

Product: COMPACT WHEEL LOADER

Model: 908H2 COMPACT WHEEL LOADER JRD

Configuration: 908H2 Wheel Loader JRD00001-UP (MACHINE) POWERED BY C3.3B Engine

Disassembly and Assembly C2.6 and C3.3B Engines for Caterpillar Built Machines

Media Number -UENR0137-11

Publication Date -01/08/2015

Date Updated -12/07/2018

i05242518

Engine Oil Relief Valve - Remove and Install

SMCS - 1315-010

Removal Procedure

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.

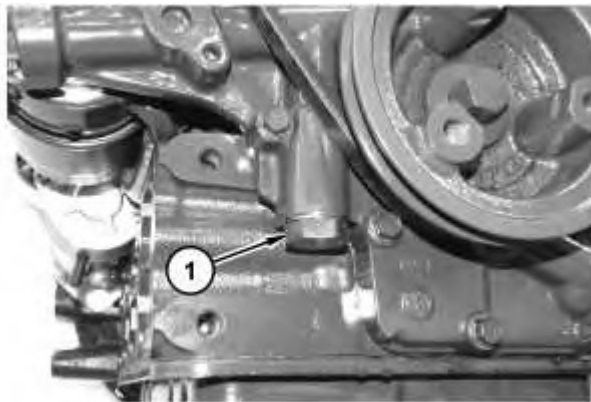


Illustration 1

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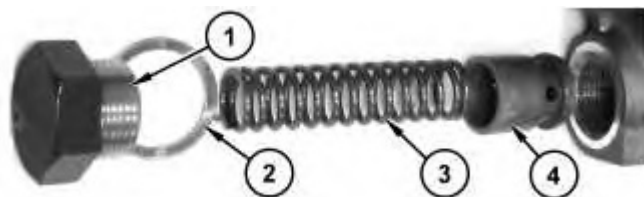


Illustration 2

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Personal injury can result from being struck by parts propelled by a released spring force.

Make sure to wear all necessary protective equipment.

Follow the recommended procedure and use all recommended tooling to release the spring force.

1. Loosen plug (1). Carefully remove cap (1) from the front housing cover.

Note: The spring force will be released when the cap is removed.

2. Remove plug (1), washer (2), spring (3), and plunger (4) from the bore for the relief valve in the front housing cover.

Installation Procedure

1. Install engine oil relief valve (1) in the reverse order of removal.

- a. Install plug (1) and tighten plug (1) to a torque of 69 to 78 N·m (51 to 57 lb ft).

Note: Ensure that the spring is properly located inside the plunger and the cap.

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i05242520

Engine Oil Pump - Remove and Install

SMCS - 1304-010

Removal Procedure

Start By:

- a. Remove the front housing.

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.

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.

Dispose of all fluids according to local regulations and mandates.

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Illustration 1

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1. Remove screws (2) and cover (1).



Illustration 2

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2. Remove inner rotor (4) from outer rotor (3).

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	129-1967	White Grease	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

If any part of the engine oil pump is worn or damaged, the complete assembly of the engine oil pump must be replaced.

1. Ensure that all components of the engine oil pump are clean and free from wear and damage.

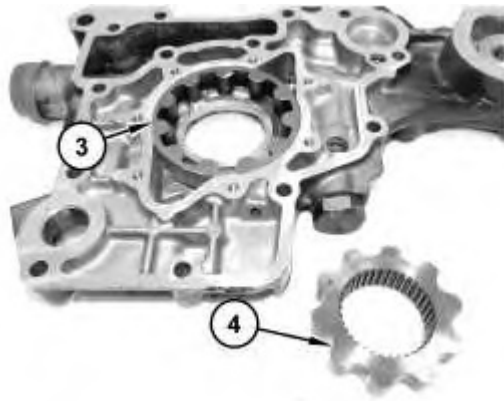


Illustration 3

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2. Position outer rotor (3) into the pump body. Check the clearance between outer rotor (3) and the pump body.
3. Install inner rotor (4) into outer rotor (3). Check the clearance between the lobes of outer rotor (3) and inner rotor (4).



Illustration 4

g02788686

4. Position a strip of Plastigage onto the outer rotor face with Tooling (A). Position cover (1) and install screws (2) and torque. Remove cover (1) and check clearance between the rotor and cover (1).
5. Position cover (1) and install screws (2). Tighten screws (2) to a torque of 8 to 9 N·m (70 to 83 lb in).

End By:

- a. Install the front housing.
-

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i05242540

Crankshaft Rear Seal and Wear Sleeve - Remove - Includes Crankshaft Gear

SMCS - 1161-011; 7558-011

Removal Procedure

Start By:

- a. Remove the flywheel.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Place the engine at top dead center.



2. Use a screw driver to remove rear seal (1).

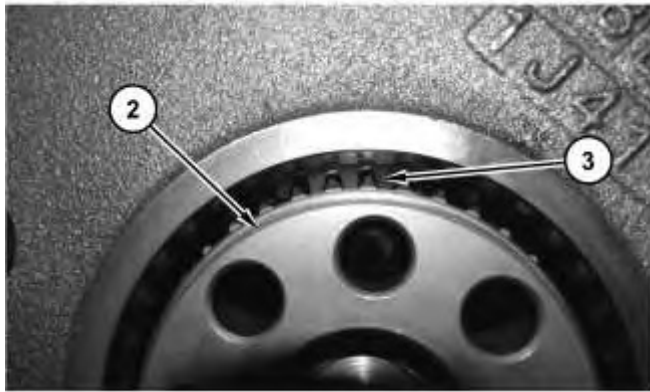


Illustration 2

3. Check the alignment of crankshaft gear (2) and camshaft gear (3). Remove crankshaft gear (2) and ring seal.

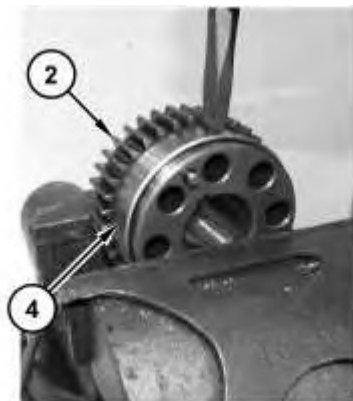


Illustration 3

4. Place crankshaft gear (2) with wear sleeve (4) in a suitable vice. Remove wear sleeve (4) with a suitable chisel.
-

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i05242547

Crankshaft Rear Seal and Wear Sleeve - Install - Includes Crankshaft Gear

SMCS - 1161-012; 7558-012

Installation Procedure

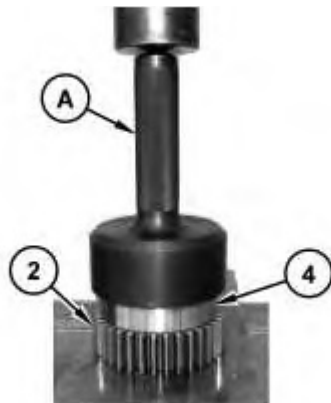
Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	390-1146	Crankshaft Rear Seal and Wear Sleeve Driver ⁽¹⁾	1
	423-9665	Crank shaft Rear Seal and Wear Sleeve Driver ⁽²⁾	1

⁽¹⁾ Used for the C3.3B

⁽²⁾ Used for the C2.6

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.



1. Place wear sleeve (4) on crankshaft gear (2). Position Tooling (A). Use a suitable press and install wear sleeve (4).



Illustration 2

2. Align crankshaft gear (2) with camshaft gear (3). Install crankshaft gear (2) into the flywheel housing.

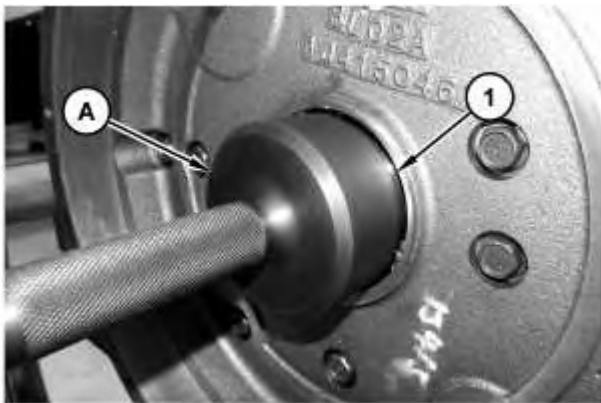


Illustration 3

3. Apply clean engine oil on the lip of crankshaft rear seal (1). Use Tooling (A) in order to install crankshaft rear seal (1).

End By:

- a. Install the flywheel.
-

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i05242551

Flywheel Housing - Remove and Install

SMCS - 1157-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	-	Guide Stud M12 x 1.25 by 100 mm	2
B	138-7575	Link Brackets	2

Start By:

- a. Remove the flywheel.
- b. Remove the rear crankshaft seal.

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.

NOTICE

Keep all parts clean from contaminants.

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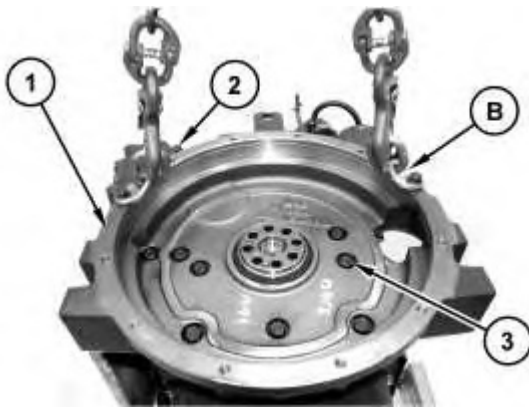


Illustration 1

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1. Remove two bolts (3) from flywheel housing (1).
2. Install Tooling (A) into flywheel housing (1).
3. Install Tooling (B). Install a suitable lifting device to flywheel housing (1). The weight of flywheel housing (1) is approximately 25 kg (55 lb).
4. Remove remaining six bolts (3) and 8 bolts (2) from flywheel housing (1).
5. Remove flywheel housing (1) from the cylinder block.



Illustration 2

g02794825

6. Remove bearing (4).
7. Remove the gasket (5).
8. If necessary, remove the dowels from the cylinder block.

Installation Procedure

1. Install flywheel housing (1) in the reverse order of removal.
-

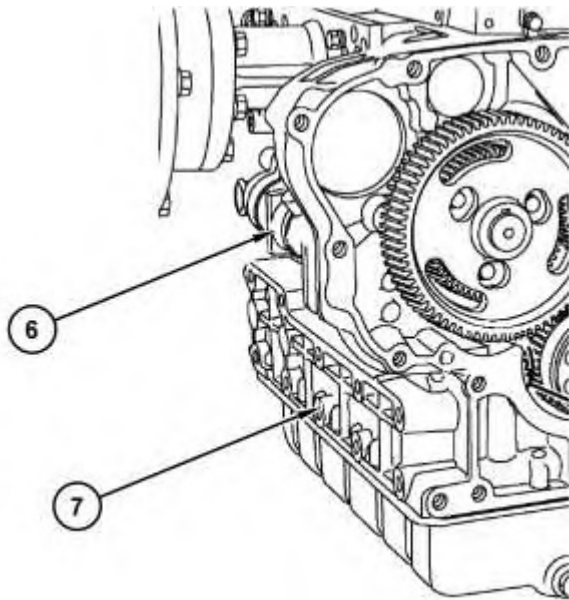


Illustration 3

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- a. Install liquid gasket to the seam between the lower crankcase section (7) and the upper crankcase section (6).
 - b. For the C3.3B tighten 8 bolts (3) and 8 bolts (2) to a torque of 103 to 117 N·m (76 to 87 lb ft).
 - c. For the C2.6 tighten 8 bolts (3) and 8 bolts (2) to a torque of 78 to 90 N·m (58 to 66 lb ft).
-

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i05242553

Crankshaft Pulley - Remove and Install

SMCS - 1205-010

Removal Procedure

Start By:

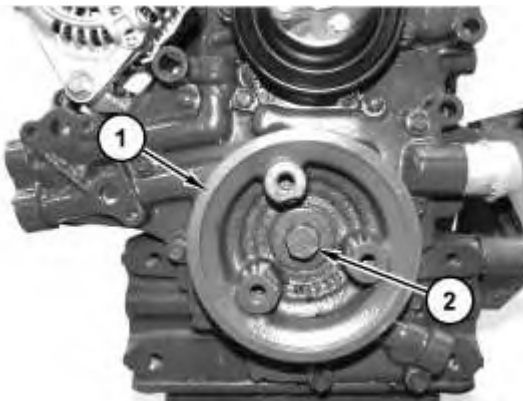
- a. Remove the v-belt.

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.



1. Use a suitable tool in order to prevent the crankshaft from rotating. Remove bolt (2) in order to remove crankshaft pulley (1).

Installation Procedure

1. Install crankshaft pulley (1) in the reverse order of removal.
 - a. Apply clean engine oil to the threads of bolt (2). Tighten bolt (2) to a torque of 255 to 274 N·m (188 to 202 lb ft).
-

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i05242559

Crankshaft Front Seal - Remove and Install

SMCS - 1160-010

Removal Procedure

Start By:

- a. Remove the crankshaft pulley.

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.

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Illustration 1

g02795123



Illustration 2

g02795124

1. Use a suitable pry bar to remove crankshaft front seal (1).

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	390-1140	Driver	1
B	6V-6640	Sealant	1

Note: The crankshaft front seal should be installed dry. Lubricate the inner rubber portion of the crankshaft front seal.

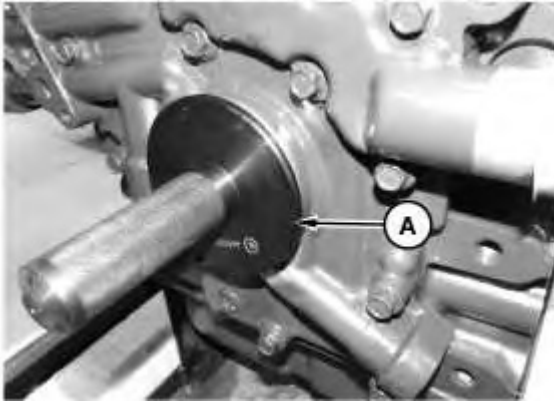


Illustration 3

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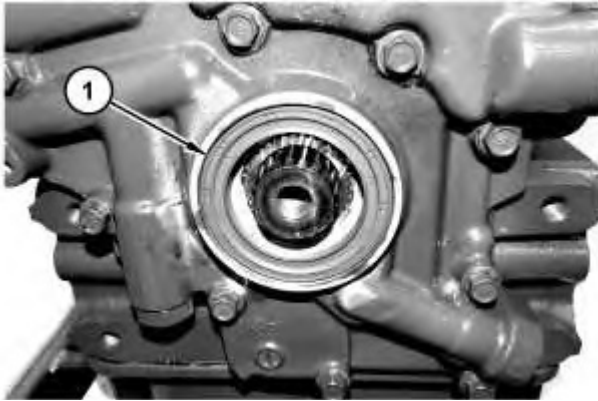


Illustration 4

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1. Lubricate the inner rubber portion of crankshaft front seal (1). Apply Tooling (B) on crankshaft front seal (1). Position crankshaft front seal (1) on Tooling (A). Install crankshaft front seal (1) on the crankshaft.

End By:

- a. Install the crankshaft pulley.
-

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i05242560

Idler Gear - Remove and Install - C3.3B

SMCS - 1206

S/N - A9W1-UP

S/N - A9Z1-UP

S/N - AJ71-UP

S/N - CE21-UP

S/N - DML1-UP

S/N - EML1-UP

S/N - F8C1-UP

S/N - FMR1-UP

S/N - FTK1-UP

S/N - GBJ1-UP

S/N - GTK1-UP

S/N - HAM1-UP

S/N - HEL1-UP

S/N - HMR1-UP

S/N - JBE1-UP

S/N - JRD1-UP

S/N - JRF1-UP

S/N - JRS1-UP

S/N - JSL1-UP

S/N - JSN1-UP

S/N - KTS1-UP

S/N - L661-UP

S/N - L771-UP

S/N - L881-UP

S/N - LST1-UP

S/N - MLT1-UP

S/N - MPW1-UP

S/N - NTL1-UP

S/N - PPT1-UP

S/N - RCX1-UP

S/N - SEN1-UP

S/N - STK1-UP

S/N - TAZ1-UP

S/N - TLK1-UP

S/N - WCT1-UP

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	390-1135	Idler Gear Tool	1

Start By:

- a. Remove the rear housing.

Note: Refer to Specification UENR0995 "Engine Design" for non-specified engine Torque Values.

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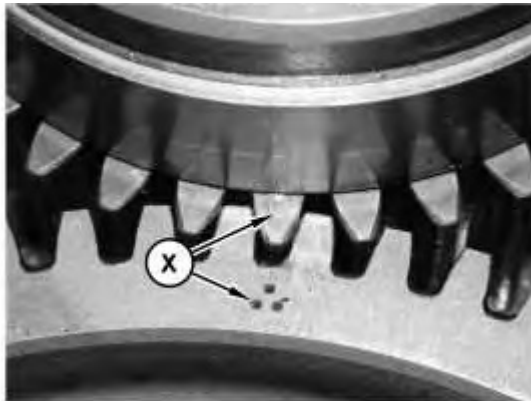


Illustration 1

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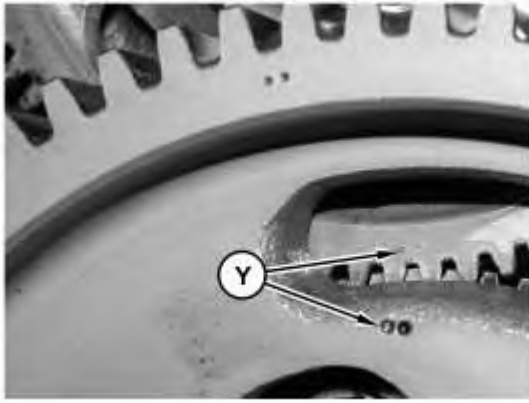


Illustration 2

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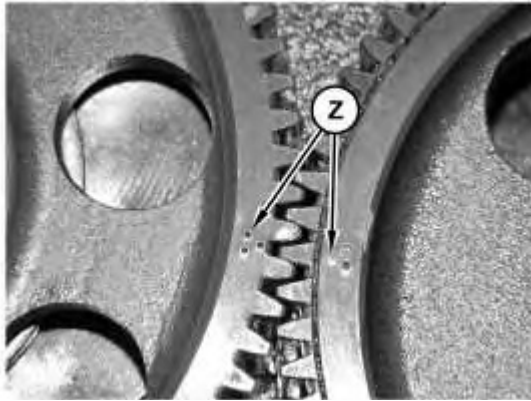


Illustration 3

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Alignment of timing marks

1. Ensure that Timing Marks (X) on the camshaft gear and the crankshaft gear are aligned. Refer to Illustration 1.
2. Ensure that Timing Marks (Y) on the idler gear and the camshaft gear are aligned. Refer to Illustration 2.
3. Ensure that Timing Marks (Z) on the idler gear and the fuel injection pump gear are aligned. Refer to Illustration 3.



4. Remove bolts (2), washer (3), and the idler shaft from idler gear (1). Remove idler gear (1) and the washer.

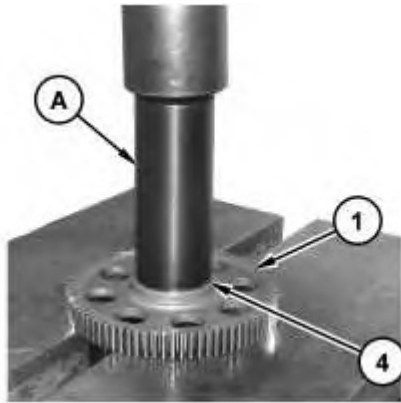


Illustration 5

5. Use Tooling (A) to remove idler gear bearing (4) from idler gear (1).

Installation Procedure

1. Install idler gear (1) in the reverse order of removal.
 2. Tighten bolts (2) to a torque of 30 to 34 N·m (22 to 25 lb ft).
 - a. Ensure that the gears, cylinder block surface, and idler gear (1) are clean and free from wear or damage. If necessary, replace any components that are worn or damaged.
 - b. Lubricate idler gear bearing surface (4) with clean engine oil.
 - c. Check oil clearance between the idler gear shaft and the idler gear bushing.
 - d. Check the idler gear shaft outer diameter and the inner diameter for the idler gear bushing.
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