

Disassembly and Assembly

416D, 420D, 424D, 428D, 430D, 432D, 438D and 442D Backhoe Loaders Power Train

Steering Cylinder (Front) - Remove and Install

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-2853	Spanner Wrench	1

Start By:

- A. Remove the tie rods from the axle. Refer to Disassembly and Assembly, "Tie Rod (Steering) (Front) - Remove and Install".



Cylinders equipped with lock valves can remain pressurized for very long periods of time, even with the hoses removed.

Failure to relieve pressure before removing a lock valve or disassembling a cylinder can result in personal injury or death.

Ensure all pressure is relieved before removing a lock valve or disassembling a cylinder.

WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

Hydraulic oil pressure can remain in the hydraulic system after the engine has been stopped. Serious injury can be caused if this pressure is not released before any service is done on the hydraulic system.

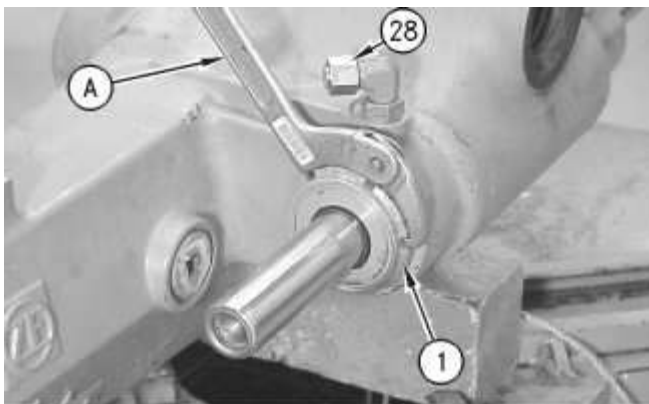
Make sure all of the work tools have been lowered to the ground, and the oil is cool before removing any components or lines. Remove the oil filler cap only when the engine is stopped, and the filler cap is cool enough to touch with your bare hand.

NOTICE

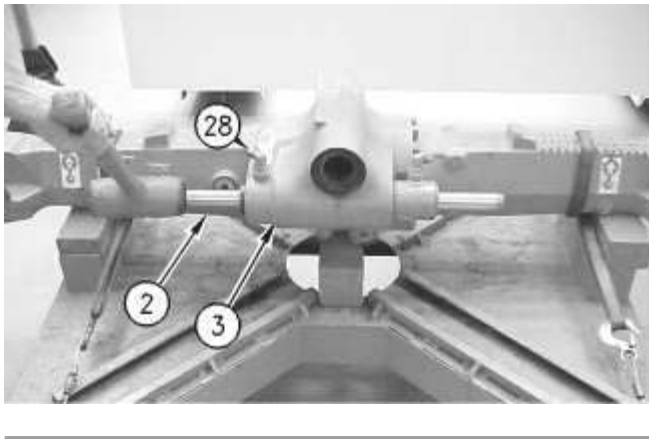
Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

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. Use Tooling (A) and remove spanner nut (1) .



2. Use a rubber mallet in order to remove steering cylinder assembly (2) from axle housing (3) .

Disassembly Procedure

WARNING

Cylinders equipped with lock valves can remain pressurized for very long periods of time, even with the hoses removed.

Failure to relieve pressure before removing a lock valve or disassembling a cylinder can result in personal injury or death.

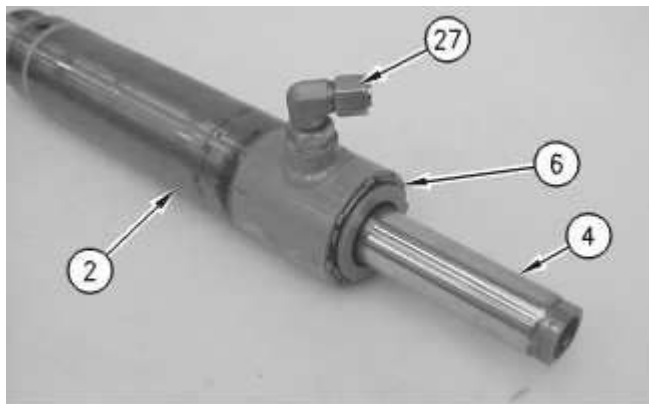
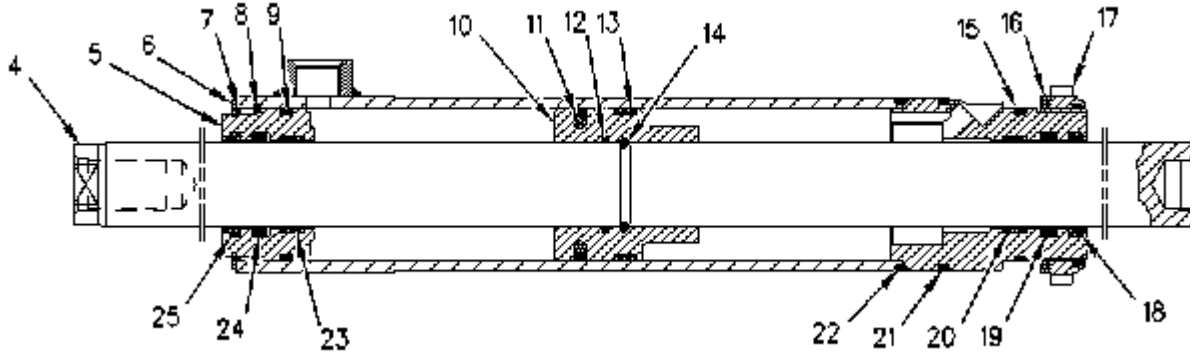
Ensure all pressure is relieved before removing a lock valve or disassembling a cylinder.

NOTICE

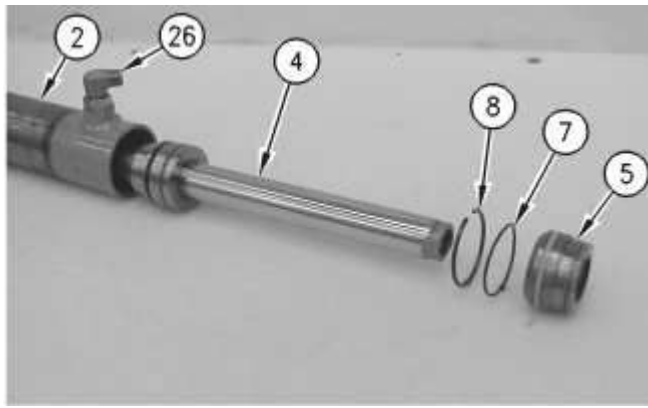
Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

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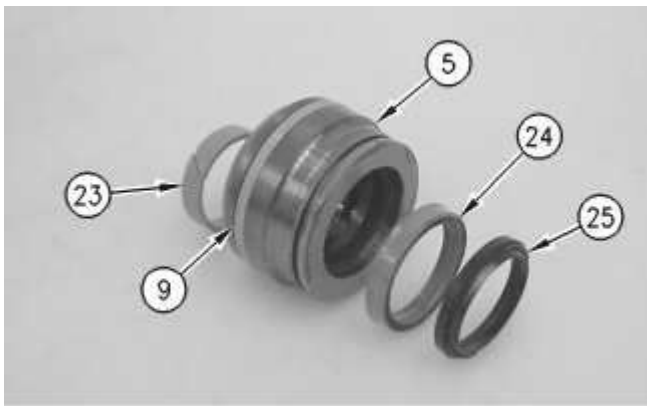
Dispose of all fluids according to local regulations and mandates.



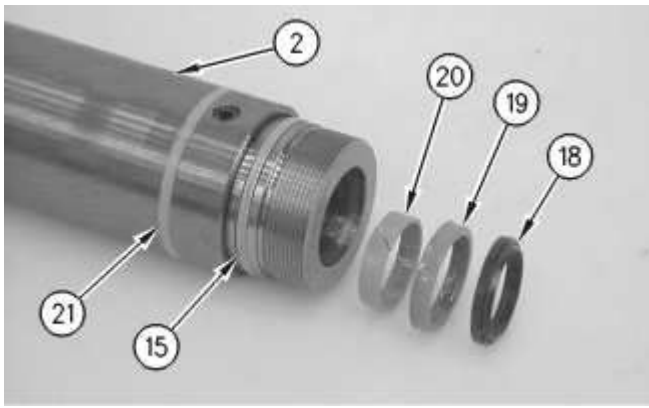
1. Remove retaining ring (6) .
 2. Remove cap (27) .
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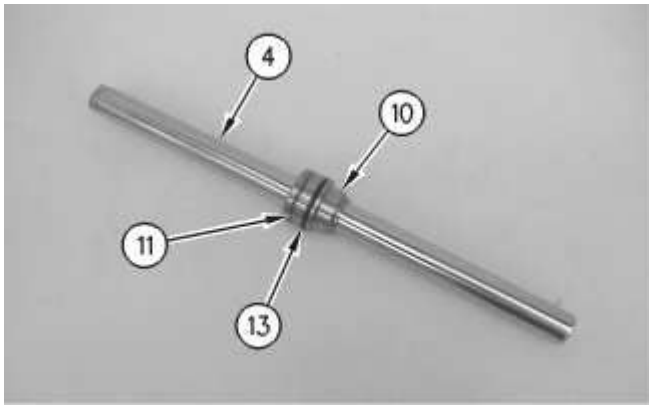
3. Push guide (5) into cylinder assembly (2). Remove snap ring (8) .
4. Remove guide (5) .
5. Remove O-ring seal (7) from guide (5) .
6. Remove fitting (26) .



7. Remove seal (23), ring (9), grooved seal (24), and scraper ring (25) from guide (5) .
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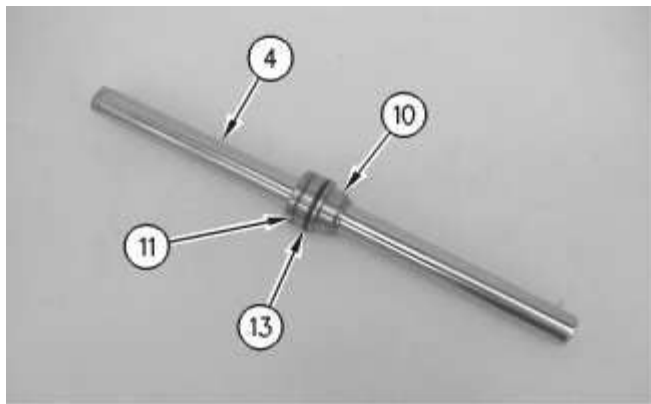
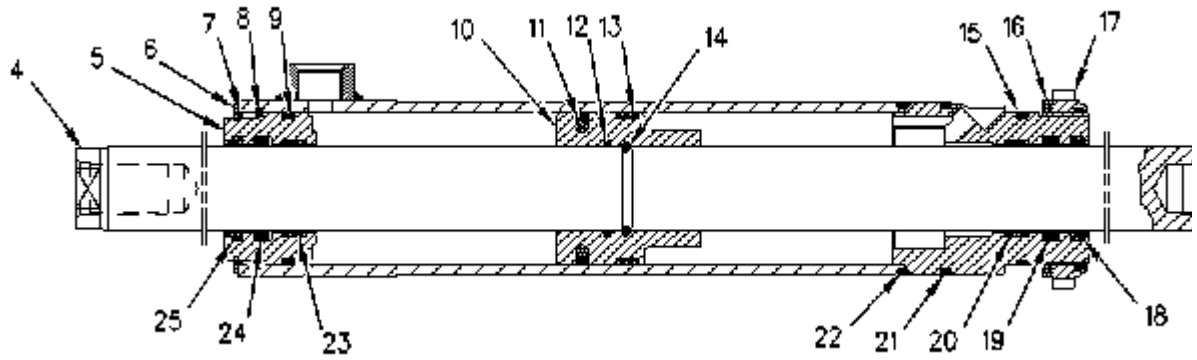
8. Remove dust seal (21), seal (15), seal (20), ring (19) and ring (18) .



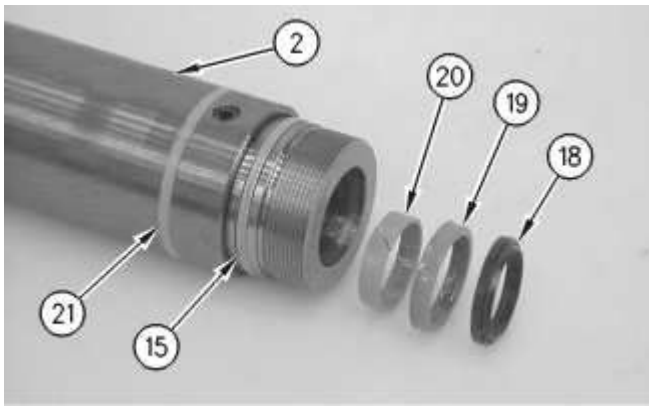
9. Remove guide (10), ring (11), and ring (13) from cylinder rod (4) .

10. Remove ring (12) and O-ring seal (14) from guide (9). Refer to Illustration 3.

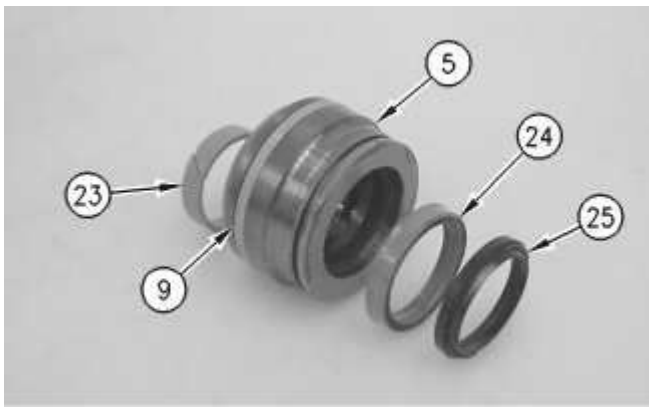
Assembly Procedure



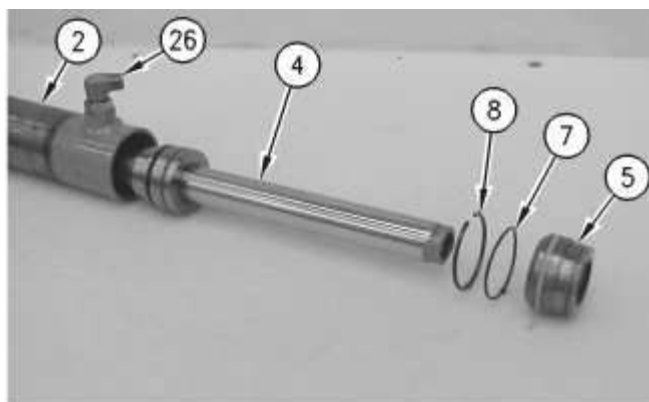
1. Install ring (12) and O-ring seal (14) onto guide (9) .
 2. Install guide (10) onto cylinder rod (4) .
 3. Install ring (11), and ring (13) onto guide (10) .
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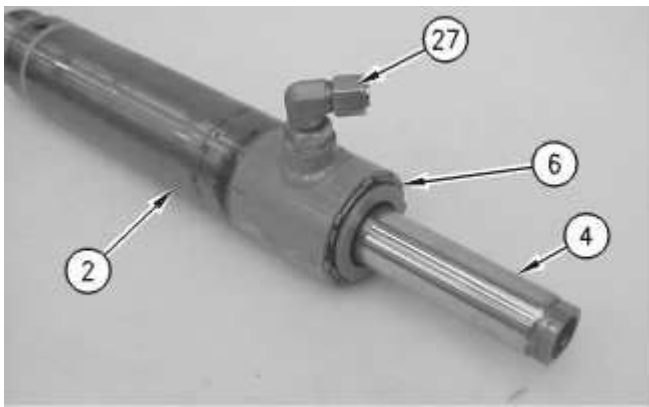
4. Install dust seal (21), seal (15), seal (20), ring (19) and ring (18) onto cylinder assembly (2) .



5. Install seal (23), ring (9), grooved seal (24), and scraper ring (25) onto guide (5) .



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6. Install guide (5) onto cylinder rod (5) .
 7. Install O-ring seal (7) onto guide (5) .
 8. Install guide (5) and cylinder rod (4) into cylinder assembly (2) .
 9. Install snap ring (8) into cylinder assembly. Pull guide (5) against snap ring (8) .
 10. Install fitting (26) .

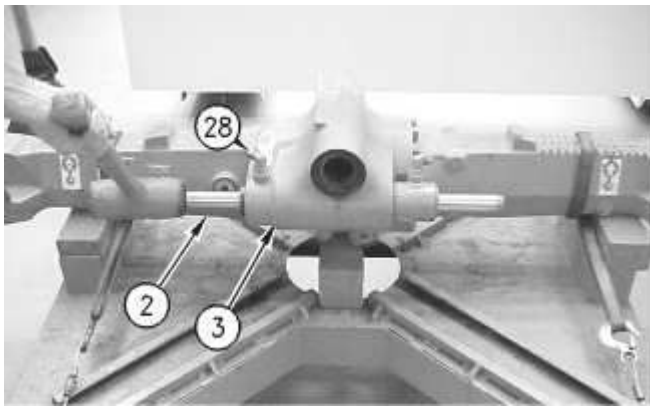


11. Install retaining ring (6) and cap (27) .

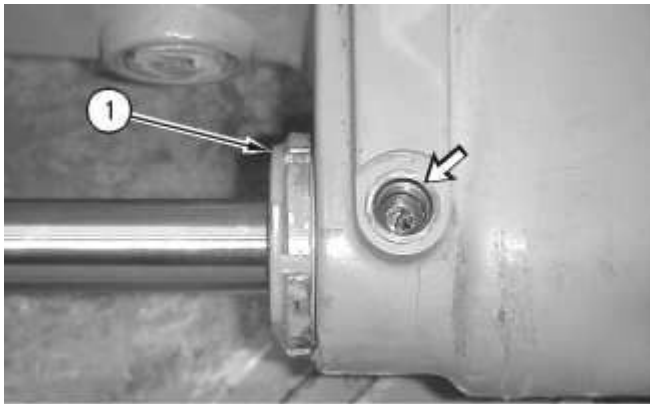
Installation Procedure

Table 2

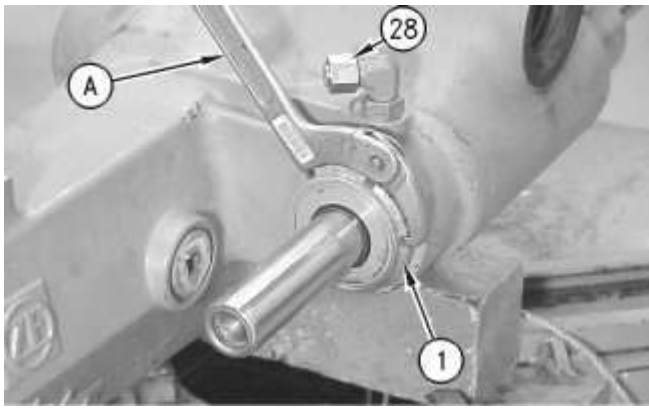
Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-2853	Spanner Wrench	1



1. Use a rubber mallet in order to install steering cylinder assembly (2) into axle housing (3) .
2. Remove fitting (28) from axle housing (3) .



3. Rotate the steering cylinder in the axle housing in order to align the oil passage in the steering cylinder with the boss on the axle housing.
4. Install spanner nut (1) .



5. Use Tooling (A) in order to tighten spanner nut (1) .

6. Install fitting (28) .

End By: Install the tie rods onto the front axle. Refer to Disassembly and Assembly, "Tie Rod (Steering) (Front) - Remove and Install".
