



Service Repair Manual

Models

315B FM L EXCAVATOR

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Product: EXCAVATOR

Model: 315B FM L EXCAVATOR 7RZ

Configuration: 315B FOREST MACHINE 7RZ00001-UP (MACHINE) POWERED BY 3046 ENGINE

Disassembly and Assembly 315B Excavator Machine Systems

Media Number -REN1131-07

Publication Date -01/03/2004

Date Updated -09/03/2004

i00944857

Track Roller - Disassemble

SMCS - 4180-015

Disassembly Procedure

Start By:

- A. Remove the track rollers. Refer to Disassembly and Assembly, "Track Roller - Remove" in this manual.
1. Thoroughly clean the outside of the track roller prior to disassembly.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the machine. 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 in Caterpillar machines.

Dispose of all fluids according to local regulations and mandates.



Illustration 1

g00367837

2. Drive plug (1) into the stopper in the end of the track roller. Drain the oil from the track roller into a suitable container for disposal. The capacity of the track roller is 225 ± 10 mL ($7.70 \pm .34$ oz).

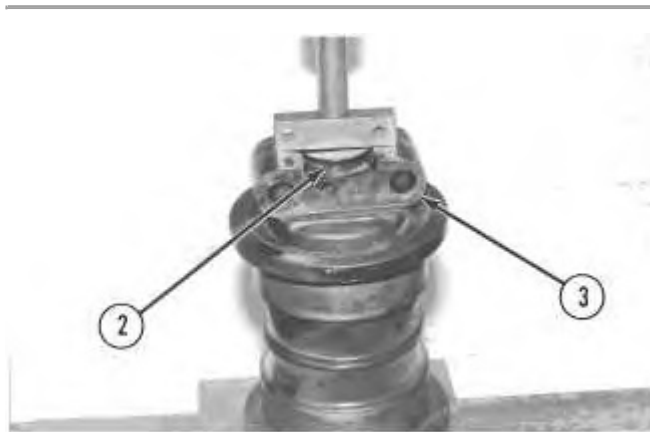


Illustration 2

g00367838

3. Put the track roller in a press, as shown. The weight of the track roller is 34 kg (75 lb). Press on end collar (3). Remove retaining ring (2). Release the pressure on the end collar. Remove end collar (3).
4. Remove plug (1) from the inside of the track roller.

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Illustration 3

g00367844

5. Remove Duo-cone seal kit (4) from end collar (3) .



Illustration 4

g00367852

6. Remove the O-ring seal from shaft (5). Remove shaft (5) from roller (6) .

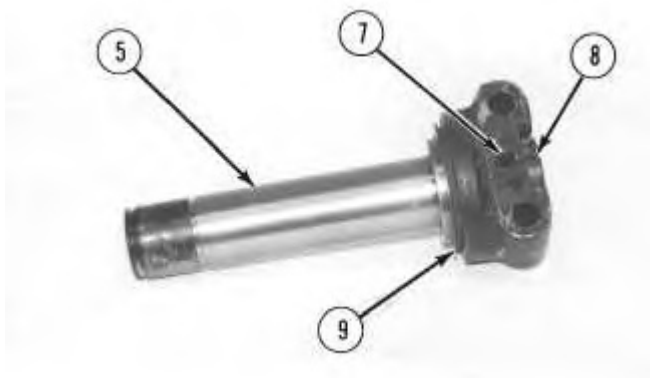


Illustration 5

g00367857

7. Remove Duo-cone seal kit (9) from end collar (8) .

8. Remove spring pin (7) from end collar (8) and shaft (5). Use a press to remove shaft (5) from end collar (8). Remove the remaining O-ring seal from shaft (5) .



Illustration 6

g00367858

9. Remove Duo-cone seal kit (10) from each end of the track roller.



Illustration 7

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10. Use a press to remove bearing (11) from each end of the track roller.

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Date Updated -09/03/2004

i01250904

Track Roller - Assemble

SMCS - 4180-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
(A)	9U-5985	Duo-Cone Seal Installer	1
(B)	8T-5096	Dial Indicator	1

1. Thoroughly clean all parts of the track roller prior to assembly.

Note: Do not reuse bearings (11). Use new parts for replacement.



2. Lower the temperature of bearings (11), and install one in each end of the track roller with a press. Install the bearings until the bearings make contact with the counterbore in the track roller.
3. Use the following procedure to determine the shaft end play.

Note: Do not install the Duo-Cone seal kit in the track roller or end collars at this time.

Note: Replace the O-ring seals that are used on shaft (5) with new O-ring seals.

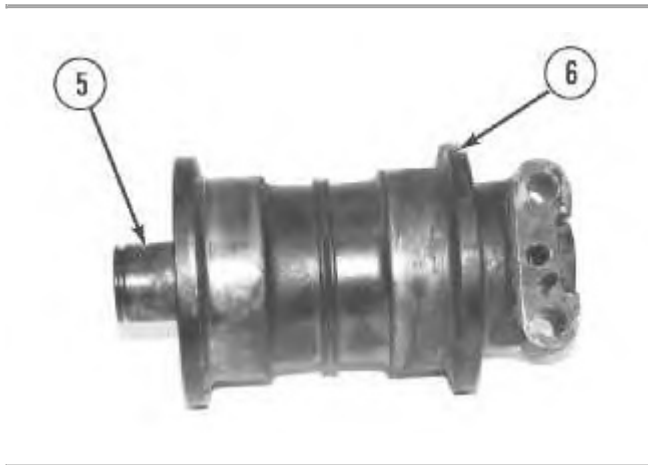


Illustration 2

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- a. Install an O-ring seal in shaft (5) at the end that has the spring pin hole. Lubricate the O-ring seal with clean oil.

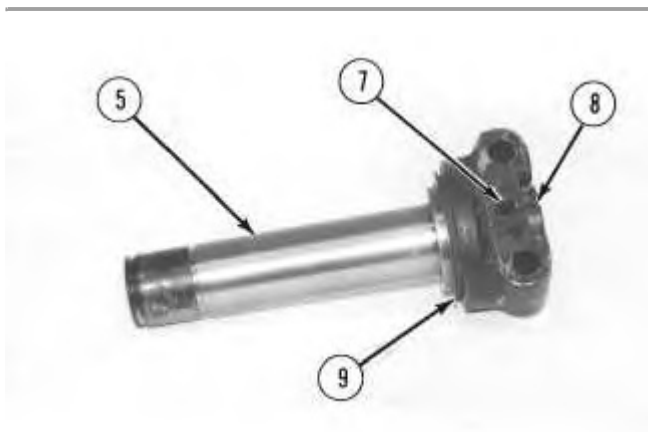


Illustration 3

g00367857

- b. Lubricate the bore in end collar (8) with clean oil. Use a press to install shaft (5) in end collar (8). Be sure that the spring pin hole in the shaft is aligned with the spring pin hole in the end collar. Install spring pin (7) in the end collar.
-



Illustration 4

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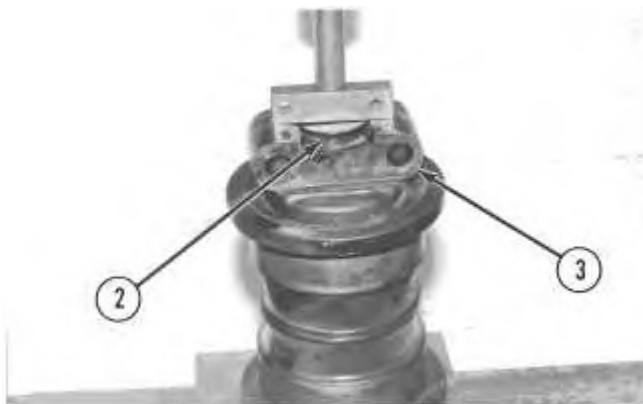


Illustration 5

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- c. Install shaft (5) in track roller (6) without the Duo-cone seal kits. Install end collar (3) without the Duo-cone seal kits. Install retaining ring (2) .
- d. Use Tooling (B) to measure the end play of shaft (5). The end play of the shaft must be 0.08 mm (0.003 inch) to 1.04 mm (.04 inch). Bearings (11) control the amount of shaft end play.
- e. Disassemble the track roller, but do not remove shaft (5) from end collar (8) .

Note: Refer to Disassembly and Assembly Manual, "Duo-Cone Conventional Seals - Install" for more information.

Note: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seals, apply clean SAE 30 oil on the contact surfaces of the metal seals.



Illustration 6

g00367858

4. Install a Duo-cone seal kit (10) in each end of the track roller with Tooling (A) .
 5. Install Duo-cone seal kit (9) in end collar (8) with Tooling (A) .
-



Illustration 7

g00367844

6. Install Duo-cone seal kit (4) in end collar (3) with Tooling (A) .
-



Illustration 8

g00367852

7. Install shaft (5) with end collar (8) in track roller (6) .
8. Install the O-ring seal in the groove on the end of shaft (5). Lubricate the O-ring seal with clean oil.
9. Lubricate the bore in end collar (3) with clean oil.
10. Put the track roller in a press. Install end collar (3) on the end of shaft (5). Push down on end collar (3) with the press, and install retaining ring (2) .

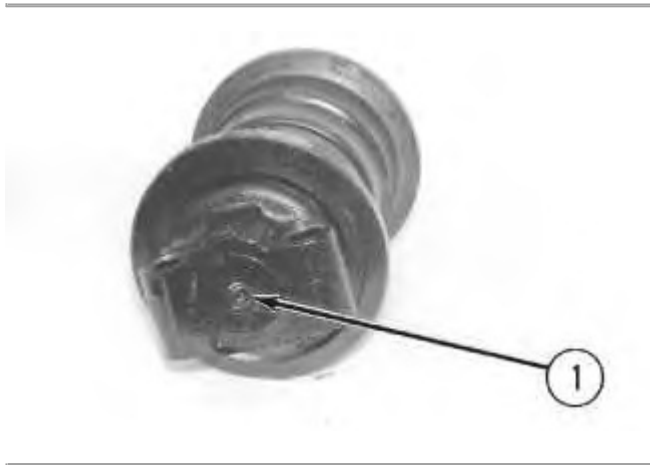


Illustration 9

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11. Put the track roller in a vertical position. Fill the track roller with 150 mL (5.1 oz) of the oil that is specified in the Operation and Maintenance Manual. Install a new plug (1) in the stopper in the end of the track roller. The plug should be installed even with the end of the stopper or protruding 5 mm (.2 inch) above the end of the stopper. Be sure that the plug is not recessed below the surface of the stopper after the plug is installed.

End By: Install the track rollers. Refer to Disassembly and Assembly, "Track Roller - Install" in this manual.

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Disassembly and Assembly 315B Excavator Machine Systems

Media Number -REN1131-07

Publication Date -01/03/2004

Date Updated -09/03/2004

i01220840

Track Roller - Install

SMCS - 4180-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
(A)	8S-7640	Stand	2
	8S-7611	Tube	2
	8S-7615	Pin	2
(B)	FT-1310	Track Roller Lifting Fork	1

1. Be sure that the mounting surfaces on the track roller, the track guide and the undercarriage frame are clean and free of dirt and debris prior to installing the track roller and the track guide.

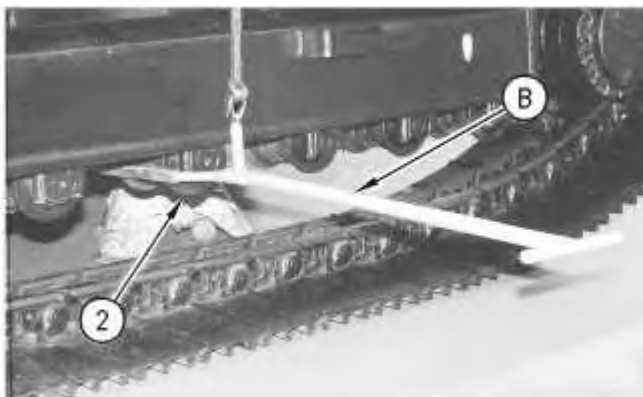


Illustration 1

g00652942

2. Use Tooling (B) to put track roller (2) in position on the undercarriage frame. The weight of the track roller is 34 kg (75 lb). Make sure that the plug in the roller is facing toward the outside of the undercarriage frame. Install the four bolts that hold the roller in position.

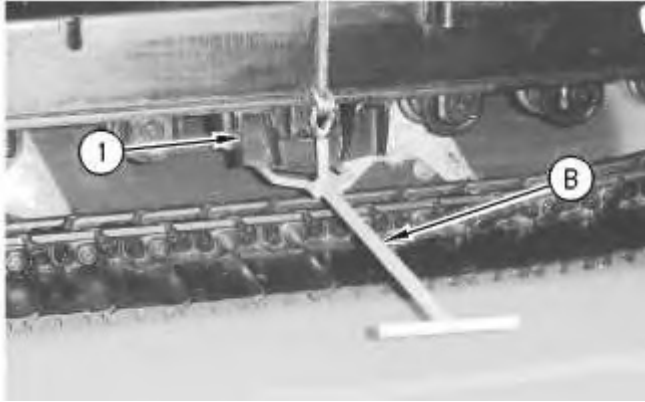


Illustration 2

g00652920

3. Use Tooling (B) to put track guide (1) in position on the undercarriage frame. The weight of the track guide is approximately 50 kg (110 lb). Install the four bolts that hold the guide.
4. Prior to lowering the machine to the ground and tightening the track, be sure that all of the track rollers rotate smoothly by hand.



Illustration 3

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5. Lift the machine off Tooling (A). Remove Tooling (A) from the machine. Lower the machine to the floor.
6. Tighten the tension of the track.

Reference: Refer to Operation and Maintenance Manual, "Track Adjustment - Adjust" for the correct procedure.

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i00790306

Track - Separate

SMCS - 4170-076

Separation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	5P-6214	Track Block Assembly	1
B	1U-7630	Socket	1

1. Put the machine on a flat level floor.



WARNING

Personal injury or death can result from grease and oil coming out of the relief valve.

Grease and oil are under high pressure coming out of the relief valve and can penetrate the body.

Do not watch the relief valve to see if grease is escaping. Watch the track or track adjustment cylinder to see if the track is being loosened.

Make sure the vent holes are clean before the tension is released on the track.



Illustration 1

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2. Release the tension on the track assembly. Loosen relief valve (1) for the track adjuster only one turn. If the track assembly does not loosen after opening the relief valve, move the machine forward and backward until the tension is released.



Illustration 2

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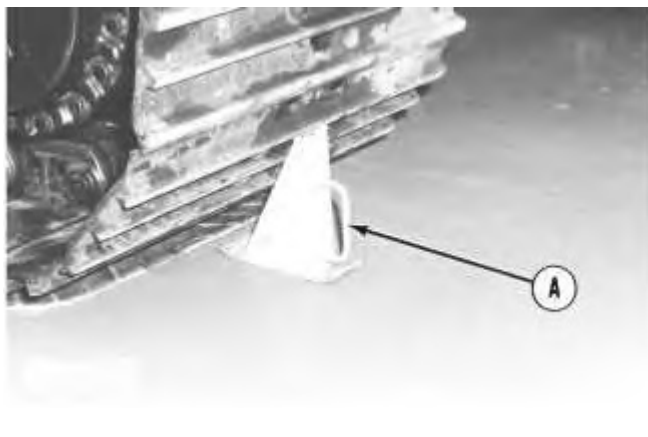


Illustration 3

g00368237

Note: To provide additional clearance for removal of the master pin, the track shoe on each side of the master pin can be removed. Use Tool (B) to remove the track shoe mounting bolts.

3. Move the track assembly until master pin (2) is in the approximate position shown. Put Tool (A) under the track grouser as shown, and move the track onto the tool.

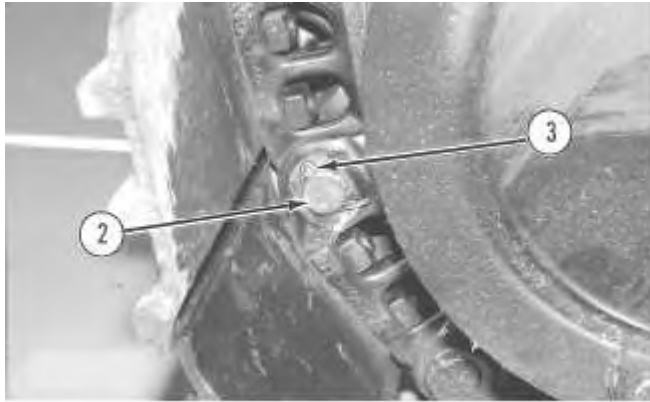


Illustration 4

g00368239

WARNING

Personal injury can result from the track coming off of the roller frame.

The track can move off the track roller frame very quickly when a separation of the track is made.

Keep away from the front of the machine when the track is removed from the track roller frame.

Note: The track bushings will fall out of the track links when the track assembly is separated.

4. Remove cotter pin (3) from the master pin. Use a hammer and punch to remove master pin (2) from the track links. Separate the track links, and locate the two track bushings. Move the machine slowly forward to move the track assembly off of the sprocket, track carrier rollers and front idler.
5. Fasten a hoist to the rear of the track assembly. Raise the track assembly off of Tool (A), and remove the tool from under the track assembly. Lower the rear of the track assembly to the floor.

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Date Updated -09/03/2004

i01042530

Track - Connect

SMCS - 4170-077

Connection Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-3545	Coupling Tool	1
B	1P-3533	Carrier Bar	1
C	1P-7402	Coupling Tool	1
D	5P-6214	Track Block Assembly	1
E	1U-7630	Socket	1



Illustration 1

g00538718

1. Install Tooling (A) in the track link and on the sprocket, as shown.
2. Start the machine. Move the sprocket forward until the track assembly is pulled on the sprocket. Move the sprocket forward until the end of the track assembly is past a vertical line through the center of the sprocket. Remove Tooling (A) .

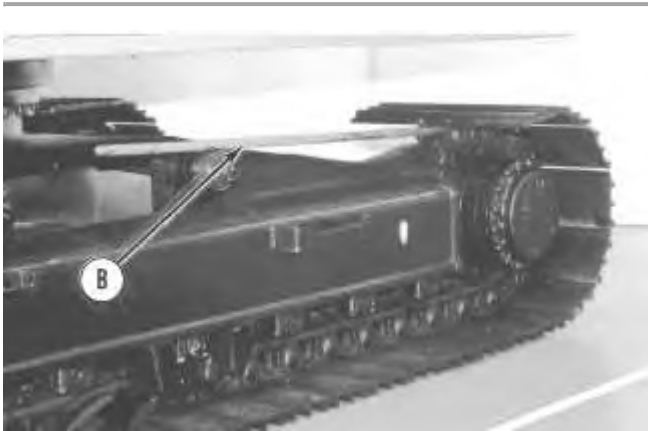


Illustration 2

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3. Install Tooling (B) between the first bushing in the track link and the sprocket, as shown.
4. Move the sprocket forward. Use Tooling (B) to guide the track assembly over the carrier rollers and the front idler.

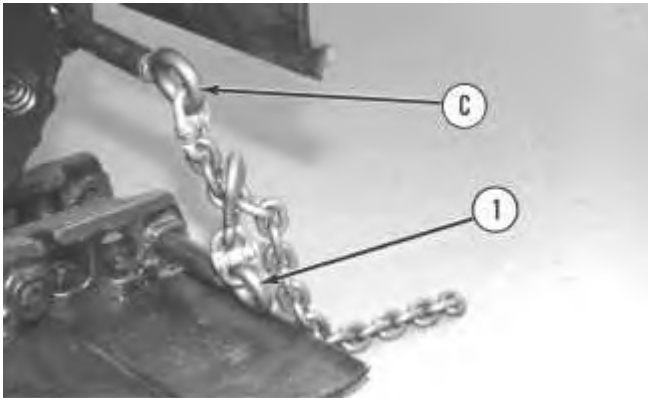


Illustration 3

g00538720

5. Install Tooling (C) between the track links in the end of the track assembly, as shown. Install hook (1) between the track links in the end of the track assembly, as shown. Hook (1) is part of Tooling (A) .
-

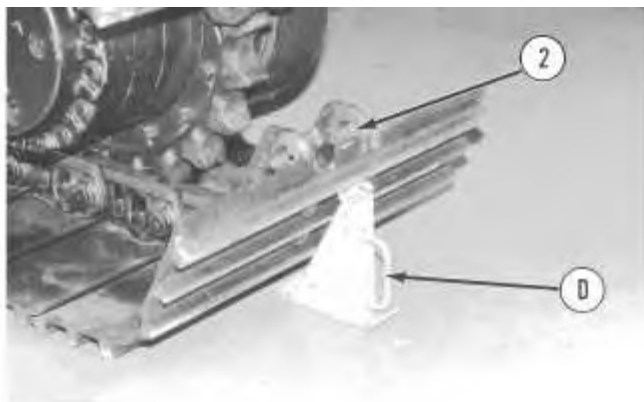


Illustration 4

g00538721

6. Move the track assembly forward or backward until the separation in the track assembly is below a horizontal line through the center of the sprocket.
7. Apply **5P-0960** Molybdenum Grease on two track bushings (2). Install the bushings in the track links, as shown. The grease will hold the bushings in place.
8. Install Tooling (D) under the rear of the track assembly, as shown. Move the track assembly backward until the separation in the track assembly closes and the pin bores in both ends of the track assembly are in alignment with each other. The machine may be moved back and forth in order to align the pin bores.
9. Apply **5P-0960** Molybdenum Grease in the master pin bores in the track assembly and on the master pin. Install the master pin with a hammer. Install the cotter pin in the master pin. Remove Tooling (D) from the rear of the track assembly.
10. If the track shoe on each side of the master pin was removed, reinstall the track shoes. Use Tooling (E) to reinstall the track bolts.
11. Tighten the tension of the track. Refer to Operation and Maintenance Manual, "Tracks" for more information.

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Disassembly and Assembly

315B Excavator Machine Systems

Media Number -REN1131-07

Publication Date -01/03/2004

Date Updated -09/03/2004

i00946588

Front Idler - Disassemble

SMCS - 4159-015

Disassembly Procedure

Start By:

- A. Remove the front idler, the recoil spring and the hydraulic track adjuster as a unit. Refer to Disassembly and Assembly, "Front Idler, Recoil Spring and Hydraulic Track Adjuster - Remove and Install" in this manual.
1. Thoroughly clean the outside of the front idler prior to disassembly.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the machine. 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 in Caterpillar machines.

Dispose of all fluids according to local regulations and mandates.

2. Remove the fill/drain plug from the front idler. Drain the oil from the idler into a suitable container for disposal. The capacity of the idler is 180 mL (6.12 oz).
-

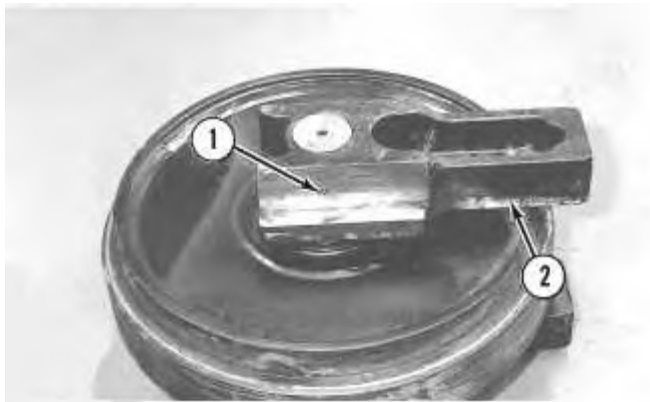


Illustration 1

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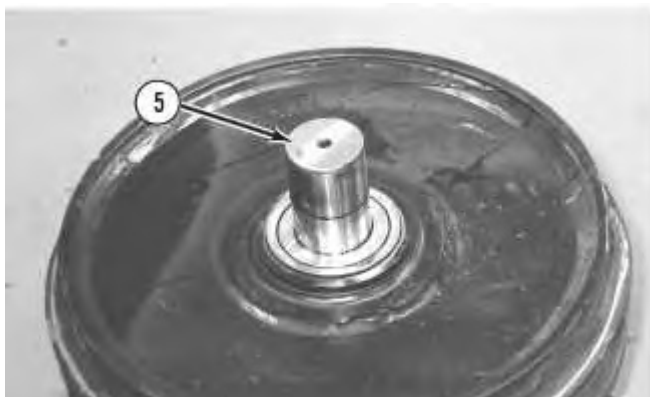
3. Put the front idler on one side, as shown. The weight of the front idler is 109 kg (240 lb).
4. Remove two spring pins (1) from bearings (2). Fasten a hoist to two bearings (2). Remove the bearings from the shaft of the front idler. The weight of each bearing is approximately 18 kg (40 lb).



Illustration 2

g00483027

5. Remove Duo-cone seal kits (3) from bearings (2) .



6. Remove shaft (5) from the front idler.

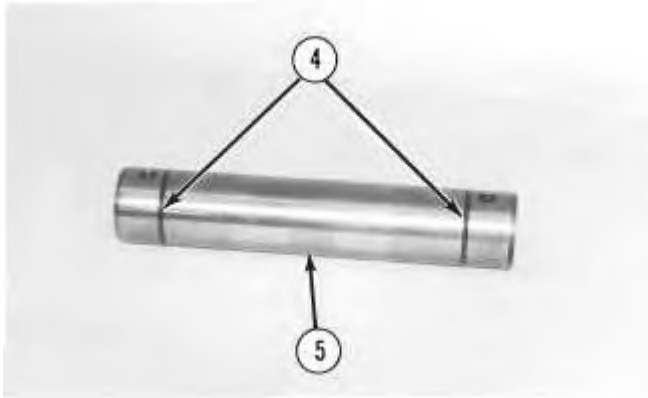


Illustration 4

7. Remove two O-ring seals (4) from shaft (5) .



Illustration 5

8. Remove Duo-cone seal kit (6) from each side of the front idler.
-



Illustration 6

g00483031

9. Remove bushings (7) from each side of the idler.

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Date Updated -09/03/2004

i00946763

Front Idler - Assemble

SMCS - 4159-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-8842	Seal Installer	1
B	8T-5096	Dial Indicator	1

1. Thoroughly clean all parts of the front idler prior to assembly.



Illustration 1

g00483031

2. Check the condition of bushings (7). If the bushings are worn or damaged, use new parts for replacement.

3. Lower the temperature of bushings (7), and install one in each side of the front idler with a press.

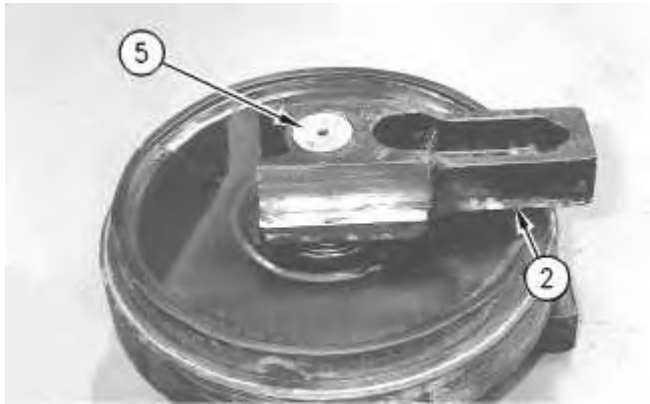


Illustration 2

g00483283

4. Temporarily install a bearing (2) on shaft (5). Install the shaft in the front idler. Install the other bearing (2) on the shaft. Use Tooling (B) to check the end play of the shaft. The shaft end play must be 0.25 mm (.010 inch) to 1.15 mm (.045 inch). Remove two bearings (2) and shaft (5) from the front idler.



Illustration 3

g00483123



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Illustration 4

g00369712

Note: Refer to Disassembly and Assembly, "Duo-Cone Conventional Seals - Install" in this manual.

Note: The rubber seals and all of the surfaces that make contact with the seals must be clean and dry. After the installation of the seals, put clean SAE 30 oil on the contact surfaces of the metal seals.

5. Install a Duo-cone seal kit (6) in each side of the idler with Tooling (A) .
6. Install a Duo-cone seal kit (3) in each bearing (2) with Tooling (A) .

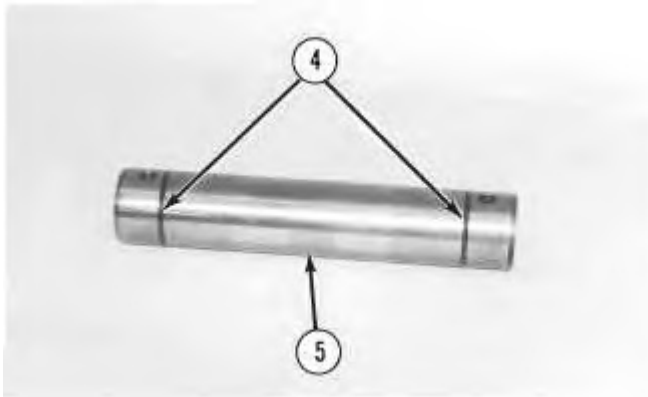


Illustration 5

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7. Check the condition of O-ring seals (4) that are used on shaft (5). If the O-ring seals are worn or damaged, use new parts for replacement.
 8. Install two O-ring seals (4) on shaft (5). Put clean SAE 30 oil on the O-ring seals.
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