

Product: VIBRATORY COMPACTOR

Model: CB-334D VIBRATORY COMPACTOR 4CZ

Configuration: CB-334D Vibratory Compactor 4CZ00001-UP (MACHINE) POWERED BY 3013 Engine

Disassembly and Assembly 3003, 3013, 3014 and 3024 Engines for Caterpillar Built Machines

Media Number -SEN5027-05

Publication Date -01/05/2005

Date Updated -16/05/2005

i02350265

Flywheel - Install

SMCS - 1156-012

Installation Procedure (3003 Engine)

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

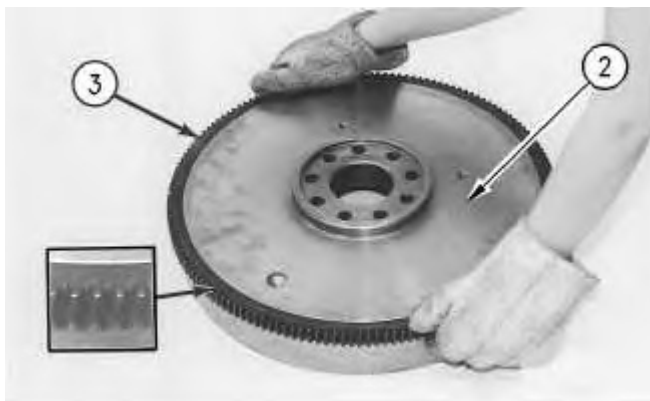


Illustration 1

g00596731

Typical example

1. Raise the temperature of flywheel ring gear (3) . Install flywheel ring gear (3) in the original position on flywheel (2) .

Note: The chamfered side of the gear teeth will be facing toward the starting motor when the flywheel is installed in order to ensure that the starting motor will engage correctly.

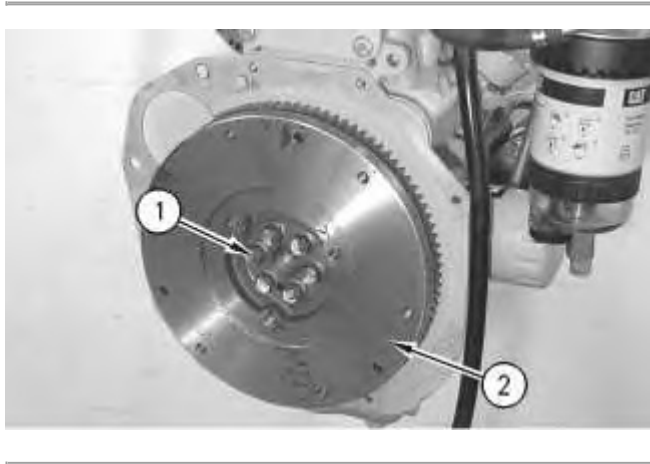


Illustration 2

g00582471

2. Position flywheel (2) on the rear of the engine.
3. Install bolts (1) and tighten the bolts to a torque of 73 N·m (54 lb ft).
4. Check the flywheel runout. Refer to Testing and Adjusting, "Flywheel - Inspect".

End By: Install the flywheel housing. Refer to Disassembly and Assembly, "Flywheel Housing - Remove and Install".

Installation Procedure (3013, 3014 and 3024 Engines)

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	1
B	-	Guide Bolt (M10 x 1.25 mm)	2

NOTICE

Keep all parts clean from contaminants.

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Illustration 3

g00596731

Typical example

1. Raise the temperature of flywheel ring gear (3) . Install flywheel ring gear (3) in the original position on flywheel (2) .

Note: The chamfered side of the gear teeth will be facing toward the starting motor when the flywheel is installed in order to ensure that the starting motor will engage correctly.

2. Attach Tooling (A) and a suitable lifting device to flywheel (2) . The weight of flywheel (2) is approximately 34 kg (75 lb).
3. Install Tooling (B) opposite each other in the end of the crankshaft.

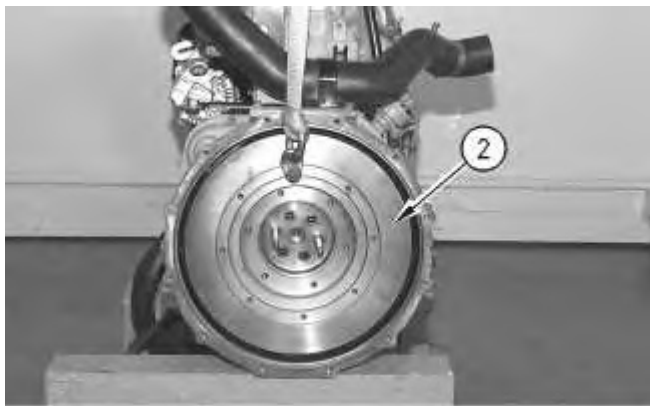


Illustration 4

g00584293

4. Position flywheel (2) on Tooling (B) . Ensure that the dowel pin on the crankshaft aligns with the dowel pin hole on the flywheel for proper installation.
-

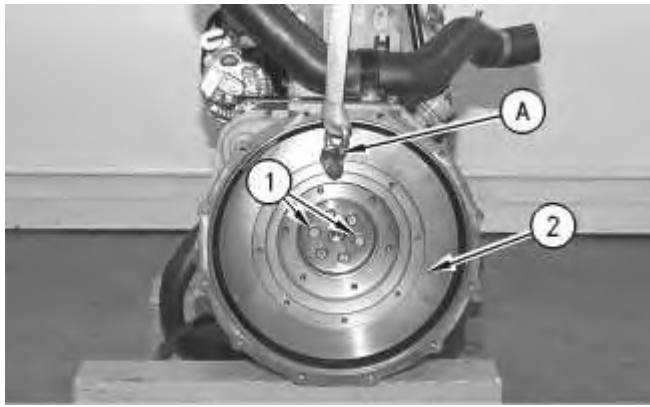


Illustration 5

g00582825

5. Install bolts (1) .
6. Remove Tooling (B) and install remaining bolts (1) .
7. Tighten bolts (1) to a torque of 73 N·m (54 lb ft).
8. Remove Tooling (A) and the suitable lifting device from flywheel (2) .
9. Check the flywheel runout. Refer to Testing and Adjusting, "Flywheel - Inspect".

End By: Install the electric starting motor. Refer to Disassembly and Assembly, "Electric Starting Motor - Remove and Install".

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i01638277

Crankshaft Rear Seal - Remove

SMCS - 1161-011

Removal Procedure

Start By:

- A. Remove the flywheel housing. Refer to Disassembly and Assembly, "Flywheel Housing - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

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NOTICE

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

Dispose of all fluids according to local regulations and mandates.

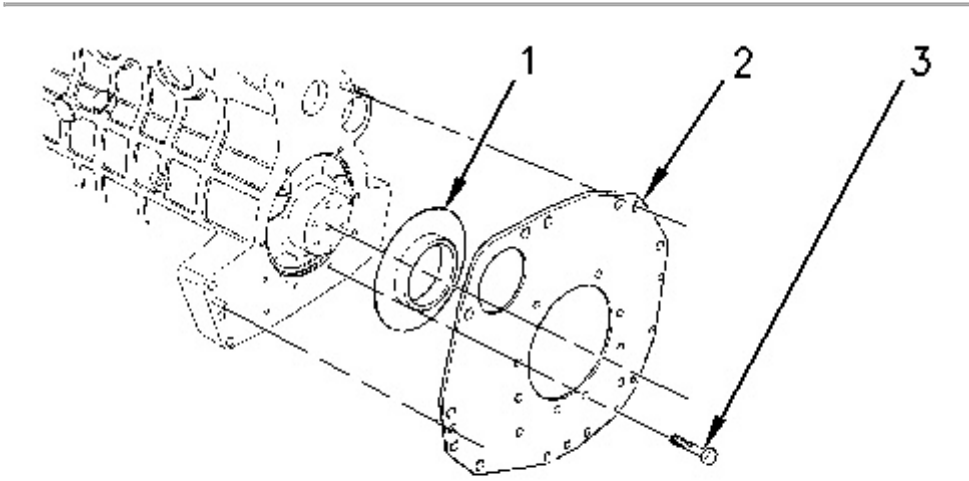


Illustration 1

g00847841

1. Remove bolts (3) and backplate (2) from the rear of the cylinder block.
 2. Remove crankshaft rear seal (1) from the cylinder block.
-

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i01099295

Crankshaft Rear Seal - Install

SMCS - 1161-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Clean the back of the cylinder block and the mating surface of the backplate.



Illustration 1

g00578148

2. Install crankshaft rear seal (3) on the cylinder block.

- Put a bead of **4C-9612** Silicone Sealant around the bolt holes and the face of the cylinder block.

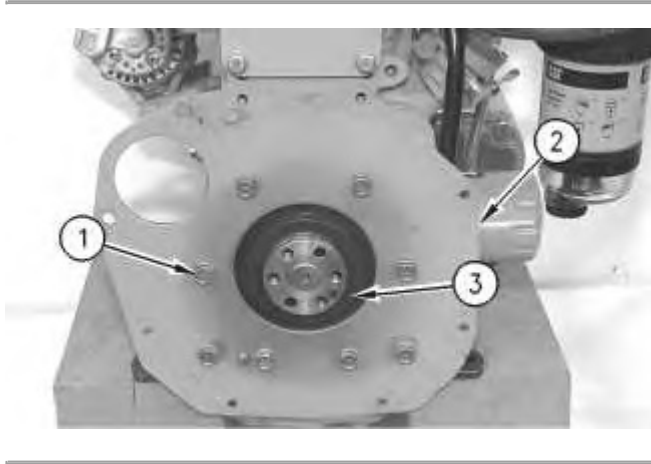


Illustration 2

g00578100

- Position backplate (2) on the rear of the engine.
- Install bolts (1) that fasten backplate (2) on the engine. Tighten the bolts to the following torque:

3003 Engine ... 50 N·m (37 lb ft)

3013, 3014 and 3024 Engines ... 15 N·m (11 lb ft)

End By: Install the flywheel housing. Refer to Disassembly and Assembly, "Flywheel Housing - Remove and Install".

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i01429119

Flywheel Housing - Remove and Install

SMCS - 1157-010

Removal Procedure (3003 Engine)

Start By:

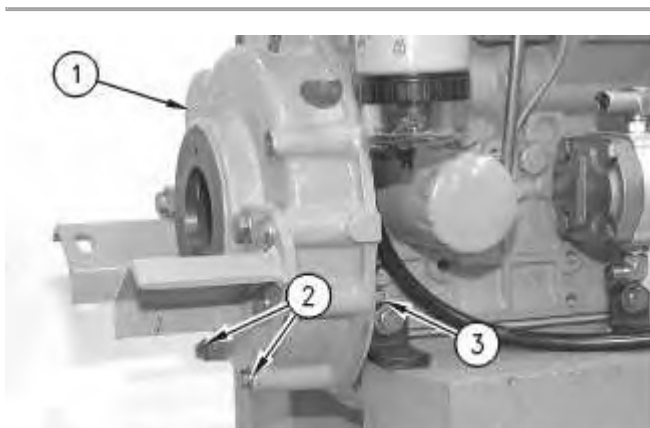
- A. Remove the electric starting motor. Refer to Disassembly and Assembly, "Electric Starting Motor - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Support the engine with blocks or a suitable lifting device on a flat surface.



2. Remove two bolts (2) that fasten the flywheel housing to the backplate.
3. Remove two bolts (3) that fasten the backplate to the flywheel housing.
4. Remove flywheel housing (1) from the rear of the engine.

Installation Procedure (3003 Engine)

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

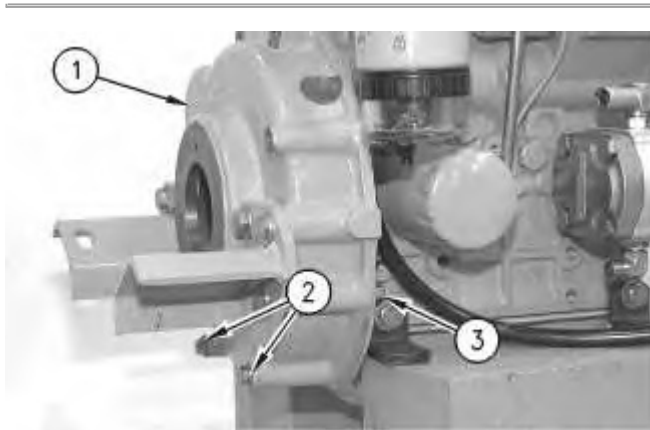


Illustration 2

1. Position flywheel housing (1) on the rear of engine.
2. Install two bolts (3) that fasten the backplate to the flywheel housing.
3. Install two bolts (2) that fasten the flywheel housing to the backplate.

Tighten the flywheel housing bolts for the 3003 engine to the following torque: ... 50 N·m (37 lb ft)

End By: Install the electric starting motor. Refer to Disassembly and Assembly, "Electric Starting Motor - Remove and Install".

Removal Procedure (3013, 3014 and 3024 Engines)

Required Tools

Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	1

Start By:

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

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

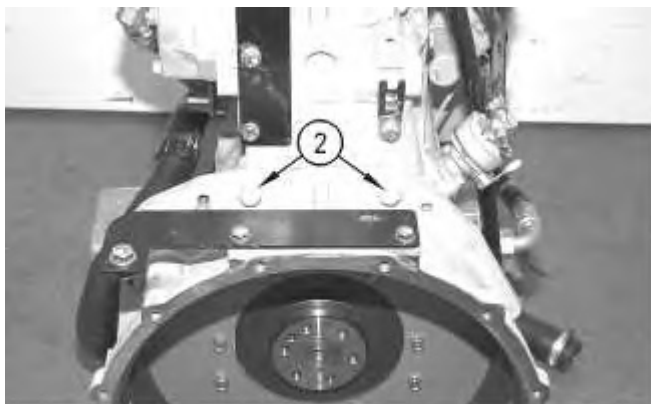
1. Support the engine with blocks or a suitable lifting device on a flat level surface.



Illustration 3

g00585650

2. Remove the bolt and clamp (1) in order to remove the hose and the clamp from the engine.



3. Remove two bolts (2) that fasten the flywheel housing to the cylinder block.

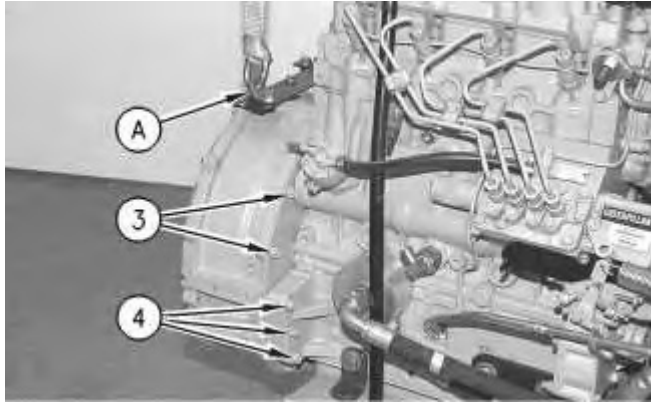


Illustration 5

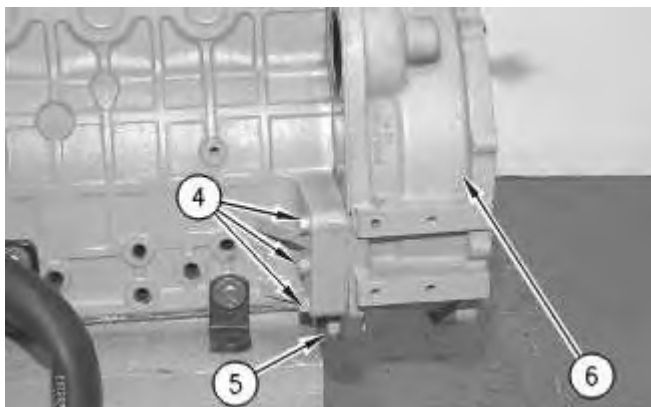


Illustration 6

4. Install Tool (A) and a suitable lifting device on the flywheel housing.
 5. Remove three bolts (4) on each side of the cylinder block. These bolts fasten the flywheel housing to the cylinder block.
 6. Remove two bolts (3) that fasten the backplate to the flywheel housing.
 7. Remove four nuts and four bolts (5) that fasten the backplate to flywheel housing (6) .
-

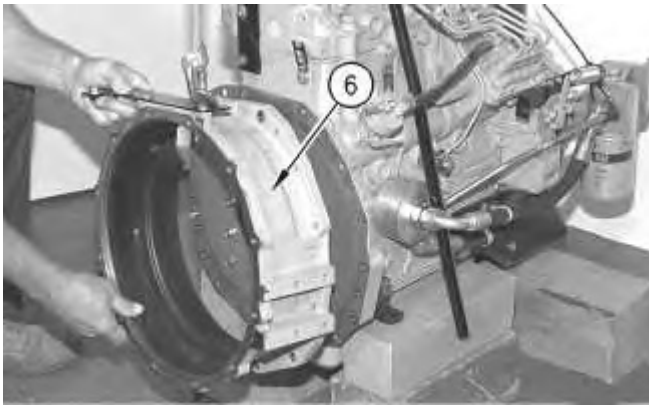


Illustration 7

g00585878

8. Use a suitable lifting device to remove flywheel housing (6) from the cylinder block.

The weight of the flywheel housing is 18 kg (40 lb).

Installation Procedure (3013, 3014 and 3024 Engines)

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Clean the rear face of the cylinder block and the face of the flywheel housing. Inspect the dowels for damage. Replace the dowels, if necessary.
-

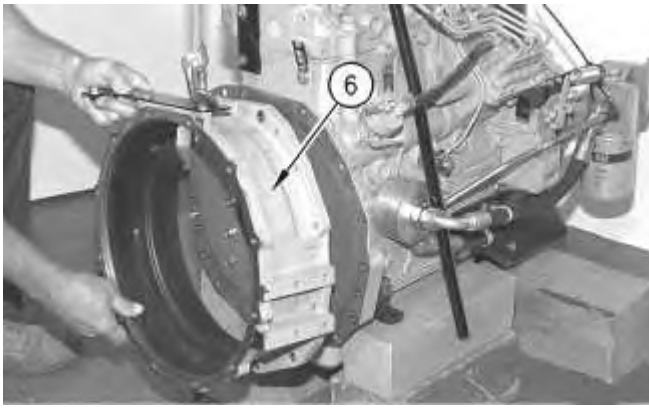


Illustration 8

g00585878

2. Align flywheel housing (6) on the dowels that are on the rear of the cylinder block.

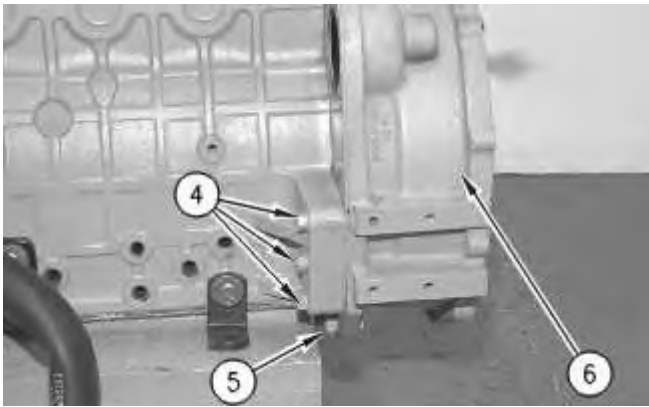


Illustration 9

g00585724

3. Install four nuts and four bolts (5) that fasten the backplate to flywheel housing (6) .

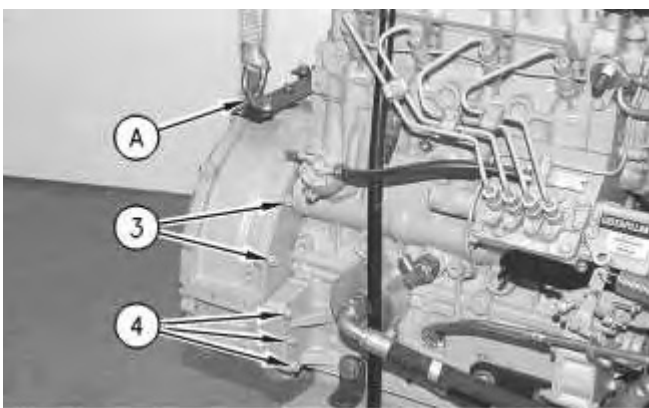


Illustration 10

g00585719

4. Install two bolts (3) that fasten the backplate to the flywheel housing.

5. Install three bolts (4) on each side of the cylinder block. These bolts fasten the flywheel housing to the cylinder block.
6. Tighten the flywheel housing bolts to the following torque:
3013, 3014, and 3024 Engines ... 25 N·m (18 lb ft)
7. Remove Tool (A) from the flywheel housing.

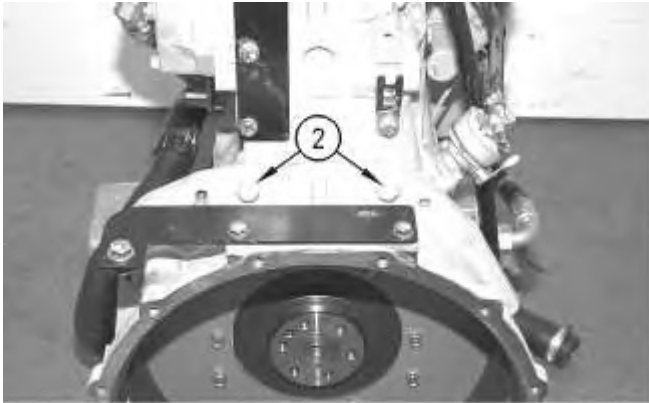


Illustration 11

g00585658

8. Install two bolts (2) that fasten the flywheel housing to the cylinder block.



Illustration 12

g00585650

9. Put the hose in position and install the bolt and clamp (1) on the hose bracket.

End By: Install the flywheel. Refer to Disassembly and Assembly, "Flywheel - Install".

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i01596029

Crankshaft Pulley - Remove and Install

SMCS - 1205-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Description	Qty
A	8S-2264	Puller Group ⁽¹⁾	1
	6V-3668	Bolt ⁽¹⁾	3

⁽¹⁾ 3013, 3014 and 3024 Engines only

1. Loosen the bolts for the alternator and slide the alternator toward the engine.
 2. Remove the fan drive belt.
-

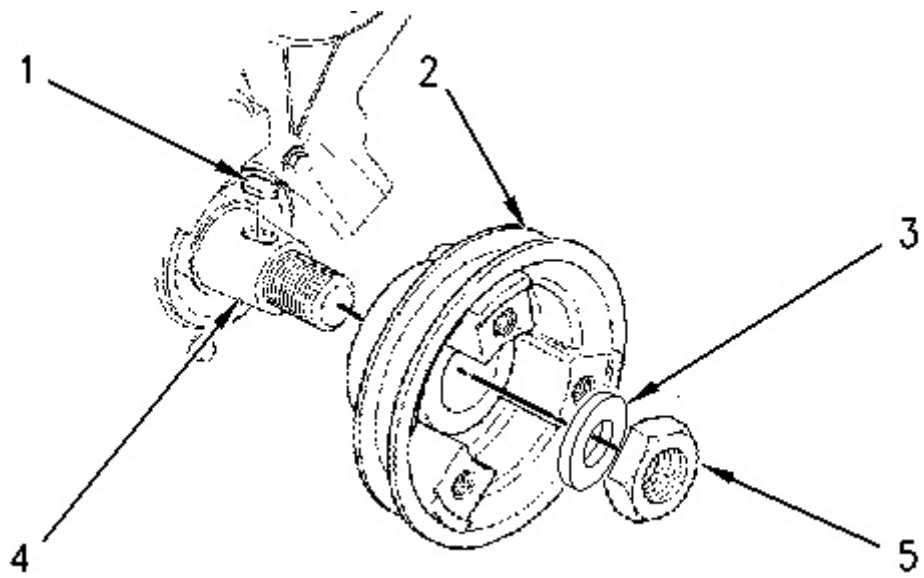


Illustration 1

g00827213

1. Remove nut (5) and washer (3) from crankshaft pulley (3) .

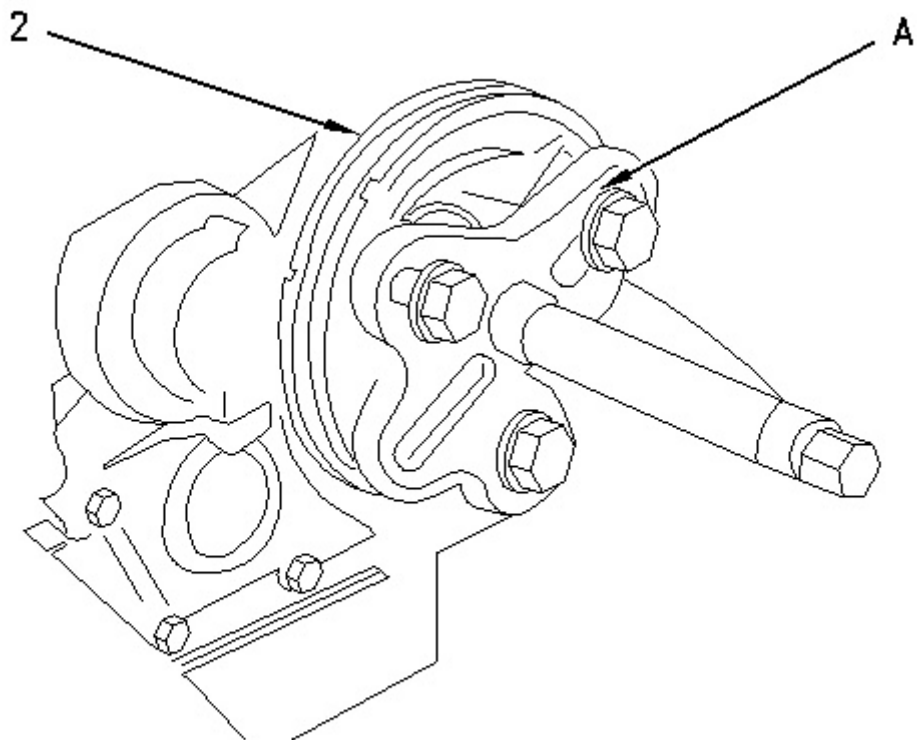


Illustration 2

g00827241

2. Use Tool (A) in order to remove crankshaft pulley (2) from crankshaft (4) .

Note: Remove crankshaft pulley (2) on 3013, 3014, and 3024 engines with Tooling (A) .

3. Remove woodruff key (1) from crankshaft (4) .

Installation Procedure

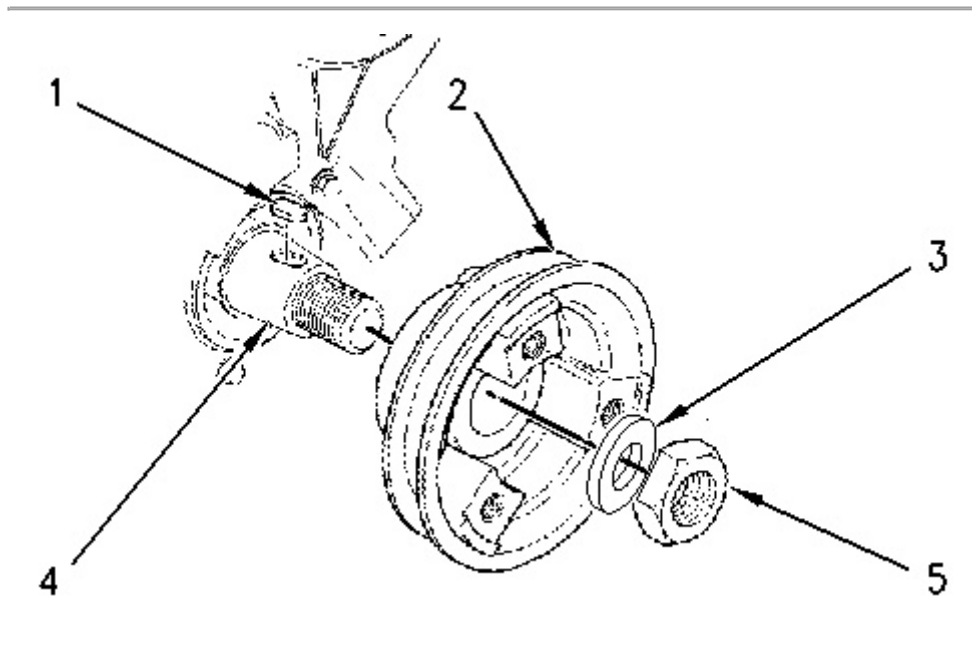


Illustration 3

g00827213

1. Install woodruff key (1) to crankshaft (4) .

2. Put crankshaft pulley (2) in position on the crankshaft (4) .

3. Position washer (3) on crankshaft (4) .

4. Lubricate nut (5) with clean engine oil and install the nut.

5. Tighten nut (5) to the following torque:

3003 Engine ... 123 N·m (91 lb ft)

3013, 3014, 3024and 3024C Engines ... 304 N·m (224 lb ft)

6. Put the V-belt in position on the engine.

7. Slide the alternator away from the engine and tighten the bolts for the alternator. Refer to Testing and Adjusting, "Belt Tension Chart" for more information on the proper belt tension.

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i02006248

Crankshaft Front Seal - Remove

SMCS - 1160-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-8145	Drill Bit	1
B	1U-7600	Slide Hammer Puller Gp	1

Start By:

- A. Remove the crankshaft pulley. Refer to Disassembly and Assembly, "Crankshaft Pulley - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

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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 on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

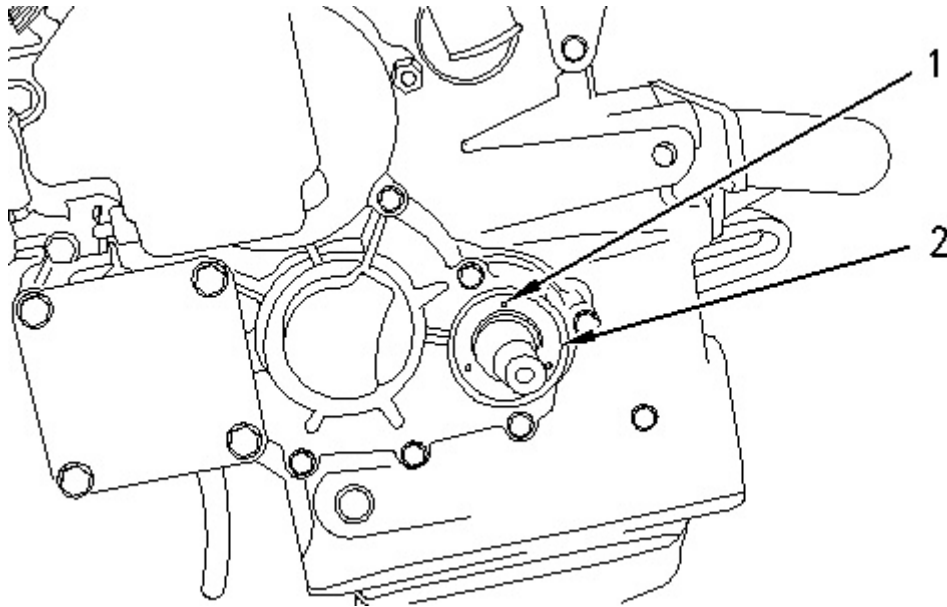


Illustration 1

g00827263

1. Use Tooling (A) and carefully drill three evenly spaced holes (1) in crankshaft front seal (2) .
-

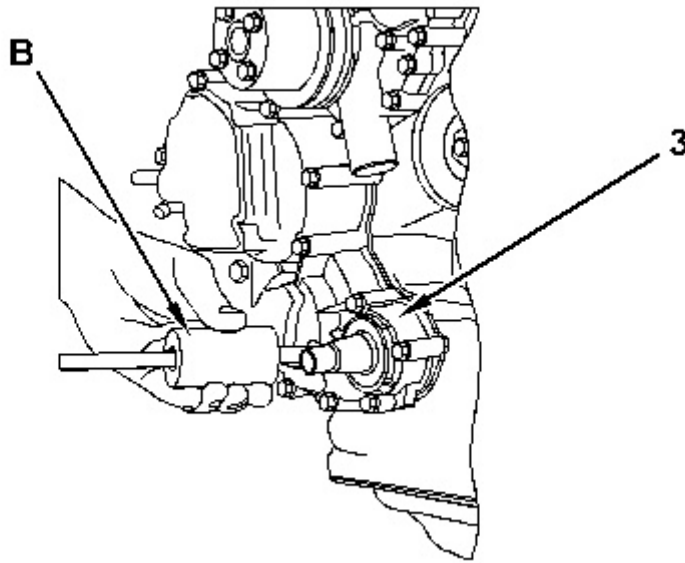


Illustration 2

g01037807

2. Carefully remove the crankshaft front seal by alternating the position of Tooling (B) from one hole to another hole. This will allow you to evenly remove the crankshaft front seal from housing (3) .

Note: Do not damage the flange of the crankshaft during the removal process of the crankshaft front seal.

NOTICE

Ensure that the main lip is used in order to remove the crankshaft front seal. Do not damage the edge of the housing for the crankshaft front seal.

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i02006359

Crankshaft Front Seal - Install

SMCS - 1160-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
C	5P-3537	Seal Guide	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

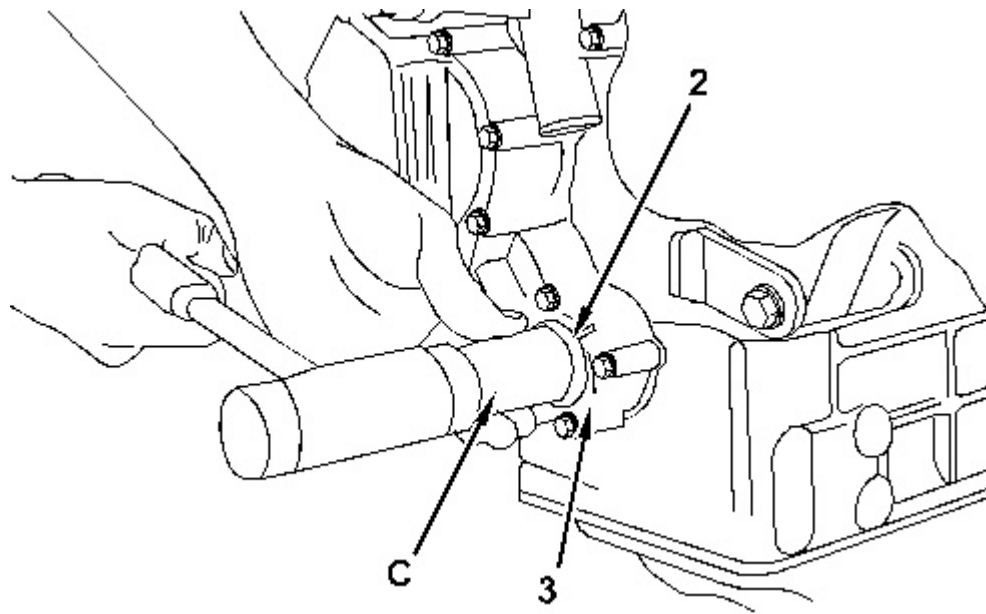


Illustration 1

g01037829

1. Clean housing (3) for crankshaft front seal (2) and inspect the housing for any damage.
2. Lubricate the lip of crankshaft front seal (2) with clean engine oil.
3. Position crankshaft front seal (2) in housing (3) for the crankshaft front seal.

NOTICE

Ensure that the lip of the crankshaft front seal that is spring loaded is facing toward the inside of the front housing and that it is square with the bore of the housing for the crankshaft front seal.

4. Use Tooling (C) to install new crankshaft front seal (2) .
5. Apply clean engine oil on the area of the crankshaft pulley that will be in contact with crankshaft front seal (2) .

End By: Install the crankshaft pulley. Refer to Disassembly and Assembly, "Crankshaft Pulley - Remove and Install".

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