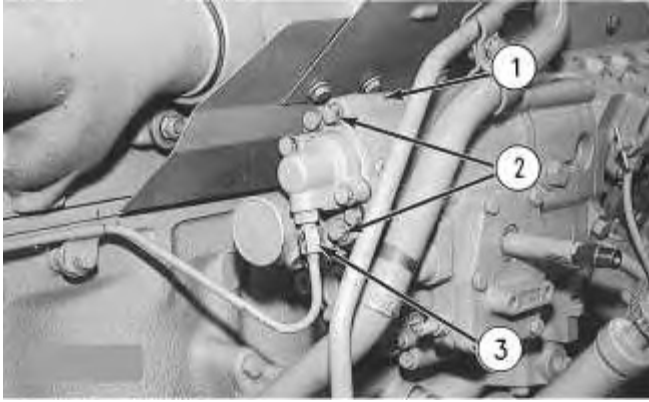


Illustration 1

g00460630

1. Disconnect fuel pressure line (3). Remove two bolts (2) .
2. Move fuel ratio control (1) upward in order to disengage the fuel ratio control from the lever assembly in the governor.

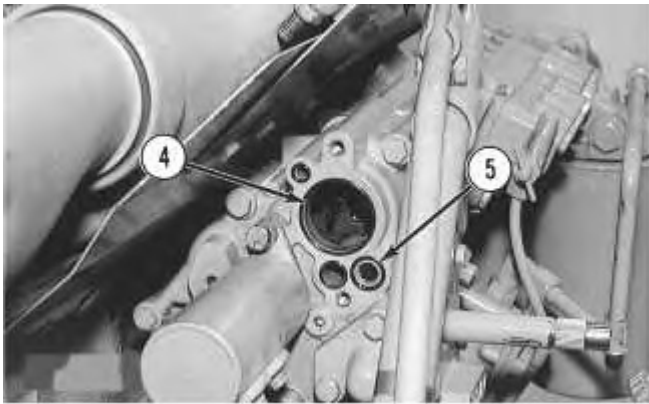


Illustration 2

g00460631

3. Remove four O-ring seals (4) and screen assembly (5) .

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**Disassembly and Assembly
3304B and 3306B Engines for Caterpillar Built Machines**

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00903551

Fuel Ratio Control - Disassemble

SMCS - 1278-015

Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	FT-1820	Fixture Assembly	1
B	1P-1855	Retaining Ring Pliers	1
C	6V-9072	Guide	1

Start By:

- A. Remove the fuel ratio control. Refer to Disassembly and Assembly, "Fuel Ratio Control - Remove".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

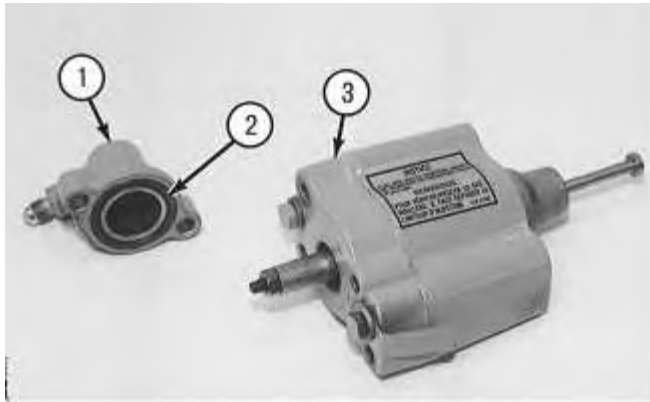


Illustration 1

g00460737

1. Remove cover (1) and O-ring seal (2) .



Personal injury can result from parts and/or covers under spring pressure.

Spring force will be released when covers are removed.

Be prepared to hold spring loaded covers as the bolts are loosened.

2. In order to release the spring force, hold cover (3) in position and slowly remove the two bolts that hold cover (3) in place.

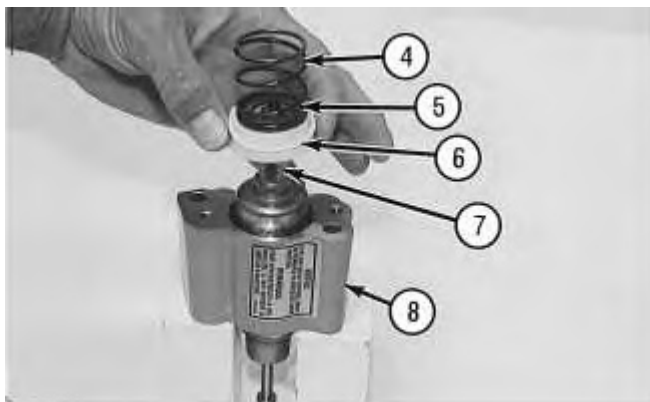


Illustration 2

g00460791

3. Remove spring (4), washer (5) and diaphragm (6) from retainer (7). Remove retainer (7) from housing (8) .

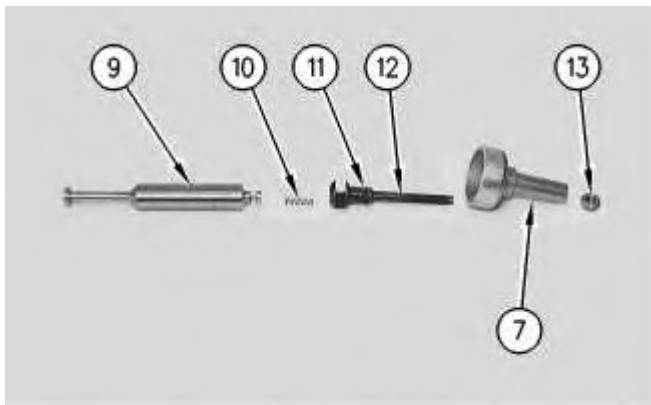


Illustration 3

g00460793

4. Remove nut (13) from valve extension (12) and remove valve extension (12) from retainer (7). Remove stem (9) from valve extension (12). Remove spring (10) and O-ring seal (11) from valve extension (12) .

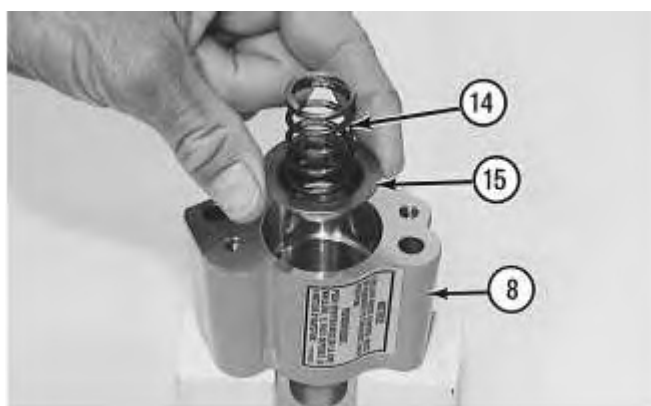


Illustration 4

g00460795

5. Remove spring (14) and retainer (15) from housing (8) .
6. All parts should be cleaned and inspected. Replace all parts that are worn or damaged.

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Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i01135000

Fuel Ratio Control - Assemble

SMCS - 1278-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	FT-1820	Fixture Assembly	1
B	1P-1855	Retaining Ring Pliers	1
C	6V-9072	Guide	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: Check the condition of the O-ring and the diaphragm. If the O-ring or the diaphragm is worn or damaged use new parts for replacement.

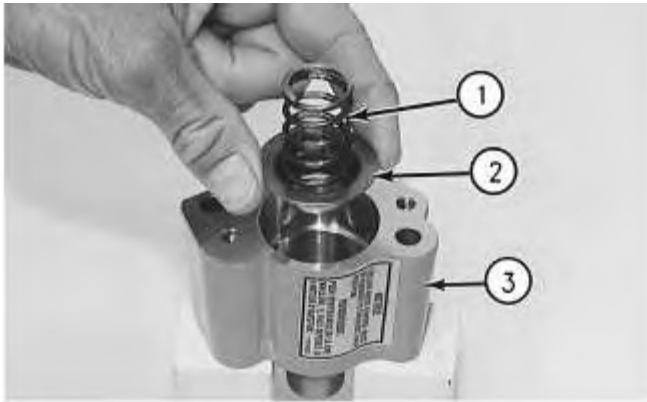


Illustration 1

g00460801

1. Install spring (1) and retainer (2) into housing (3) .

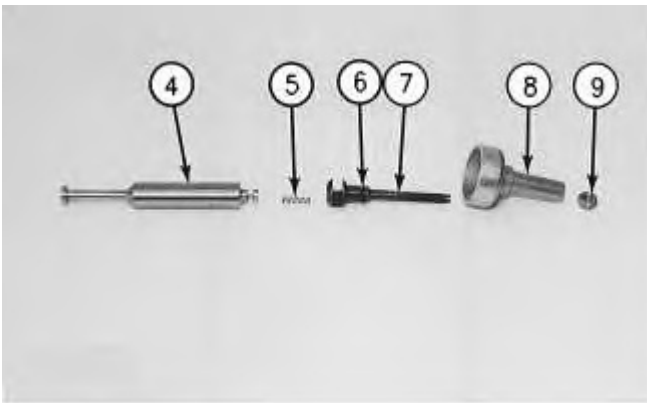


Illustration 2

g00460828

2. Install O-ring seal (6) and spring (5) into valve extension (7). Install stem (4) into valve extension (7). Secure valve extension (7) to retainer (8) with nut (9) .

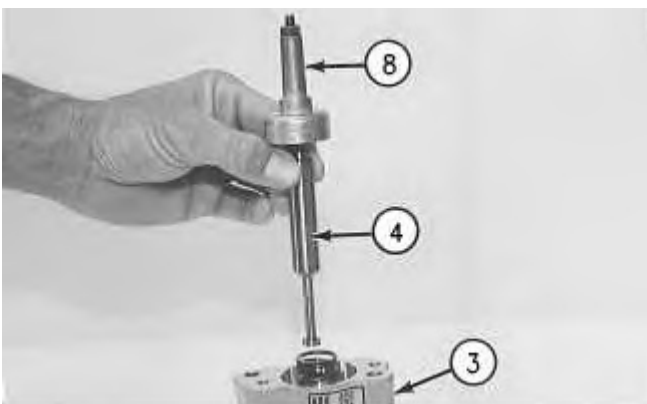


Illustration 3

g00460830

3. Install stem (4) and retainer (8) into housing (3) .

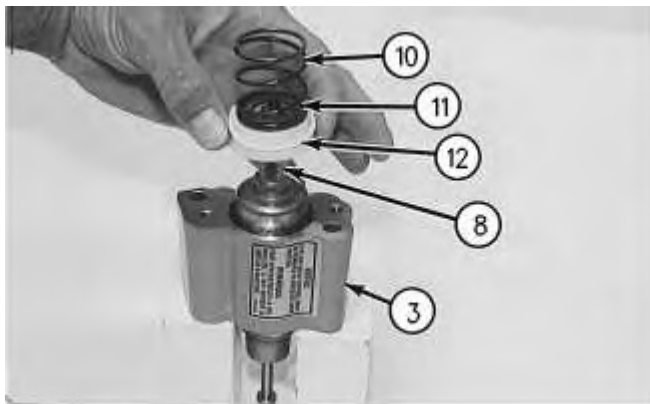


Illustration 4

g00460912

4. Install diaphragm (12), washer (11) and spring (10) on retainer (8) .

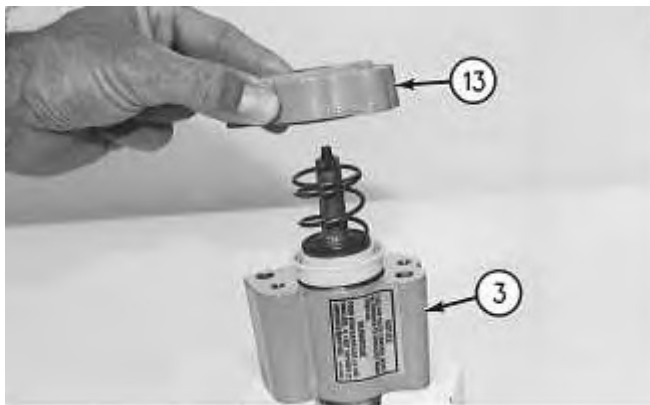


Illustration 5

g00460914

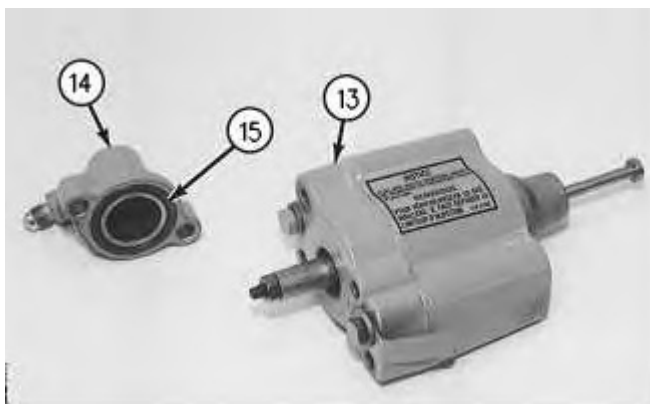


Illustration 6

g00460917

5. Install cover (13) on housing (3). Secure cover (13) with two bolts and washers.
6. Install O-ring seal (15) onto cover (14) and install cover (14) onto cover (13). Secure cover (14) with two bolts.

Note: Refer to Testing and Adjusting, "Fuel System" for additional information on the adjustment procedure for the fuel ratio control.

End By: Install the fuel ratio control. Refer to Disassembly and Assembly, "Fuel Ratio Control - Install".

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Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00903481

Fuel Ratio Control - Install

SMCS - 1278-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

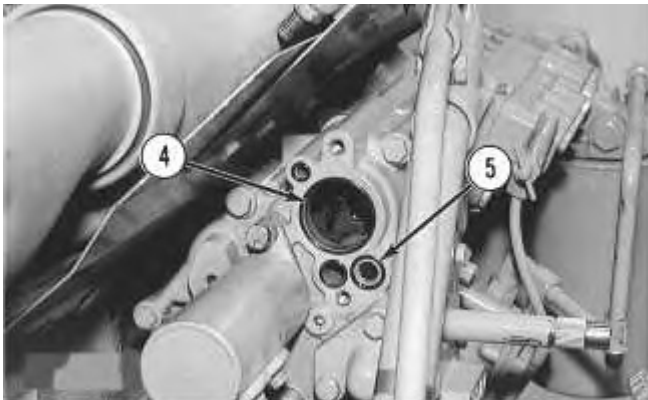


Illustration 1

g00460631

1. Screen assembly (5) and four O-ring seals (4) should be inspected, replaced and installed.
-

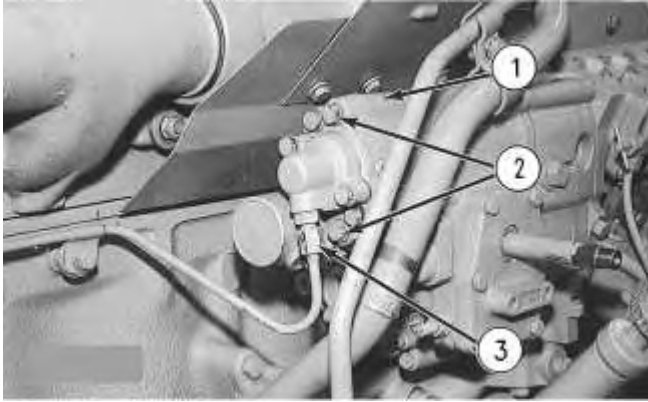


Illustration 2

g00460630

2. Put fuel ratio control (1) in position and engage the fuel ratio control with the lever assembly in the governor.
3. Install bolts (2) that hold the fuel ratio control and connect fuel pressure line (3) to fuel ratio control (1). Refer to Testing and Adjusting, "Fuel System" for more information on the adjustment procedure for the fuel ratio control.

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Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00879991

Fuel Shutoff Solenoid - Remove and Install

SMCS - 1259-010

Removal Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

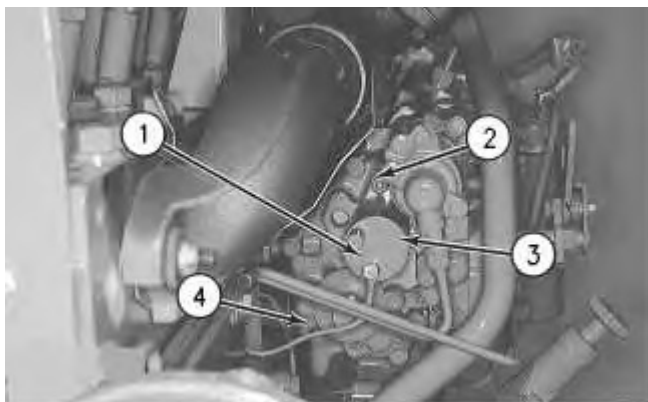


Illustration 1

g00475568

1. Remove nut (1) and the washer. Disconnect ground wire (4) from the fuel shutoff solenoid.
2. Remove two nuts (2) and the washers.

3. Remove fuel shutoff solenoid (3) and the gasket.

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

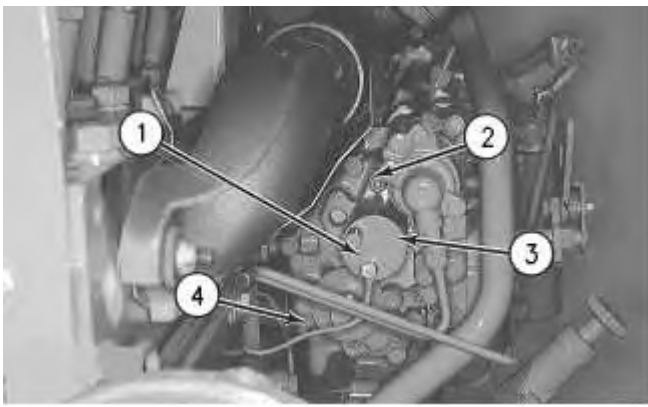


Illustration 2

g00475568

1. Install the gasket and fuel shutoff solenoid (3) .
2. Apply **9S-3263** Thread Lock Compound on the threads for two nuts (2) .
3. Install the washers and two nuts (2) .
4. Connect ground wire (4) to the fuel shutoff solenoid. Install nut (1) and the washer.

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**Disassembly and Assembly
3304B and 3306B Engines for Caterpillar Built Machines**

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00930839

Automatic Timing Advance - Remove

SMCS - 1272-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	5P-7307	Engine Turning Tool	1
B	0T-0065	Bolt	1
C	9S-9155	Spacer	1
	8S-2264	Pump Impeller Puller	2
	0T-0513	Bolt	2
	5P-1075	Hard Washer	2

Start By:

- A. Remove the front housing. Refer to Disassembly and Assembly, "Front Housing - Remove".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Follow the procedure in Steps 3 and 4 in order to time the fuel injection pump when the front cover is removed. Follow the procedure in Steps 6 and 7 in order to time the fuel injection pump when the front cover is installed.

Note: The No. 1 piston should be at the top center position on the compression stroke at the start of all timing procedures.

Note: The engine is seen from the flywheel end when the direction of the crankshaft rotation is given.

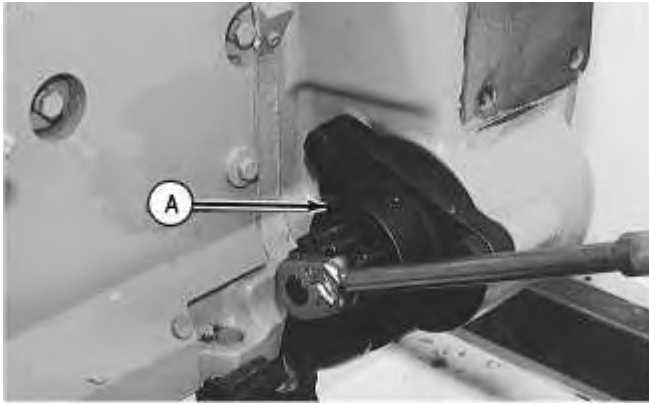


Illustration 1

g00474593

2. Remove the electric starting motor and install Tool (A) .

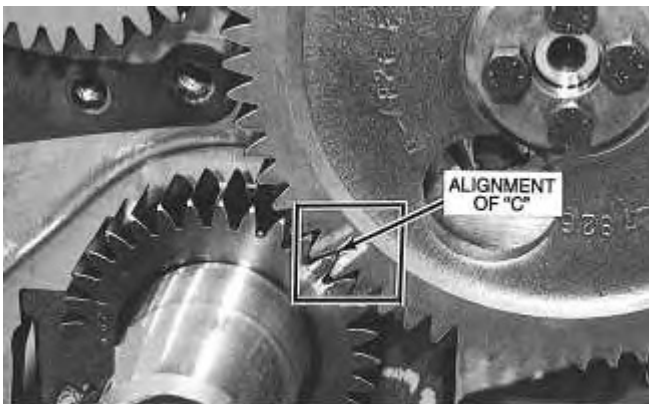


Illustration 2

g00474592

3. Turn the crankshaft counterclockwise until the "C" on the crankshaft gear and the "C" on the camshaft gear are in alignment.
-

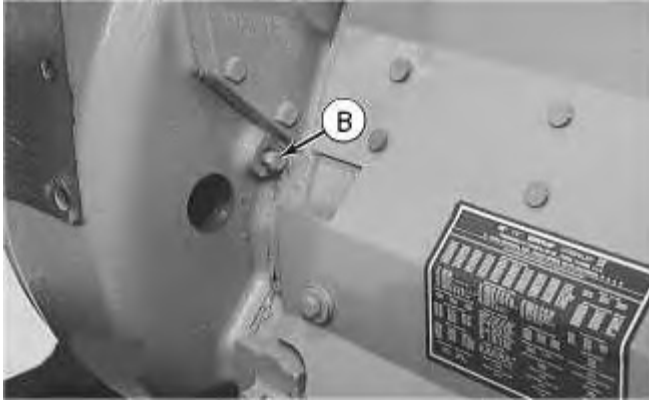


Illustration 3

g00474594

4. Remove two plugs and install Tool (B) in the flywheel housing. The large plug hole is for viewing.
5. To find the top center compression stroke for the No. 1 piston, use Tool (A) in order to turn the flywheel clockwise for approximately 30 degrees. This procedure should be used to remove all of the end play from the timing gears.
6. Use Tool (A) in order to turn the flywheel counterclockwise in the direction of the engine rotation until Tool (B) can be installed in the flywheel. The piston is at the top center position.

Note: If you go past the bolt hole, you must start the procedure again.

Note: Remove the breather assembly from the valve mechanism cover. The piston is at the top center position on the compression stroke when the inlet valve is closed and the exhaust valve is closed for the No. 1 cylinder. You must be able to move the rocker arms up and down with your hand.

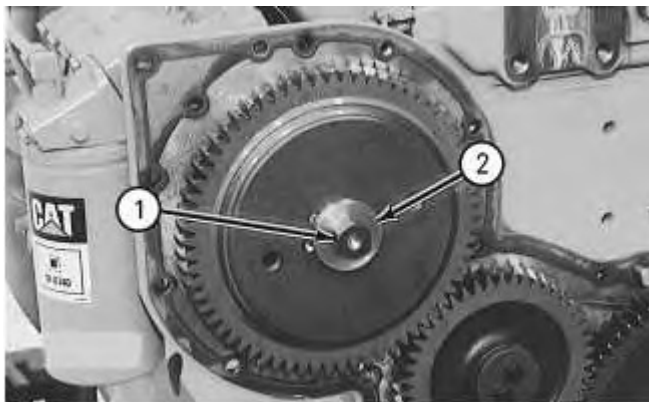


Illustration 4

g00474595

7. Remove bolt (1) and washer (2) that secures the automatic timing advance.

NOTICE

The automatic timing advance must have support during removal in order to help prevent damage to components.

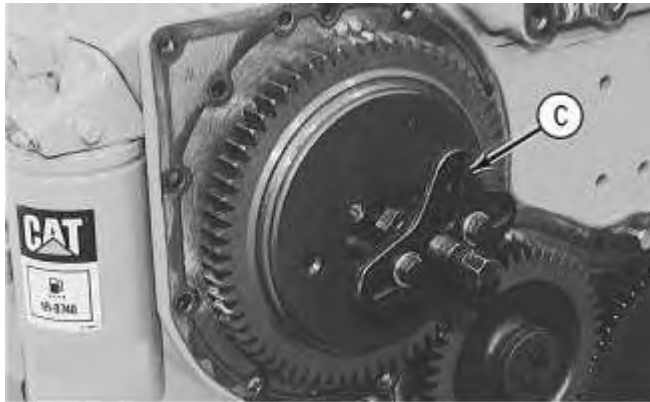


Illustration 5

g00474596

8. Install bolt (1) and leave a 6.35 mm (.250 inch) gap. Install Tool (C), as shown. Tighten the stud in order to loosen the fuel pump drive gear from the taper on the fuel injection pump camshaft.
9. Remove Tool (C) and bolt (1). Remove the automatic timing advance.

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Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00935438

Automatic Timing Advance - Disassemble

SMCS - 1272-015

Disassembly Procedure

Start By:

- A. Remove the automatic timing advance unit. Refer to Disassembly and Assembly, "Automatic Timing Advance - Remove".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

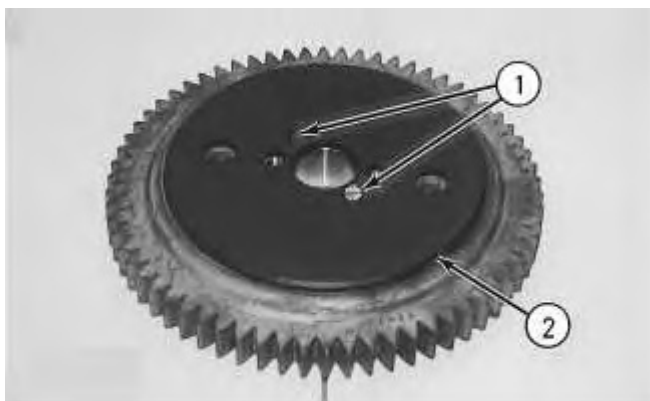


Illustration 1

g00476292

1. Remove two screws (1) and plate (2) .

NOTICE

The weights are held in position with two springs for each weight that is under compression. Carefully remove the weights and the springs in order to help prevent possible injury.

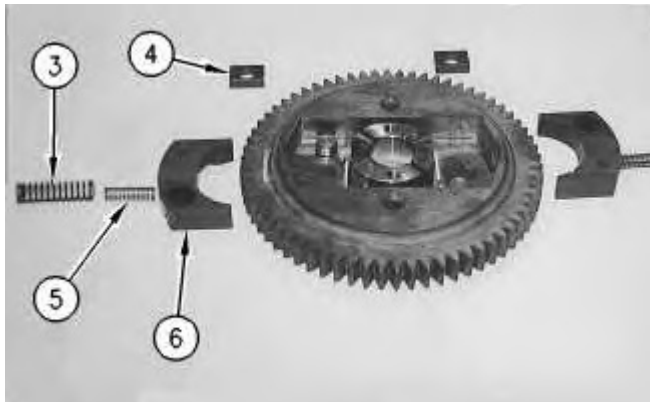


Illustration 2

g00476293

2. Remove springs (3) and (5), weight (6) and slide (4) from each side of the assembly.
-

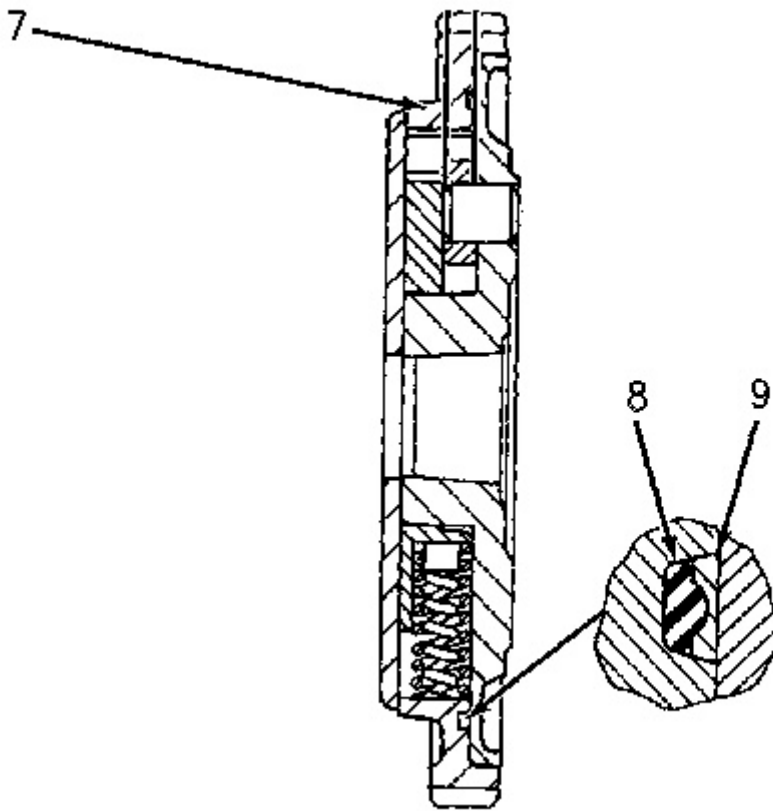


Illustration 3

g00476294

3. If necessary, remove gear (7). Remove seals (8) and (9) .

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Media Number -SEN5598-09

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Date Updated -25/01/2013

i00935599

Automatic Timing Advance - Assemble

SMCS - 1272-016

Assembly Procedure

NOTICE

Keep all parts clean from contaminants.

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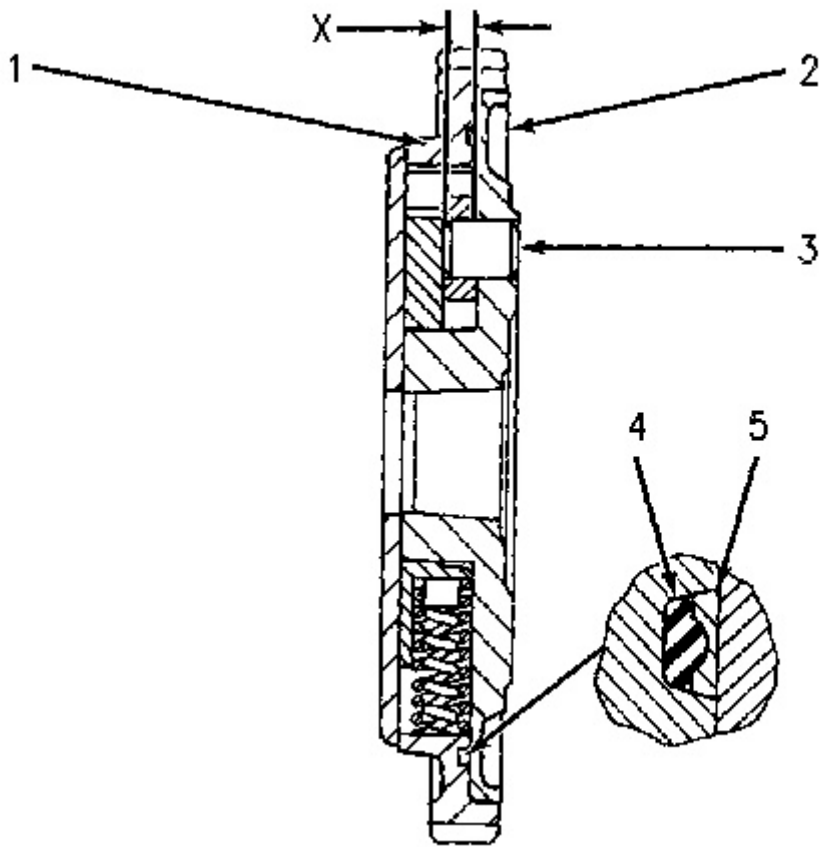


Illustration 1

g00476382

1. If dowels (3) were removed from the gear hub, installation dimension (X) is 9.00 ± 0.50 mm ($.354 \pm .020$ inch).
2. Install seals (4) and (5) .
3. Put gear (1) in position on hub assembly (2) .

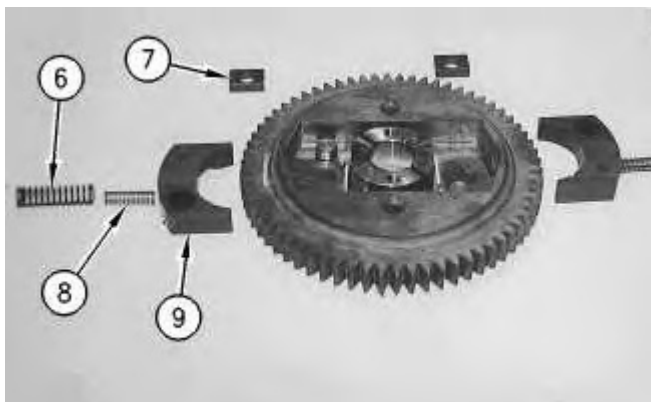


Illustration 2

g00476383

4. Install slide (7), weight (9) and springs (6) and (8) on each side of the assembly.



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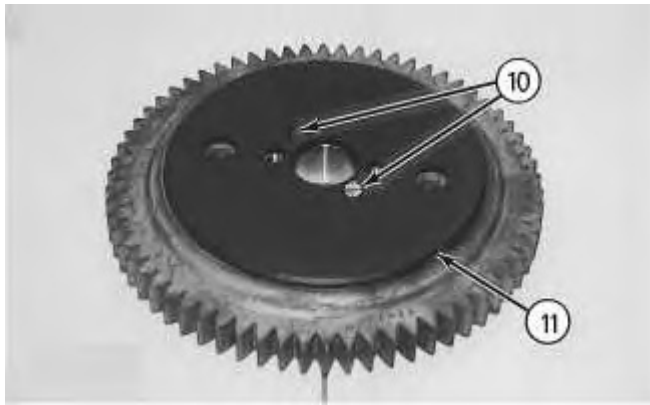


Illustration 3

g00476385

5. Install plate (11) with two screws (10) .

End By: Install the automatic timing advance unit. Refer to Disassembly and Assembly, "Automatic Timing Advance - Install".

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