

Product: WHEEL TRACTOR

Model: 637E WHEEL TRACTOR 1FB

Configuration: 637E TRACTOR / POWER SHIFT / 1FB00001-00531 (MACHINE) POWERED BY 3408 ENGINE

## Disassembly and Assembly 3408E and 3412E Engines for Caterpillar Built Machines

Media Number -SEN1013-11

Publication Date -01/07/2015

Date Updated -22/08/2016

i01655980

# Crankshaft Front Seal - Install

SMCS - 1160-012

## Installation Procedure

### Type 1

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	5P-1733	Seal Locator	1
B	5P-1737	Bolts	3
C	9S-8858	Nut (Seal Installer)	1
D	6V-6142	Front Seal Installer	1

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### NOTICE

**Keep all parts clean from contaminants.**

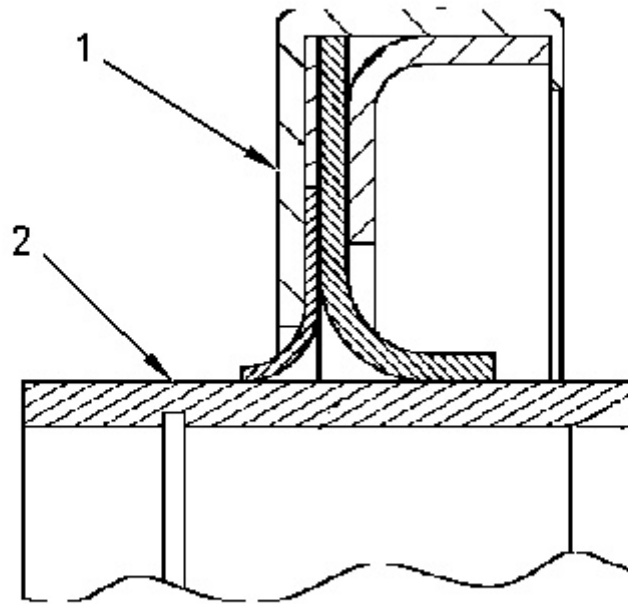
**Contaminants may cause rapid wear and shortened component life.**

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**Note:** The front seal and the wear sleeve must be replaced at the same time. Once the seal and the wear sleeve are separated, these components cannot be used again. Refer to Special Instruction, SMHS8508, "Special Handling Information and Installation Instructions for Crankshaft Seal Groups That Have Hydrodynamic Grooves In the Sealing Lip" before the seal is serviced.

**Note:** Do not use any type of lubricant during the installation of the crankshaft seal and the wear sleeve.

1. Before installation of the crankshaft seal and the wear sleeve, inspect the crankshaft for scratches. Also, inspect the crankshaft for any distortion on the surface that may lead to an out of round condition. Use a polishing cloth in order to remove any imperfections on the crankshaft.
  2. Use **4C-9500** Quick Cure Primer to clean the outside diameter of the crankshaft and the inside diameter of wear sleeve (1).
  3. Apply **4C-9507** Retaining Compound to the outside diameter of the crankshaft. Apply **4C-9507** Retaining Compound to the inside diameter of wear sleeve (1).
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Illustration 1

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Type 1 seal design.

(1) Seal

(2) Wear sleeve

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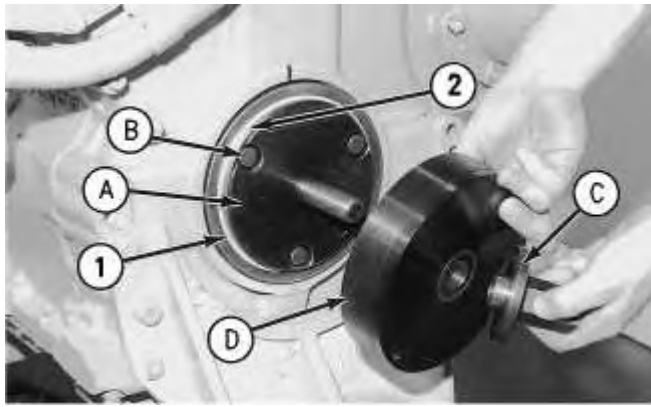


Illustration 2

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Typical example

4. Fasten Tool (A) to the crankshaft with Tool (B).

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### NOTICE

**The front and rear seals and wear sleeves have different spiral grooves in the seal. Because of this type of design, the front seal group for an engine is different from the rear seal group. If a seal group is installed on the wrong end of the engine, oil can actually be taken out of the engine instead of moving oil back into the engine.**

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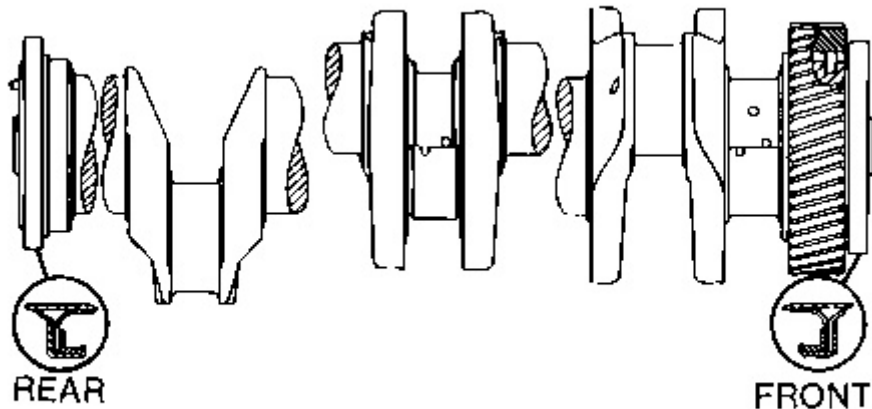


Illustration 3

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**Note:** Install the seal with the arrow that shows the direction of crankshaft rotation toward the front of the engine.

5. Position wear sleeve (2) and seal (1) on Tool (A). Install Tool (D) on Tool (A). Lubricate the face of the washer on Tool (C). Install Tool (C) on Tool (A).
6. Tighten Tool (C) until Tool (D) contacts Tool (A).
7. Remove Tools (A), (B), (C), and (D). Check the crankshaft seal and the wear sleeve for the correct installation.

## Type 2

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	5P-1733	Seal Locator	1
B	5P-1737	Bolts	3
C	9S-8858	Nut (Seal Installer)	1
D	6V-6142	Front Seal Installer	1

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### NOTICE

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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**Note:** The front seal and the wear sleeve must be replaced at the same time. Once the seal and the wear sleeve are separated, these components cannot be used again. Refer to Special Instruction, SMHS8508, "Special Handling Information and Installation Instructions for Crankshaft Seal Groups That Have Hydrodynamic Grooves In the Sealing Lip" before the seal is serviced.

**Note:** Do not use any type of lubricant during the installation of the crankshaft seal and the wear sleeve.

1. Before installation of the crankshaft seal and the wear sleeve, inspect the crankshaft for scratches. Also, inspect the crankshaft for any distortion on the surface that may lead to an out of round condition. Use a polishing cloth in order to remove any imperfections on the crankshaft.
2. Use **4C-9500** Quick Cure Primer to clean the outside diameter of the crankshaft.

**Note:** The type 2 seal comes with the **4C-9507** Retaining Compound that is already applied to the inside diameter of the wear sleeve.

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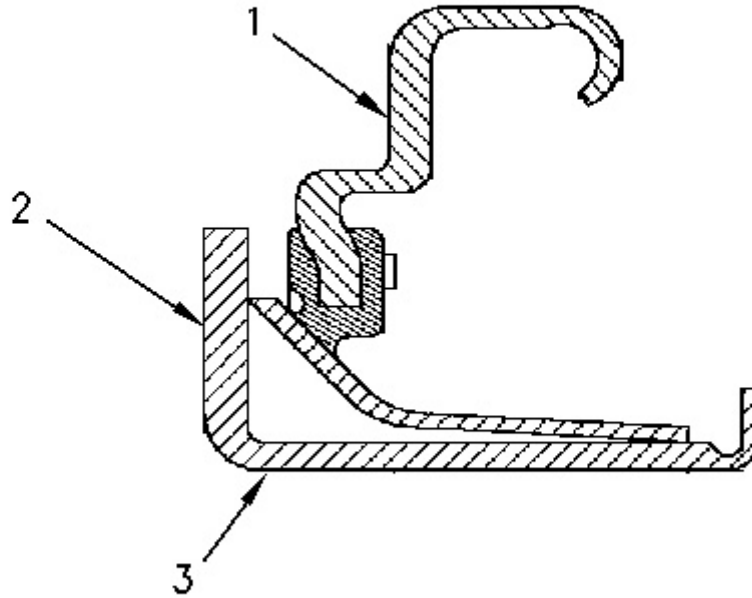


Illustration 4

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Type 2 seal design.

(1) Seal

(2) Wear sleeve flange

(3) Wear sleeve

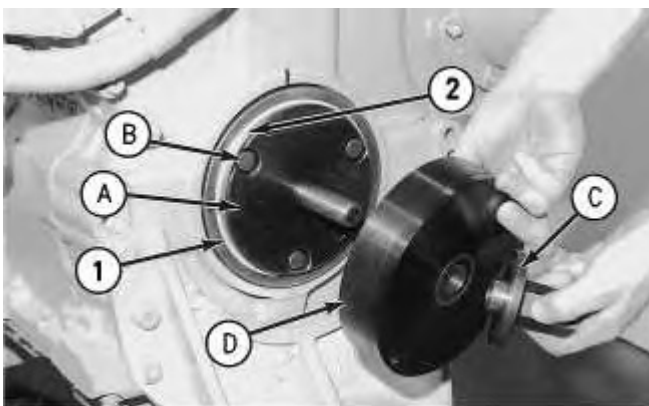


Illustration 5

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Typical example

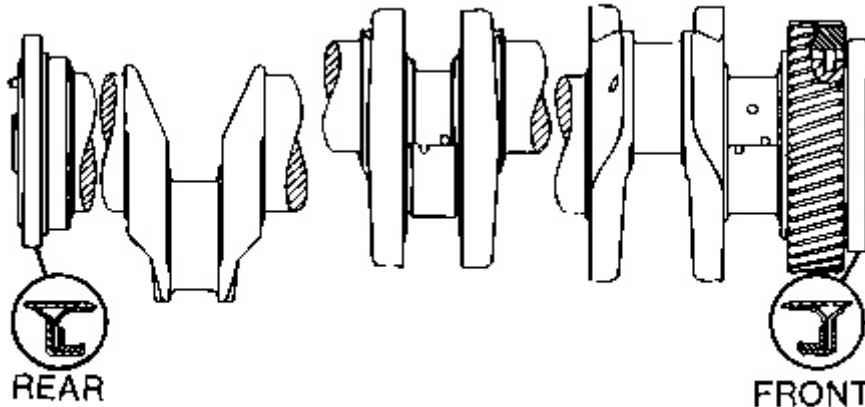
3. Fasten Tool (A) to the crankshaft with Tool (B).

**NOTICE**

The front and rear seals and wear sleeves have different spiral grooves in the seal. Because of this type of design, the front seal group for an engine is different from the rear seal group. If a seal group is installed on the wrong end of the engine, oil can actually be taken out of the engine instead of moving oil back into the engine.

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Illustration 6

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**Note:** Install the seal with the arrow that shows the direction of crankshaft rotation toward the front of the engine.

4. Position wear sleeve (2) and seal (1) on Tool (A). Install Tool (D) on Tool (A). Lubricate the face of the washer on Tool (C). Install Tool (C) on Tool (A).
5. Tighten Tool (C) until Tool (D) contacts Tool (A).
6. Remove Tools (A), (B), (C), and (D). Check the crankshaft seal and the wear sleeve for the correct installation.

**End By:**

- a. Install the vibration damper and the pulley. Refer to Disassembly and Assembly, "Vibration Damper and Pulley - Remove and Install".
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## Disassembly and Assembly 3408E and 3412E Engines for Caterpillar Built Machines

Media Number -SEN1013-11

Publication Date -01/07/2015

Date Updated -22/08/2016

i01064158

### Front Cover - Remove

SMCS - 1166-011

### Removal Procedure

#### Start By:

- a. Remove the fuel filter base. Refer to Disassembly and Assembly, "Fuel Filter Base - Remove and Install".

**Note:** The fuel filter base should be removed only if it is necessary in order to remove the front cover. Some engine arrangements do not require the removal of the fuel filter base.

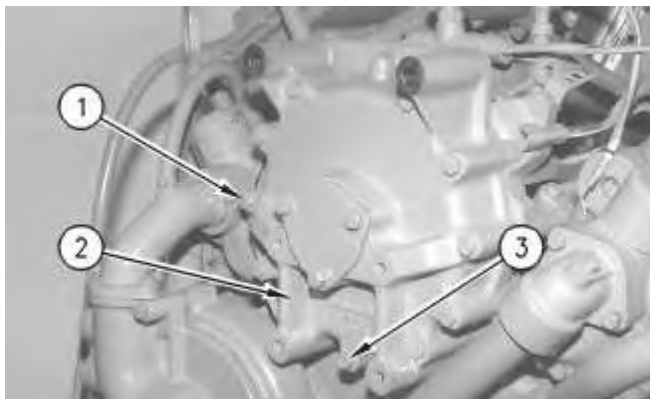
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#### NOTICE

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