CATERPILLAR®

Service Repair Manual

Models

651E WHEEL SCRAPER

Model: 651E WHEEL TRACTOR 4YR

Configuration: 651E Wheel Tractor 4YR00001-UP (MACHINE) POWERED BY 3412E Engine

Disassembly and Assembly 651E & 657E TRACTOR POWER TRAIN

Media Number -SENR9096-02

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Date Updated -11/06/2015

SENR90960018

Transmission Transfer Gears

SMCS - 3159-011; 3159-012; 3159-015; 3159-016

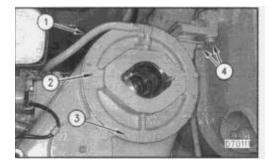
Remove Transmission Transfer Gears

Tools Needed	Α
1P-7407 Lifting Eye Bolt	 1

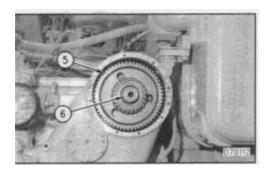
Start By:

- a. remove cushion hitch pump *
- **b.** remove electronic speed sensor

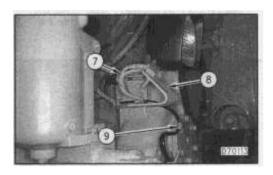
^{*}See machine systems DISASSEMBLY AND ASSEMBLY section.



- 1. Turn the tractor 90 degrees to the scraper. Drain the oil from the sump in the transmission.
- 2. Disconnect hose (1) from bearing cage (2). Cap and plug the fittings to keep out dirt and debris.
- **3.** Remove bolts (3). Use two 3/8 in 16 NC Forcing Screws to remove cage (2) from the transfer gears. Remove two bolts (4).



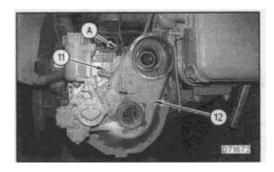
4. Remove gear (5) and coupling (6) from the drive shaft as a unit.



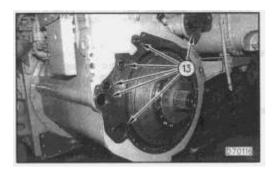
- **5.** Disconnect wiring harness (7) from the light. Remove the four bolts that hold the light bracket (8) in position on the transfer gears.
- **6.** Remove the bolt and clip (9) that holds the transmission electronic speed sensor wiring harness in position.



- **7.** Put a block in position between the tube and the transmission case to give support to the tube when the transfer gears are removed.
- **8.** Remove four bolts (10) that hold the tube in position against the rear of the transfer gears.



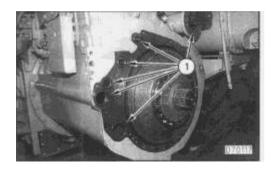
9. Fasten Tooling (A) and a hoist to the transfer gears. Remove bolts (11). Use two 1/2 in - 13 NC Forcing Screws to remove transfer gears (12) from the machine. The weight of the transfer gears is approximately 188 kg (415 lb).



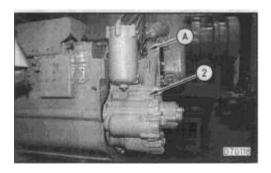
10. Remove O-ring seals (13).

Install Transmission Transfer Gears

	Tools Needed	A
1P-7407	Lifting Eye Bolt	1



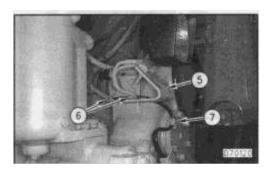
1. Install O-ring seals (1) on the machine. Put clean oil on each O-ring seal.



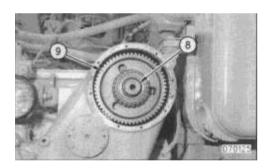
- **2.** Install two 1/2 in 13 NC Guide Bolts in the transmission case. Make sure the O-ring seal is in position on the transfer gears. Put clean oil on the O-ring seal.
- **3.** Fasten Tool (A) and a hoist to the transfer gears. Install transfer gears (2) on the transmission. The weight of the transfer gears is approximately **188 kg (415 lb)**.
- **4.** Install the bolts and washers that hold the transfer gears in position.



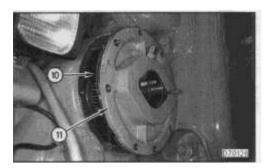
- **5.** Istall two bolts (3).
- **6.** Connect tube (4) to the rear of the transfer gears. Install the four bolts that hold it in place. Remove the support block that was placed between the tube and transmission case.



- 7. Install the light bracket (5) and light. Install clips (6) and the bolts that hold the light bracket in position. Connect the wiring harness to the light.
- **8.** Install clip (7) that holds the transmission electronic speed sensor wiring harness in position.



9. Make sure coupling (8) is in position in gear (9). Install gear (9) on the drive shaft.



- **10.** Install two 3/8 in 16 NC Guide Bolts in the transfer gears as shown. Make sure the O-ring seal is in position on the cage. Put clean oil on the O-ring seal.
- **10.** Install the original shims (10) and cage (11).

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