



Service Repair Manual

Models

5130 MINING EXCAVATOR

Product: MINING EXCAVATOR

Model: 5130 MINING EXCAVATOR 5ZL

Configuration: 5130 Excavator 5ZL00001-UP (MACHINE) POWERED BY 3508 Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i06883891

Camshaft - Install

SMCS - 1210-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	238-9586	Camshaft Drive Group	1
C	125-0200	Camshaft Pilot As	2
D	125-0201	Camshaft Guide As	1
E	8T-3169	Crank As	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

- The following steps are for the installation of a camshaft in the 3512B Engines and 3516B Engines.** The camshaft is in two pieces.

Note: Ensure that the camshafts are assembled and installed according to the marks on the ends of the camshafts.

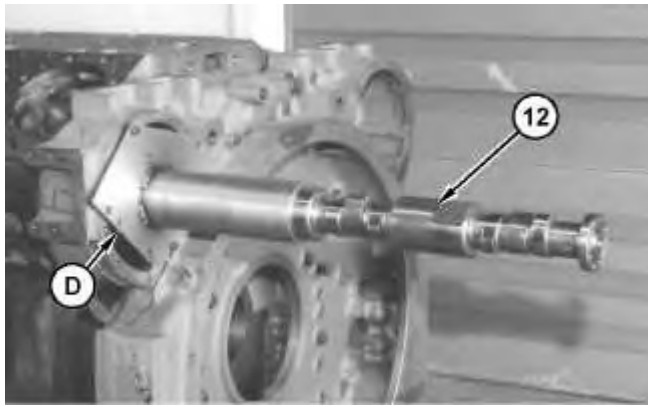


Illustration 1

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- a. Install Tooling (D) on the flywheel housing. Do not tighten the bolts on Tooling (D).
- b. Install Tooling (C) on the end of the front half of the camshaft.
- c. Ensure that the camshaft and the camshaft bearings are clean. Place clean engine oil on the lobes and the journals of the camshaft. Also place clean engine oil on the camshaft bearings.
- d. Attach a suitable lifting device to the camshaft. The weight of one-half of the camshaft for 3512B Engines is approximately 36 kg (80 lb). The weight of one-half of the camshaft for 3516B Engines is approximately 41 kg (90 lb).
- e. Position the front half of camshaft (12) in the engine until Tooling (C) is in the first camshaft bearing.
- f. Rotate camshaft (12) and tighten the bolts for Tooling (D).
- g. Rotate camshaft (12) and insert the camshaft until the camshaft is slightly protruding from Tooling (D).

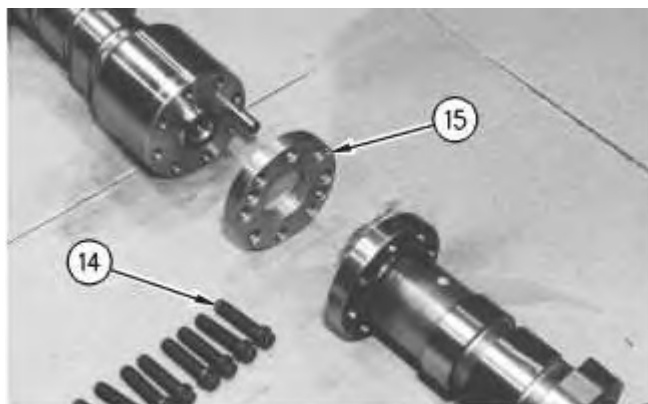


Illustration 2

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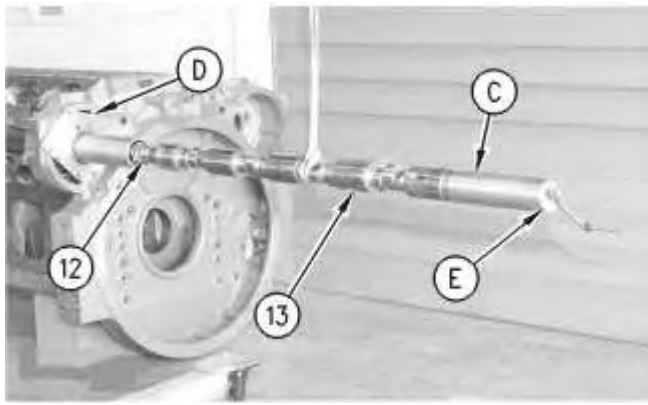


Illustration 3

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- h. If the dowel was removed from the front half of camshaft (12), install the dowel. Install the dowel to 22 ± 0.5 mm (0.9 ± 0.02 inch) from the surface of the camshaft.
 - i. Attach a suitable lifting device to rear half of camshaft (13). The weight of one-half of the camshaft for 3512B Engines is approximately 36 kg (80 lb). The weight of one-half of the camshaft for 3516B Engines is approximately 41 kg (90 lb). Install spacer (15) and the rear half of camshaft (13) onto the front half of camshaft (12). Install bolts (14) and tighten to a torque of 55 ± 7 N·m (41 ± 5 lb ft).
 - j. Install Tooling (C) and Tooling (E) on the rear half of camshaft (13).
 - k. Rotate the rear half of camshaft (13) and insert the camshaft into the engine.
 - l. Remove all Tooling. Repeat Steps 1.a through 1.k for the camshaft on the opposite side of the engine. Go to Step 3.
2. **The following steps are for the installation of the camshaft in 3508B Engines.** The camshaft is one piece.
- a. Install Tooling (D) on the flywheel housing. Do not tighten the bolts on Tooling (D).
 - b. Install Tooling (C) on the end of the camshaft.
 - c. Ensure that the camshaft and the camshaft bearings are clean. Place clean engine oil on the lobes and the journals of the camshaft. Also place clean engine oil on the camshaft bearings.
- Note:** Ensure that the camshafts are installed according to the marks on the ends of the camshafts.
- d. Attach a suitable lifting device to the camshaft. The weight of the camshaft is approximately 46 kg (101 lb). Insert the camshaft in the engine until Tooling (C) is in the first camshaft bearing.
 - e. Install Tooling (E). Rotate the camshaft and tighten the bolts on Tooling (D).
 - f. Rotate the camshaft and insert the camshaft into the engine.
 - g. Repeat Steps 2.a through 2.f for the camshaft on the opposite side of the engine. Go to Step 3.

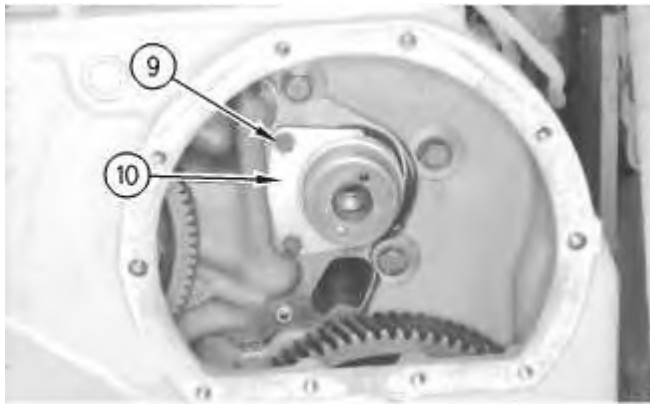


Illustration 4

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3. Install thrust washers (10). Install bolts and washers (9) that fasten the camshaft to the engine.

NOTICE

If the camshaft is out of time more than 18 degrees (approximately 1/2 of the timing pin is out of the groove), the valves can make contact with the pistons. This will cause damage to the engine. Refer to Testing and Adjusting, "Camshaft Timing" for more information.



Illustration 5

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4. Remove timing pin (16) from the storage position on the side of the engine.
 5. Turn the camshaft until timing pin (16) can be installed through the cylinder block and into groove (17) that is in the camshaft.
 6. Repeat Steps 4 and 5 for the camshaft on the opposite side of the engine.
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