



Service Repair Manual

Models

390F and 390F L Excavator

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Product: EXCAVATOR

Model: 390F EXCAVATOR FEH

Configuration: 390F L Excavator FEH00001-UP (MACHINE) POWERED BY C18 Engine

Disassembly and Assembly 390F Excavator Machine Systems

Media Number -UENR0165-05

Publication Date -01/01/2018

Date Updated -24/01/2018

i05680270

Travel Motor - Disassemble

SMCS - 4351-015

Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7575	Link Bracket	2
B	1P-0074	Slide Hammer Puller Gp	1
C	123-4370	Threaded Rod M20 - 2.5	2
D	1P-1864	Pliers	1
E	1P-1858	Pliers	1
F	1P-0520	Driver Group	1
G	8T-0349	Bolt	2

Start By:

- a. Remove the travel motor.

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.

Note: Cleanliness is an important factor. Before you begin the disassembly procedure, the exterior of the components should be thoroughly cleaned. This will help to prevent dirt from entering the internal mechanism. Precision components can be damaged by contaminants or by dirt. Perform disassembly procedures on a clean work surface. Keep components covered and protected at all times.

1. Place an alignment mark across all housings of the travel motor for assembly purposes.



Illustration 1

g01282832

! WARNING

Personal injury can result from parts and/or covers under spring pressure.

Spring force will be released when covers are removed.

Be prepared to hold spring loaded covers as the bolts are loosened.

2. Remove two socket head bolts (2) from head (1) that are 180 degrees from each other. Replace these two bolts with Tooling (G). Tooling (G) will retain the brake cover when the remaining socket head bolts (2) are removed.
 3. Carefully remove the remaining socket head bolts (2) that retain head (1) in position. Remove socket head bolts (2) evenly, in a crisscross pattern.
 4. Remove Tooling (G) from head (1).
-

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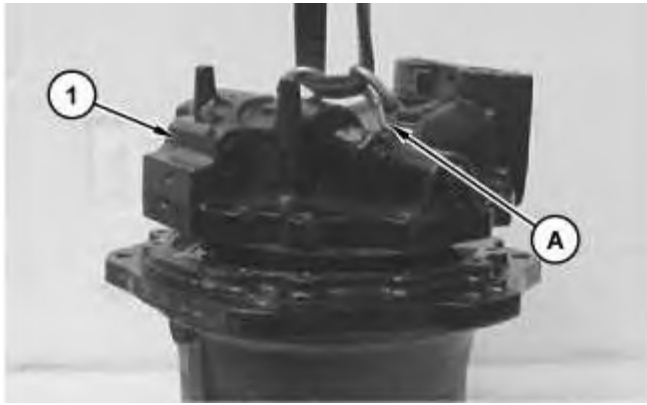


Illustration 2

g01283040

5. Install Tooling (A) and a suitable lifting device to head (1).
6. Remove head (1) from the travel motor. The weight of head (1) is approximately 68 kg (150 lb).

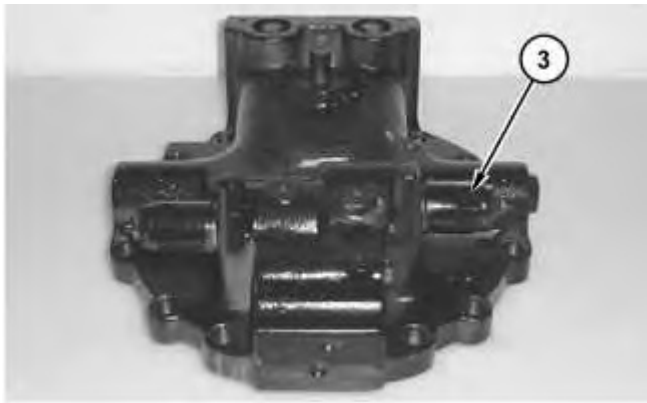


Illustration 3

g01283045

7. Remove relief valve (3).

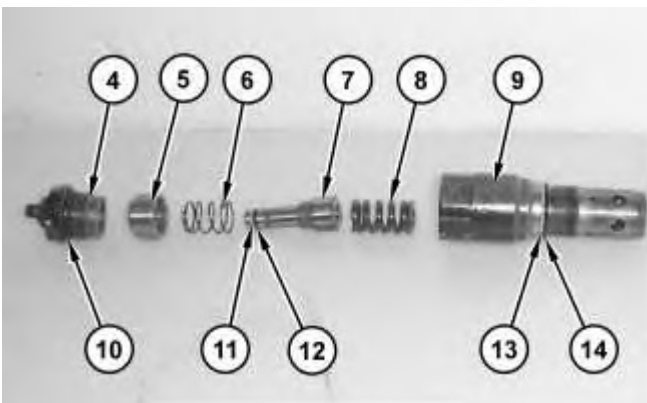


Illustration 4

g01283049

WARNING

Personal injury can result from being struck by parts propelled by a released spring force.

Make sure to wear all necessary protective equipment.

Follow the recommended procedure and use all recommended tooling to release the spring force.

8. Remove cap (4) from body (9). Remove piston (5), spring (6), spool (7), and spring (8) from body (9).
9. Remove O-ring seals (10), (12), and (14). Remove backup rings (11) and (13).
10. Remove the other relief valve from the other side of the head.
11. Repeat Steps 8 and 9 for the disassembly of the other relief valve.



Illustration 5

g01283057

12. Remove plug (15).

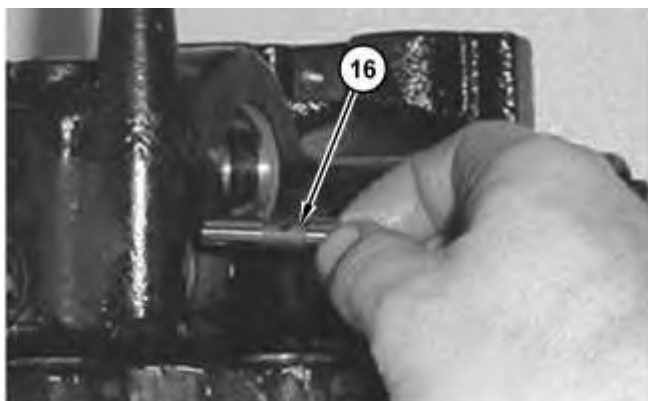


Illustration 6

g01283060

13. Remove spool (16).



Illustration 7

g01283070



Personal injury can result from being struck by parts propelled by a released spring force.

Make sure to wear all necessary protective equipment.

Follow the recommended procedure and use all recommended tooling to release the spring force.

14. Remove plug (17).

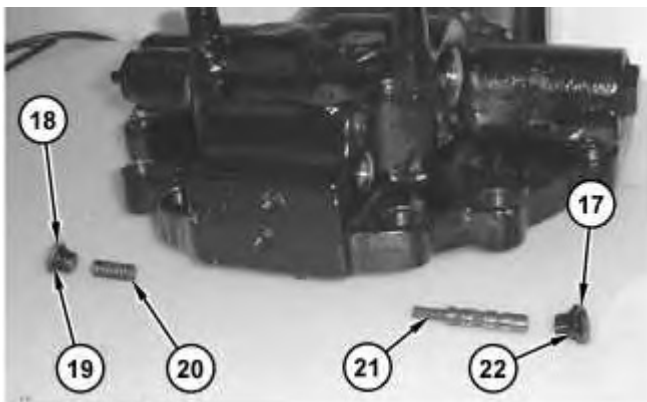


Illustration 8

g01283075

15. Remove spool (21) from the head. Remove O-ring seal (22) from plug (17).

16. Remove plug (18) from the other side of the head. Remove spring (20). Remove O-ring seal (19) from plug (18).

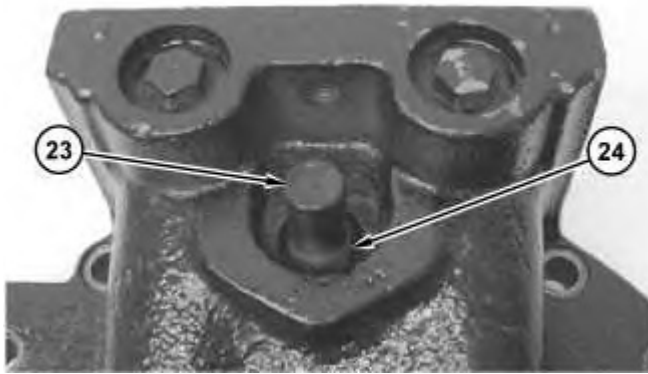


Illustration 9

g01283083

17. Remove cap (23) and pressure reducing valve (24).

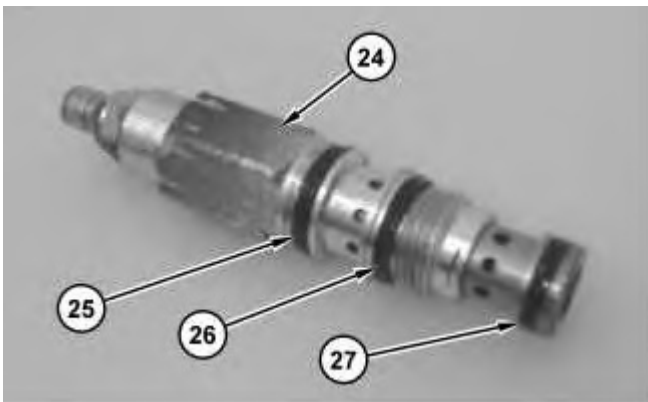


Illustration 10

g01283088

18. Remove O-ring seals (25), (26), and (27) from pressure reducing valve (24).

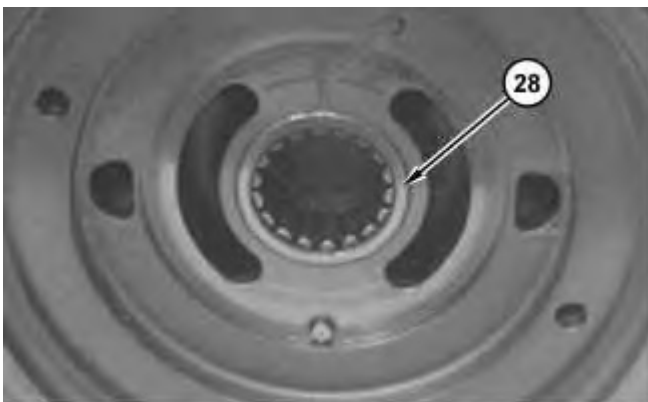


Illustration 11

g01283096

19. Use Tooling (B) in order to remove bearing (28) from the head.

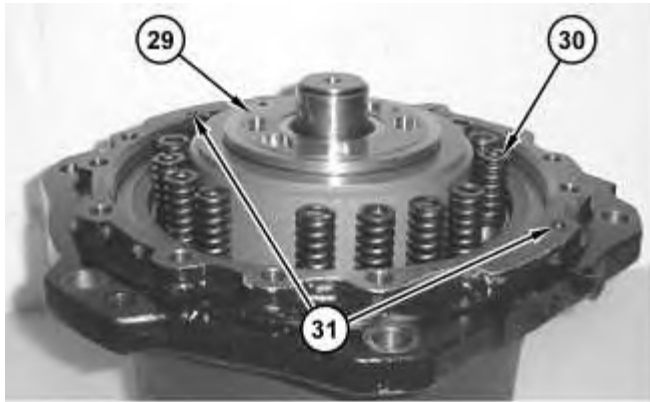


Illustration 12

g01283101

20. Remove port plate (29) from the travel motor.

Note: Note the location of springs (30) before removal.

21. Remove springs (30) from the travel motor.

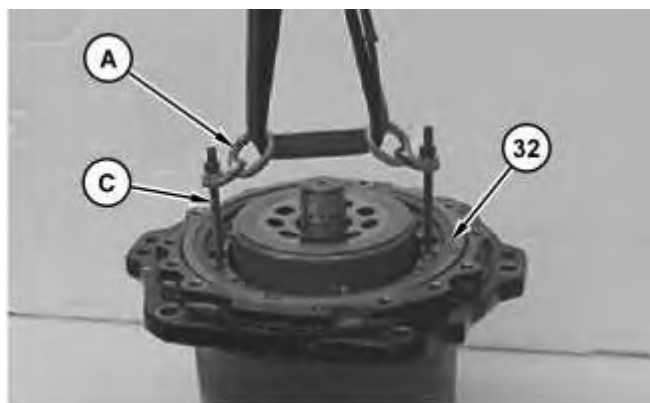
22. Remove O-ring seals (31).



Illustration 13

g01283110

23. Place alignment marks on piston (32) and the housing. The dowel hole in piston (32) must be reinstalled to the original location.



24. Install Tooling (C) to the threaded holes in piston (32). Install Tooling (A) and a suitable lifting device on Tooling (C), as shown. Remove piston (32) from the travel motor.

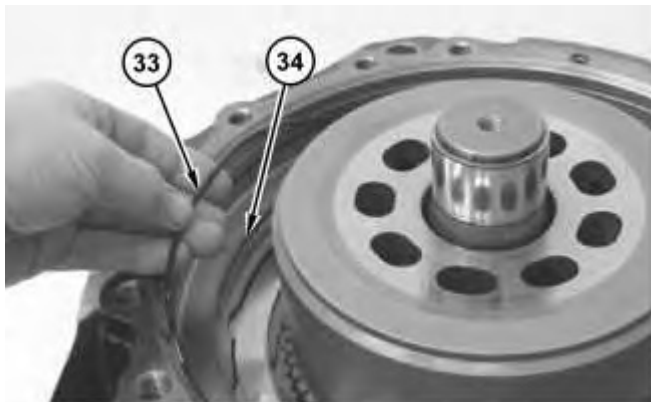


Illustration 15

25. Remove O-ring seals (33) and (34) from the travel motor.

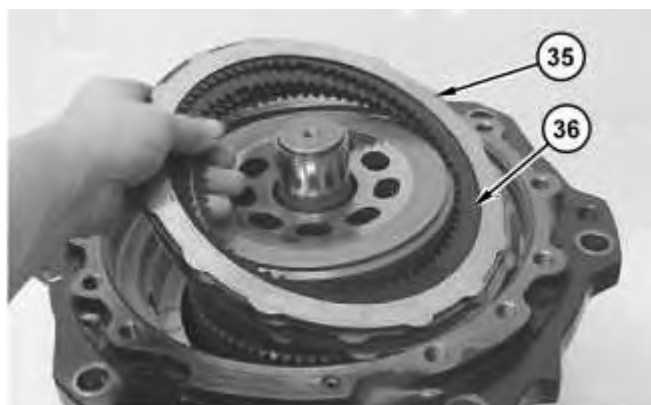


Illustration 16

26. Remove separator plates (35) and friction plates (36) from the travel motor.

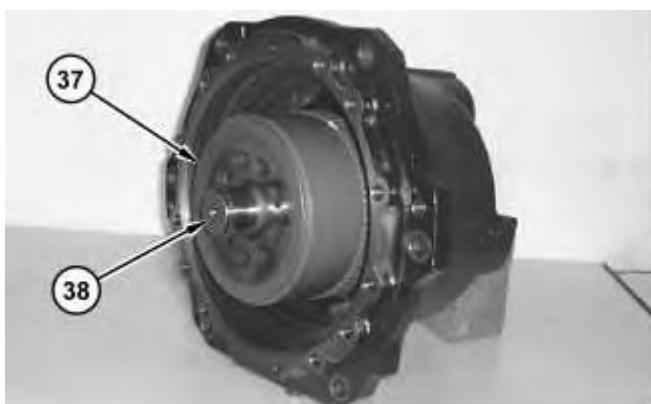


Illustration 17

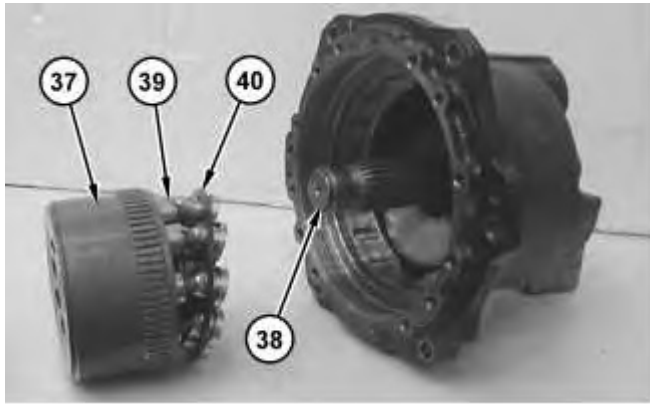


Illustration 18

g01283139

Note: Barrel assembly (37), piston assemblies (39), and retainer (40) must remain intact during removal.

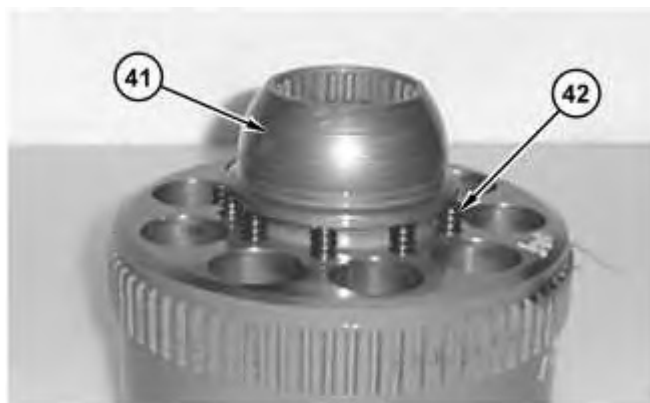
27. Position the travel motor sideways. Carefully remove barrel assembly (37) from shaft (38).



Illustration 19

g01283155

28. Place identification marks on piston assemblies (39), retainer (40), and barrel assembly (37). These components must be reinstalled in the original location.
29. Remove retainer (40) and piston assemblies (39) from barrel assembly (37).



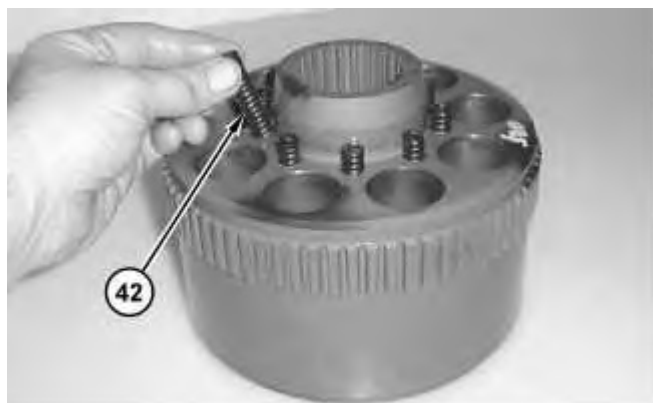


Illustration 21

30. Remove guide (41).
31. Remove springs (42).

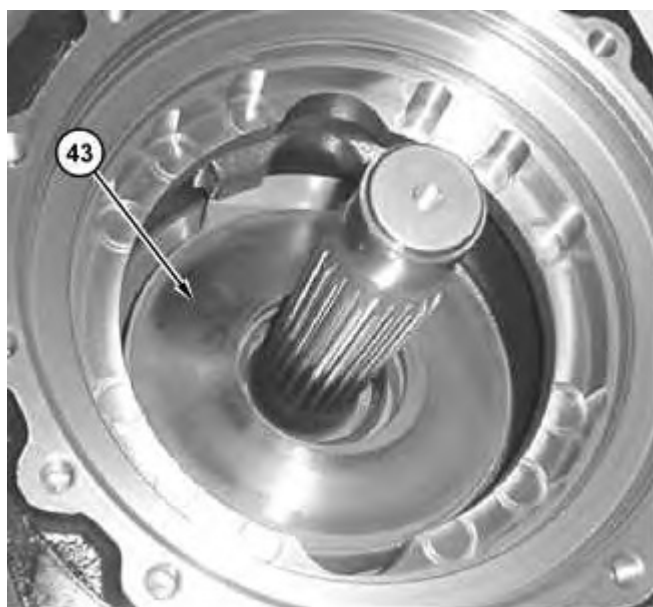


Illustration 22

32. Turn swashplate (43) counterclockwise in order to provide clearance for the removal of swashplate (43).
 33. Remove swashplate (43) from the travel motor housing.
-

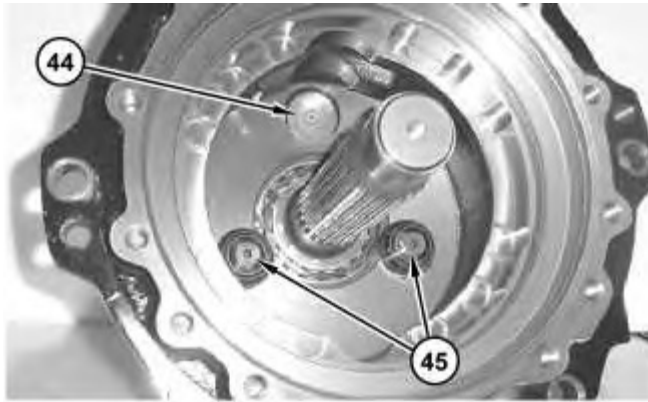


Illustration 23

g01283195

34. Remove piston (44) and pivots (45).

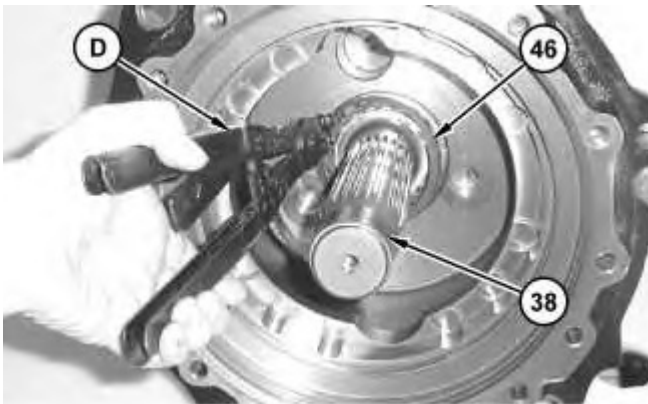


Illustration 24

g01283206

35. Use Tooling (D) in order to remove retaining ring (46) from shaft (38).

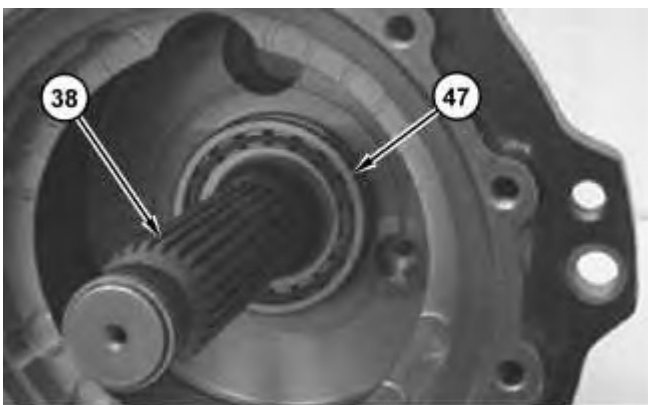


Illustration 25

g01283209

36. Use a soft hammer in order to drive shaft (38) and bearing (47) from the motor housing.

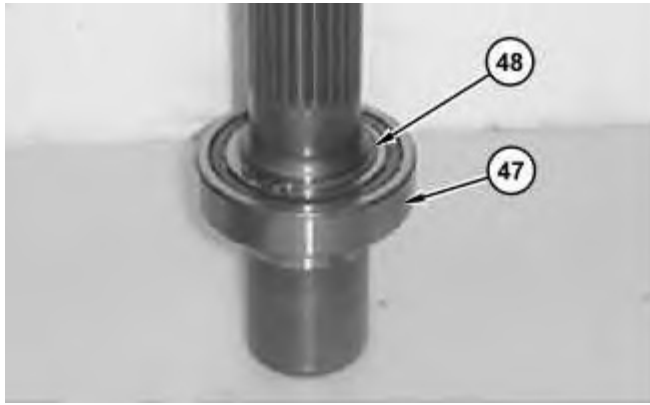


Illustration 26

g01283212

37. Use Tooling (E) in order to remove retaining ring (48) from bearing (47).

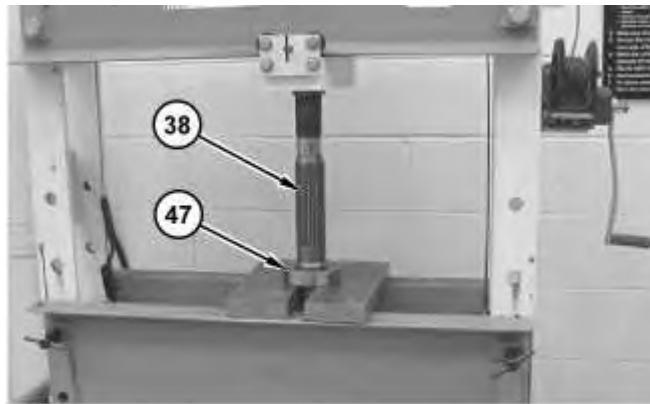


Illustration 27

g01283232

38. Use a suitable press in order to remove bearing (47) from shaft (38).



Illustration 28

g01283244

39. Remove retaining ring (49) and bearing race (50).
-



Illustration 29

g01283253

40. Use Tooling (F) in order to remove lip seal (51) from the travel motor housing.

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Product: EXCAVATOR

Model: 390F EXCAVATOR FEH

Configuration: 390F L Excavator FEH00001-UP (MACHINE) POWERED BY C18 Engine

Disassembly and Assembly 390F Excavator Machine Systems

Media Number -UENR0165-05

Publication Date -01/01/2018

Date Updated -24/01/2018

i02563228

Travel Motor - Assemble

SMCS - 4351-016

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7575	Link Bracket	2
D	1P-1864	Pliers	1
E	1P-1858	Pliers	1
F	1P-0520	Driver Group	1

Note: Cleanliness is an important factor. Before assembly, all parts should be thoroughly cleaned in cleaning fluid. Allow the parts to air dry. Wiping cloths or rags should not be used to dry parts. Lint may be deposited on the parts which may cause later trouble. Inspect all parts. If any parts are worn or damaged, use new parts for replacement.

Note: Apply a light film of 10W oil to all components before assembly.



Illustration 1

g01283253

1. Use Tooling (F) in order to install lip seal (51) in the travel motor housing.

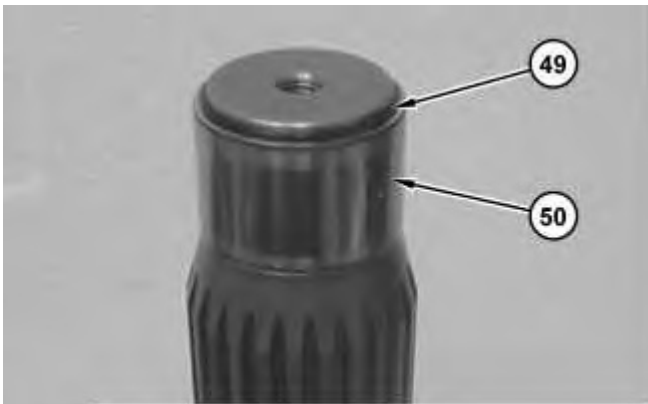


Illustration 2

g01283244

2. Install bearing (50) and retaining ring (49).



Illustration 3

g01283329

3. Raise the temperature of bearing (47). Install bearing (47) onto shaft (38).

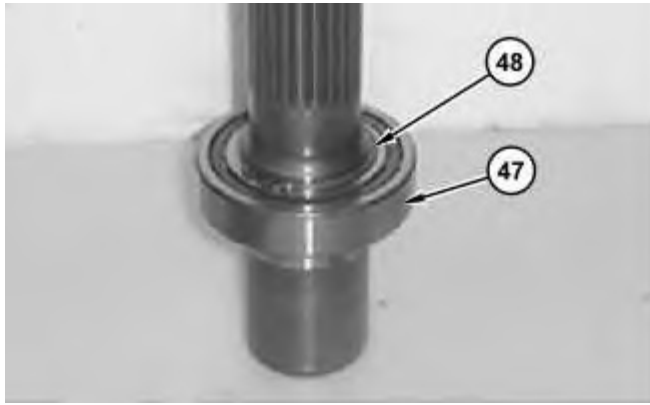


Illustration 4

g01283212

4. Use Tooling (E) in order to install retaining ring (48) onto bearing (47).

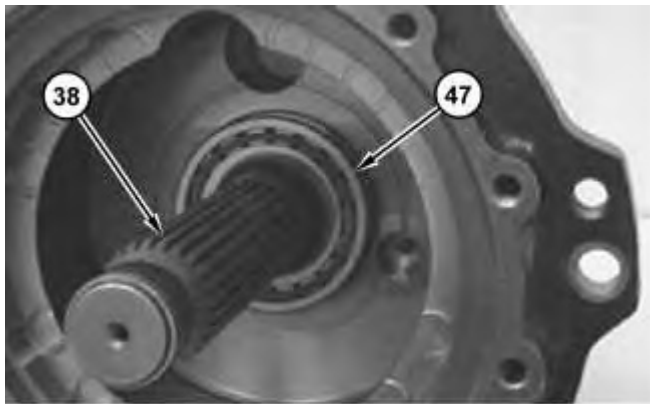


Illustration 5

g01283209

5. Install shaft (38) and bearing (47) into the motor housing.

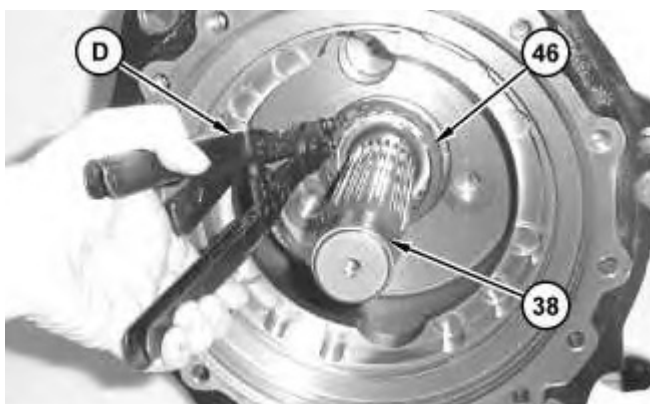


Illustration 6

g01283206

6. Use Tooling (D) in order to install retaining ring (46) onto shaft (38).

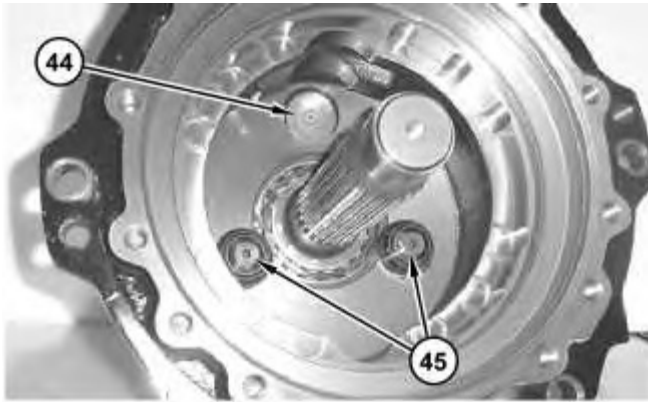


Illustration 7

g01283195

7. Install piston (44) and pivots (45).

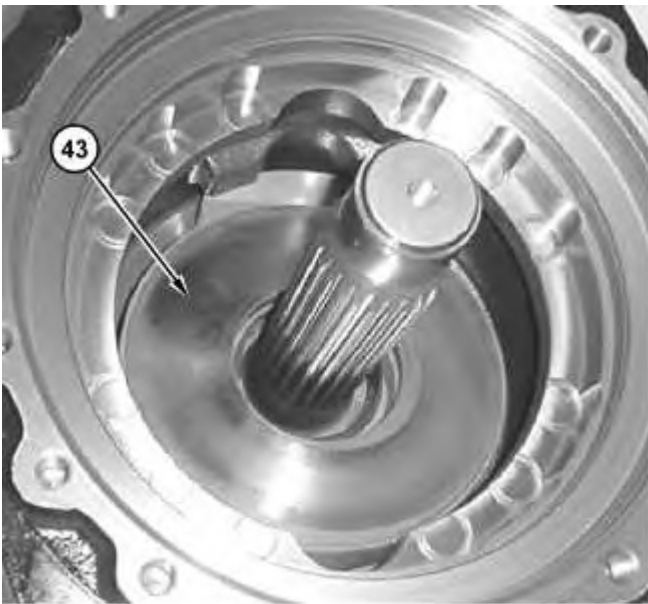


Illustration 8

g01283187

8. Install swashplate (43).

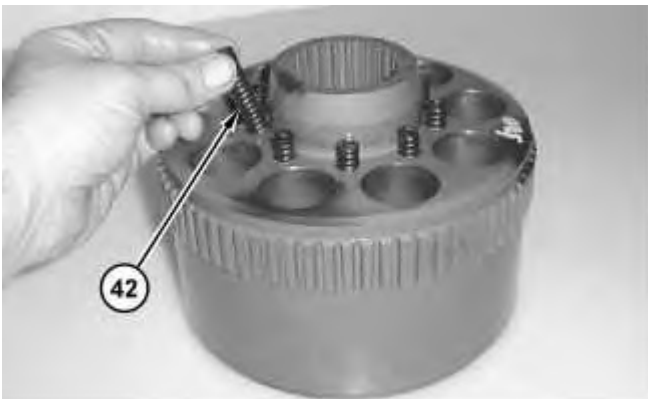


Illustration 9

g01283193

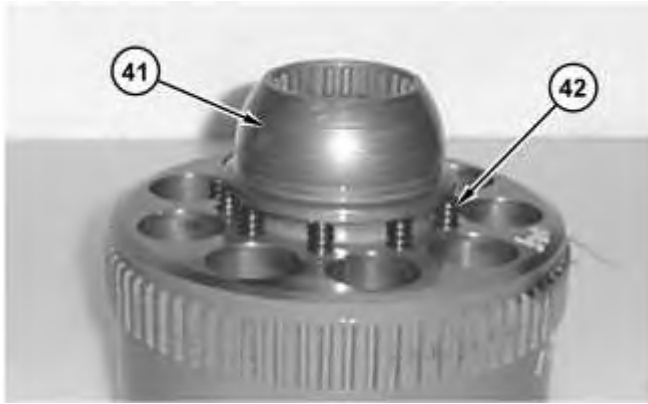


Illustration 10

g01283175



Improper assembly of parts that are spring loaded can cause bodily injury.

To prevent possible injury, follow the established assembly procedure and wear protective equipment.

9. Install springs (42).
10. Install guide (41).



Illustration 11

g01283155

11. Install retainer (40) and piston assemblies (39) into barrel assembly (37). These components must be reinstalled in the original location.
-

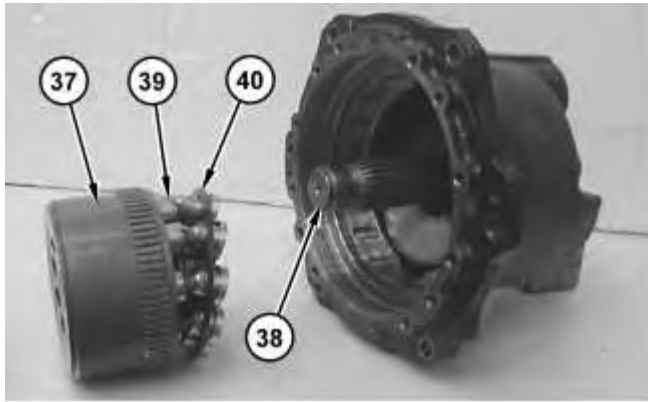


Illustration 12

g01283139

Note: Barrel assembly (37), piston assemblies (39), and retainer (40) must remain intact during installation onto shaft (38).

12. Position the travel motor sideways.

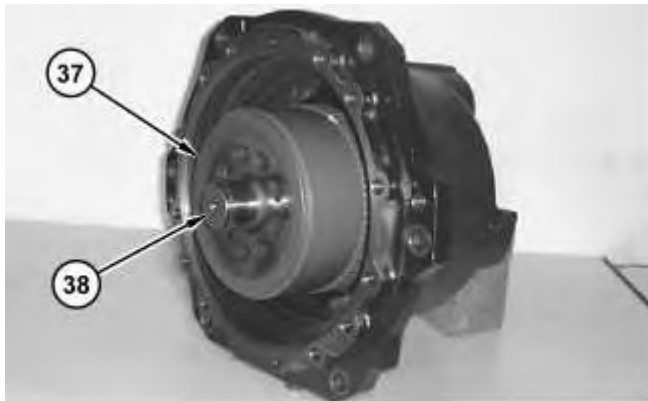


Illustration 13

g01283138

13. Carefully install barrel assembly (37) onto shaft (38).

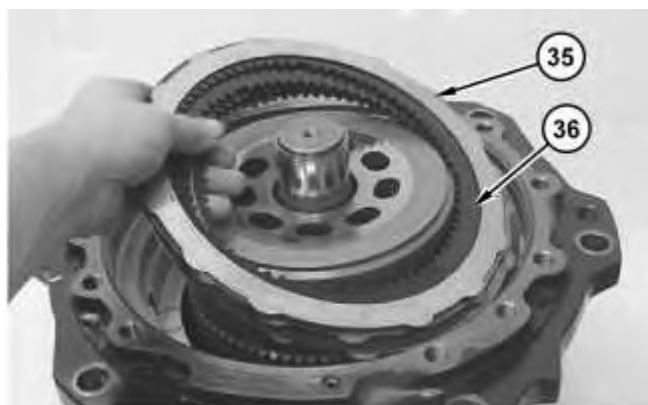


Illustration 14

g01283133

14. Install separator plates (35) and friction plates (36) into the travel motor.

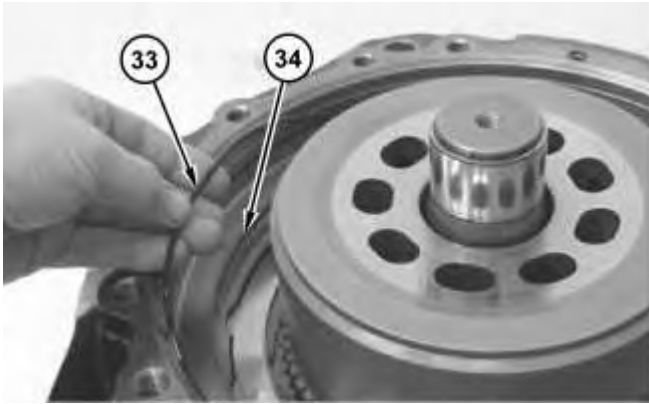


Illustration 15

g01283129

15. Install O-ring seals (33) and (34) into the travel motor.



Illustration 16

g01283110

Note: Piston (32) must be reinstalled in the original location.

16. Install piston (32).

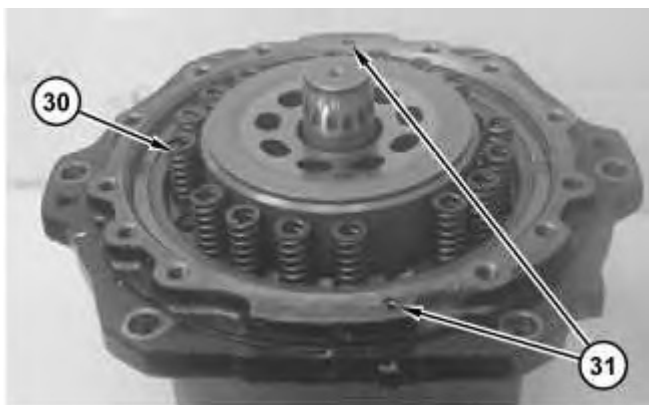


Illustration 17

g01283350

WARNING

Improper assembly of parts that are spring loaded can cause bodily injury.

To prevent possible injury, follow the established assembly procedure and wear protective equipment.

Note: Note the location of springs (30) for installation.

17. Install springs (30) and O-ring seals (31) to the travel motor.

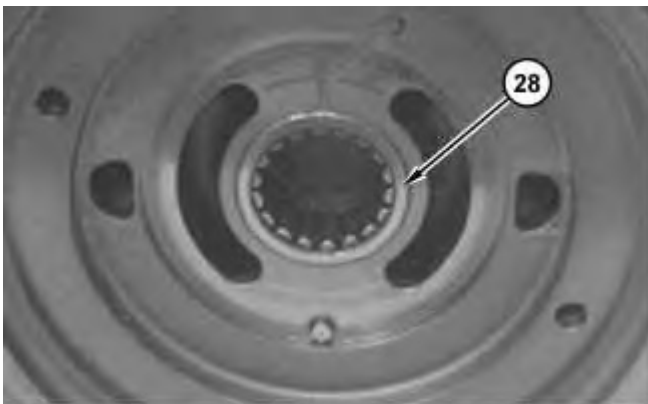


Illustration 18

g01283096

18. Lower the temperature of bearing (28). Install bearing (28) in the head.

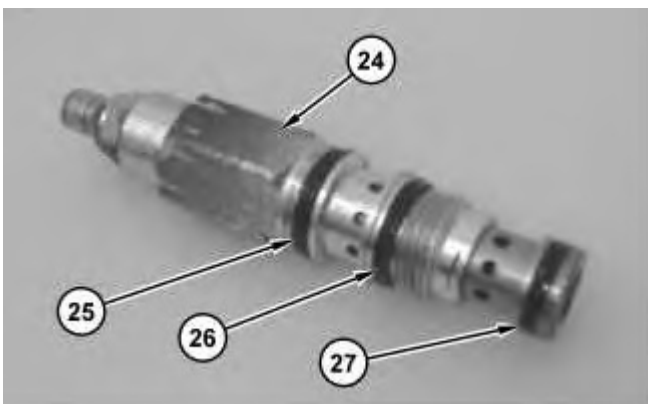


Illustration 19

g01283088

19. Install O-ring seals (25), (26), and (27) on pressure reducing valve (24).
-

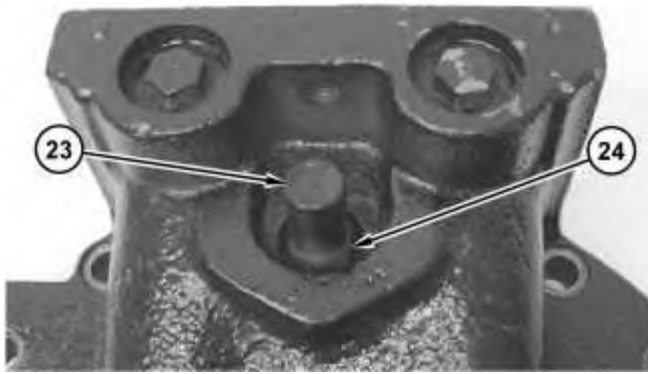


Illustration 20

g01283083

20. Install pressure reducing valve (24). Tighten pressure reducing valve (24) to a torque of $44 \pm 4 \text{ N}\cdot\text{m}$ ($33 \pm 3 \text{ lb ft}$).
21. Install cap (23).

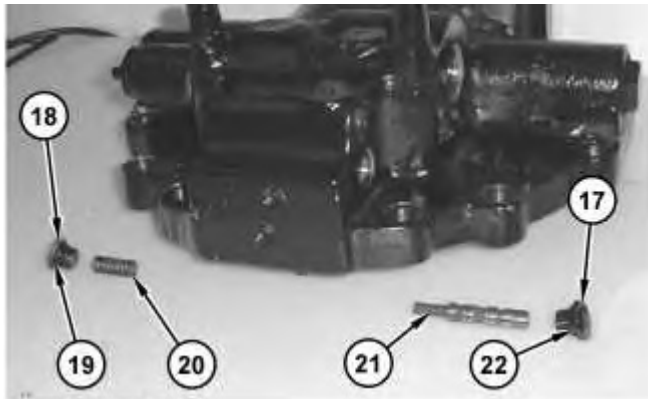
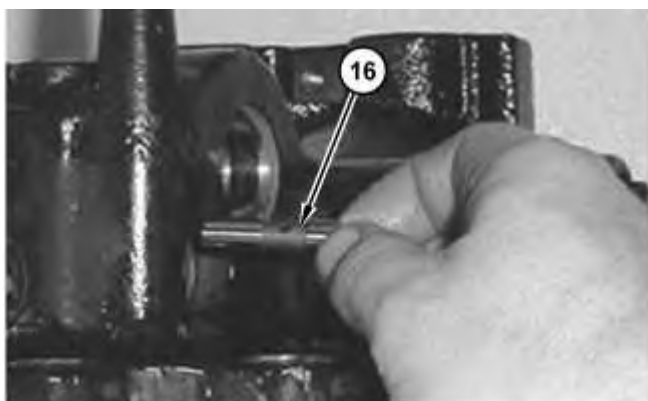


Illustration 21

g01283075

22. Install O-ring seal (22) onto plug (17). Install spool (21) and plug (17) to the head.
23. Install O-ring seal (19) onto plug (18). Install spring (20) and plug (18) to the head.
24. Tighten plugs (17) and (18) to a torque of $74 \pm 7 \text{ N}\cdot\text{m}$ ($55 \pm 5 \text{ lb ft}$).



25. Install spool (16).



Illustration 23

26. Install plug (15).

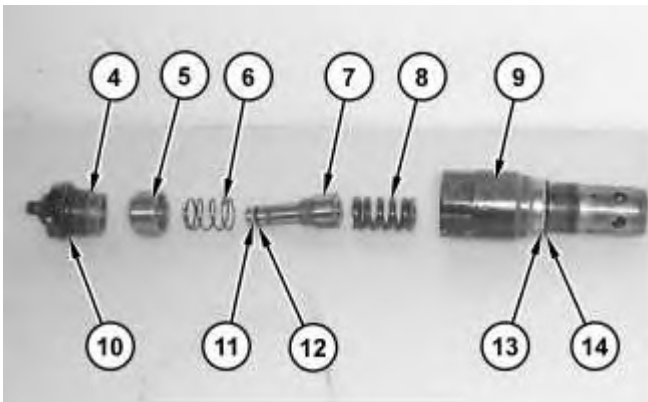


Illustration 24

WARNING

Improper assembly of parts that are spring loaded can cause bodily injury.

To prevent possible injury, follow the established assembly procedure and wear protective equipment.

27. Install O-ring seals (10), (12), and (14) and backup rings (11) and (13).
28. Install piston (5), spring (6), spool (7), and spring (8) in body (9). Install cap (4) in body (9).
29. Repeat Steps 27 and 28 for the assembly of the other relief valve.



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Illustration 25

g01283045

30. Install relief valves (3). Tighten relief valves (3) to a torque of 177 ± 18 N·m (131 ± 13 lb ft).

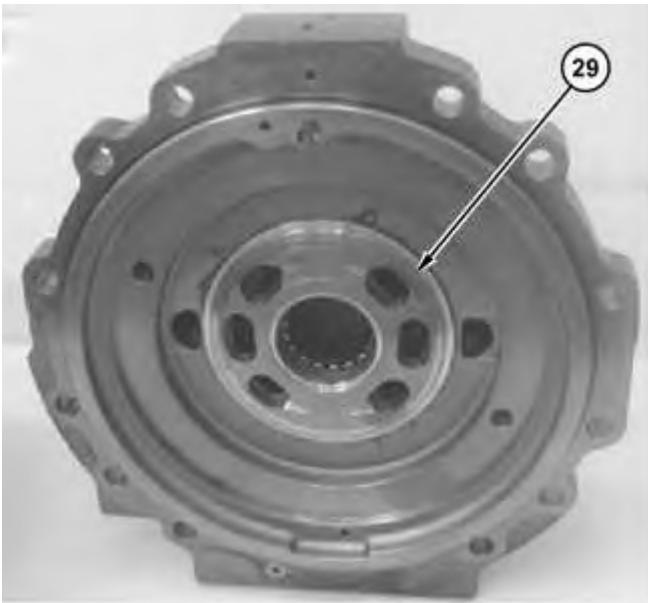
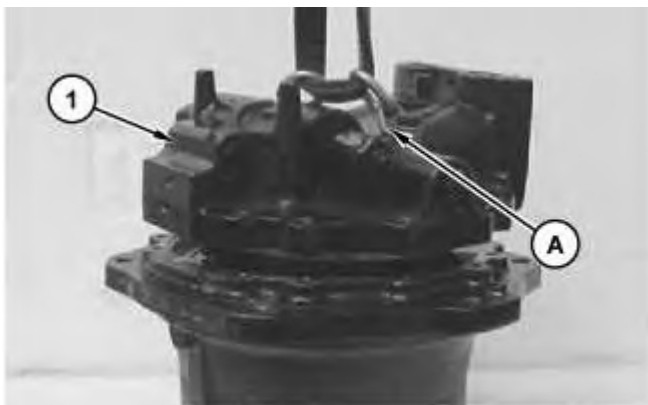


Illustration 26

g01283396

31. Use light grease to install port plate (29) on the head.



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