

Product: TELEHANDLER

Model: TH215 TELEHANDLER MHS

Configuration: TH215 Telehandler MHS00001-UP (MACHINE) POWERED BY 3054C Engine

Disassembly and Assembly TH210 and TH215 Telehandlers Power Train

Media Number -REN5155-02

Publication Date -01/07/2005

Date Updated -22/07/2005

i02015539

Transfer Gears - Remove

SMCS - 3159-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-2420	Transmission Repair Stand	1
B	138-7574	Link Bracket	2

Start By:

- Remove the front axle from the machine. Refer to Disassembly and Assembly, "Front Axle (Fixed) - Remove".
- Remove the hydrostatic drive motor from the front axle. Refer to Disassembly and Assembly, "Hydrostatic Drive Motor - Remove".
- Remove the tire and the rims from the front axle. Refer to Disassembly and Assembly, "Tire and Rim - Remove and Install".



WARNING

Personal injury or death can result from improper lifting or blocking.

When a hoist or jack is used to lift any part or component, stand clear of the area. Be sure the hoist or jack has the correct capacity to lift a component. Install blocks or stands before performance of any work under a heavy component.

Approximate weights of the components are shown. Clean all surfaces where parts are to be installed.

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, "Caterpillar Tools and Shop Products Guide" for tools and supplies suitable to collect and contain fluids on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

1. Keep all the components for the front axle and the transfer gear case clean at all times. This will prevent contamination of the oil system.

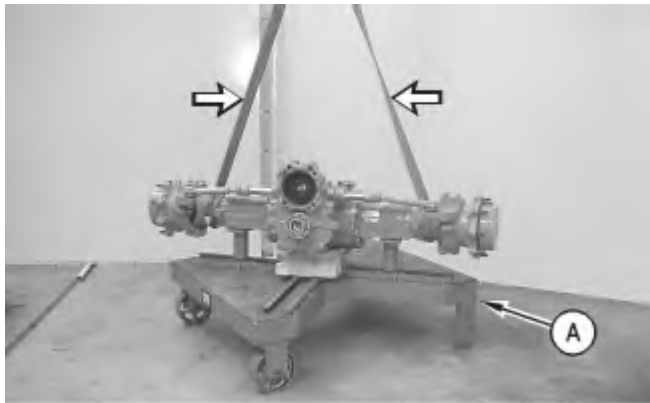


Illustration 1

g00976170



Illustration 2

g00976164

2. Attach a suitable lifting device to the front axle. The weight of the front axle is approximately 400 kg (882 lb).
3. Position the front axle in an upright position onto Tooling (A). Use suitable cribbing between the differential housing of the front axle and the Tooling.
4. Remove the suitable lifting device from the front axle.
5. Drain the oil from the transfer gear case into a suitable container for storage or disposal. Refer to Operation and Maintenance, "Transfer Gear Oil - Change".

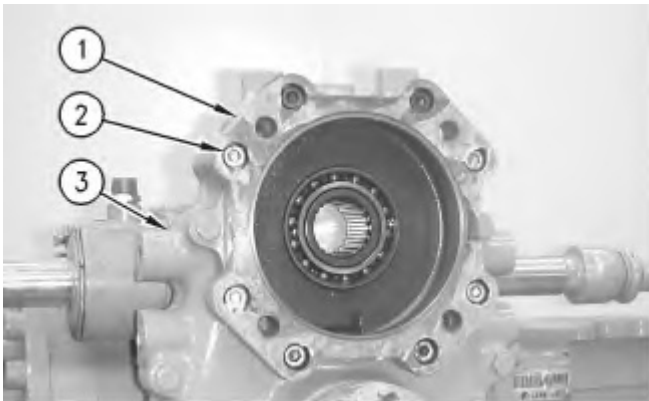


Illustration 3

g00976168

6. Remove bolts (2) and use a soft mallet in order to separate flange (1) from transfer gear case (3). The bolts are of different lengths. For the purpose of installation, make a note of the positions of the bolts.
-

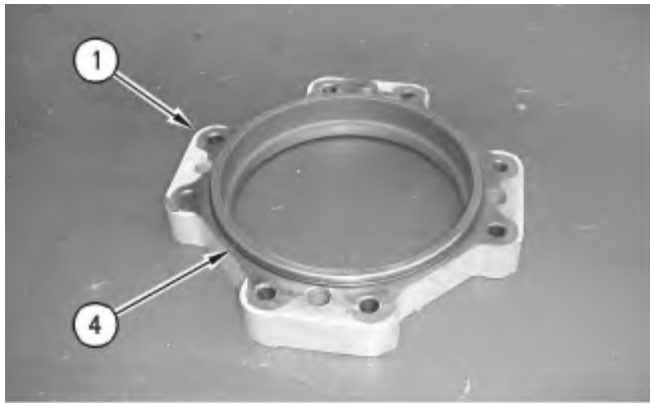


Illustration 4

g00976187

7. Remove O-ring seal (4) from flange (1) .

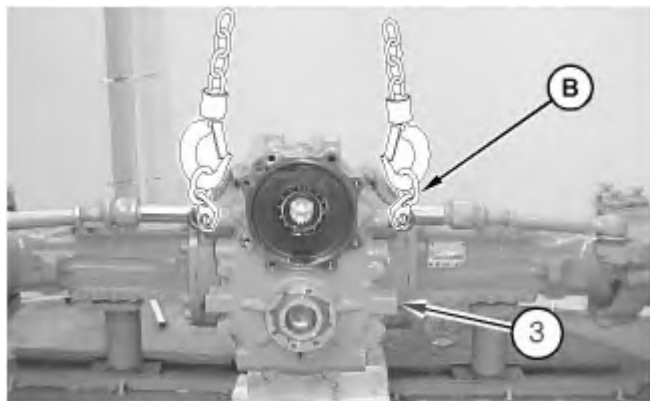
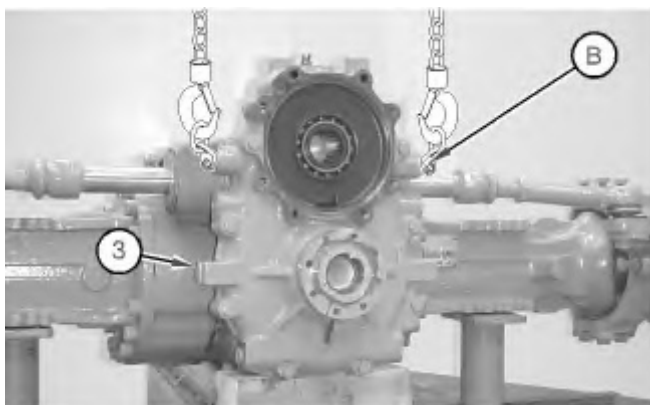


Illustration 5

g01041997

8. Install Tooling (B) and a suitable lifting device into transfer gear case (3). Carefully support the weight of the transfer gear case. The weight of transfer gear case (3) is approximately 26 kg (57 lb).



- Remove bolts (5) that secure transfer gear case (3) to the front axle. The bolts are of different lengths. For the purpose of installation, make a note of the positions of the bolts.

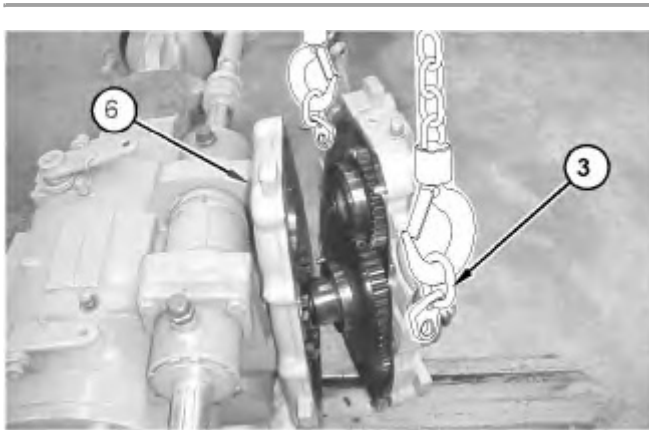


Illustration 7

- Use a soft mallet in order to help separate transfer gear case (3) from transfer gear case (6). Use the attached lifting equipment in order to remove transfer gear case (3) from the front axle.

Note: Transfer gear case (3) is oriented to transfer gear case (6) with dowels in transfer gear case (3) .

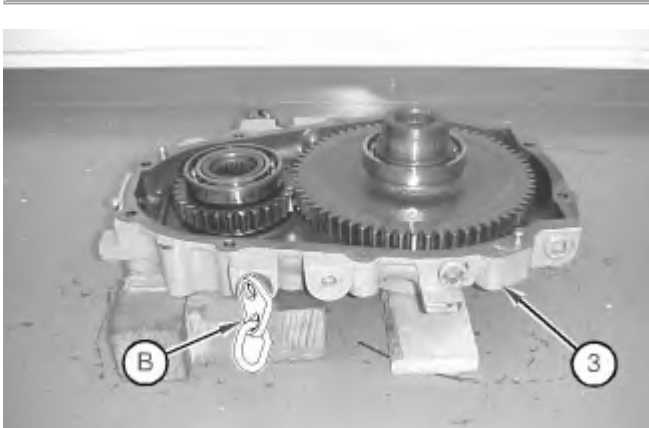


Illustration 8

- Use the attached lifting equipment in order to place transfer gear case (3) on suitable cribbing on a suitable work bench before removing the lifting equipment and Tooling (B) .
-

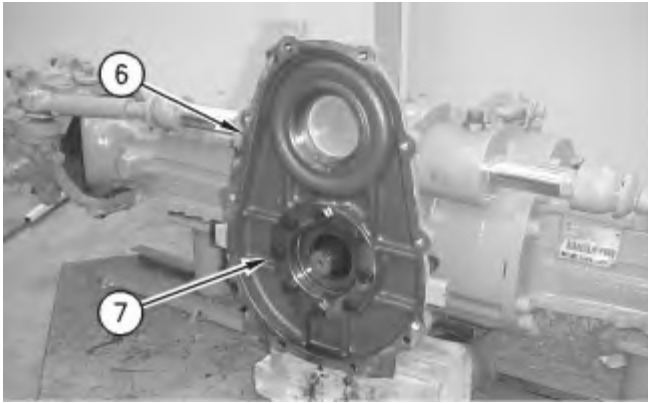


Illustration 9

g00977294

12. Remove bolts (7) that secure transfer gear case (6) to the front axle.

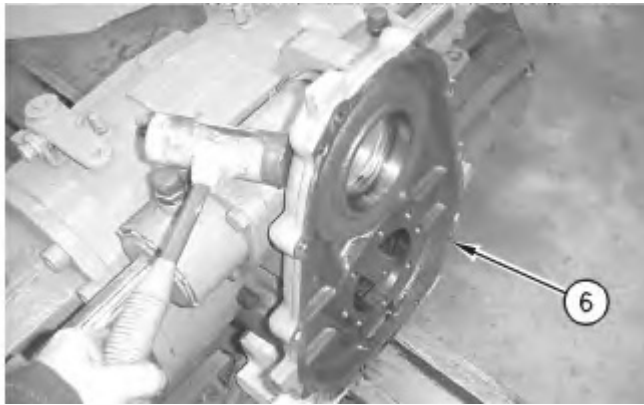


Illustration 10

g00978748

13. Use a suitable soft mallet in order to help separate transfer gear case (6) from the front axle.

Note: Transfer gear case (6) is oriented to the front axle with a dowel in the front axle.

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Disassembly and Assembly TH210 and TH215 Telehandlers Power Train

Media Number -REN5155-02

Publication Date -01/07/2005

Date Updated -22/07/2005

i01884487

Transfer Gears - Disassemble

SMCS - 3159-015

Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	8H-0663	Bearing Puller	1
	5B-0637	High Idle Nut	1
	5F-7353	Washer	1
	1B-4207	Full Nut	2
	5F-7369	Puller Leg	2
	3H-0465	Push-Puller Plate	4
	5F-7366	Forcing Screw	1
	1U-9895	Crossblock	1
B	1P-0510	Driver Gp	1
	1P-0520	Driver Gp	1
C	5P-5197	Retaining Ring Pliers	1
D	1P-2321	Combination Puller	1

Start By:

- A. Remove the transfer gears. Refer to Disassembly and Assembly Manual, "Transfer Gears - Remove".

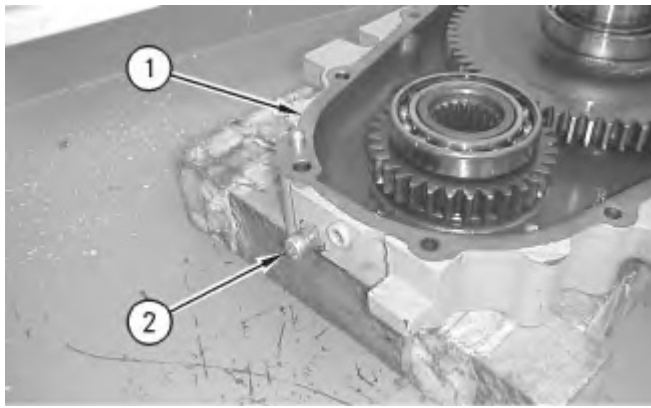


Illustration 1

g00976253

1. Remove transfer gear breather (2) from transfer gear case (1) .

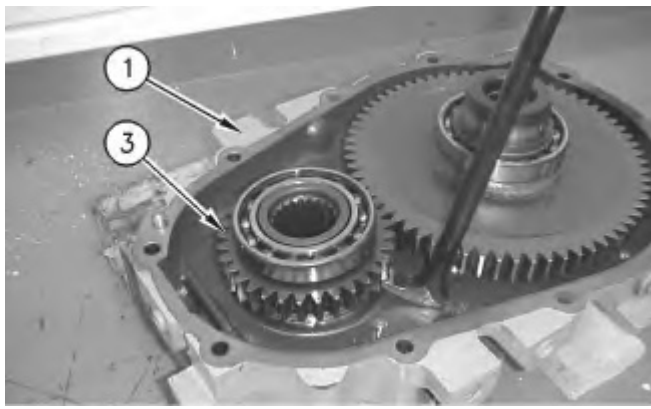


Illustration 2

g00976254

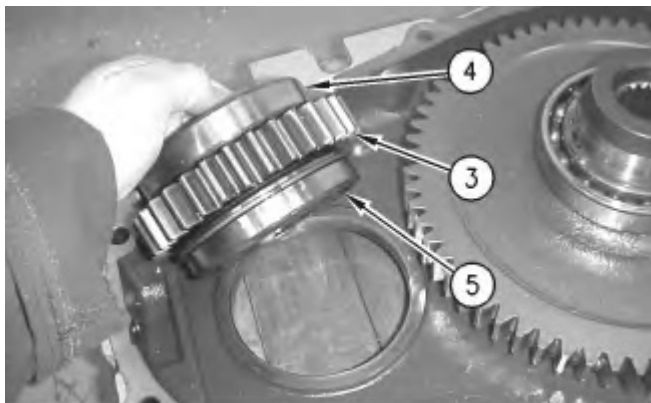


Illustration 3

g00976255

2. Use a suitable pry bar in order to remove gear (3) from transfer gear case (1). Place a suitable identification mark on the gear in order to identify the correct orientation of the gear to the transfer gear case and the positions of bearing (4) and bearing (5) .

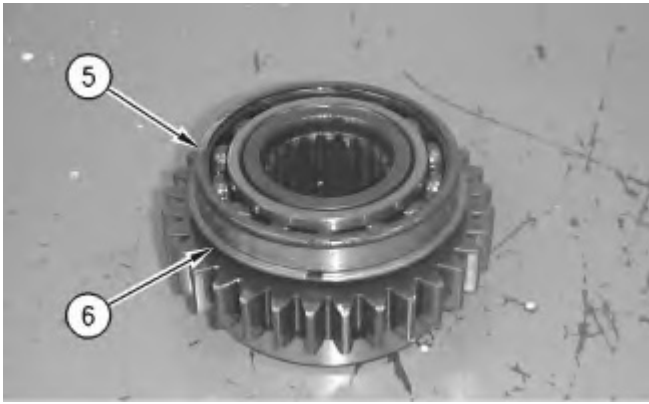


Illustration 4

g00976256

3. Remove retaining ring (6) from bearing (5) .

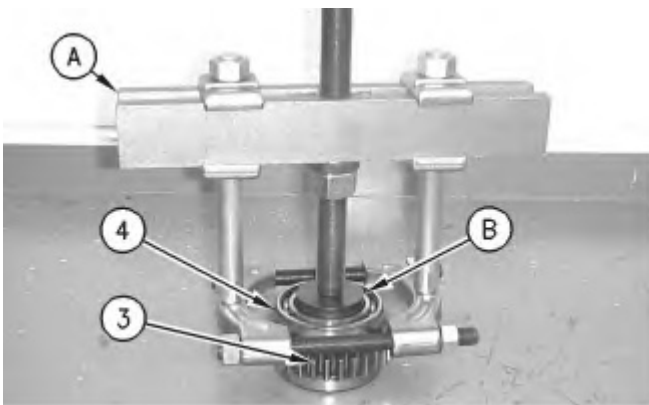


Illustration 5

g00976257

4. Use Tooling (A) and Tooling (B) in order to remove bearing (4) from gear (3). Turn over the gear and use the same Tooling to remove bearing (5) .
-

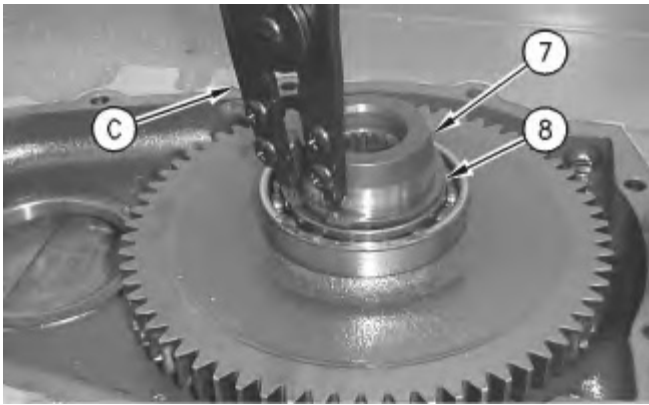


Illustration 6

g00978858

5. Use Tooling (C) in order to remove retaining ring (8) from input shaft (7) .

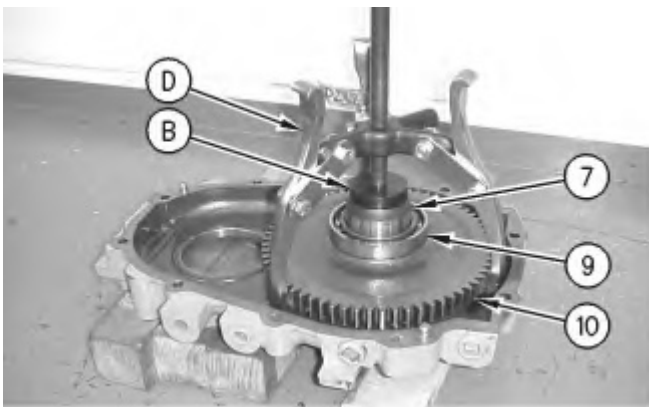


Illustration 7

g00976259

6. Use Tooling (D) and Tooling (B) in order to remove gear (10) and bearing (9) from input shaft (7) .

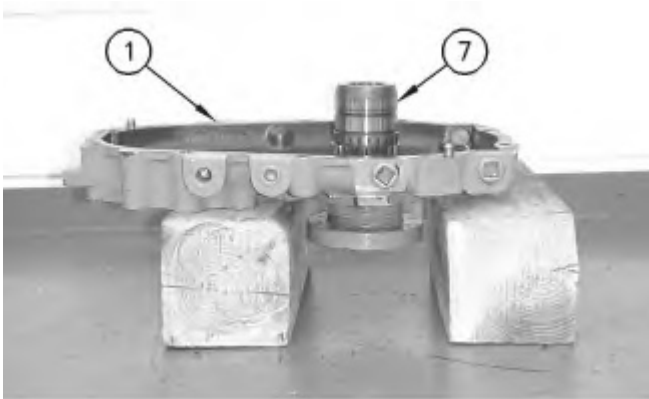


Illustration 8

g00976260

7. Place sufficient cribbing under transfer gear case (1) in order to allow input shaft (7) to be removed. Refer to Illustration 8.
8. Use a suitable soft mallet to remove input shaft (7) from transfer gear case (1) .

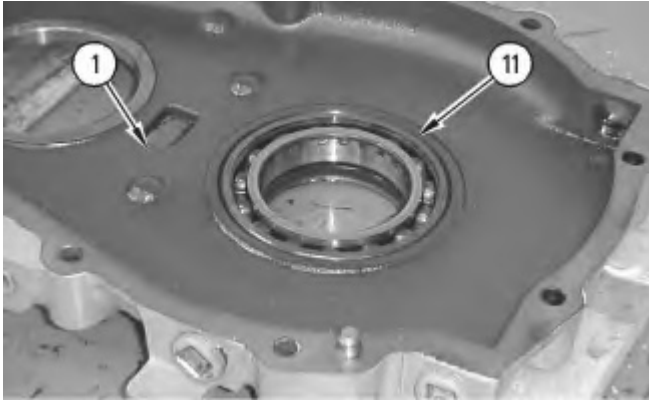


Illustration 9

g00978857

9. Remove bearing (11) from transfer gear case (1) .

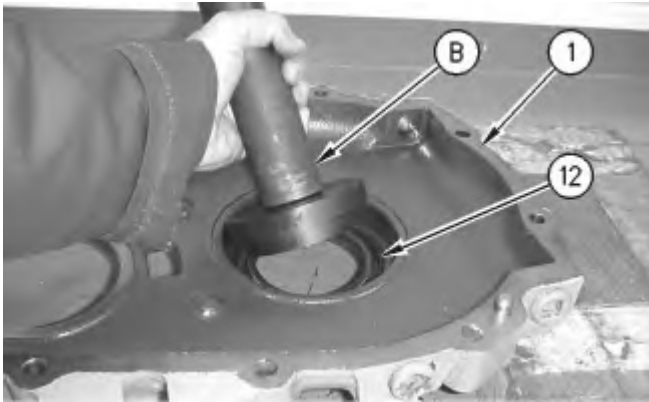


Illustration 10

g00978892

10. Use Tooling (B) to remove seal (12) from transfer gear case (1) .
-

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Media Number -REN5155-02

Publication Date -01/07/2005

Date Updated -22/07/2005

i01886477

Transfer Gears - Assemble

SMCS - 3159-012

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
B	1P-0510	Driver Gp	1
	1P-0520	Driver Gp	1
C	5P-5197	Retaining Ring Pliers	1
E	147-3508	Socket	1

Note: You may heat components for installation purposes and you may cool components for installation purposes. When you heat a component, do not exceed a temperature of 135 °C (275 ° F). Do not heat components for more than four hours. Use **1U-8865** Infrared Thermometer in order to check the temperature of the components. Wait until all components have reached a uniform temperature before using a suitable driver to ensure that all the components are properly seated.

1. Clean all parts and inspect all parts. If any parts are worn or damaged, use new Caterpillar parts for replacement.
-

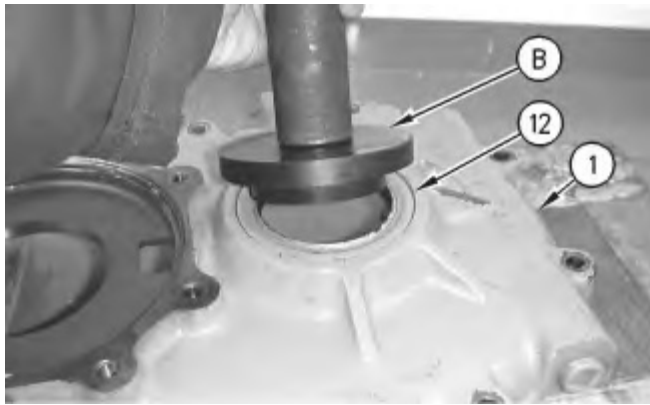


Illustration 1

g00979359

2. Place transfer gear case (1) onto a suitable work bench.
3. Use Tooling (B) to install seal (12) into transfer gear case (1). Lubricate the seal lightly with the lubricant that is being sealed.

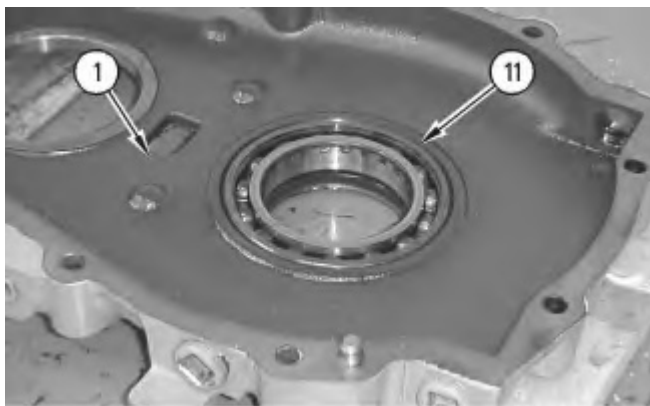


Illustration 2

g00978857

4. Turn over transfer gear case (1). Install bearing (11) into the transfer gear case.



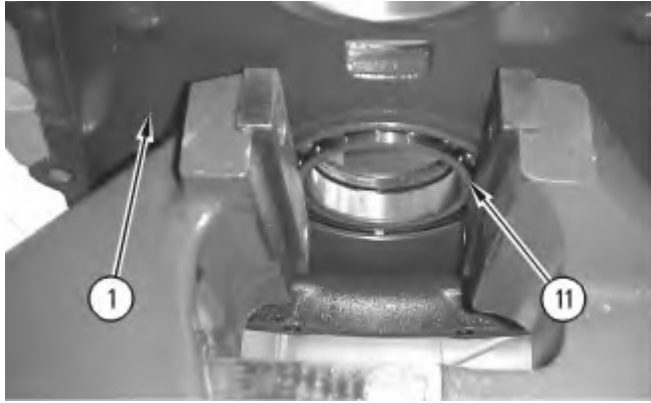


Illustration 4

5. Position transfer gear case (1) with bearing (11) on a suitable vise. Open the jaws of the vise in order to support the inner race of the bearing.

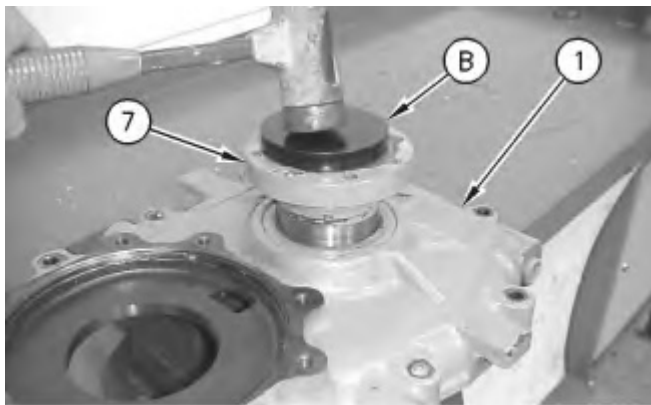


Illustration 5

6. Position input shaft (7) to transfer gear case (1). Place Tooling (B) on top of the input shaft before using a suitable soft mallet in order to install the input shaft.
-



Illustration 6

g00979363

7. Place transfer gear case (1) onto the work bench.

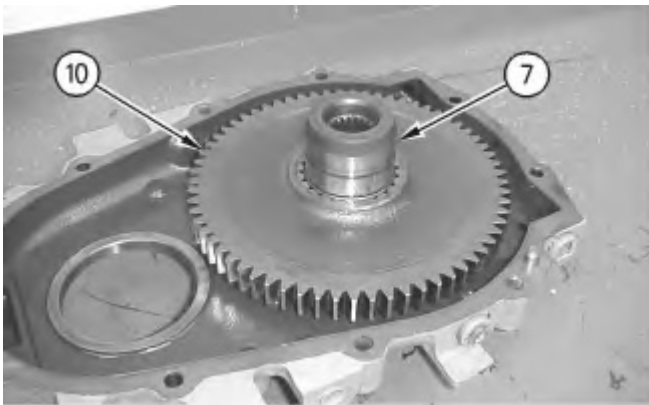


Illustration 7

g00979364

8. Position gear (10) onto input shaft (7). Ensure that the splines on the gear mate with the splines on the input shaft.

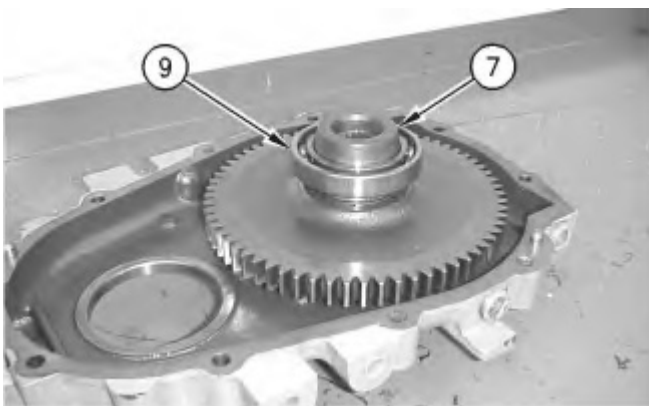


Illustration 8

g00979478

9. Position bearing (9) onto input shaft (7) .

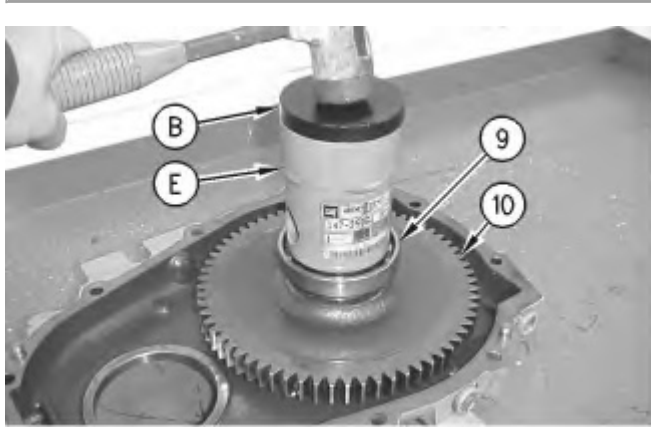


Illustration 9

g00979479

10. Use Tool (E) and Tooling (B) in order to fully install bearing (9) and gear (10) onto the input shaft.

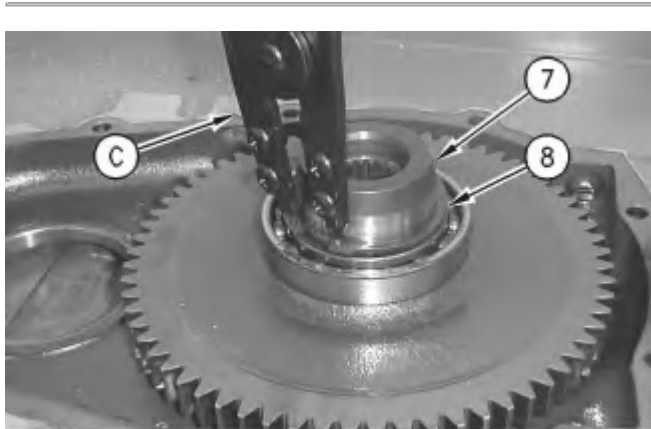


Illustration 10

g00978858

11. Use Tooling (C) in order to install retaining ring (8) onto input shaft (7) .

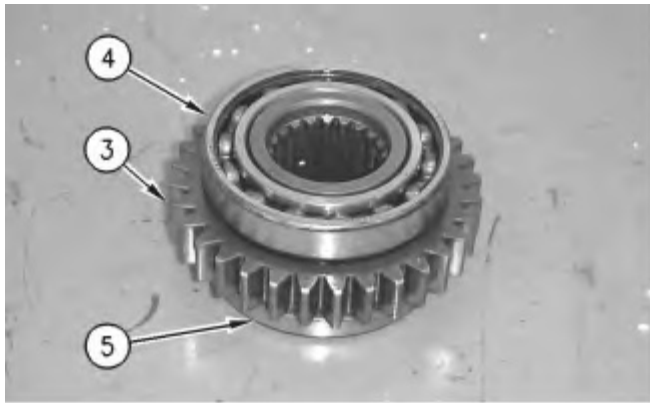


Illustration 11

g00979480

12. Install bearing (4) and bearing (5) onto gear (3). Refer to the identification marks that were placed on the components during the disassembly procedure in order to identify the correct orientation of the components.

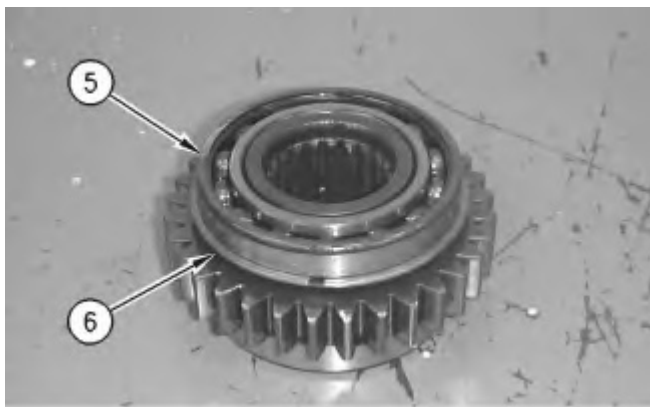


Illustration 12

g00976256

13. Install retaining ring (6) onto bearing (5).

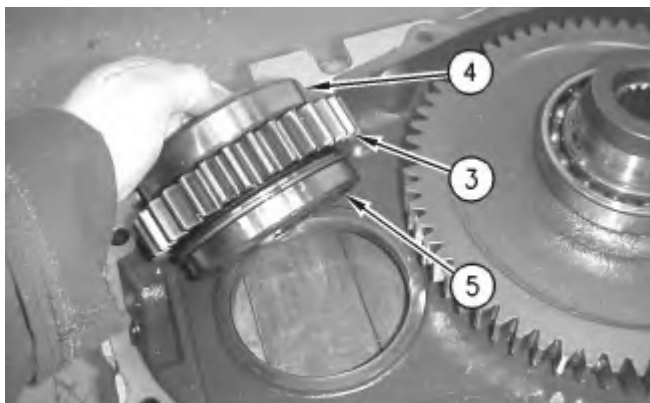


Illustration 13

g00976255

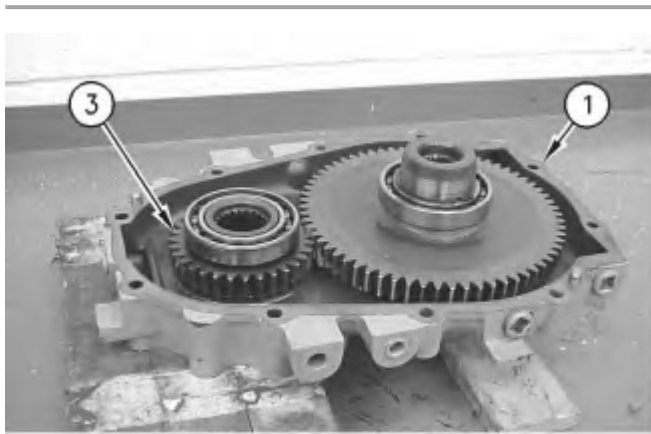


Illustration 14

g00979518

14. Install gear (3) into transfer gear case (1). Refer to the note that was made during the disassembly procedure in order to install the gear with bearing (4) and bearing (5) in the correct positions.

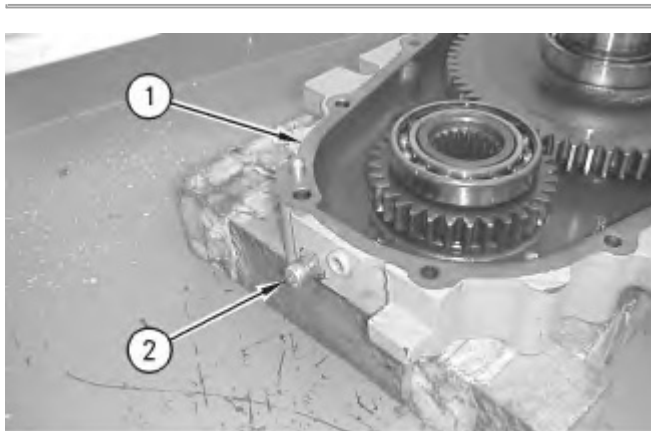


Illustration 15

g00976253

15. Install transfer gear breather (2) into transfer gear case (1) .

End By: Install the transfer gears. Refer to Disassembly and Assembly Manual, "Transfer Gears - Install".

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Media Number -REN5155-02

Publication Date -01/07/2005

Date Updated -22/07/2005

i05006670

Transfer Gears - Install

SMCS - 3159-016

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-2420	Transmission Repair Stand	1



WARNING

Personal injury or death can result from improper lifting or blocking.

When a hoist or jack is used to lift any part or component, stand clear of the area. Be sure the hoist or jack has the correct capacity to lift a component. Install blocks or stands before performance of any work under a heavy component.

Approximate weights of the components are shown. Clean all surfaces where parts are to be installed.

1. Clean all parts and inspect all parts. If any parts are worn or damaged, use new Caterpillar parts for replacement.

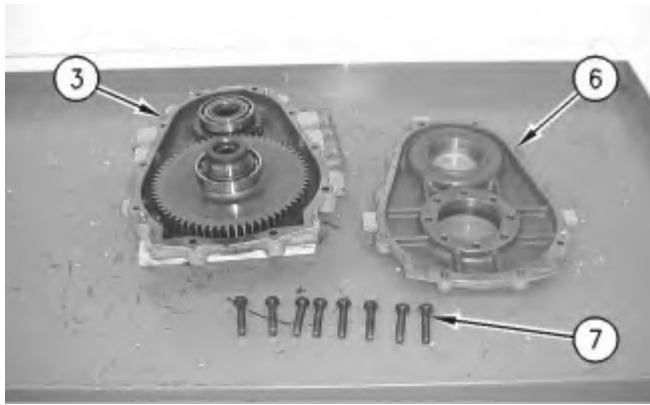


Illustration 1

g00976173

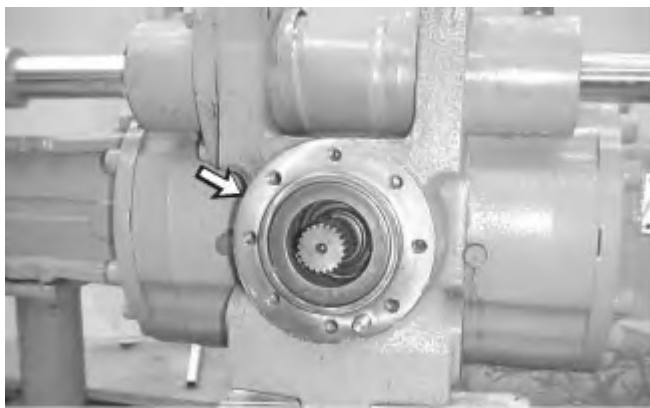


Illustration 2

g00978752

2. Clean all old gasket sealant and old thread lock compound from transfer gear case (6) , transfer gear case (3) , the front axle and bolts (7) .



Illustration 3

g00978750

3. Apply a thin coat of Loctite 5127 to the mating faces of transfer gear case (6) and the front axle before installing the transfer gear case.

Note: Transfer gear case (6) is oriented to the front axle with a dowel in the front axle.

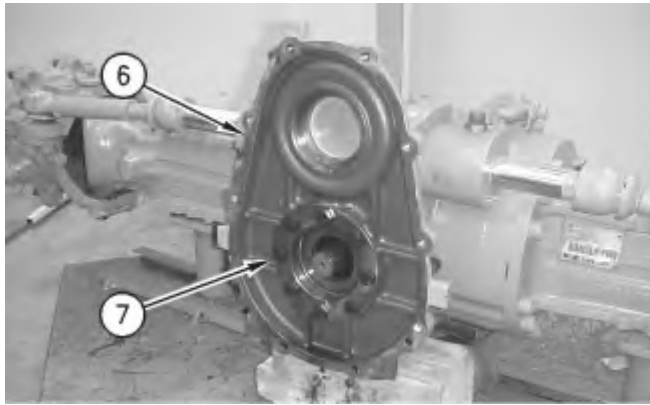


Illustration 4

g00977294

4. Apply Loctite 270 to the threads of bolts (7) before using the bolts to secure transfer gear case (6) in position. Tighten the bolts to a torque of 120 N·m (88.5 lb ft).

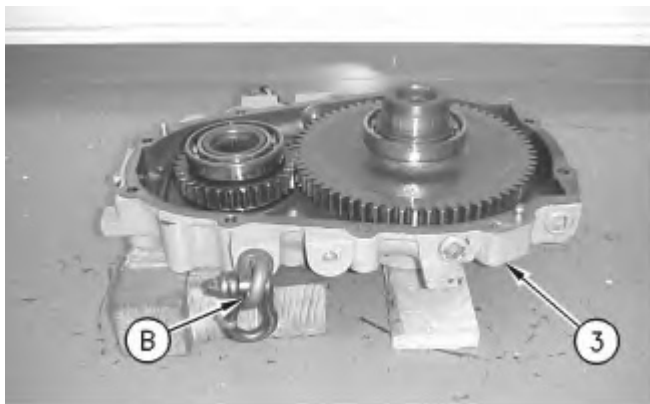


Illustration 5

g00976169

5. Install Tooling (B) into transfer gear case (3) . Attach the Tooling to suitable shackles, a suitable double chain lifting sling and a suitable hoist. Use the attached lifting equipment to lift the transfer gear case. The weight of the transfer gear case is approximately 26 kg (57 lb).
-

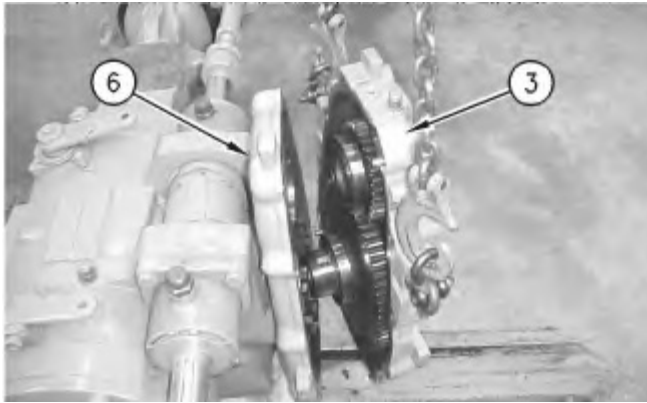


Illustration 6

g00976167

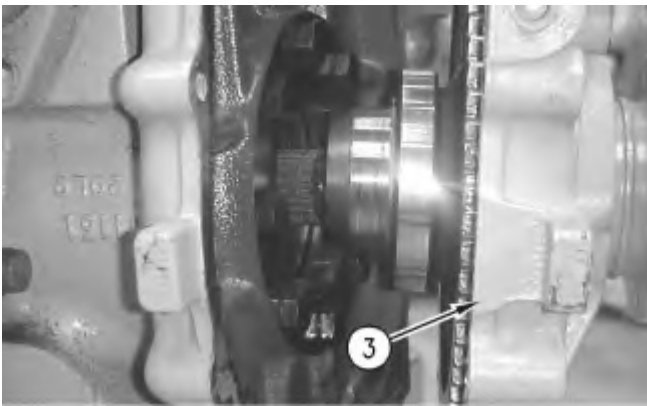
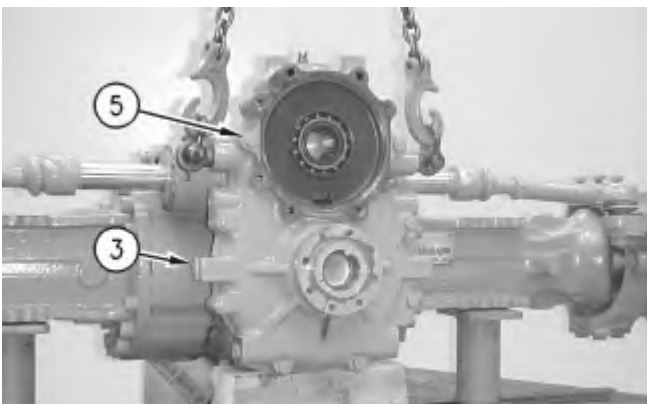


Illustration 7

g00978751

6. Apply a thin coat of Loctite 5127 to the mating faces of transfer gear case (3) and transfer gear case (6) before using the attached lifting equipment in order to position transfer gear case (3) to transfer gear case (6) . Take care to line up the transfer gear case with the splines on the input shaft to the front axle.

Note: Transfer gear case (3) is oriented to transfer gear case (6) with dowels in transfer gear case (3) .



7. Install bolts (5) that secure transfer gear case (3) to the front axle. Tighten the bolts to a torque of 60 N·m (44.5 lb ft). The bolts are of different lengths. Refer to the note that was made during the removal procedure in order to identify the correct placement of the different bolts.

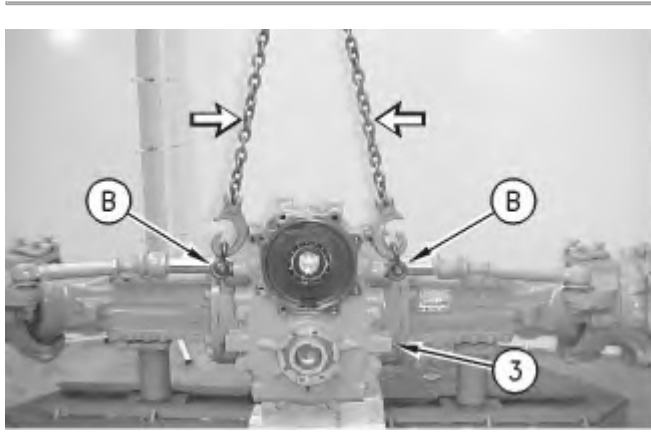


Illustration 9

g00976165

8. Remove the lifting equipment and Tooling (B) from transfer gear case (3) .

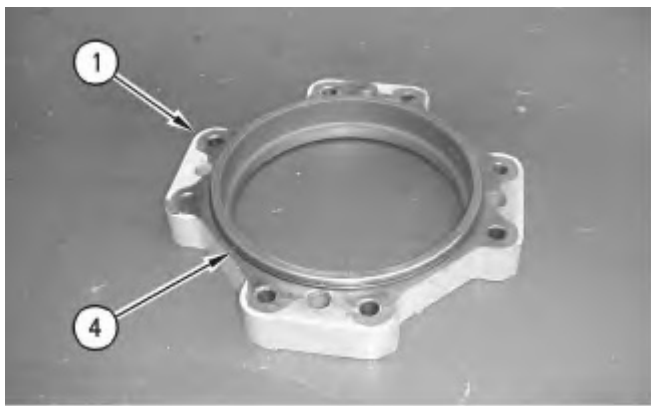


Illustration 10

g00976187

9. Install O-ring seal (4) onto flange (1) . Apply a thin coat of **1U-6396** O-Ring Assembly Compound to the O-ring seal.
-

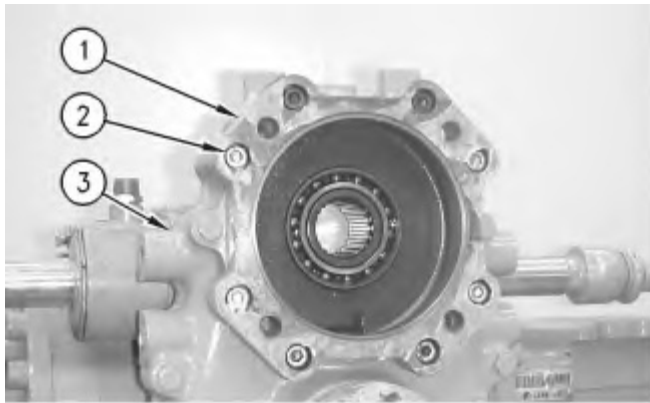


Illustration 11

g00976168

10. Position flange (1) to transfer gear case (3) before securing the flange in place with bolts (2) . Tighten the bolts to a torque of 60 N·m (44.5 lb ft). The bolts are of different lengths. Refer to the note that was made during the removal procedure in order to identify the correct placement of the different bolts.
11. Fill the transfer gears with oil. Refer to Operation and Maintenance Manual, "Transfer Gear Oil - Change".

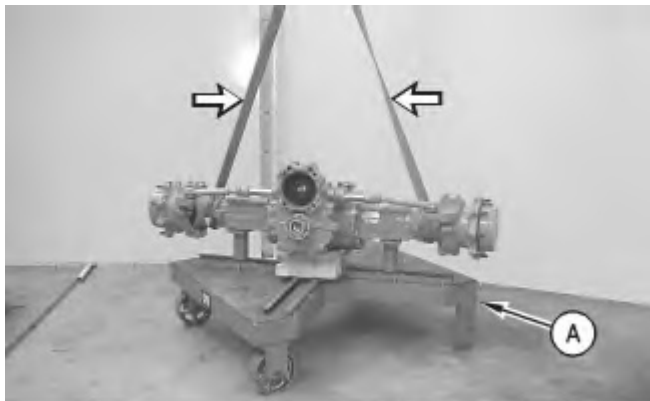


Illustration 12

g00976170

12. Attach two suitable nylon lifting slings and a suitable hoist to the front axle. The weight of the front axle is approximately 400 kg (882 lb).
13. Use the attached lifting equipment to remove the front axle from Tooling (A) .
14. Place the front axle on suitable cribbing before removing the lifting equipment.

End By:

- a. Install the tire and the rims to the front axle. Refer to Disassembly and Assembly Manual, "Tire and Rim - Remove and Install".
- b. Install the hydraulic drive motor to the front axle. Refer to Disassembly and Assembly Manual, "Hydraulic Drive Motor - Install".

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