



# Service Repair Manual

## **Models**

# 140G Motor Grader

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Product: MOTOR GRADER

Model: 140G MOTOR GRADER 72V

Configuration: 140G MOTOR GRADER 72V04231-10333 (MACHINE) POWERED BY 3306 ENGINE

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

Media Number -SEN5598-09

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i01037991

# Camshaft - Remove and Install

SMCS - 1210-010

## Removal Procedure

### Start By:

- A. Remove the valve lifters. Refer to Disassembly and Assembly, "Lifter Group - Remove and Install".
- B. Remove the timing gear cover. Refer to Disassembly and Assembly, "Front Housing - Remove".

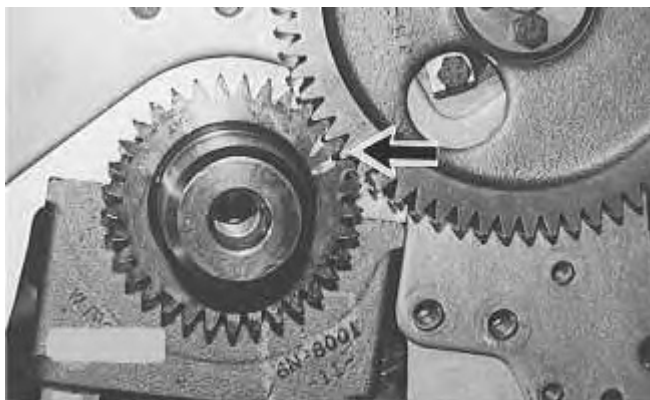
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### NOTICE

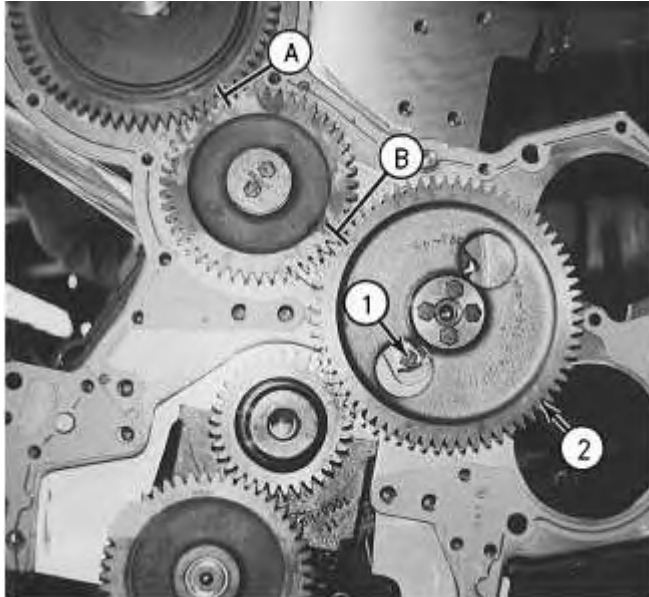
**Keep all parts clean from contaminants.**

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

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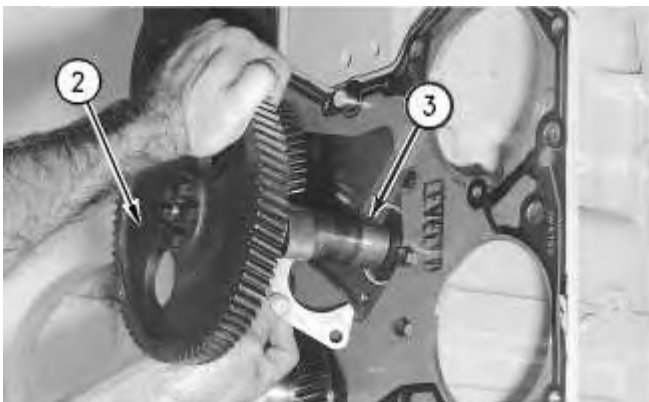


1. Turn the crankshaft to top center compression stroke for the No. 1 piston. The "C" mark on the crankshaft gear will be aligned with the "C" mark on the camshaft gear.



**Note:** Put a mark on the teeth of the fuel injection pump drive gear and the idler gear at location (A). This will help to keep the engine timing correct during the removal and the installation of the camshaft. Put a mark on the teeth of the idler gear and camshaft gear (2) at location (B). When the camshaft is installed, the engine timing will be correct when the mark at location (A) is aligned with the mark at location (B) and the "C" mark on the crankshaft gear is aligned with the "C" mark on the camshaft gear.

2. Remove the bolts, the lock and washer (1) .



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## NOTICE

**Do not damage the lobes or the bearings when the camshaft is removed.**

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3. Carefully remove camshaft (3) from the engine.
4. If necessary, remove the bolts that hold camshaft drive gear (2) to the camshaft and remove the gear.

## Installation Procedure

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### NOTICE

**Keep all parts clean from contaminants.**

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

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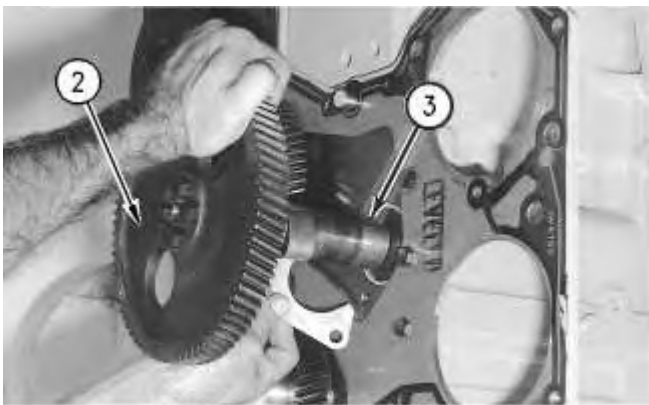


Illustration 4

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1. Put camshaft drive gear (2) in position on the end of camshaft (3). Install the bolts that hold camshaft drive gear (2) to camshaft (3). Tighten the bolts to a torque of  $55 \pm 7$  N·m ( $41 \pm 5$  lb ft).

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### NOTICE

**Do not damage the lobes or the bearings when the camshaft is installed.**

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- Put **8T-2998** Camshaft Lubricant on the camshaft lobes only and put clean engine oil on the bearing journals.

**Note:** During the installation of camshaft (3), rotate the camshaft in both directions in order to prevent binding in the camshaft bearing bores.

- Carefully install camshaft (3) into the engine.

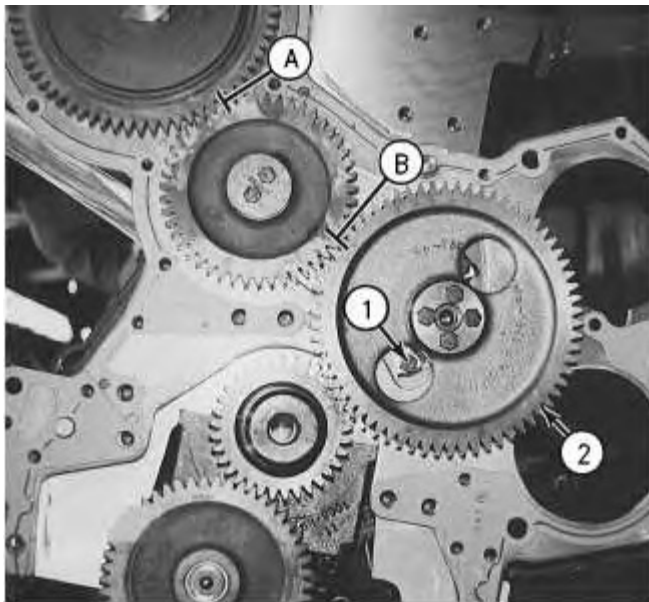


Illustration 5

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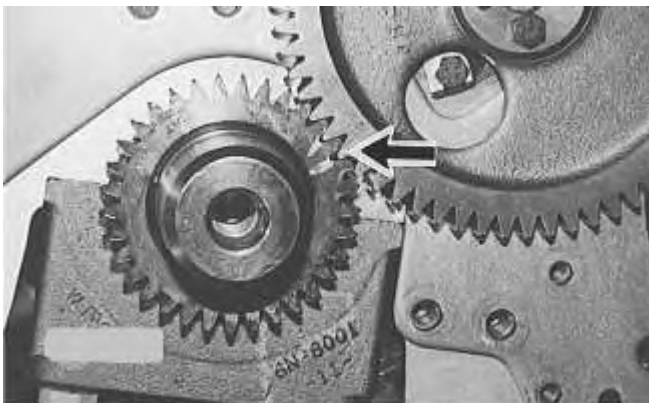


Illustration 6

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- Make sure that the mark on the teeth of the fuel injection pump drive gear and the idler gear are in alignment at location (A). Make sure that the mark on the teeth of the idler gear and camshaft gear (2) are in alignment at location (B). Align the "C" marks on the crankshaft gear and camshaft gear (2). When all of the timing marks are in alignment the engine timing is correct.

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