

Product: EXCAVATOR  
Model: 325C EXCAVATOR BKH  
Configuration: ISJ HEX COMMONALITY CHART BKH00001-UP (MACHINE)

## Disassembly and Assembly 3126B Engines for Caterpillar Built Machines

Media Number -SEN9581-06

Publication Date -01/08/2018

Date Updated -17/08/2018

i02372770

# Pistons and Connecting Rods - Install

SMCS - 1225-012

## Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	173-5529	Piston Ring Compressor	1
B	4C-5593	Anti-Seize Compound	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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### NOTICE

The joint between the connecting rod and the connecting rod cap is produced by fracturing. The connecting rod assembly must be handled with care in order to avoid damage to the mating surfaces. The connecting rod assembly must be replaced if any damage occurs to the mating surfaces. New connecting rod assemblies come with the connecting rod caps bolted on the connecting rod.

**Use only a soft jawed vise to hold the connecting rod assembly when removing the connecting rod cap bolts. Use only a soft faced hammer to tap the connecting rod cap when separating the connecting rod cap from the connecting rod.**

**Failure to use a soft jawed vise and a soft faced hammer may result in damage to the connecting rod assembly.**

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## NOTICE

**Always use new connecting rod bolts during the installation of connecting rod assemblies that have fractured joints. Never reuse connecting rod bolts during the reassembly of fractured joint connecting rods.**

**Reusing connecting rods bolts during reassembly of fractured joint connecting rods may result in engine damage.**

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1. Ensure that the fractured joints of the connecting rod are clean prior to installation. Use compressed air or a wire brush to clean the joints.
2. Apply clean engine oil to the pistons, the piston rings, and the cylinder bore.

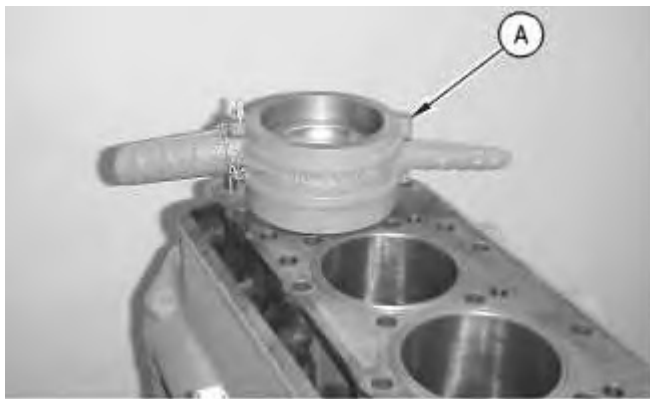


Illustration 1

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3. Position the piston rings so that the end gaps are located 120 degrees from each other. Install Tooling (A) in order to compress the piston rings.
4. With the number one crankshaft throw at the bottom center, install the piston and connecting rod in the engine. Ensure that the proper piston and connecting rod are in the corresponding cylinder with the bearing retainer notch toward the right side of the engine. The etched number on the connecting rod must be positioned on the right side of the engine.
5. Line up the piston and the connecting rod with the crankshaft. Use a soft faced hammer and tap the piston into the cylinder bore until Tooling (A) comes off of the piston.

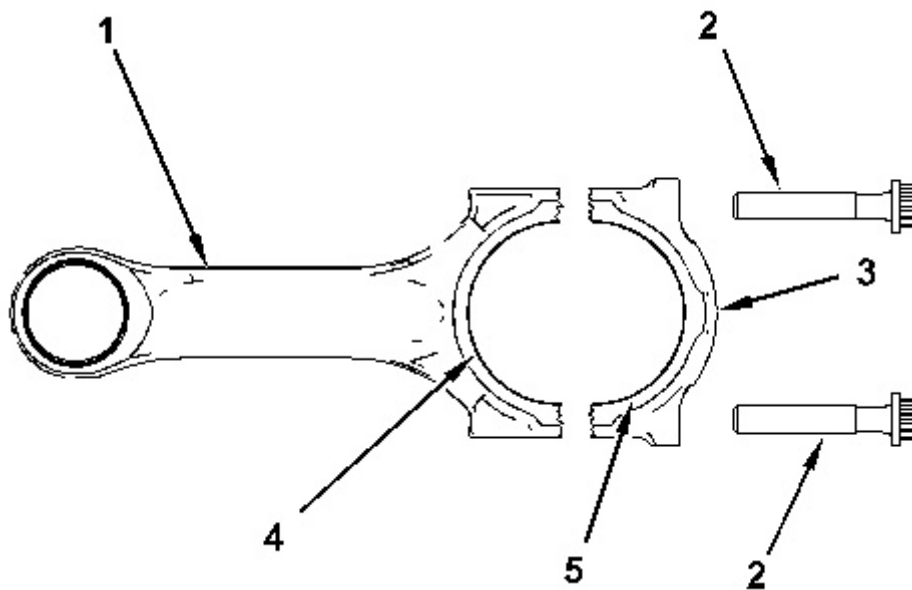


Illustration 2

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6. Before connecting rod (1) comes in contact with the crankshaft, install the upper half of connecting rod bearing (4). Ensure that the bearing tab engages with the slot in connecting rod (1).
7. Apply clean engine oil to the surface of the upper half of connecting rod bearing (4). Use a soft faced hammer in order to tap the piston into the cylinder bore while you guide connecting rod (1) onto the crankshaft.
8. Place the lower half of connecting rod bearing (5) in corresponding connecting rod cap (3). Ensure that the bearing tab engages with the groove in connecting rod cap (3).
9. Apply clean engine oil to the surface of the lower half of connecting rod bearing (5). Install connecting rod cap (3) on connecting rod (1). Ensure that the number on connecting rod cap (3) matches the number on connecting rod (1). Ensure that the numbers are on the same side.
10. Apply Tooling (B) to the new connecting rod bolts.
11. Install new connecting rod bolts (2). Tighten connecting rod bolts (2) to a torque of  $70 \pm 5 \text{ N}\cdot\text{m}$  ( $52 \pm 4 \text{ lb ft}$ ).
12. Place an index mark on each connecting rod bolt. Tighten each connecting rod bolt (2) for an additional  $120 \pm 5$  degrees ( $1/3$  turn).

**End By:**

- a. Install the piston cooling jets. Refer to Disassembly and Assembly, "Piston Cooling Jets - Remove and Install".
- b. Install the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Install".
- c. Install the cylinder head. Refer to Disassembly and Assembly, "Cylinder Head - Install".

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i01983695

# Crankshaft Main Bearings - Remove

SMCS - 1203-011

## Removal Procedure

Table 1

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

### Start By:

- Remove the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Remove".

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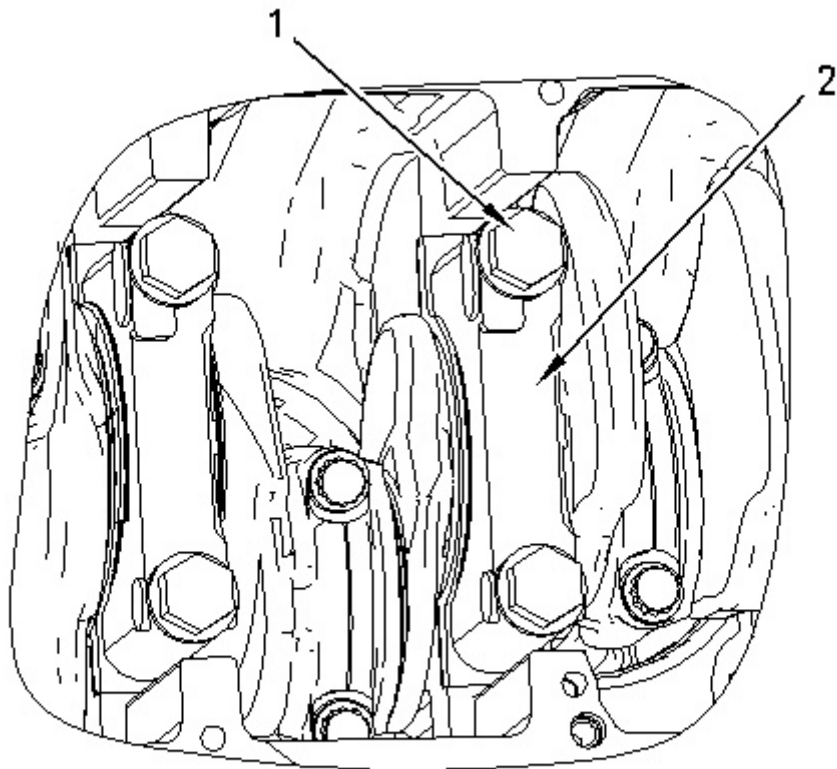
### NOTICE

**Keep all parts clean from contaminants.**

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

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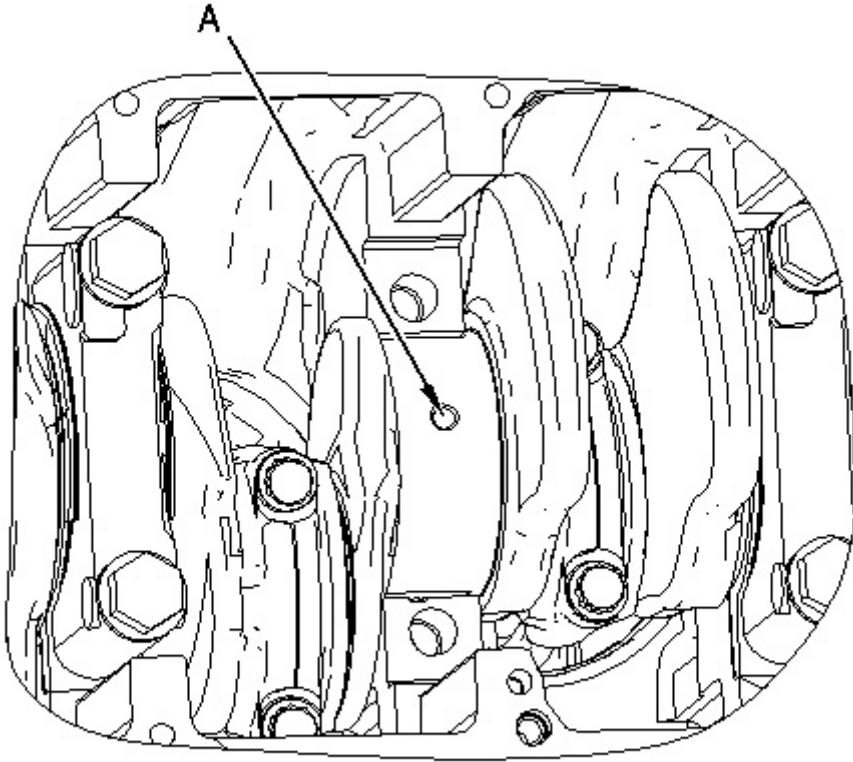


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Illustration 1

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1. Remove bolts (1). Remove crankshaft main bearing cap (2).
  2. Remove the lower half of the crankshaft main bearing from crankshaft main bearing cap (2).
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Illustration 2

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### NOTICE

**If the crankshaft is turned in the wrong direction, the tab of the crankshaft main bearing will be pushed between the crankshaft and the cylinder block. this can cause damage to either or both the crankshaft and the cylinder block.**

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3. Install Tooling (A).
  4. Turn the crankshaft in order to remove the upper half of the crankshaft main bearing.
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i01518323

# Crankshaft Main Bearings - Install

SMCS - 1203-012

## Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	2P-5518	Main Bearing Tool	1
B	8T-5096	Dial Indicator Group	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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**Note:** Place clean engine oil on the crankshaft main bearings prior to assembly. Ensure that the tabs on the back side of the crankshaft main bearings fit in the grooves of the crankshaft main bearing caps and the cylinder block.

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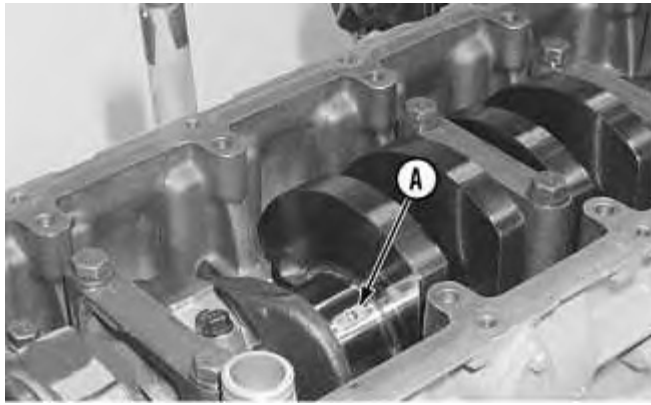


Illustration 1

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1. Use Tool (A) and install the upper halves of the crankshaft main bearings in the cylinder block. Do not put oil on the back of the crankshaft main bearing.

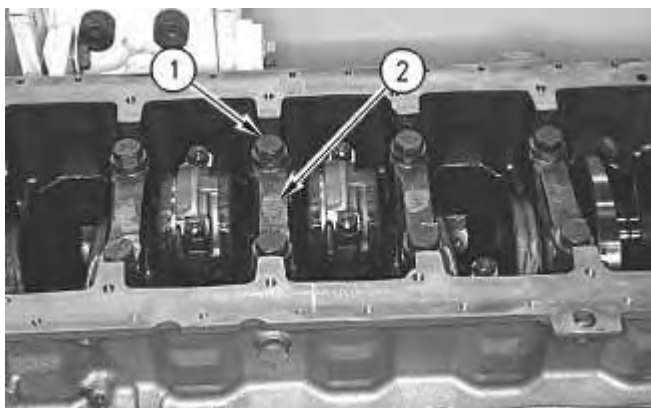


Illustration 2

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2. Install the lower halves of the crankshaft main bearings in crankshaft main bearing caps (2). Do not put oil on the back of the crankshaft main bearing.

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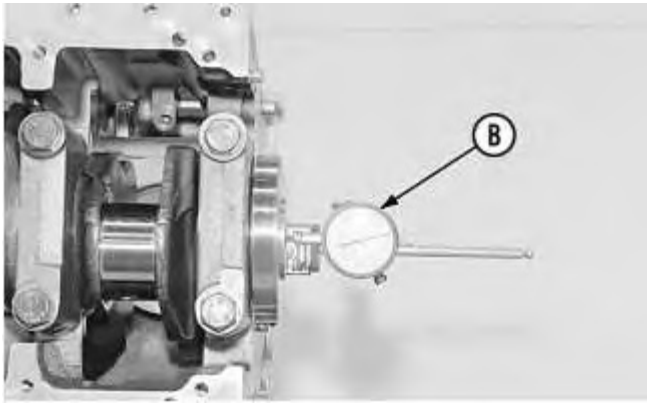
## NOTICE

**Crankshaft main bearing caps should be installed with the part number toward the right side of the engine. Crankshaft main bearing caps are to be identified by stamped numbers 1 through 7 located on the bottom surface. The thrust plate is used on the number 6 crankshaft main bearing only.**

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3. Place crankshaft main bearing caps (2) in position on the cylinder block. Place clean engine oil or Molybute on the bolt threads and on the washer face. Install bolts (1).
  4. Tighten bolts (1) to a torque of  $54 \pm 7 \text{ N}\cdot\text{m}$  ( $40 \pm 5 \text{ lb ft}$ ). Tighten each bolt (1) for an additional  $90 \pm 5$  degrees ( $1/4$  turn).
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Illustration 3

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5. Check the end play of the crankshaft with Tool (B). The end play must be 0.07 mm (0.003 inch) to 0.32 mm (0.013 inch).

**End By:**

- a. Install the engine oil pump. Refer to Disassembly and Assembly, "Engine Oil Pump - Install".
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