

Product: EXCAVATOR

Model: 365C L MH EXCAVATOR GWC

Configuration: 365C L Material Handler GWC00001-UP (MACHINE) POWERED BY C-15 Engine

## Disassembly and Assembly C15 and C18 Engines for Caterpillar Built Machines

Media Number -REN8261-28

Publication Date -01/08/2015

Date Updated -28/08/2018

i02210213

# Rear Power Take-Off (RPTO) - Remove - If Equipped

SMCS - 1165-011-RE

## Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-0520	Driver Group	1

### Start By:

- Remove the flywheel. Refer to Disassembly and Assembly, "Flywheel - Remove".

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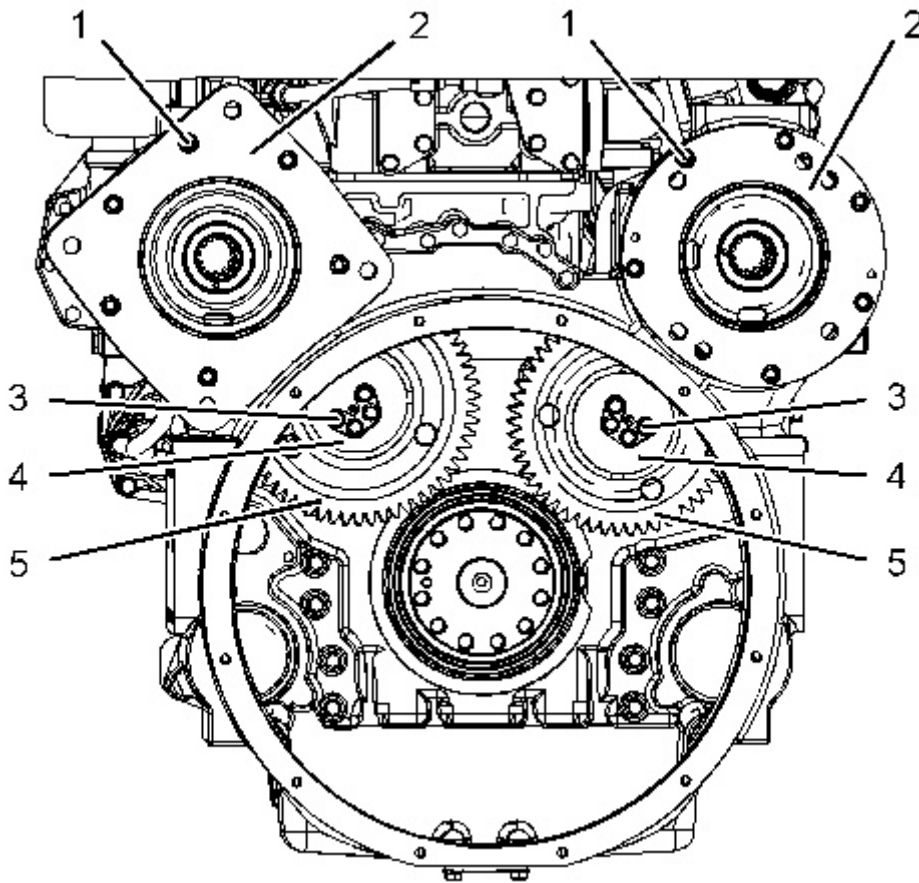
### NOTICE

**Keep all parts clean from contaminants.**

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

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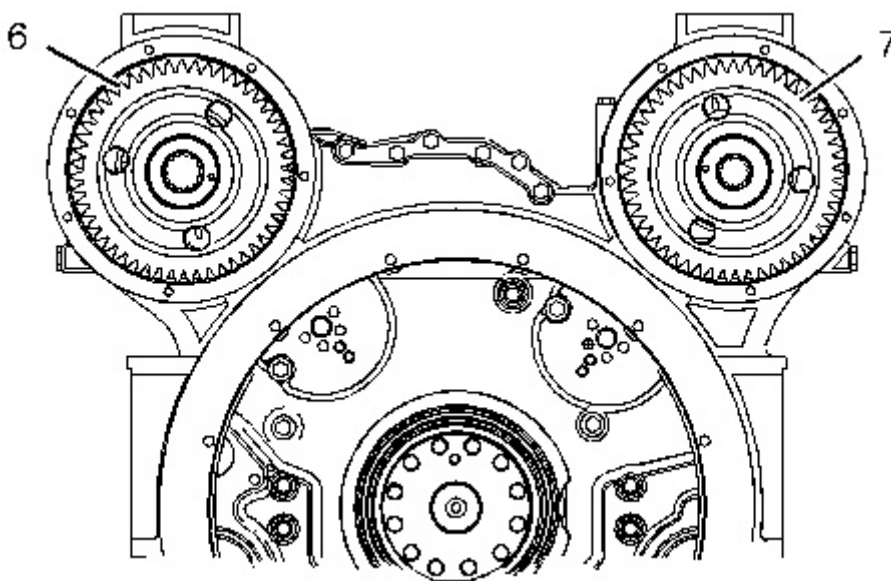


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Illustration 1

g01115921

1. Remove bolts (1). Remove adapters (2) and the O-ring seals from the flywheel housing.
2. Remove bolts (3). Remove retainer assemblies (4). Remove idler gears (5).



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Illustration 2

g01134262

3. Remove gear assembly (6) and gear assembly (7) from the flywheel housing.

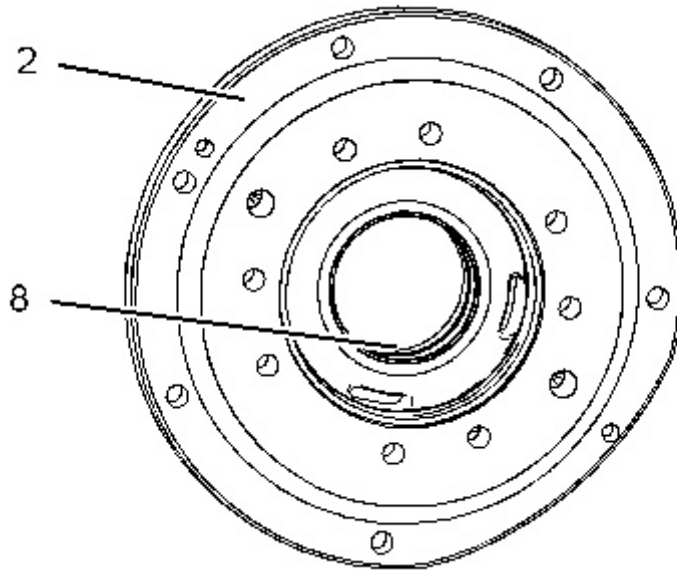


Illustration 3

g01134263

4. Use Tooling (A) to remove sleeve bearing (8) from adapter (2).

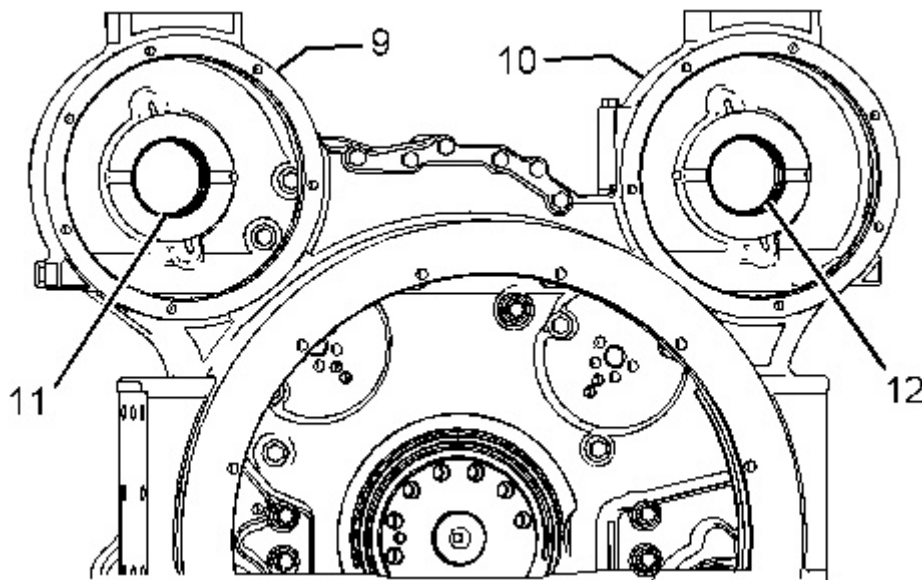


Illustration 4

g01134250

5. Remove bolts and cover (9) from the back side of the flywheel housing. Use Tooling (A) to remove sleeve bearing (11) from the flywheel housing.
  6. Remove bolts and cover (10) from the back side of the flywheel housing. Use Tooling (A) to remove sleeve bearing (12) from the flywheel housing.
-

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Media Number -REN8261-28

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Date Updated -28/08/2018

i07435098

# Rear Power Take-Off (RPTO) - Install - If Equipped

SMCS - 1165-012-RE

## Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-0520	Driver Group	1

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### NOTICE

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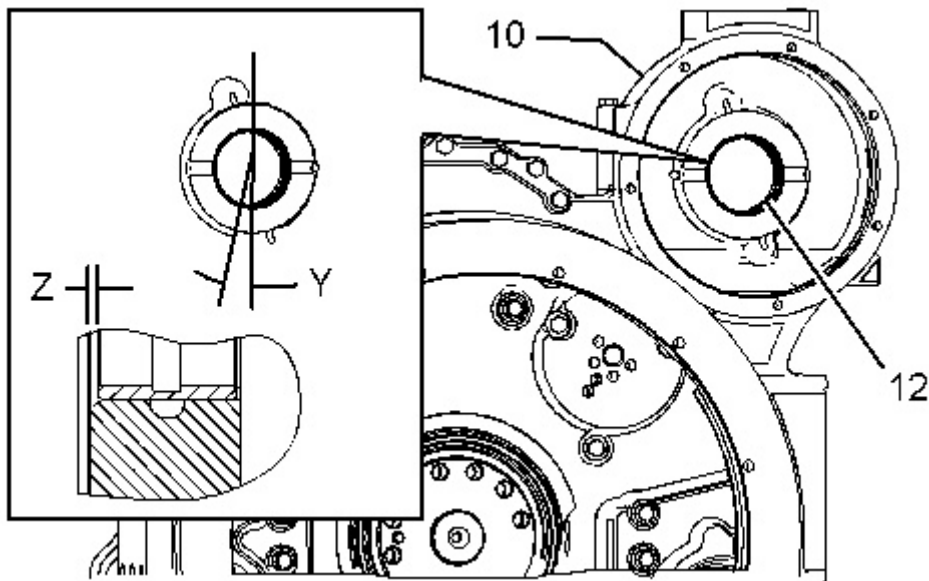


Illustration 1

g01134277

1. Install sleeve bearing (12) in the flywheel housing with Tooling (A). The split in the sleeve bearing should be located at Angle (Y), which is  $15 \pm 1$  degrees from the vertical centerline. The bearing should be installed to Depth (Z), which is  $2.0 \pm 0.5$  mm ( $0.08 \pm 0.02$  inch).
2. Install cover (10) and the bolts on the back side of the flywheel housing.

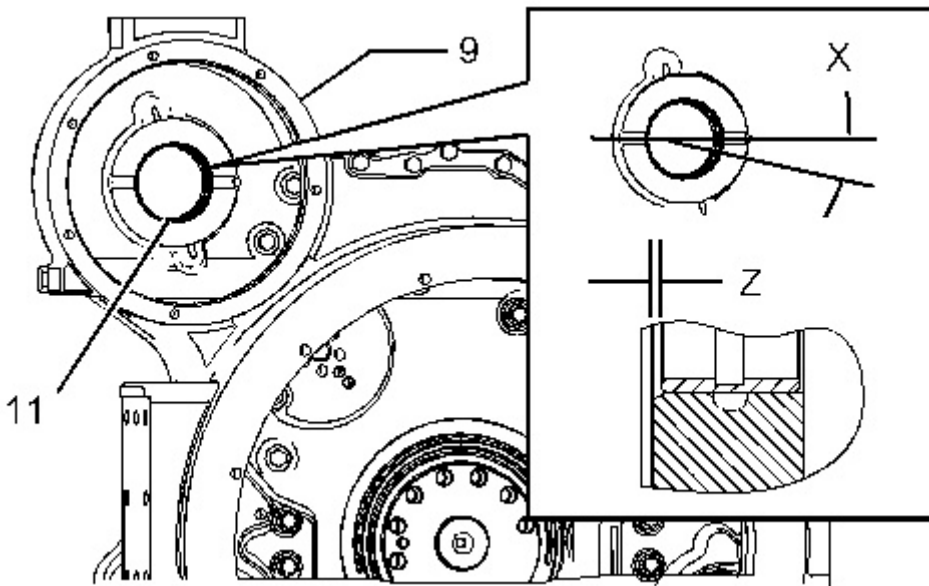
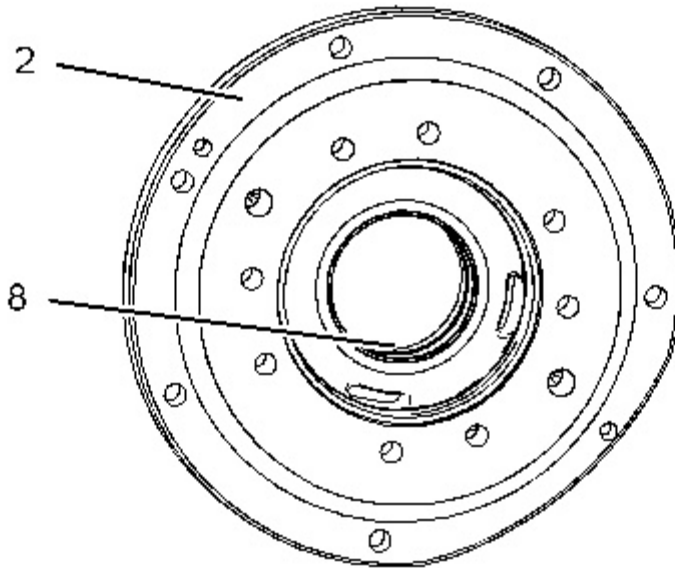


Illustration 2

g01134279

3. Install sleeve bearing (11) in the flywheel housing with Tooling (A). The split in the sleeve bearing should be located at Angle (X), which is  $15 \pm 1$  degrees from the horizontal centerline. The bearing should be installed to Depth (Z), which is  $2.0 \pm 0.5$  mm ( $0.08 \pm 0.02$  inch).
4. Install cover (9) and the bolts on the back side of the flywheel housing.

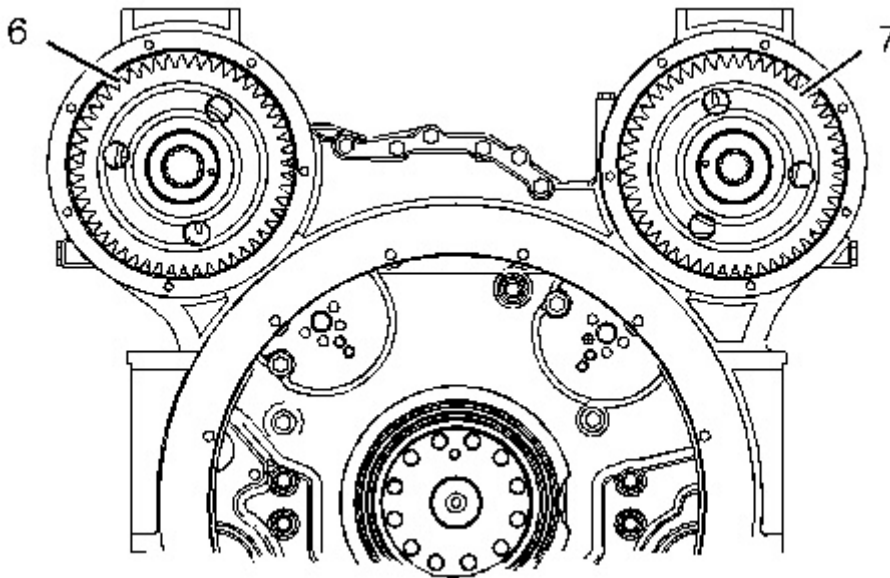


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Illustration 3

g01134263

5. Use Tooling (A) and install sleeve bearing (8) in adapter (2). Install the O-ring seal on the adapter.

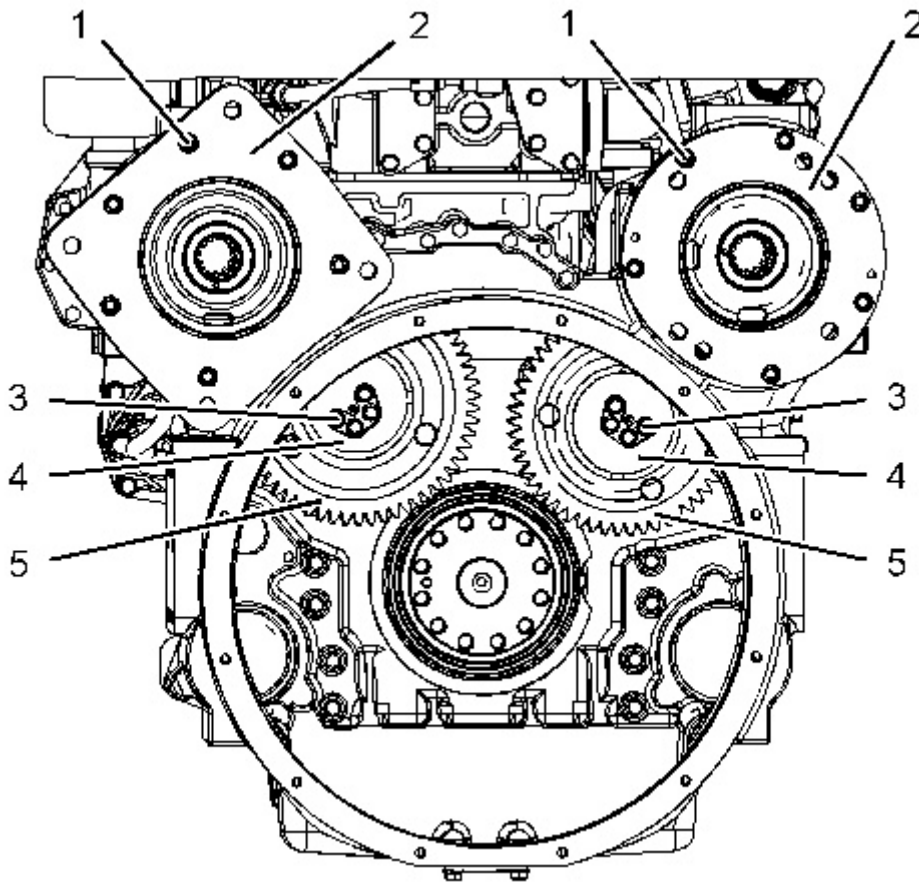


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Illustration 4

g01134262

6. Position gear assembly (6) and gear assembly (7) in the flywheel housing.
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Illustration 5

g01115921

7. Position idler gears (5) and retainer assemblies (4). Install bolts (3). Tighten bolts (3) to a torque of  $100 \pm 20$  N·m ( $74 \pm 15$  lb ft).
8. Lubricate the O-ring seal on the adapters with clean engine oil. Position adapters (2) on the flywheel housing and install bolts (1).

**End By:**

- a. Install the flywheel. Refer to Disassembly and Assembly, "Flywheel - Install".
-

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i05009357

# Vibration Damper and Pulley - Remove and Install

SMCS - 1205-010

## Removal Procedure Type 1

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	-	Guide Stud (5/8 - 18 NF by 7 inch)	1
B	138-7575	Link Bracket	1

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### NOTICE

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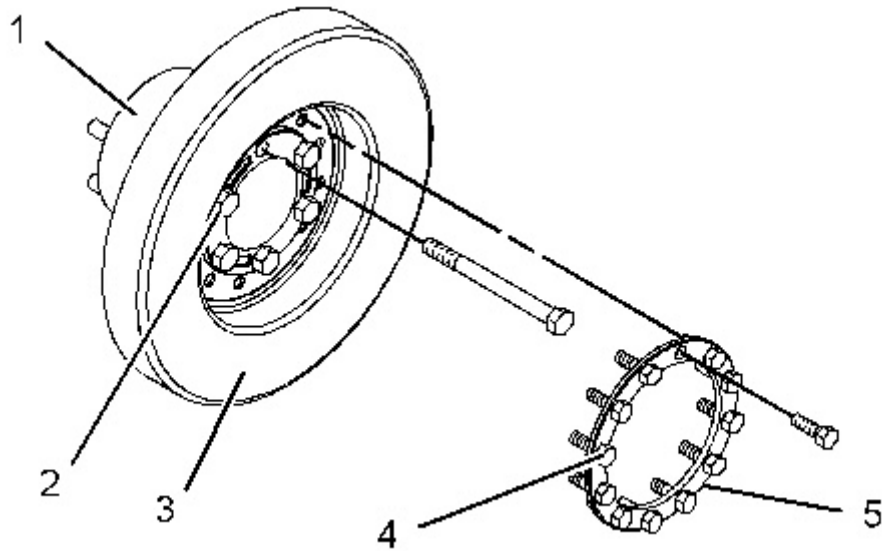


Illustration 1

g01044774

1. Remove one bolt (4). Install Tooling (B) and a suitable lifting device to vibration damper (3) and crankshaft pulley (1). The weight of vibration damper (3) and crankshaft pulley (1) is approximately 57 kg (125 lb).
2. Remove one bolt (2). Install Tooling (A).
3. Remove remaining bolts (2). Remove vibration damper (3) and crankshaft pulley (1) from the crankshaft.
4. Remove bolts (4). Remove spacer (5). Remove vibration damper (3) from crankshaft pulley (1). The weight of vibration damper (3) is approximately 34 kg (75 lb).

## Installation Procedure Type 1

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	-	Guide Stud (5/8 - 18 NF by 7 inch)	1
B	138-7575	Link Bracket	1
C	4C-5592	Anti-Seize Compound	1

### NOTICE

**Keep all parts clean from contaminants.**

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## NOTICE

**Thoroughly inspect the viscous damper for signs of leakage or for signs of a dented (damaged) case. Either of these conditions can cause the weight to make contact with the case. This can affect the viscous damper's operation.**

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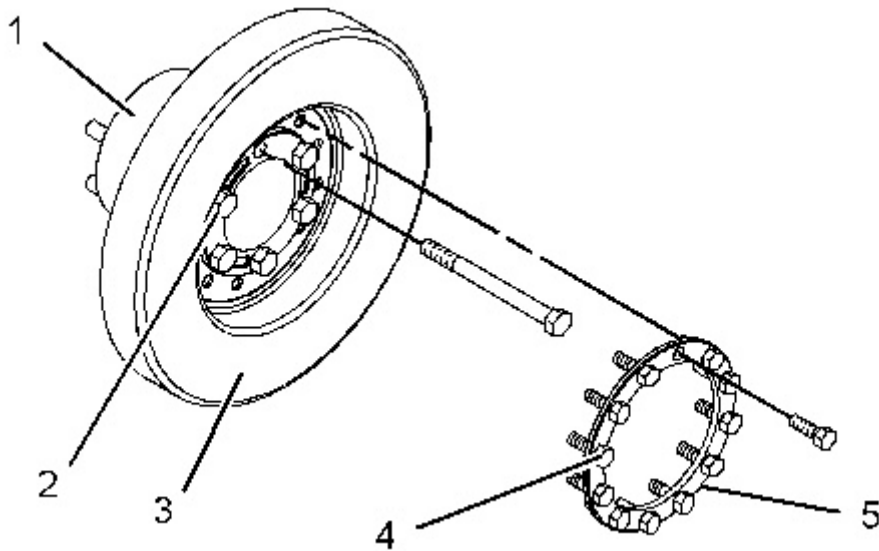


Illustration 2

g01044774

1. Position vibration damper (3) on crankshaft pulley (1). The weight of vibration damper (3) is approximately 34 kg (75 lb).
2. Install spacer (5) on the vibration damper. Install bolts (4) and tighten the bolts to a torque of  $135 \pm 20 \text{ N}\cdot\text{m}$  ( $100 \pm 15 \text{ lb ft}$ ).
3. Install Tooling (B) and a suitable lifting device on vibration damper (3) and crankshaft pulley (1). The weight of vibration damper (3) and crankshaft pulley (1) is approximately 57 kg (125 lb). Install the vibration damper and the crankshaft pulley on Tooling (A).
4. Apply Tooling (C) to bolts (2). Install the bolts. Remove Tooling (A) and install the remaining bolts. Tighten the bolts to a torque of  $215 \pm 40 \text{ N}\cdot\text{m}$  ( $159 \pm 30 \text{ lb ft}$ ).

## Removal Procedure Type 2

Table 3

Required Tools	

Tool	Part Number	Part Description	Qty
A	-	Guide Stud (5/8 - 18 NF by 7 inch)	1

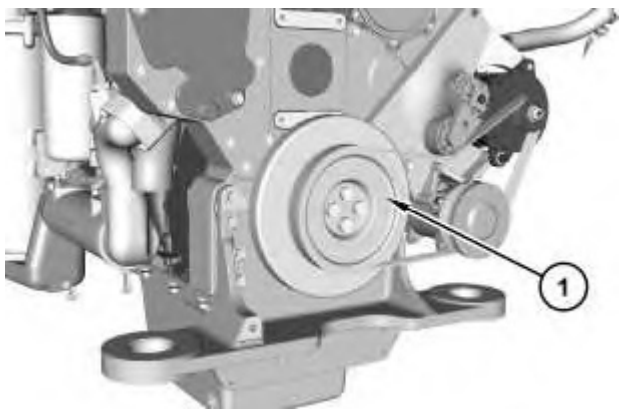


Illustration 3

g03181887

1. Remove pulley (1) and the belt. Refer to Belt Tensioner - Remove and Install.

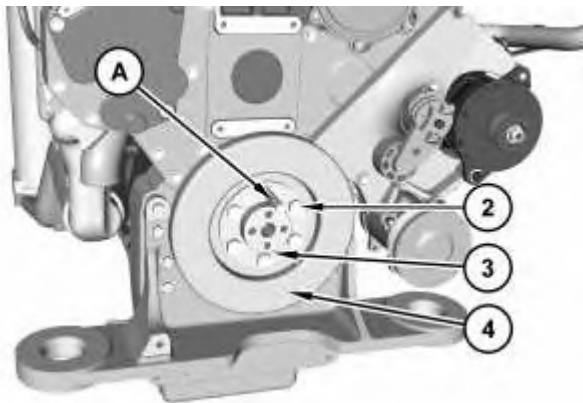


Illustration 4

g03181936

2. Remove one bolt (2). Install Tooling (A) and a suitable lifting device to vibration damper (4). Remove bolts (2), spacer (3), and vibration damper (4). The weight of vibration damper (4) is approximately 13.7 kg (30.22 lb).

## Installation Procedure Type 2

Table 4

Required Tools			
Tool	Part Number	Part Description	Qty
A	-	Guide Stud (5/8 - 18 NF by 7 inch)	1
C	4C-5592	Anti-Seize Compound	1

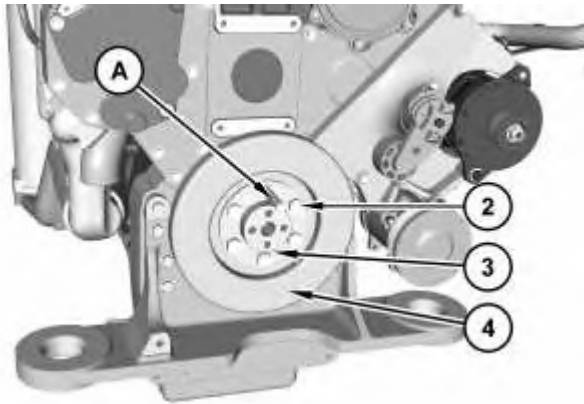


Illustration 5

g03181936

1. Install Tooling (A) into the Crankshaft. Position vibration damper (4) onto Tooling (A). The weight of vibration damper (3) is approximately 14 kg (30 lb).
2. Apply Tooling (C) onto bolts (2). Install spacer (3) and bolts (2).

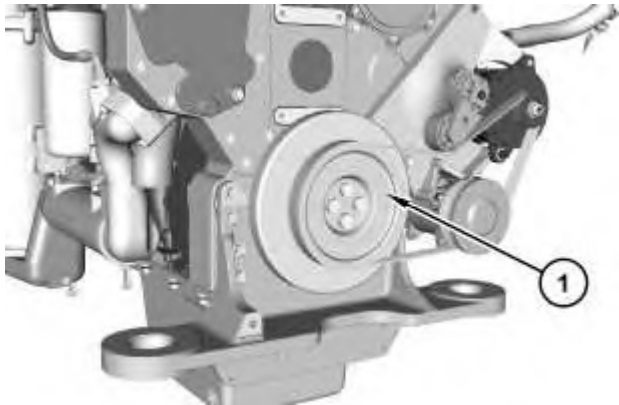


Illustration 6

g03181887

3. Install pulley (1). Refer to Belt Tensioner - Remove and Install.
-

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i02210415

# Crankshaft Front Seal - Remove

SMCS - 1160-011

## Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7600	Slide Hammer Puller	1

### Start By:

- Remove the vibration damper and the pulley. Refer to Disassembly and Assembly, "Vibration Damper and Pulley - Remove and Install".

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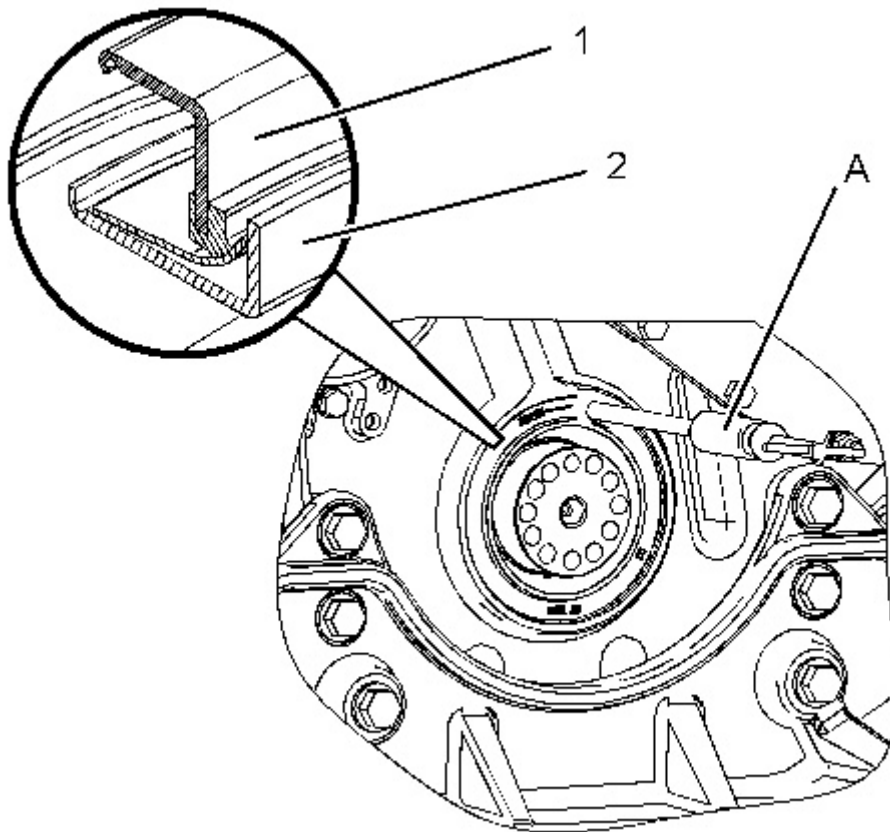
### NOTICE

**Keep all parts clean from contaminants.**

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Illustration 1

g01044861

1. Use Tooling (A) or a punch and hammer in order to puncture three or more holes in wear sleeve (2).
  2. Use Tooling (A) to remove the wear sleeve.
  3. Use Tooling (A) or a punch and hammer in order to puncture three or more holes in crankshaft front seal (1).
  4. Use Tooling (A) to remove the crankshaft front seal.
-

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i02210423

# Crankshaft Front Seal - Install

SMCS - 1160-012

## Installation Procedure

Table 1

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

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### NOTICE

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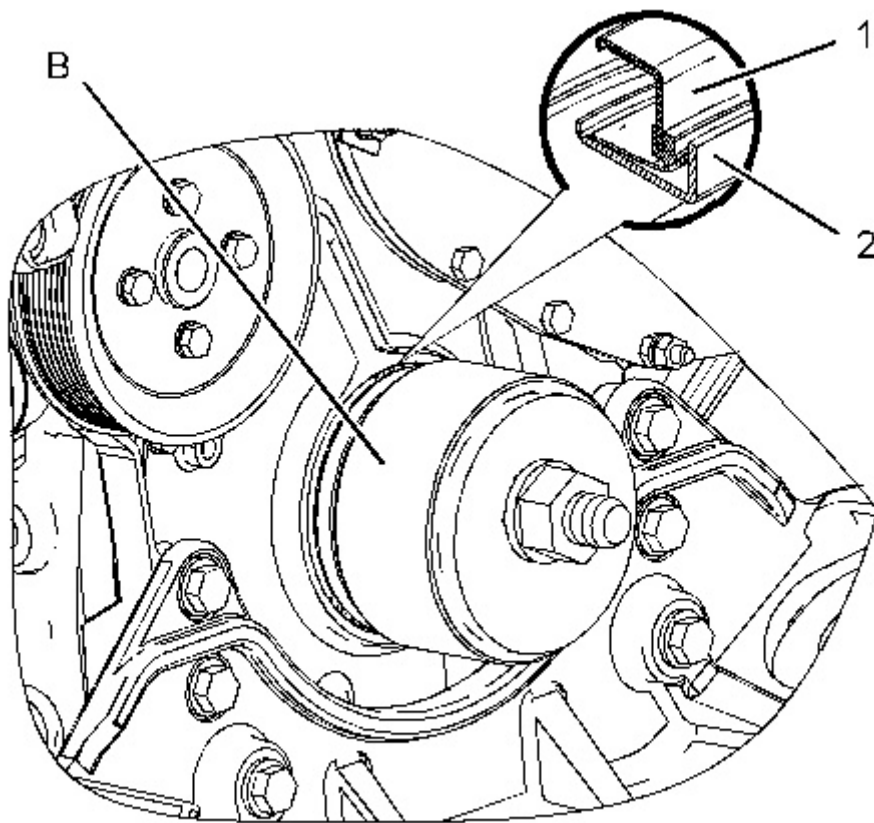
**Contaminants may cause rapid wear and shortened component life.**

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**Note:** The crankshaft front seal and the wear sleeve must be replaced at the same time. Once the crankshaft front seal and the wear sleeve are separated, these components cannot be used again.

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

1. Clean the outside diameter of the crankshaft.



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Illustration 1

g01116116

2. Use Tooling (B) to install crankshaft front seal (1) and wear sleeve (2).

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

**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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i02210465

### Front Cover - Remove

SMCS - 1166-011

### Removal Procedure

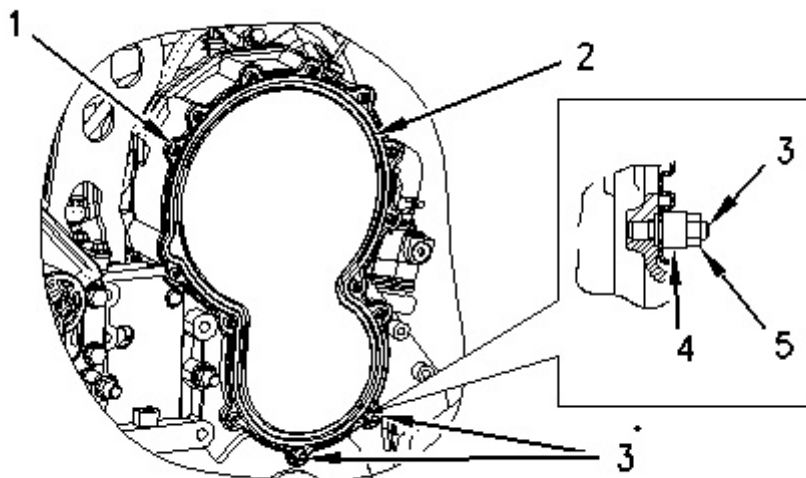
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#### NOTICE

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1. Remove button head screws (1).
  2. Remove nuts (5) and spacers (4) from studs (3).
  3. Remove front cover (2) and the seal from the front housing.
-

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## Disassembly and Assembly C15 and C18 Engines for Caterpillar Built Machines

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Publication Date -01/08/2015

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i02210470

### Front Cover - Install

SMCS - 1166-012

### Installation Procedure

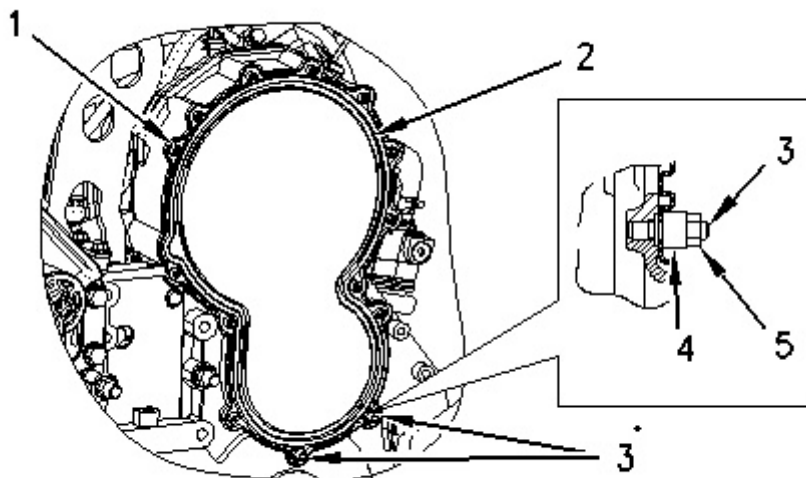
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#### NOTICE

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---



1. Position the seal and front cover (2) on studs (3).
  2. Install button head screws (1). Tighten the button head screws to a torque of  $21 \pm 3$  N·m ( $15 \pm 2$  lb ft).
  3. Install spacers (4) and nuts (5) on studs (3).
-

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i02210493

# Gear Group (Front) - Remove

SMCS - 1206-011

## Removal Procedure

### Start By:

- a. Remove the front housing. Refer to Disassembly and Assembly, "Housing (Front) - Remove".

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### NOTICE

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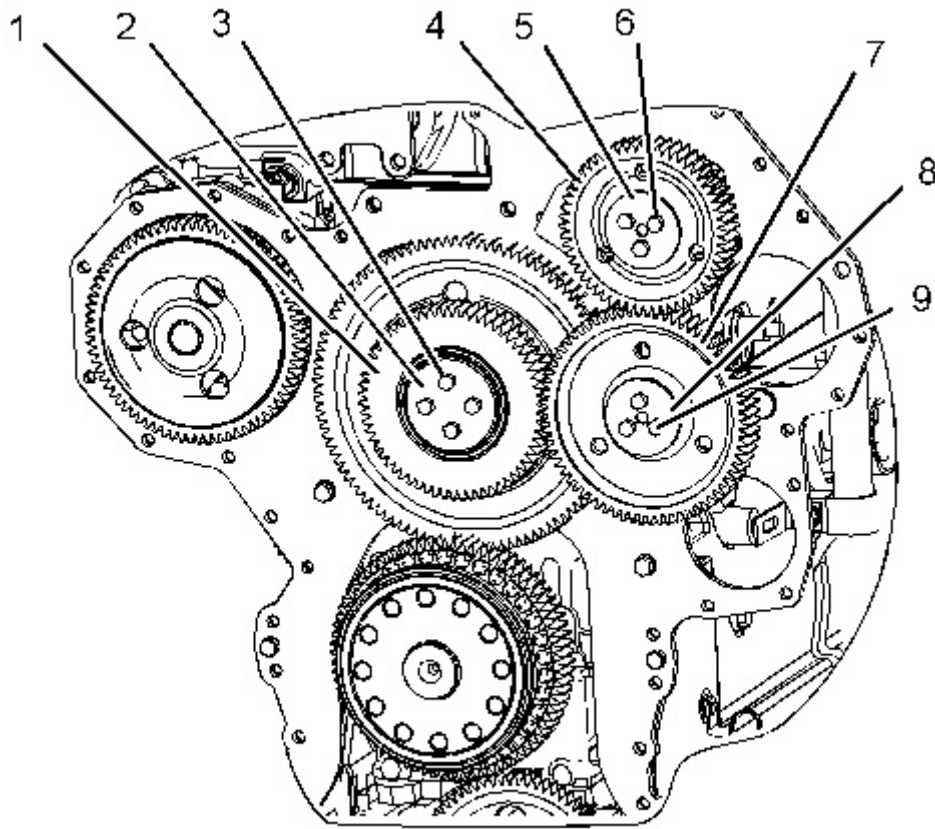
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### NOTICE

**Do not turn the crankshaft or the camshaft while the camshaft gear is removed. If the front gear group is not correctly timed during installation, interference can occur between the pistons and the valves, resulting in damage to the engine.**

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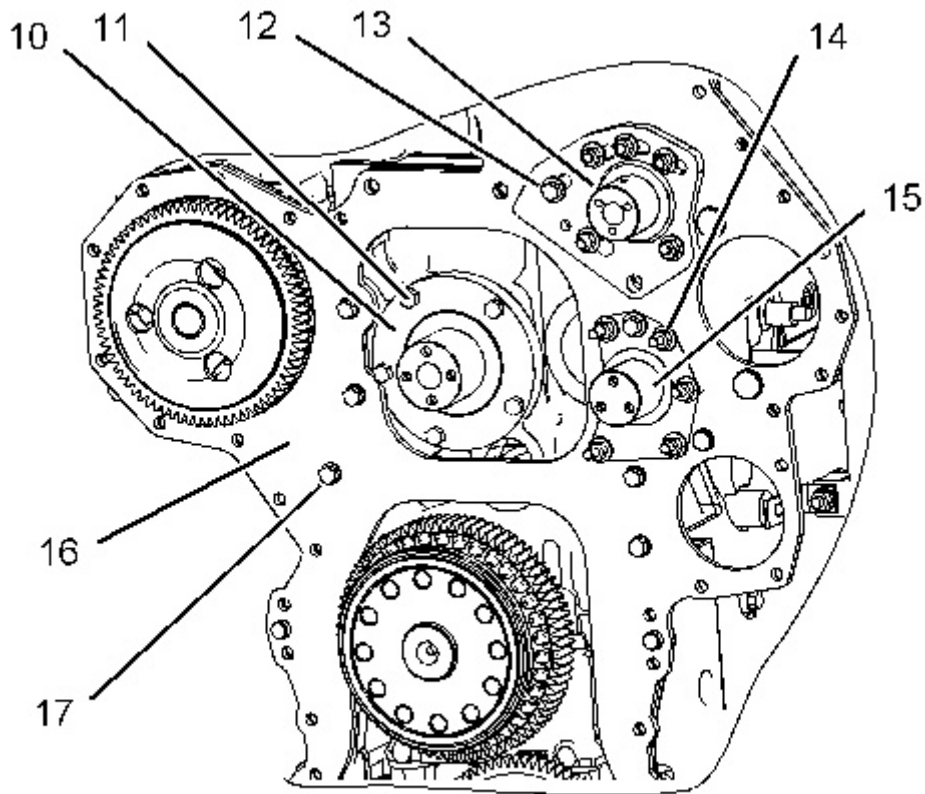


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Illustration 1

g01047231

1. Remove bolts (6) and plate (5). Remove adjustable idler gear (4).
  2. Remove bolts (9) and plate (8). Remove idler gear (7).
  3. Remove bolts (3) and plate (2). Remove cluster gear assembly (1).
-



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Illustration 2

g01047233

**Note:** Shaft assembly (13) and stub shaft (15) must be removed in order to remove plate (16).

**Note:** If shaft assembly (13) is removed, the backlash for the camshaft gear and the adjustable idler gear will need to be readjusted. Refer to Testing and Adjusting, "Gear Group (Front) - Time".

4. Remove nuts (12) and remove shaft assembly (13).
  5. Remove nuts (14) and remove shaft assembly (15).
  6. Remove bolts (11) and remove shaft assembly (10).
  7. Remove locking bolts (17) that hold plate (16) to the cylinder block. Remove plate (16) and the integral seal.
-

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