Disassembly and Assembly
3304B and 3306B Engines for Caterpillar Built Machines
Media Number -SENR5598-09 **Publication Date -01/01/2013** **Date Updated -25/01/2013**

i00987670

Connecting Rod Bearings - Install

SMCS - 1219-012

Installation Procedure

Table 1

Tool	Part Number	Part Description	Qty
A	-	Plastigage	-

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: Install the connecting rod bearings dry when the clearance checks are made. Put clean engine oil on the connecting rod bearings for final assembly.

1. Install the upper half of the connecting rod bearing in the connecting rod.
2. Install the lower half of the connecting rod bearing in the connecting rod.

   Note: Align the tabs on the back of the connecting rod bearings with the tab grooves in the connecting rod.

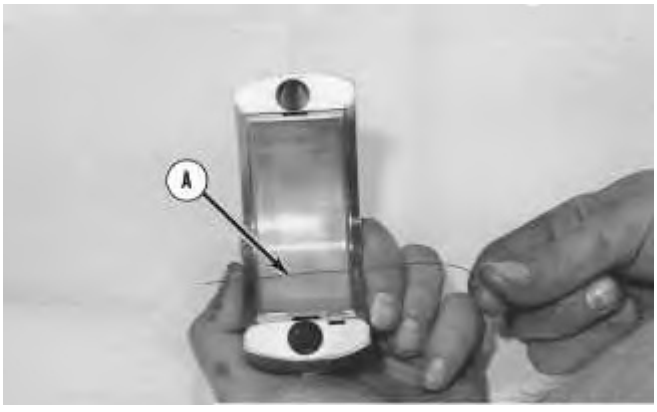

Illustration 1 g00487493

3. In order to check the connecting rod bearing clearance, put Tool (A) on the connecting rod bearing, as shown.
4. Put clean engine oil (SAE 30) on the connecting rod bolts.

NOTICE

When the connecting rod caps are installed, ensure that the identification marks are aligned.

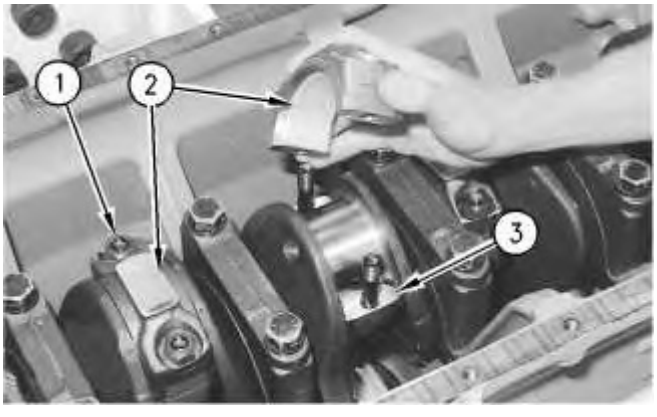

Illustration 2 g00487412

Note: Do not turn the crankshaft when Tool (A) is positioned.

5. Ensure that connecting rod (3) is in position on the crankshaft. Install connecting rod cap (2) and connecting rod nuts (1) on connecting rod (3) .

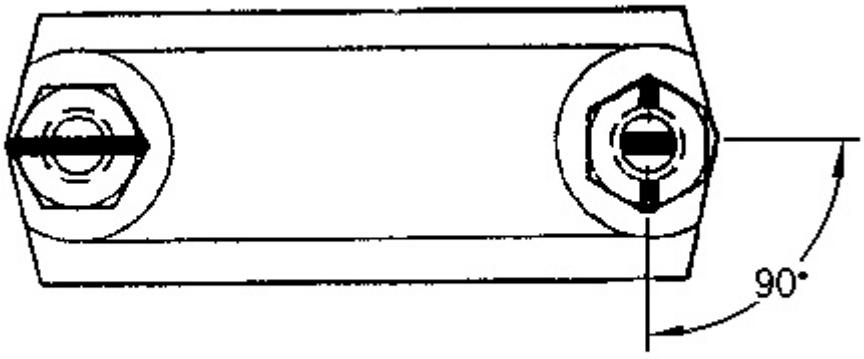

Illustration 3 g00287852

6. Tighten the connecting rod nuts to a torque of 40 ± 4 N·m (30 ± 3 lb ft). Mark the position of the nuts. Tighten each nut for an additional 90 degrees (1/4 turn).

7. Remove the connecting rod cap. Measure Tool (A) on the bearing surface before Tool (A) is removed. The clearance between the connecting rod bearing and a new crankshaft should be 0.076 to 0.168 mm (.0025 to .0066 inch). The clearance between the connecting rod bearing and a used crankshaft should be 0.25 mm (0.01 inch).

8. Install connecting rod cap (2) and connecting rod nuts (1) on connecting rod (3). Repeat Step 6 in order to tighten the nuts.

9. Repeat Steps 1 through 8 for the remaining connecting rod bearings.

End By:

a. Install the oil pan plate. Refer to Disassembly and Assembly, "Engine Oil Pan Plate - Remove and Install".
b. Install the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Install".

Product: TRACK-TYPE TRACTOR
Model: D6H XL TRACK-TYPE TRACTOR 8ZJ
Configuration: D6H Series II XL Track-Type Tractor Power Shift 8ZJ00001-UP (MACHINE) POWERED BY 3306 Engine

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i00990466

Crankshaft Main Bearings - Remove

SMCS - 1203-011

Removal Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	2P-5518	Bearing Tool	1

Start By:

A. Remove the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Remove".
B. Remove the oil pan plate. Refer to Disassembly and Assembly, "Engine Oil Pan Plate - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

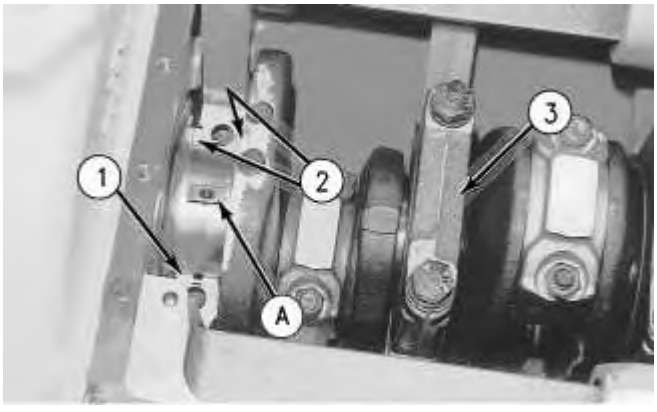

Illustration 1 g00479056

1. Remove No. 1, 3, 5 and 7 main bearing caps (3). Remove the lower halves of the main bearings from the main bearing caps.

   Note: If the crankshaft is turned in the wrong direction, the tab on the bearing will be pushed between the crankshaft and the bearing area in the cylinder block. This can result in damage to the cylinder block and/or the crankshaft.

2. Install Tool (A) in the oil hole in the crankshaft journal. Turn the crankshaft in order to remove the upper halves of main bearings (1) .

3. Remove crankshaft thrust plates (2) from the crankshaft.

4. Install No. 1, 3, 5, and 7 main bearing caps (3). Refer to Disassembly and Assembly, "Crankshaft Main Bearings - Install".

5. Remove the remaining main bearing caps (No. 2, 4 and 6) (3). Remove the lower halves of the main bearings from the main bearing caps.

   Note: If the crankshaft is turned in the wrong direction, the tab on the bearing will be pushed between the crankshaft and the bearing area in the cylinder block. This can result in damage to the cylinder block and/or the crankshaft.

6. Install Tool (A) in the hole in the crankshaft journal. Turn the crankshaft in order to remove the upper halves of main bearings (1) .

Product: TRACK-TYPE TRACTOR
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i03706647

Crankshaft Main Bearings - Install

SMCS - 1203-012

Installation Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	2P-5518	Bearing Tool	1
B	-	Plastigage	-
C	8T-5096	Dial Indicator Group	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: Install the main bearings dry when the clearance checks are made. Put clean engine oil on the main bearings for final assembly.

Note: Ensure that the upper halves and the lower halves of the main bearings are installed so that the bearing tabs fit into the notch in the cylinder block and in the main bearing caps.

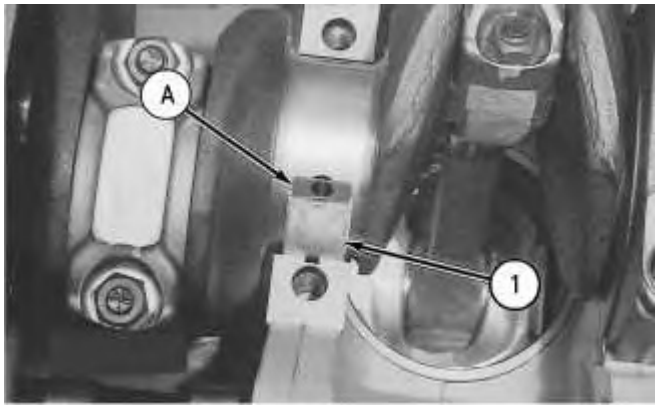

Illustration 1 g00479169

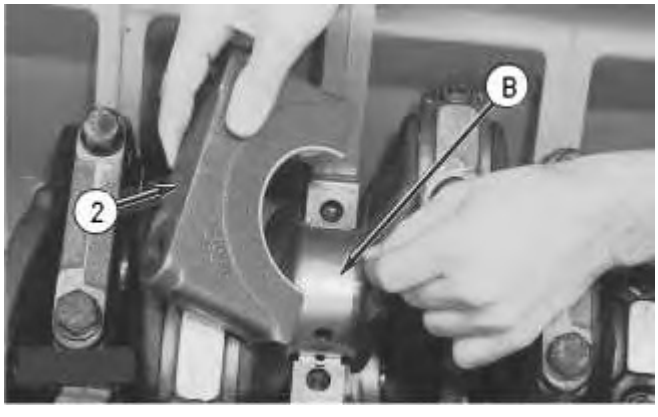

Illustration 2 g00479171

1. Use Tooling (A) and install the new upper halves of main bearings (1) in the cylinder block. Install new lower halves of main bearings (1) in main bearing caps (2) .

   Note: When the bearing clearance is checked and the engine is in an upright position or on the engine's side, the crankshaft must be supported against the upper halves of the main bearings. This is done in order to get a correct measurement with Tooling (B) . If the crankshaft is not supported, the weight of the crankshaft will cause an incorrect reading. If the engine is not in an upright position or on the engine's side, it is not necessary to support the crankshaft. Do not rotate the crankshaft when Tooling (B) is positioned.

   Note: Refer to Guideline For Reusable Parts, SEBV0544, "Engine Bearings and Crankshafts" for complete details concerning the measurement of bearing clearances.

2. Check the main bearing clearance with Tooling (B) , as follows:

   a. Put a piece of Tooling (B) on the crankshaft journals, as shown.

      Note: Make sure that the part number on the main bearing cap is facing toward the front of the engine. Also, make sure that the number on the main bearing cap matches the number on the cylinder block on the left side of each main bearing cap.

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