



# Service Repair Manual

## **Models**

# 657E WHEEL SCRAPER

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Product: WHEEL TRACTOR

Model: 657E WHEEL TRACTOR 5YR

Configuration: 657E Wheel Tractor 5YR00001-UP (MACHINE) POWERED BY 3412E Engine

## Disassembly and Assembly 3408E and 3412E Engines for Caterpillar Built Machines

Media Number -SEN1013-11

Publication Date -01/07/2015

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i06177964

## Camshaft - Remove and Install

SMCS - 1210-010

### Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-0510	Driver Group	1

#### Start By:

- Remove the front housing. Refer to Disassembly and Assembly, "Housing (Front) - Remove".
- Remove the lifter group. Refer to Disassembly and Assembly, "Lifter Group - Remove and Install".
- Remove the flywheel housing. Refer to Disassembly and Assembly, "Flywheel Housing - Remove and Install".

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### NOTICE

**Keep all parts clean from contaminants.**

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

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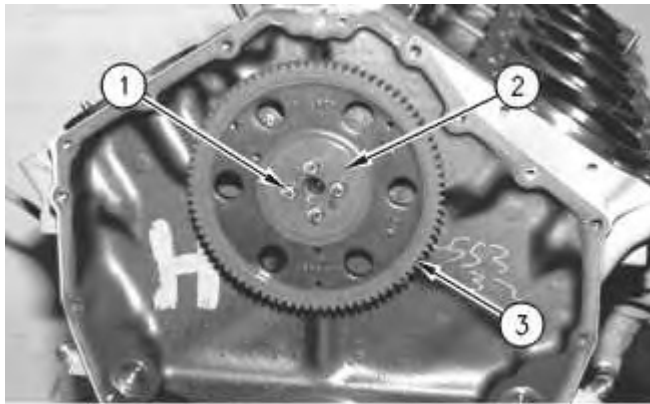
### NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

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Illustration 1

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1. Remove four bolts (1) and plate (2) from the rear of the camshaft. Remove gear (3) from the camshaft.



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Illustration 2

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2. Rotate the engine until the "V" marks on the front of the timing gears are in alignment.
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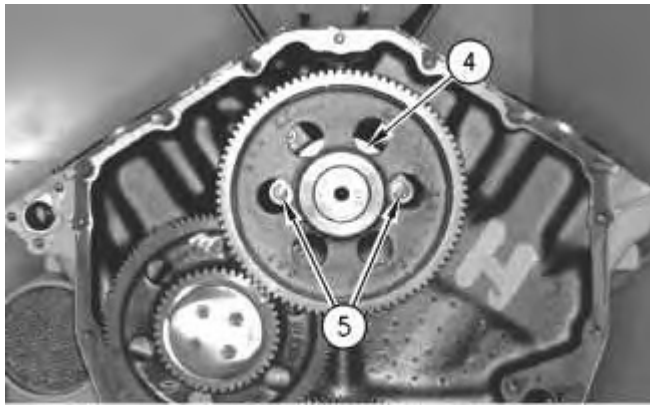


Illustration 3

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3. Remove two bolts (5) and plate (4) from the camshaft.

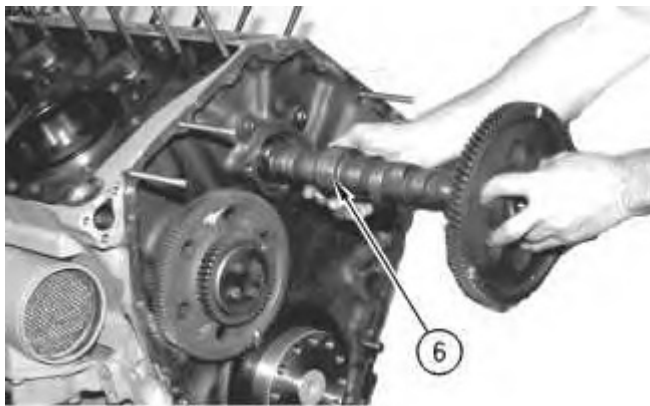


Illustration 4

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4. Remove camshaft (6) from the cylinder block.

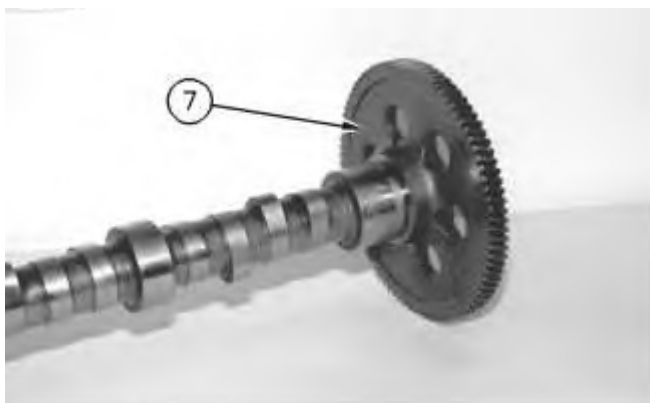


Illustration 5

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5. If necessary, remove camshaft gear (7) with Tool (A) and press.

## Installation Procedure

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## NOTICE

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

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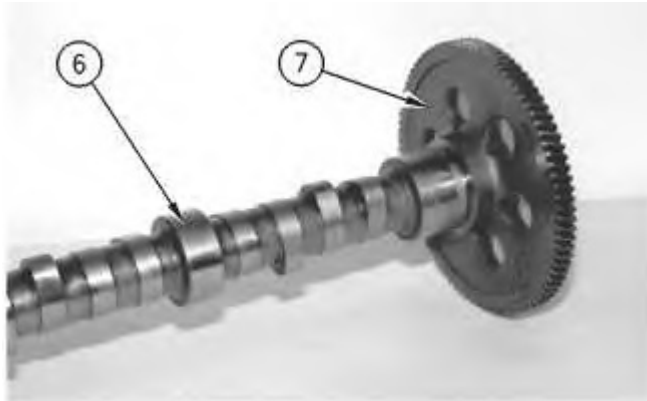
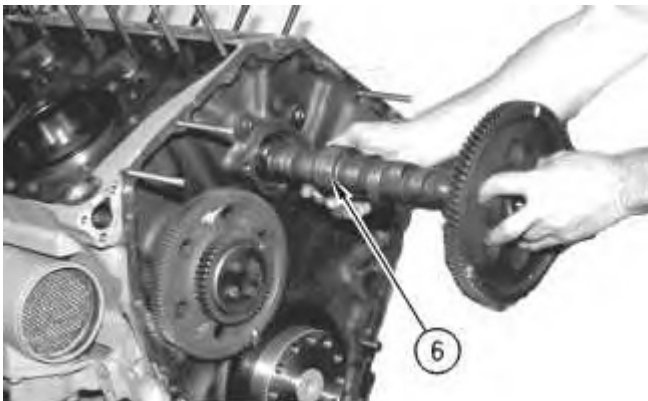


Illustration 6

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**Note:** The key for gear (7) must be in position on the camshaft (6) before gear (7) is installed.

1. Do not use a torch to heat camshaft gear (7). Raise the temperature of camshaft gear (7) by one of the following methods.
  - Use a suitable oven to raise the temperature of camshaft gear (7). Do not exceed 150° C (302° F) for more than four hours.
  - Use a suitable induction heater to raise the temperature of the hub of camshaft gear (7). Do not exceed 150° C (302° F) at bottom of gear teeth root radius.
2. Install camshaft gear (7) to camshaft (6).
3. Put **8T-2998** Lubricant on the camshaft lobes and the rollers for the valve lifter. Put clean engine oil on the bearing journals of the camshaft.



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