

Product: TRACK-TYPE TRACTOR

Model: D7G TRACK-TYPE TRACTOR 91V

Configuration: D7G TRACTOR / DIRECT DRIVE / 91V00001-00953 (MACHINE)

## Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

Date Updated -25/01/2013

i00976049

## Pistons and Connecting Rods - Remove

SMCS - 1225-011

### Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	8S-2269	Ridge Reamer	1

#### Start By:

- Remove the spacer plate. Refer to Disassembly and Assembly, "Spacer Plate - Remove and Install".
- Remove the engine oil pan plate. Refer to Disassembly and Assembly, "Engine Oil Pan Plate - Remove and Install".
- Remove the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - 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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- Use Tool (A) to remove the liner wear ridge from the inner surface of the cylinder liner.
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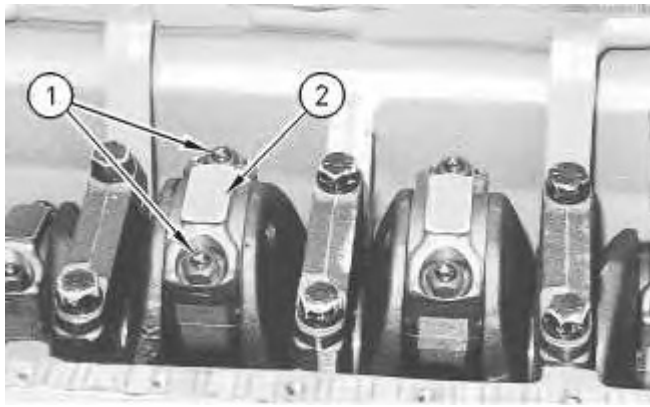


Illustration 1

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2. Turn the crankshaft until two of the pistons are at the bottom center. Remove connecting rod nuts (1) from the connecting rod. Remove connecting rod cap (2). Put identification marks on the connecting rod and connecting rod cap. The identification marks must be on the bearing tab side for installation purposes.

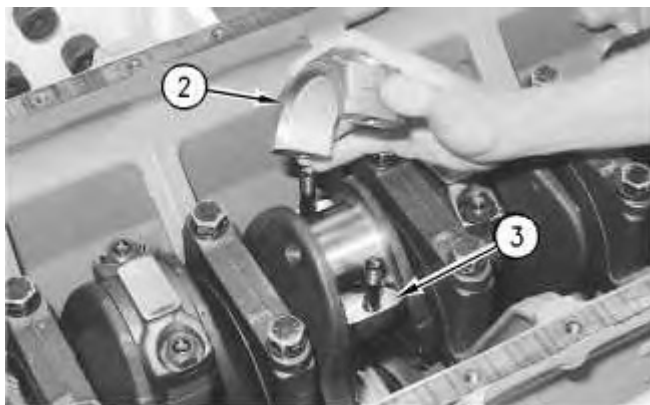


Illustration 2

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Illustration 3

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3. After connecting rod cap (2) is removed, push connecting rod (3) away from the crankshaft until the piston rings are out of the cylinder liners. Remove piston (4) from the cylinder block.
4. Ensure that the connecting rod and the connecting rod cap are kept as a set. Put an identification mark on each piston in order to locate the piston in the cylinder block.
5. Repeat Steps 1 through 4 for the remaining piston and connecting rods.

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## Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

Publication Date -01/01/2013

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i00977166

## Pistons and Connecting Rods - Disassemble

SMCS - 1225-015

### Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	7S-9470	Piston Ring Expander	1
B	5P-8639	Press Group	1
	5P-8645	Adapter	1
	6V-3029	Spacer	1
	6V-2049	Adapter	1
	1U-5230	Hand Hydraulic Pump	1
	8F-0024	Hose	1
	1P-2375	Connecting Coupler	1
	1P-2376	Connecting Coupler	1

#### Start By:

- Remove the pistons and connecting rods. Refer to Disassembly and Assembly, "Pistons and Connecting Rods - Remove".

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**NOTICE**

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Illustration 1

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1. Remove the piston rings from the pistons with Tool (A) .

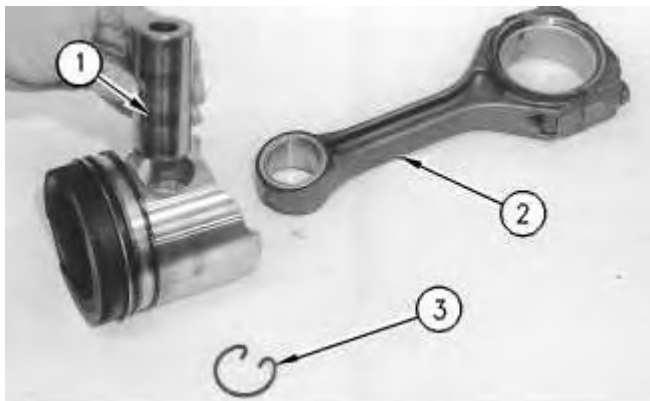


Illustration 2

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2. Remove retaining ring (3), piston pin (1) and connecting rod (2) .
  3. Remove the connecting rod bearing.
  4. Heat the connecting rod in an oven to a temperature of 176 to 260 °C (350 to 500 °F). Do not use a direct flame to heat a connecting rod.
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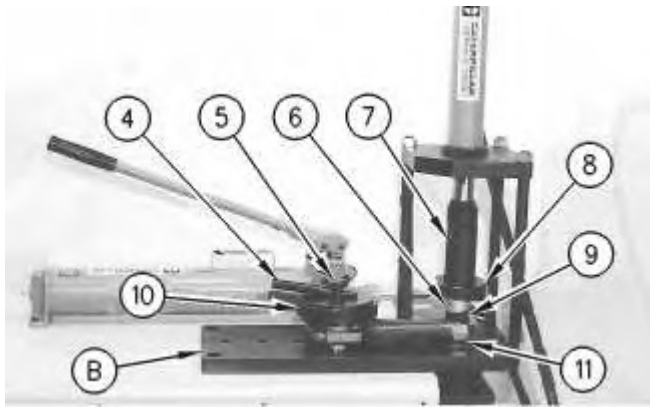


Illustration 3

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**Hot oil and hot components can cause personal injury. Do not allow hot oil or hot components to contact the skin.**

5. Put **6V-3029** Spacer (11) into the base plate. Put the connecting rod on the base plate of Tool (B) .
  6. Put the connecting rod piston pin bearing end in the center of the port assembly of Tool (B). Install pin (5) in the center of the bore for the connecting rod bearing.
  7. Install **6V-2049** Adapter (9). Align the hole in the adapter with the hole in the base plate of Tool (B) .
  8. Install clamp bar (10) and clamp pin (4) .
- Note:** The old piston pin bearing is removed while the new piston pin bearing is installed.
9. Put the new piston pin bearing on the connecting rod. Install **5P-8645** Adapter (8) with the tapered end of the adapter toward the piston pin bearing. The piston pin bearing joint must be in alignment with the hole in **6V-2049** Adapter (9) and the base plate of Tool (B) .
  10. Install adapter (7) from the press group on adapter (11) .
  11. Use Tool (B) to push the new piston pin bearing (6) into the connecting rod. Press piston pin bearing (6) into position until adapter (8) makes contact with the connecting rod surface.
  12. Remove the connecting rod and the old piston pin bearing from Tool (B) .
  13. Check the piston pin bearing bore diameter after the bearing is installed. The correct inside diameter is  $43.210 \pm 0.008$  mm ( $1.7012 \pm 0.0003$  inch). The clearance between the bearing and the piston pin must not be more than 0.08 mm (0.003 inch). Refer to Special Instruction, SMHS7295 for additional information on removing the piston pin bearings.

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## Disassembly and Assembly 3304B and 3306B Engines for Caterpillar Built Machines

Media Number -SEN5598-09

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i00977179

## Pistons and Connecting Rods - Assemble

SMCS - 1225-016

### Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	7S-9470	Piston Ring Expander	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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1. Clean the grooves of the used pistons with an acceptable tool or **1U-8811** Cleaner .
  2. Install the connecting rod bearings. Ensure that the tabs on the back side of the connecting rod bearings are in the tab grooves of the connecting rod and the connecting rod cap.
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