Product: BACKHOE LOADER
Model: 446B BACKHOE LOADER 5BL
Configuration: 446B Backhoe Loader 5BL00384-02499 (MACHINE) POWERED BY 3114 Engine

Disassembly and Assembly
446 and 446B Backhoe Loaders, Lexion 450 Combine, 3114 and 3116 Engines, IT18F Integrated Toolcarrier, D6M Track-Type Tractor and 928F, 950F and 950G Wheel Loaders

Media Number -SENR3611-18 **Publication Date -01/05/2009** **Date Updated -27/05/2009**

i01928293

Fuel Priming Pump and Primary Fuel Filter - Remove and Install

SMCS - 1258-010; 1260-010

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 product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

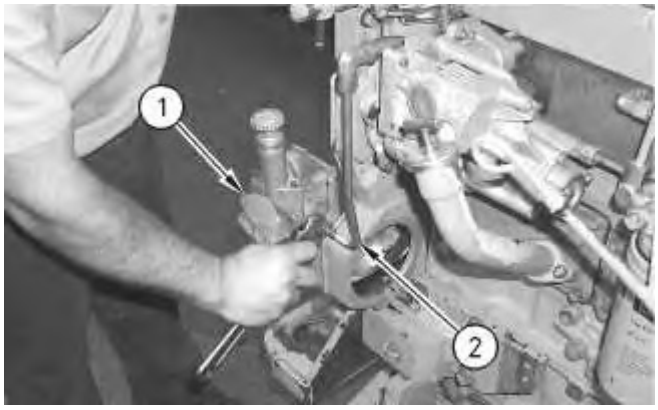

Illustration 1 g00678475

1. Disconnect tube assembly (2) from primary fuel filter base (1).

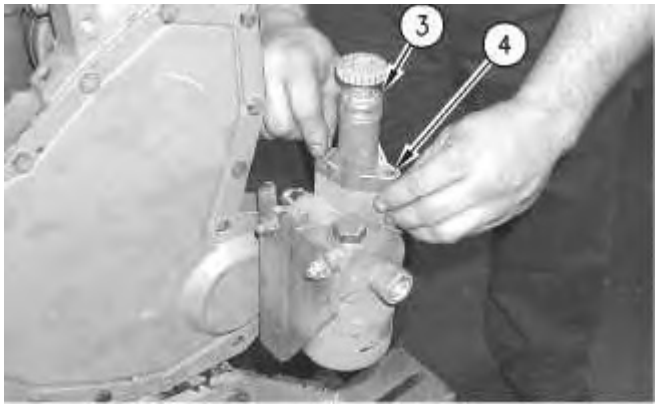

Illustration 2 g00678476

2. Remove bolts (4) from the fuel priming pump (3).
3. Remove fuel priming pump (3) from the primary fuel filter base.

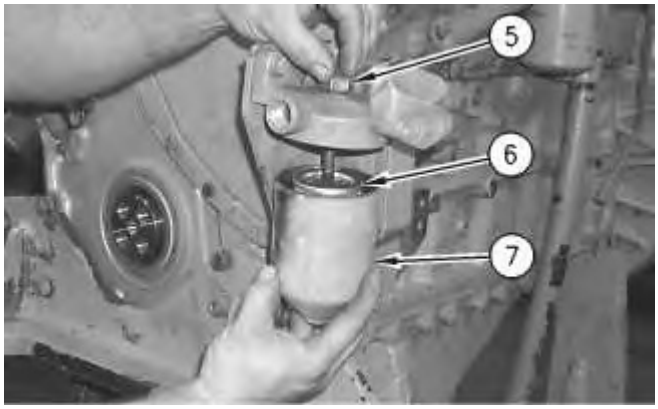

Illustration 3 g00678479

4. Remove bolt (5) from the primary fuel filter base.

5. Remove filter element (6) and housing (7) from the primary fuel filter base.

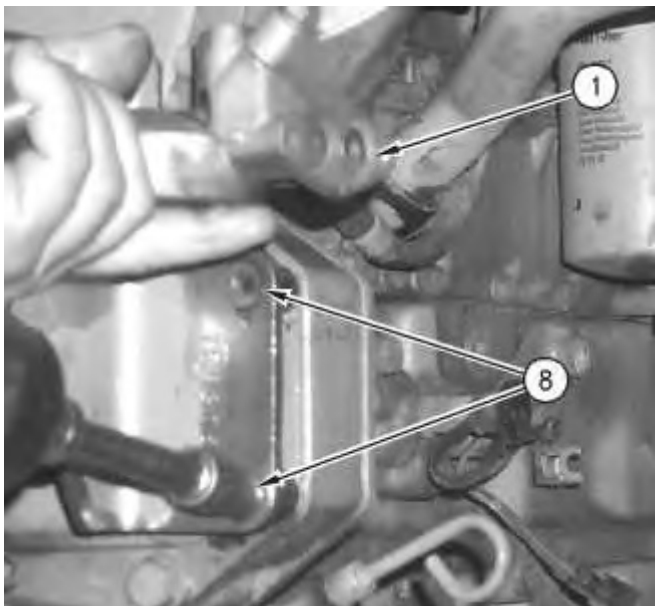

Illustration 4 g00773124

6. Remove bolts (8) from the primary fuel filter base (1).
7. Remove primary fuel filter base (1) from the engine.

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

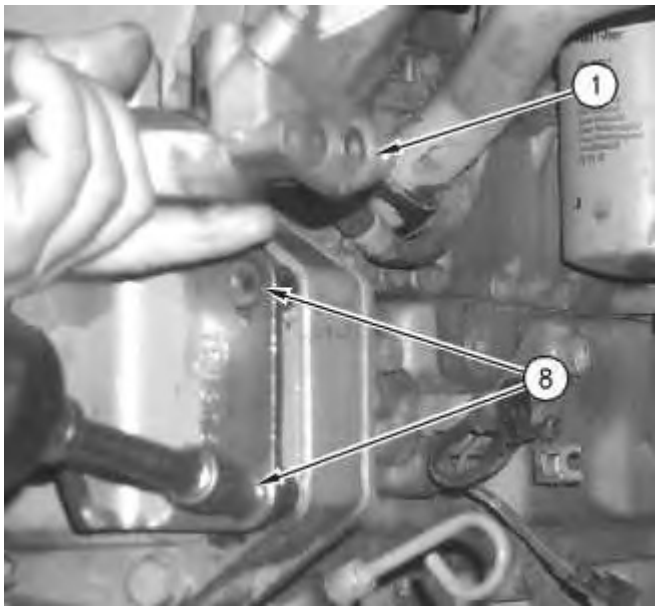

Illustration 5 g00773124

1. Install bolts (8) that secure primary fuel filter base (1) to the engine.

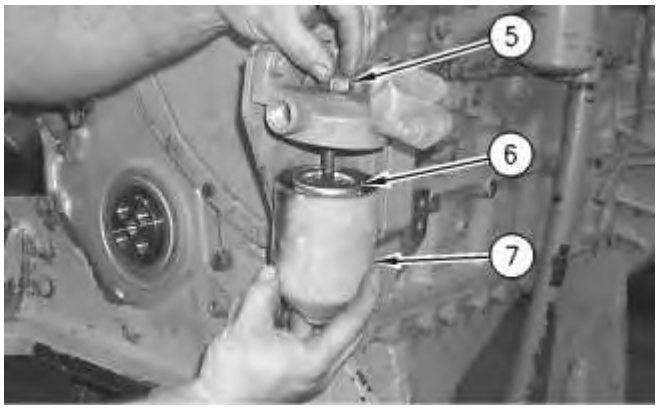

Illustration 6 g00678479

2. Install filter element (6) and housing (7) to the primary filter base with bolt (5).

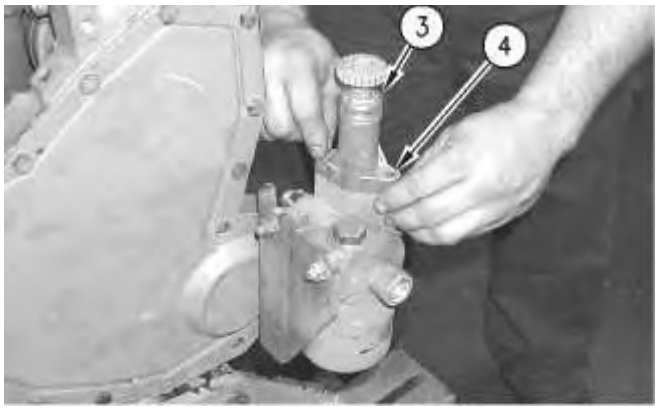

Illustration 7 g00678476

3. Install bolts (4) that secure fuel priming pump (3) to the primary fuel filter base.

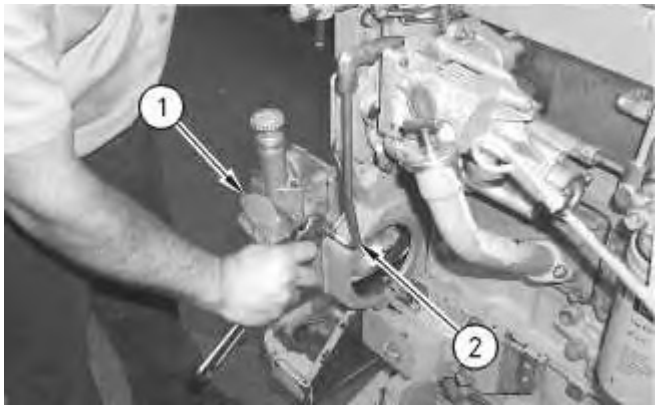

Illustration 8 g00678475

4. Connect tube assembly (2) to primary fuel filter base (1).

Product: BACKHOE LOADER
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Media Number -SENR3611-18 **Publication Date -01/05/2009** **Date Updated -27/05/2009**

i01928670

Fuel Transfer Pump - Remove

SMCS - 1256-011

Removal Procedure

Note: The governor and the fuel transfer pump have been removed from the engine for photographic purposes only. This procedure may be done with the governor on the engine.

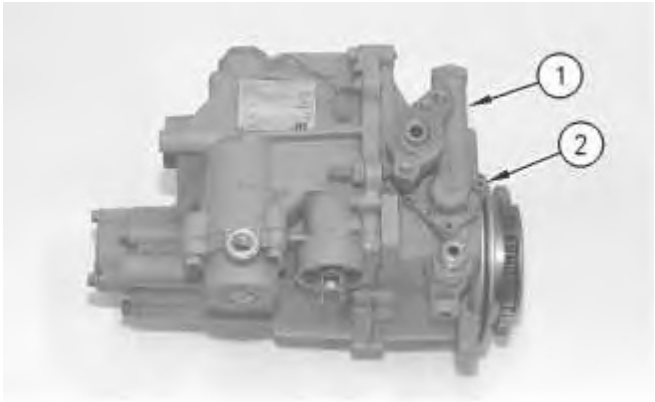

Illustration 1 g00623633

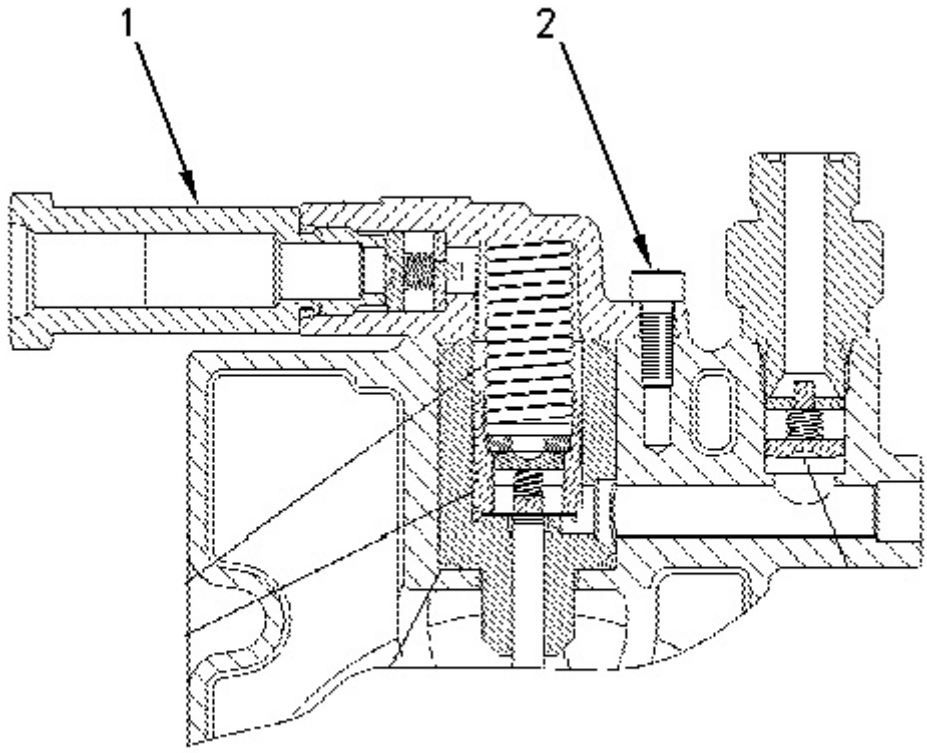

Illustration 2 g00623671

WARNING

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.

1. Hold cover (1) in place and remove bolts (2) in order to release the spring beneath cover (1). Remove cover (1).

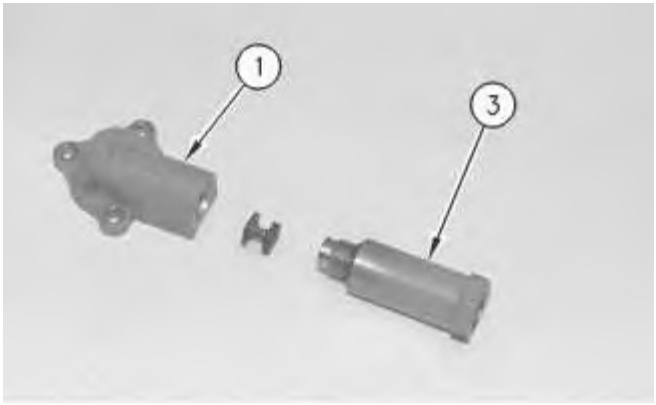

Illustration 3 g00623686

2. Remove fitting (3) and the check valve from cover (1). Remove the filter screen (if equipped) from fitting (3).

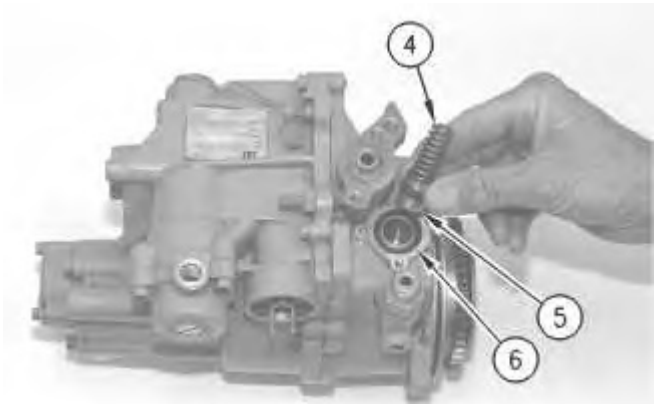

Illustration 4 g00623687

3. Remove spring (4) and piston (5).
4. Remove upper O-ring seal (6).

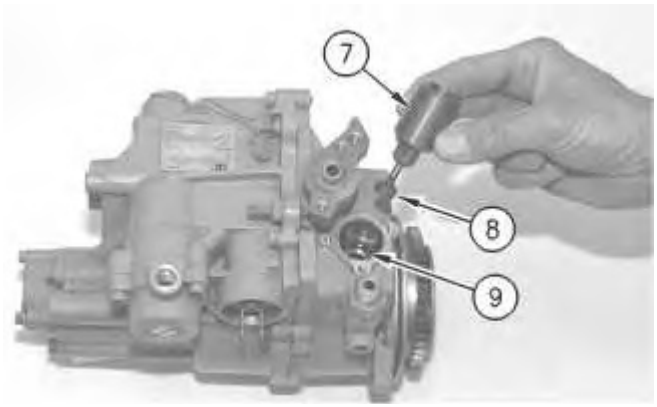

Illustration 5 g00623714

5. Remove sleeve assembly (7). Inspect the face of lifter (8) for excessive wear. Inspect the surface of the camshaft that is inside of the governor for excessive wear or damage.

6. Remove lower O-ring seal (9).

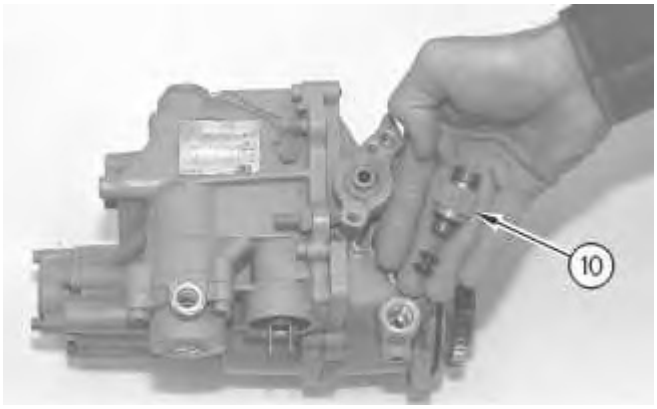

Illustration 6 g00623719

7. Remove fitting (10) and the check valve.

Note: For information on reusability of the components in the fuel transfer pump, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8434, "3100 Governor Inspection and General Information for Mechanical Governor Groups Used in 3114, 3116, and 3126 Engines Equipped with Mechanical Unit Injectors (MUI)".

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Disassembly and Assembly
446 and 446B Backhoe Loaders, Lexion 450 Combine, 3114 and 3116 Engines, IT18F Integrated Toolcarrier, D6M Track-Type Tractor and 928F, 950F and 950G Wheel Loaders

Media Number -SENR3611-18 **Publication Date -01/05/2009** **Date Updated -27/05/2009**

i01928343

Fuel Transfer Pump - Install

SMCS - 1256-012

Installation Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	8T-2998	Lubricant	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: For information on reusability of the components in the fuel transfer pump, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8434, "3100 Governor Inspection and General Information for Mechanical Governor Groups Used in 3114, 3116, and 3126 Engines Equipped with Mechanical Unit Injectors (MUI)".

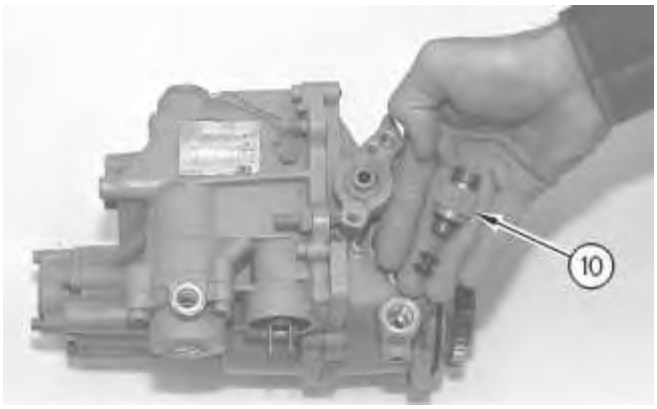

Illustration 1 g00623719

1. Lubricate fitting (10) and the bore with clean engine oil. Install the check valve and fitting (10).

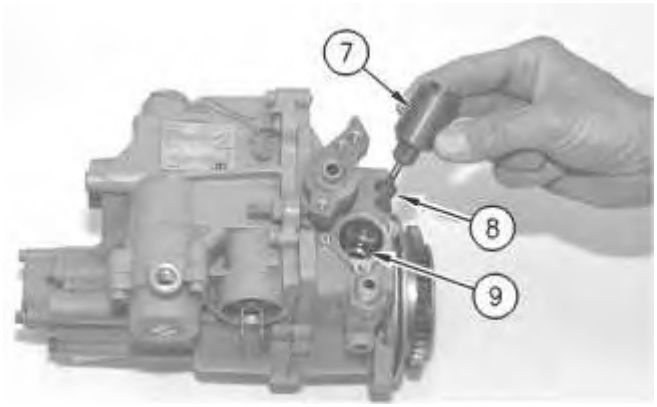

Illustration 2 g00623714

2. Inspect the condition of the O-ring seal. Replace the O-ring seal, if necessary. Install lower O-ring seal (9).

3. Apply Tooling (A) on the face of lifter (8). Install sleeve assembly (7). Ensure that the flat on the sleeve aligns with the flat in the bore of the housing.

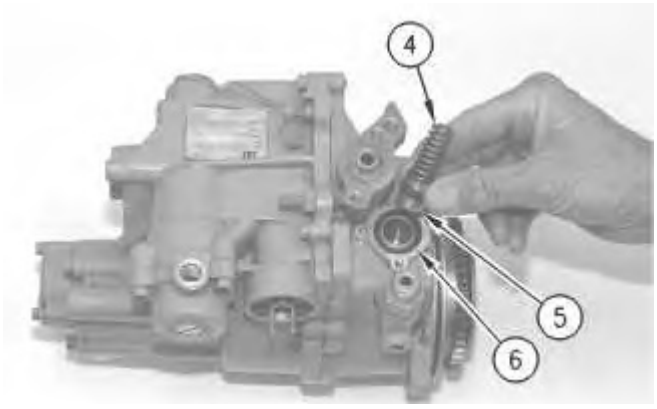

Illustration 3 g00623687

4. Lubricate piston (5) with clean engine oil. Install piston (5) and spring (4).

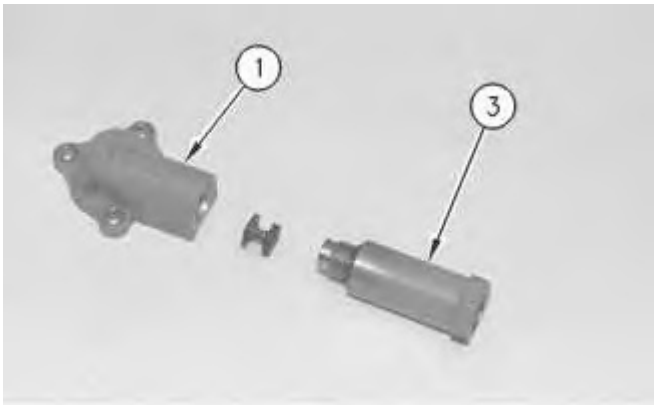

Illustration 4 g00623686

5. Lubricate fitting (3) and the bore for the check valve with clean engine oil. Install the check valve with the sealing face toward the fitting.

6. Install the O-ring seal and fitting (3).

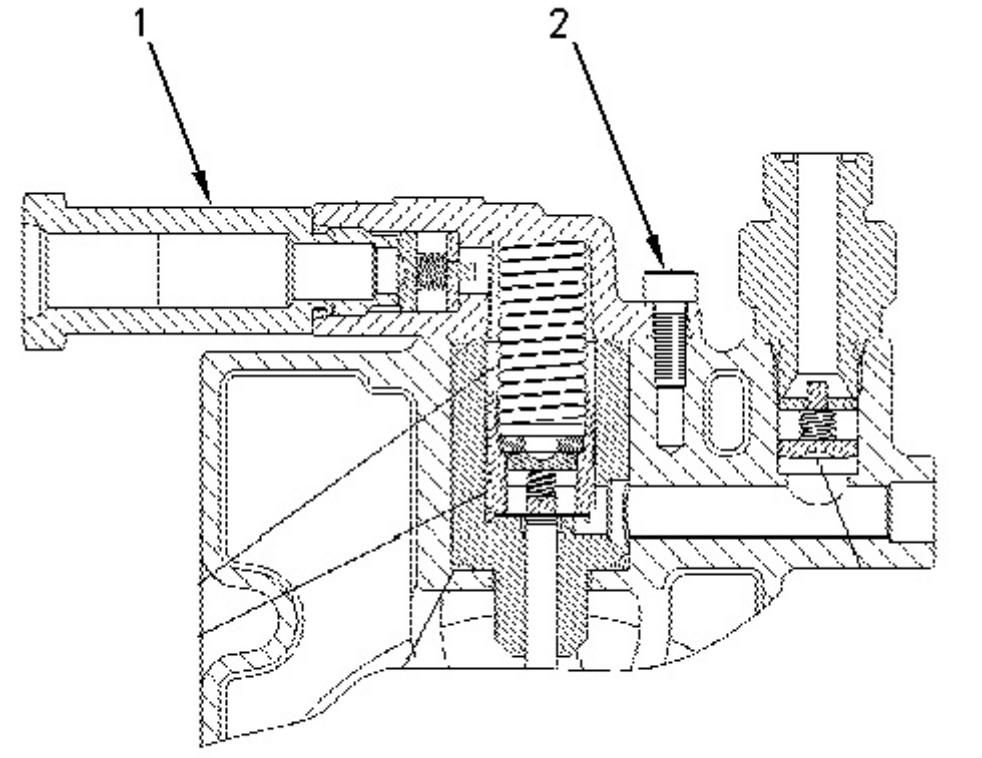

Illustration 5 g00623671

Illustration 6 g00623633

WARNING

Improper assembly of parts that are spring loaded can cause bodily injury.

To prevent possible injury, follow the established assembly procedure and wear protective equipment.

7. Place cover (1) over spring (4). Install bolts (2) in order to compress spring (4).

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Media Number -SENR3611-18 **Publication Date -01/05/2009** **Date Updated -27/05/2009**

i01928366

Fuel Shutoff Solenoid - Remove and Install

SMCS - 1259-010

Removal Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	9U-5120	Spanner Wrench[1]	1

[1] This tool is part of the **128-8822** Fuel System and Governor Tool Group.

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 product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

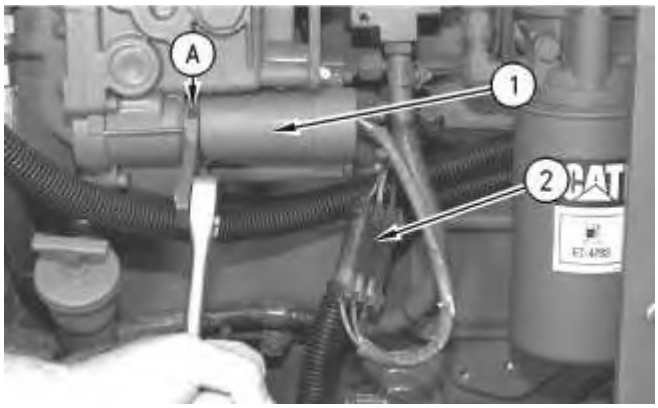

Illustration 1 g00585831

1. Disconnect the harness assembly (2) from fuel shutoff solenoid (1).
2. Use Tooling (A) to remove the fuel shutoff solenoid from the governor.
3. Remove the O-ring seal from the shutoff solenoid .

Installation Procedure

Table 2

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	9U-5120	Spanner Wrench[1]	1

[1] This tool is part of the **128-8822** Fuel System and Governor Tool Group.

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 product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

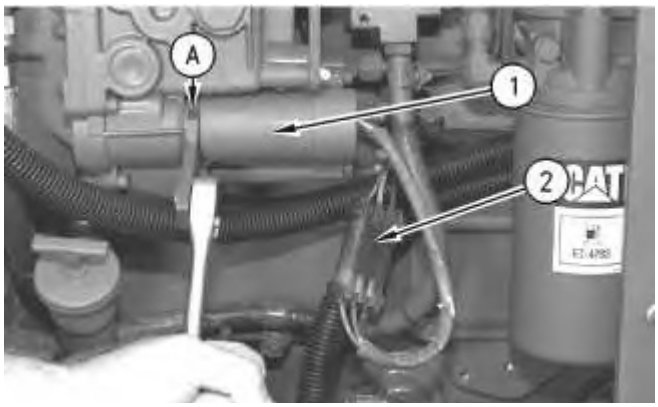

Illustration 2 g00585831

1. Inspect the O-ring seal on the fuel shutoff solenoid. If the O-ring seal is worn or damaged, use new parts for replacement.
2. Install the O-ring seal on the fuel shutoff solenoid.
3. Install the fuel shutoff solenoid in the governor. Use Tooling (A) and a suitable torque wrench to tighten the fuel shutoff solenoid to the following torque 30 ± 5 N·m (22 ± 4 lb ft).
4. Connect the harness assembly to the fuel shutoff solenoid.

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Disassembly and Assembly
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Media Number -SENR3611-18 **Publication Date -01/05/2009** **Date Updated -27/05/2009**

i01928381

Governor - Remove

SMCS - 1264-011

Removal Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	136-4149	Governor Pliers[1]	1

[1] This tool is part of the **128-8822** Fuel System and Governor Tool Group.

Start By:

a. Remove the fuel shutoff solenoid. Refer to Disassembly and Assembly, "Fuel Shutoff Solenoid - Remove and Install".

NOTICE

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

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

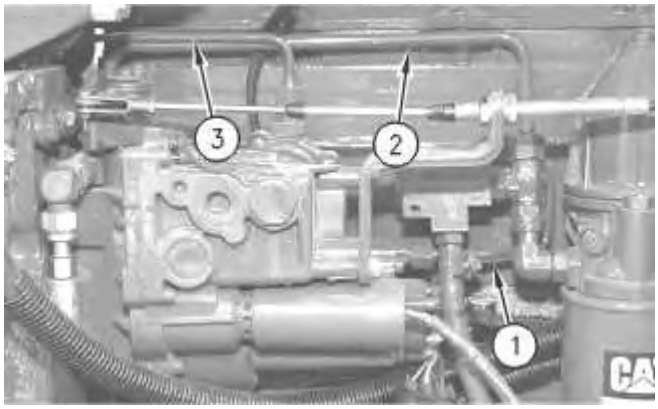

Illustration 1 g00613041

1. Disconnect the governor control cable.
2. Remove oil tube assembly (1). Remove tube assembly (2) and tube assembly for fuel ratio control (3), if equipped. Plug and cap all connections.

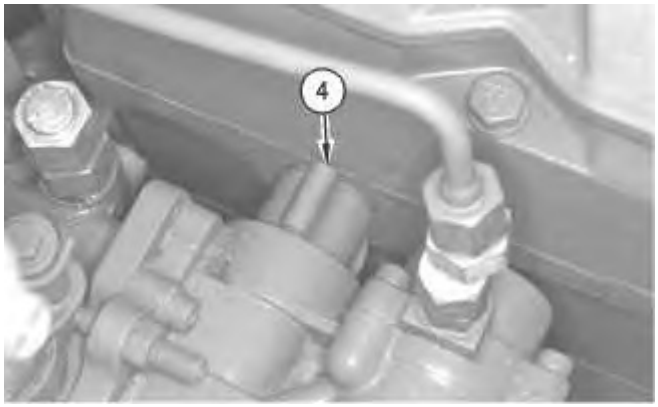

Illustration 2 g00613071

3. Remove clip (4).

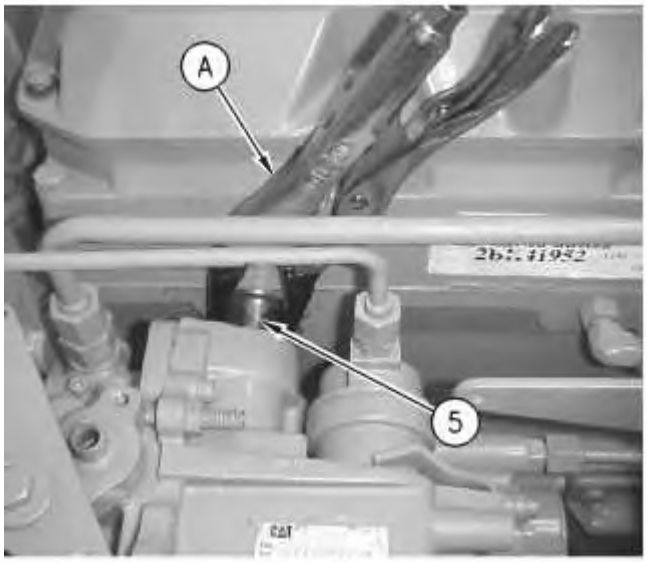

Illustration 3 g00655975

4. Use Tooling (A) to slide tube assembly (5) into the cylinder head.

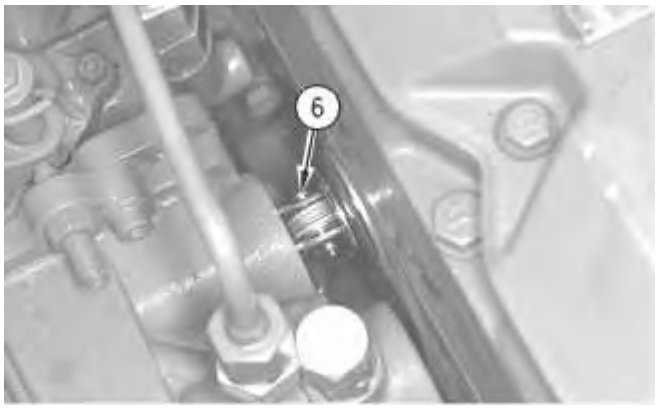

Illustration 4 g00613149

5. Remove the clip and use Tooling (A) to remove the clevis pin (6).

   Note: Clevis pin (6) must stay with the governor in order to be adjusted.

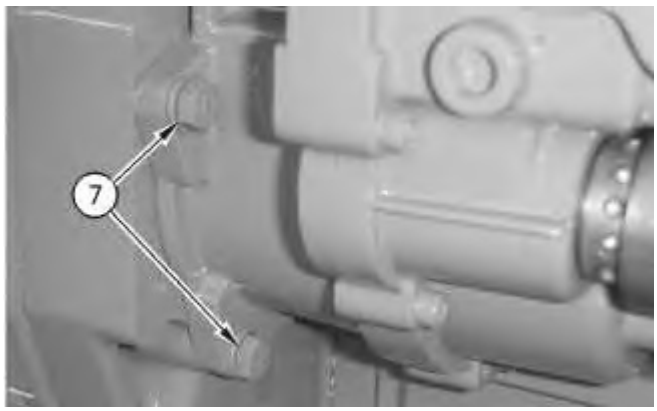

Illustration 5 g00613563

6. Remove bolts (7) and the washers that hold the governor in position.

Illustration 6 g00673182

7. Remove the governor from the engine.

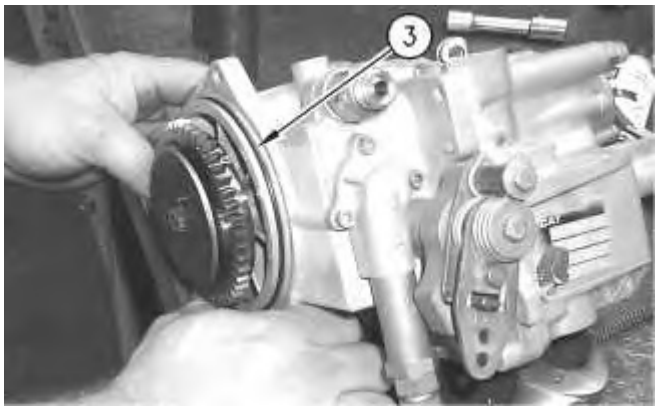

Illustration 7 g00673180

8. Remove O-ring seal (3) on the governor.

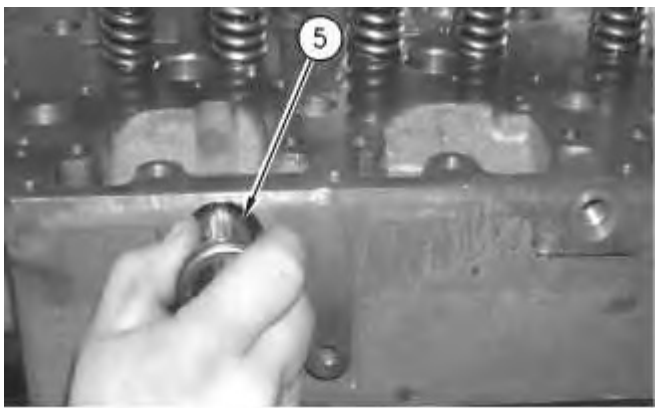

Illustration 8 g00672742

9. Remove the O-ring seal and tube assembly (5) from the cylinder head.

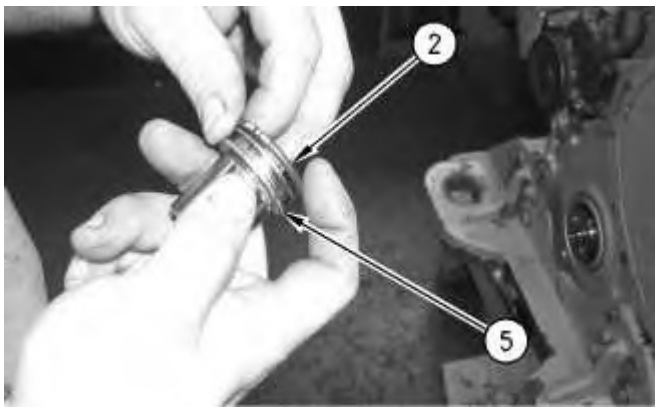

Illustration 9 g00672733

10. Remove O-ring seal (2) on the tube assembly (5).

Illustration 10 g00673178

11. Remove O-ring seal (1) from the cylinder head.

Note: For more information on the governor, refer to Service Manual, SENR6454, "3114, 3116, & 3126 Engine Governors". The Service Manual, SENR6454 requires the use of a **1U-7326** Governor Calibration Bench. For information on reusability of components in the governor, refer to Guideline For Reusable Parts And Salvage Operations, SEBF8434, "3100 Governor Inspection and General Information for Mechanical Governor Groups Used in 3114, 3116, and 3126 Engines Equipped with Mechanical Unit Injectors (MUI)".

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