



Service Repair Manual

Models

994H Wheel Loader

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◀Product: WHEEL LOADER

Model: 994H WHEEL LOADER DWC

Configuration: 994H Wheel Loader DWC00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly 994H Wheel Loader Machine Systems

Media Number -UENR0765-01

Publication Date -01/07/2011

Date Updated -08/11/2016

i06093455

Piston Pump (Steering) - Assemble

SMCS - 4306-016-QP; 5070-016-ZH

Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-1863	Retaining Ring Pliers	1
B	439-3939	Link Bracket	2
C	1P-1859	Retaining Ring Pliers	1
D	171-1113	Measuring Hub	1
E	129-3876	Measuring Bell	1
F	-	Height Gauge	1
G	171-1112	Test Pins	3
H	171-1114	Alignment Plug	1
J	6V-2055	Grease	1

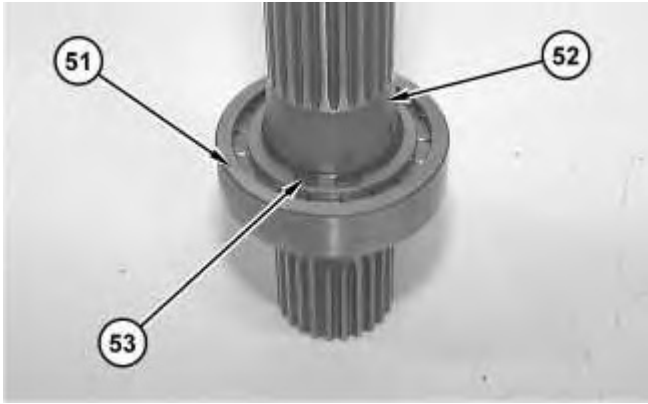


Illustration 1

g01171204

1. Raise the temperature of bearing (51).
2. Install bearing (51) onto shaft (52).
3. Use Tooling (C) in order to install retaining ring (53) to shaft (52).



Illustration 2

g01167863

4. Install bearing (51) and shaft (52).



Illustration 3

g01167862

5. Install the O-ring seals, lip seal (50), cover (49), and bolts (48).

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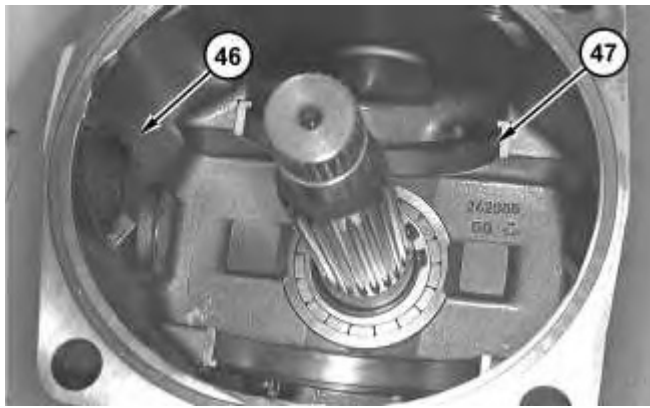


Illustration 4

g01170395

6. Install outer races (47) into housing (46).

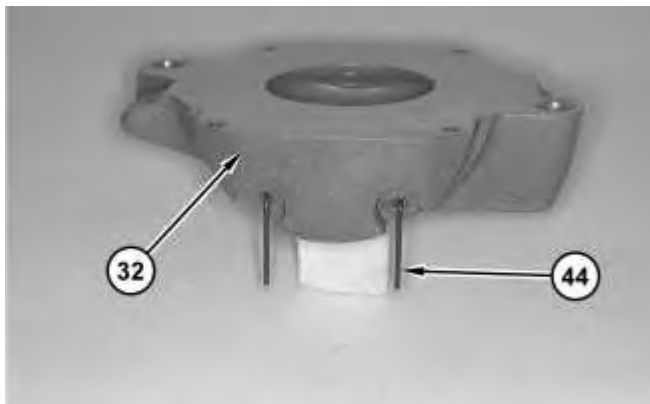


Illustration 5

g01360759

7. Install pins (44) to swashplate (32).

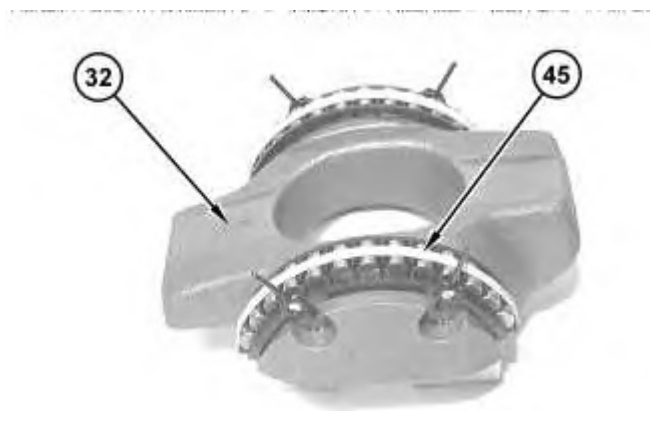


Illustration 6

g01360760

8. Install bearings (45) to swashplate (32). Install a rubber band to each bearing (45), as shown. The rubber band will hold bearing (45) to swashplate (32).
-



Illustration 7

g01360761

- Carefully install swashplate (32) into housing (46).



Illustration 8

g01171288

- Cut the rubber band on each of the bearings.

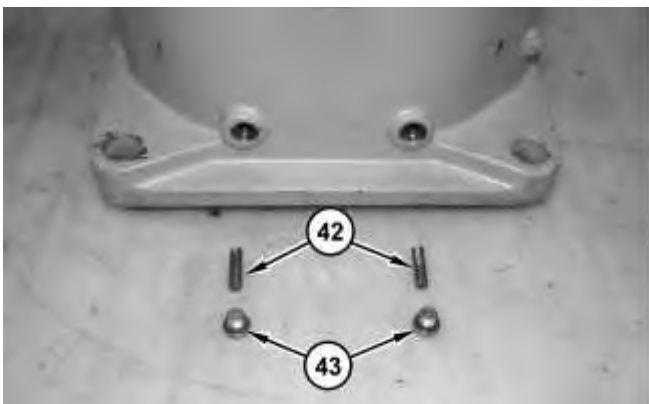


Illustration 9

g03806425

- Install retainers (42), plugs (43), and the O-ring seals.

Note: Ensure retainers (42) lock onto pins (44) shown in Step 7.

- Repeat Step 4 for the opposite side.

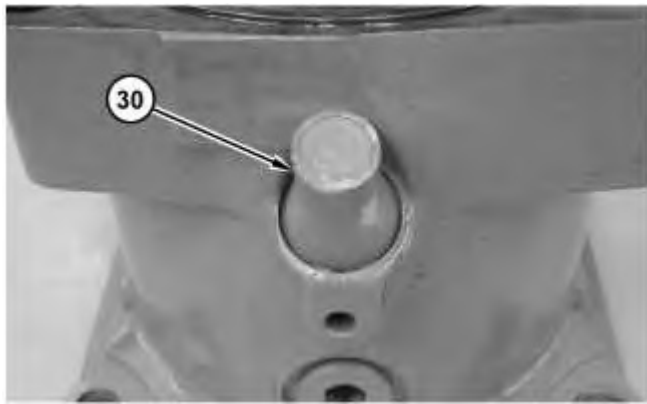


Illustration 10

g01360593

13. Install the screw and cap (30).

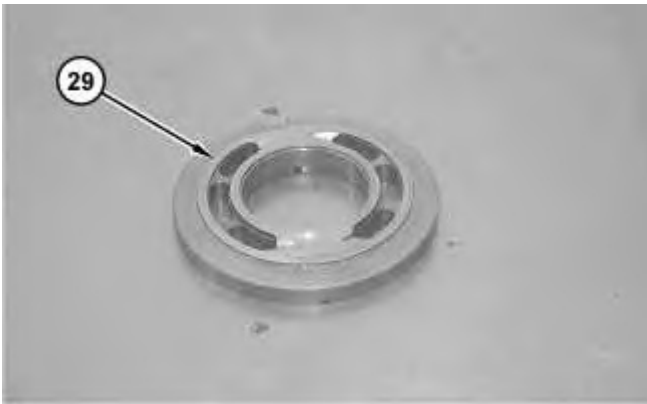


Illustration 11

g01171290

14. Place port plate (29) on a surface plate.

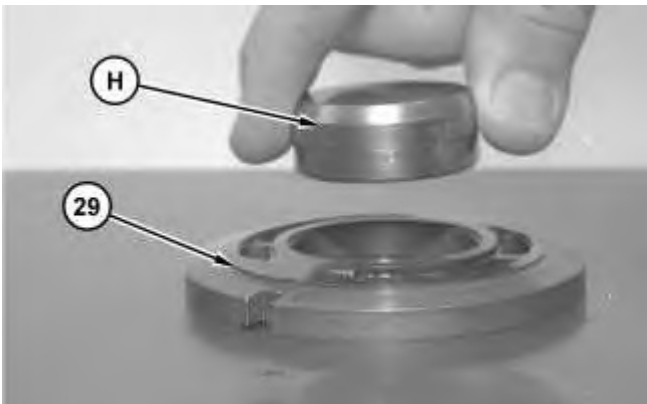


Illustration 12

g01171291

15. Install Tooling (H) to port plate (29).
-

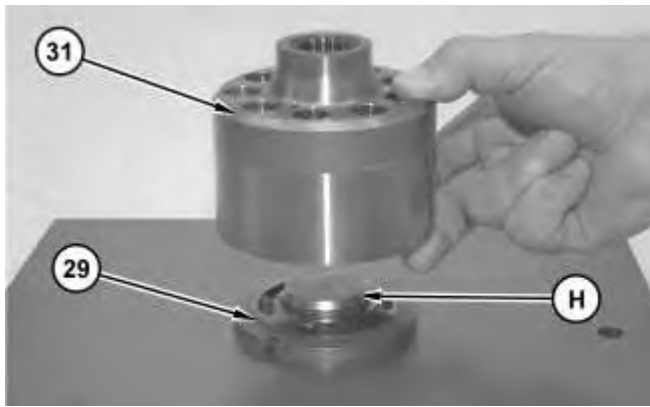


Illustration 13

g01360762

16. Install barrel assembly (31) onto Tooling (H) and port plate (29).



Illustration 14

g03806329

17. Install Tooling (G) onto bearing (41). The shims and springs must be removed from bearing (41).

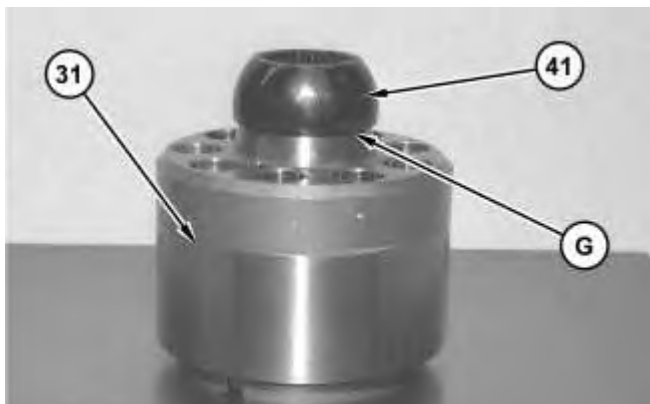


Illustration 15

g03806452

18. Install bearing (41) and Tooling (G) onto barrel (31).



Illustration 16

g03806456

19. Install retainer plate (36) onto bearing (41).

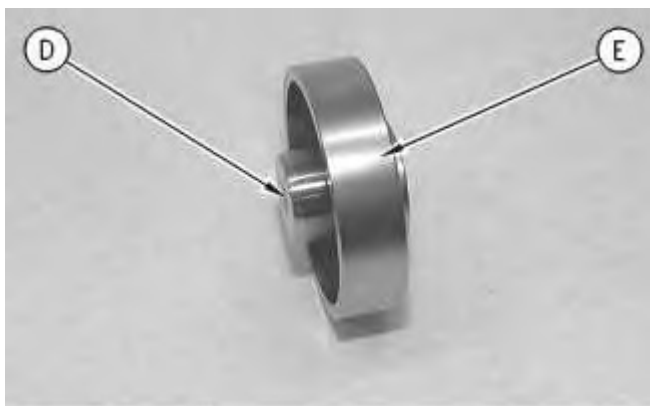


Illustration 17

g00903603

20. Bolt Tooling (D) to Tooling (E).



Illustration 18

g01171297

21. Install assembled Tooling (D) and Tooling (E) onto the bearing. Make sure that Tooling (D) and Tooling (E) is properly seated.

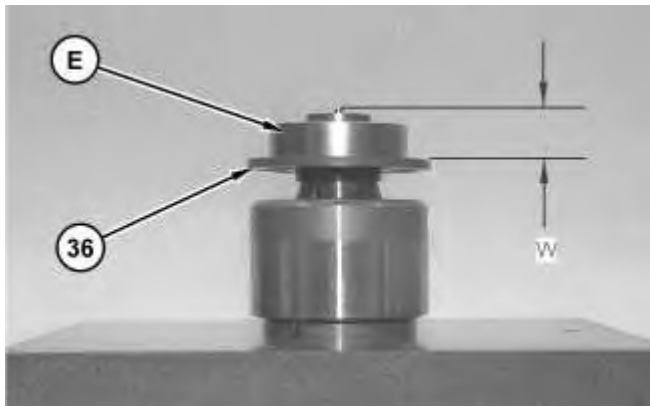


Illustration 19

g01360764

22. Record the dimension that is stamped on the side of Tooling (E). This dimension is the distance from the top of retainer plate (36) to the top of Tooling (E). This dimension is called Dimension (W).

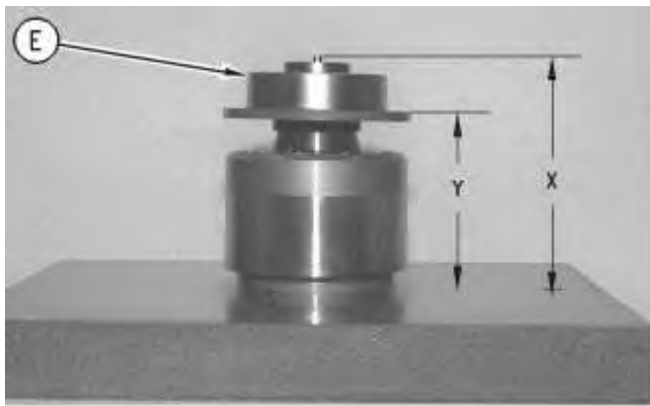


Illustration 20

g00903619

23. Use Tooling (F) to measure the distance from the top of the surface plate to the top of Tooling (E). Record this dimension. Call this Dimension (X).
24. Use the following calculation: **Dimension (X) - Dimension (W) = Dimension (Y).**
25. **Dimension (Y) is the correct lift-off limitation without shim (39).**

Note: This is the correct lift-off limitation for the main hydraulic pump.

171.20 + 0.0 - 0.250 mm (6.740 + 0.00 - 0.0098 inch) Call this Dimension (Z).

26. Use the following calculation: **Dimension (Z) - Dimension (Y) = Thickness of shim (39).**

Note: Shim (39) is available in several thicknesses. Select the correct thickness of shim (39) in order to obtain the correct lift-off limitation. Only one shim (39) should be used.



Illustration 21

g03806421

27. Install shim (39), springs (40) and bearing (41) to barrel assembly (31).

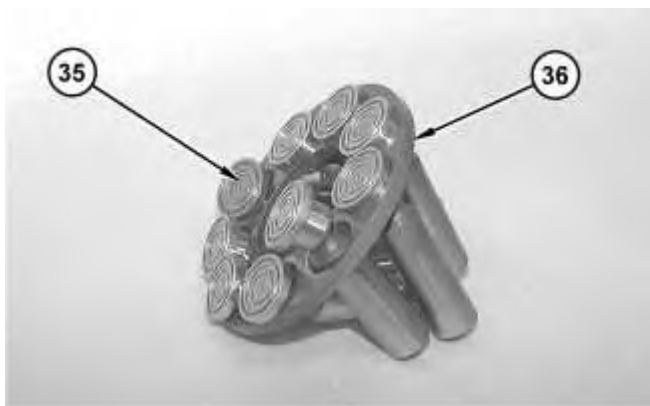


Illustration 22

g01171300

28. Install pistons (35) to retainer plate (36).

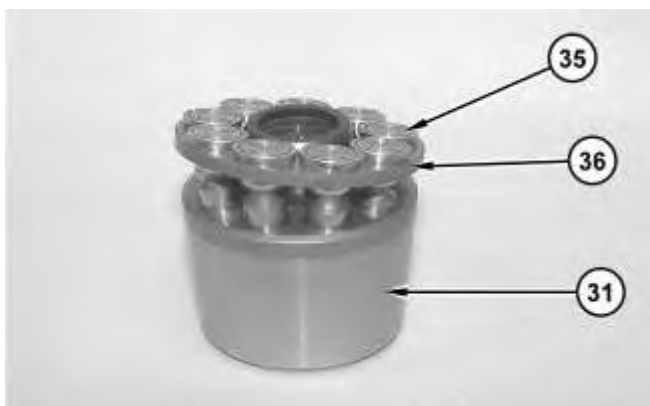


Illustration 23

g01360768

29. Install retainer plate (36) with pistons (35) into barrel assembly (31).
-

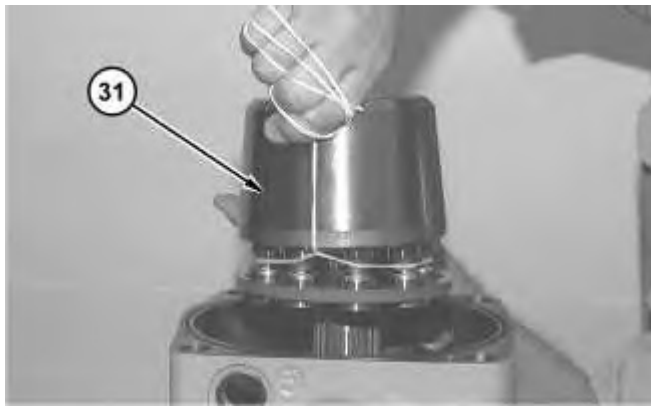


Illustration 24

g01360767

30. Install barrel assembly (31).

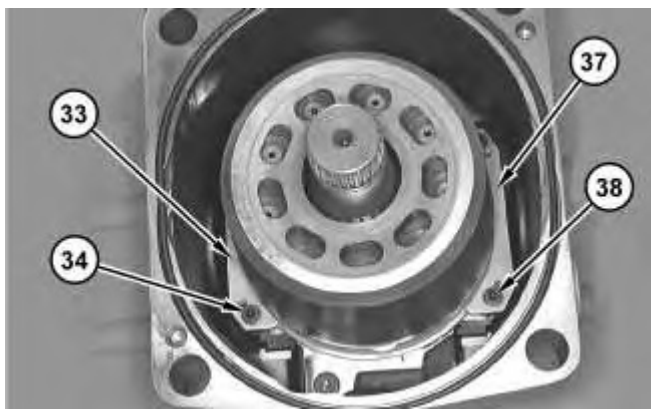


Illustration 25

g01360769

31. Install retainer (37), retainer (33), bolts (34), and bolts (38). Apply thread lock to the threads of bolts (38).

Note: Bolts (38) and (34) should be replaced with new bolts.

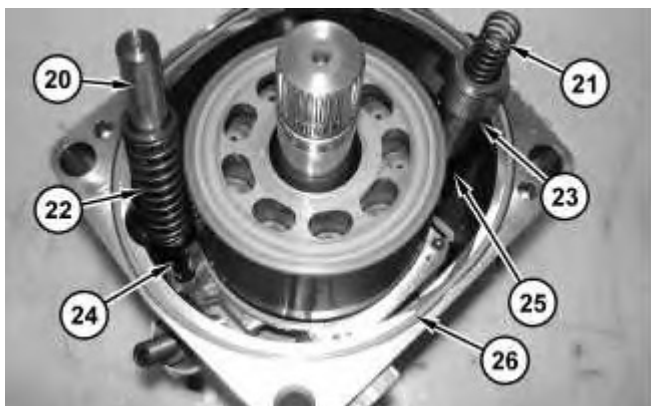


Illustration 26

g03806658

32. Install rods (24) and (25) and O-ring seal (26).

33. Install spring (22), piston (20), piston (23), and spring (21).

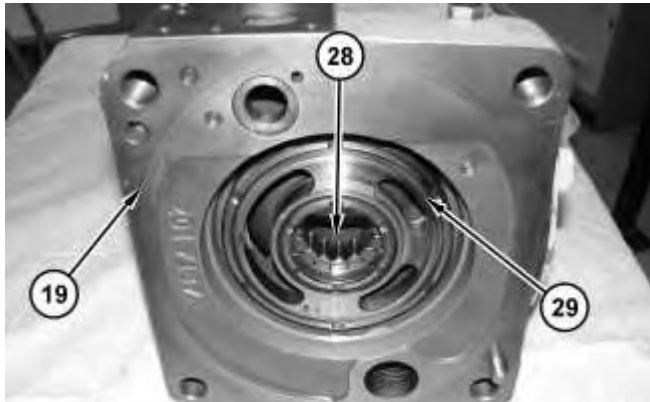


Illustration 27

g03806704

34. Install bearing (28) and port plate (29) to head assembly (19). Use tooling (J) to retain port plate (29) to head assembly (19).

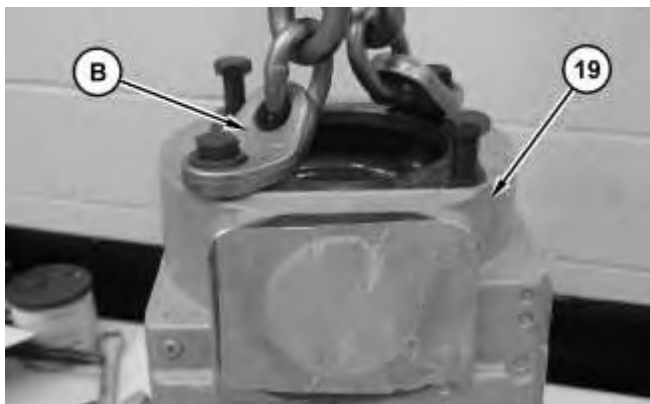


Illustration 28

g01167852

 **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.

-
35. Attach Tooling (B) and a suitable lifting device to head (19) and install head (19).
-

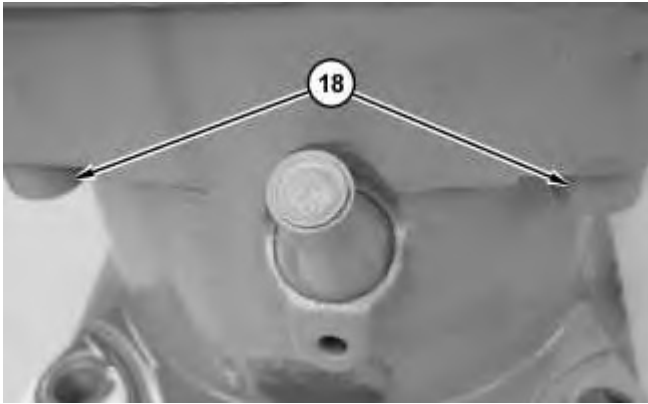


Illustration 29

g01167851

36. Install bolts (18).

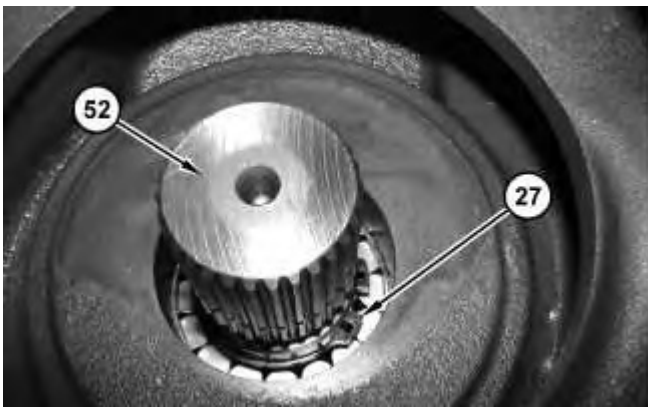


Illustration 30

g03806710

37. Use Tooling (A) in order to install retaining clip (27) to shaft (52).

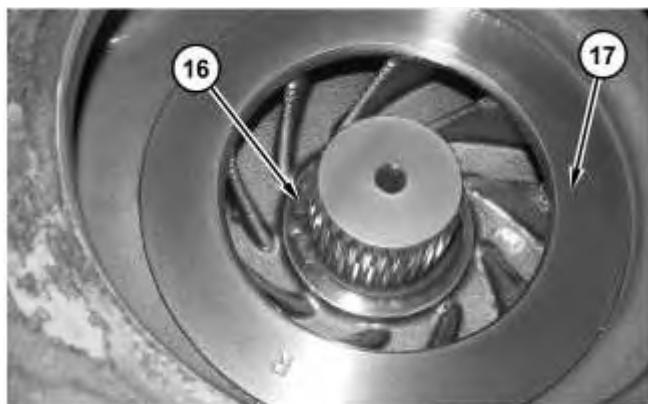


Illustration 31

g01167850

38. Install impeller (17). Use Tooling (A) in order to install retaining ring (16).

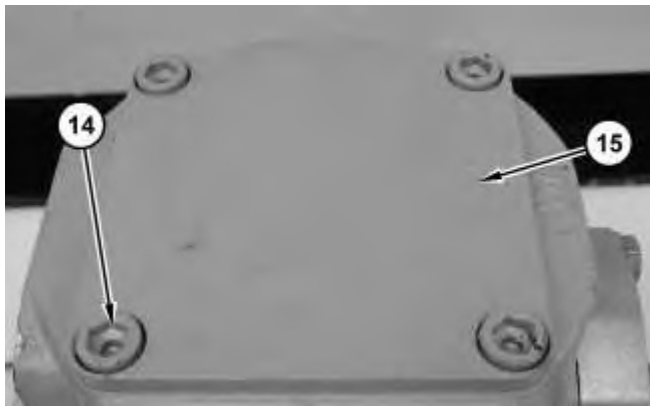


Illustration 32

g01167849

39. Install the O-ring seal, cover (15), and bolts (14).

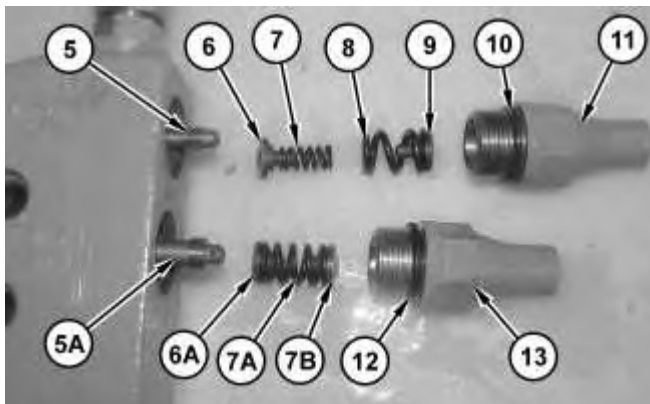


Illustration 33

g01360592

! 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.

40. Install spool (5), retainer (6), spring (7), spring (8), retainer (9), O-ring seal (10), and valve (11).
41. Install spool (5A), retainer (6A), spring (7A), retainer (7B), O-ring seal (12), and valve (13).

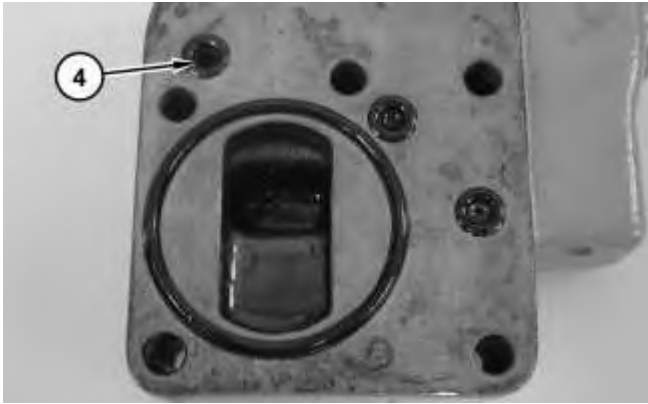


Illustration 34

g01167846

42. Install O-ring seals (4).

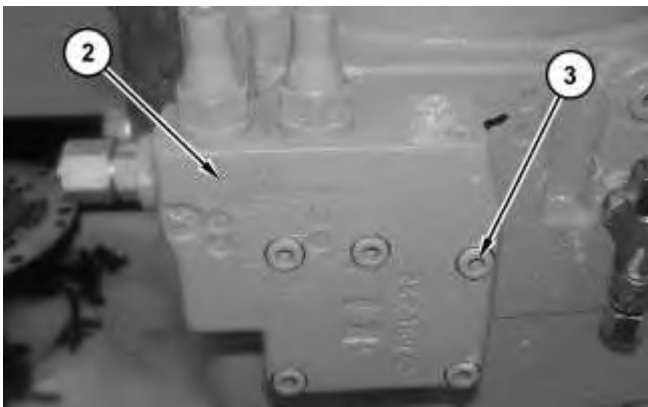


Illustration 35

g01360591

43. Install valve (2) and bolts (3).

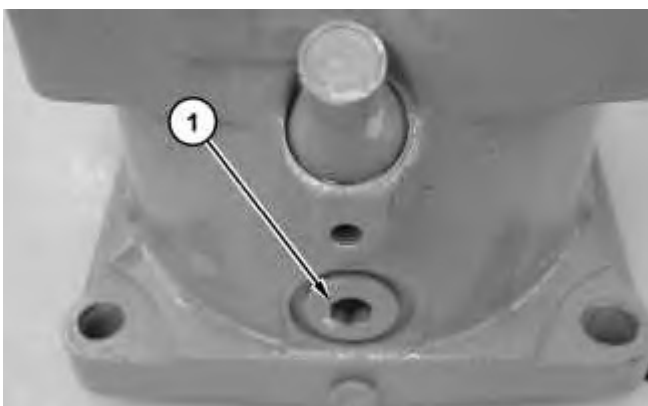


Illustration 36

g01167844

44. Install plug (1) and the O-ring seal.

End By:

- a. Install the piston pump.

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Product: WHEEL LOADER

Model: 994H WHEEL LOADER DWC

Configuration: 994H Wheel Loader DWC00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly 994H Wheel Loader Machine Systems

Media Number -UENR0765-01

Publication Date -01/07/2011

Date Updated -08/11/2016

i04347339

Piston Pump (Steering) - Install

SMCS - 4306-012-QP; 5070-012-ZH

Installation Procedure

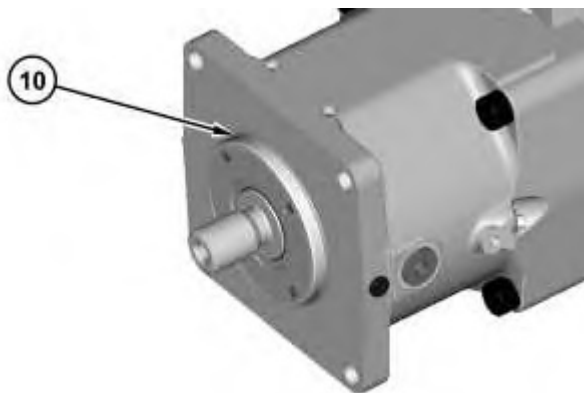
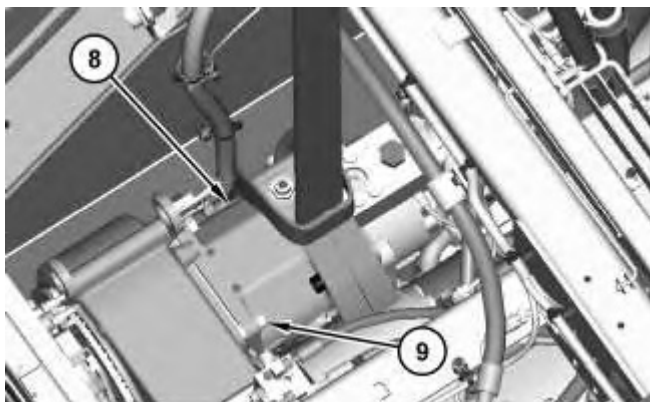


Illustration 1

g02502836

1. Remove O-ring seal (10).



2. Use a suitable lifting device to install piston pump (8). The weight of piston pump (8) is approximately 227 kg (500 lb).
3. Install bolts (9).

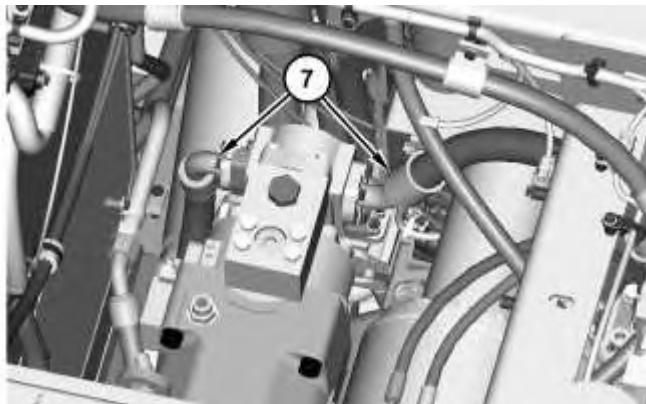


Illustration 3

4. Connect hose assemblies (7).

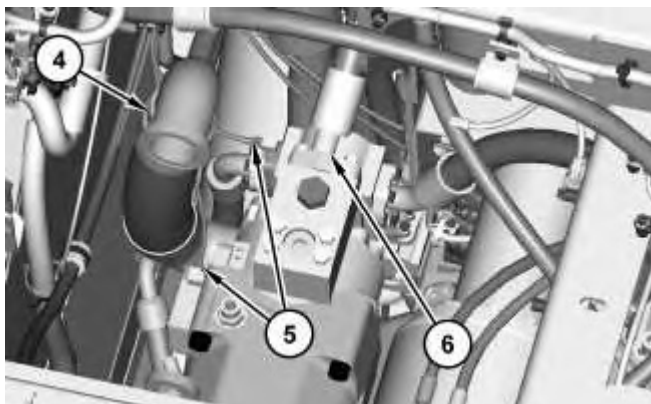
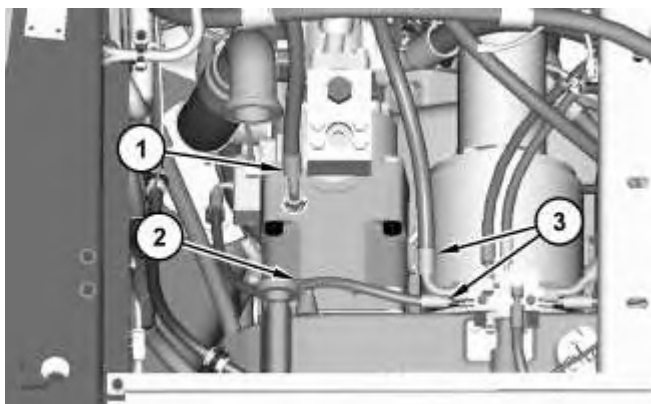


Illustration 4

5. Connect hose assembly (6) and hose assemblies (5). Install hose assembly (4).



6. Connect hose assemblies (3), clip (2), and hose assembly (1).
7. Repeat Step 1 through Step 6 for the remaining piston pump.

End By:

- a. Install the steering and the brake hydraulic tank. Refer to Disassembly and Assembly , "Hydraulic Tank (Steering , Brake) - Install".
- b. Install the brake cooling hydraulic tank. Refer to Disassembly and Assembly , "Hydraulic Tank (Brake Cooling) - Install".

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◀Product: WHEEL LOADER

Model: 994H WHEEL LOADER DWC

Configuration: 994H Wheel Loader DWC00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly 994H Wheel Loader Machine Systems

Media Number -UENR0765-01

Publication Date -01/07/2011

Date Updated -08/11/2016

i04347990

High Pressure Screen (Steering) - Remove

SMCS - 431F-011-Z3

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	FT-1114	Vacuum Cap	1

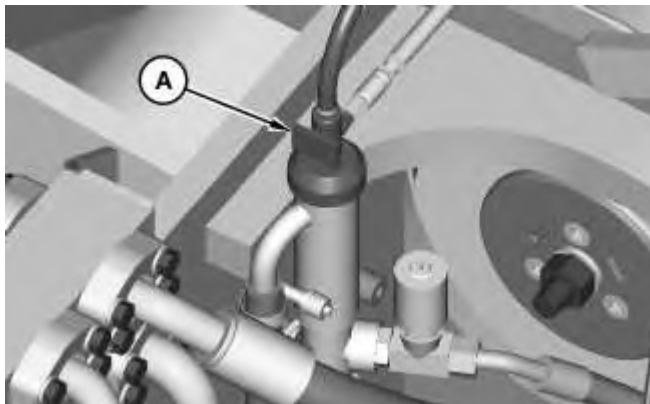


Illustration 1

g02505596

1. Install Tooling (A) onto the hydraulic oil tank for the implement system. Attach an air supply hose to Tooling (A). Apply 276 to 414 kPa (40 to 60 psi) of air. This procedure will pull vacuum on the hydraulic system

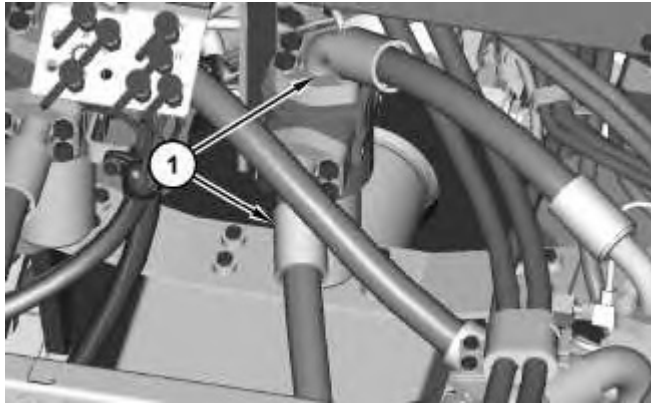


Illustration 2

g02553756

2. Disconnect hose assemblies (1).

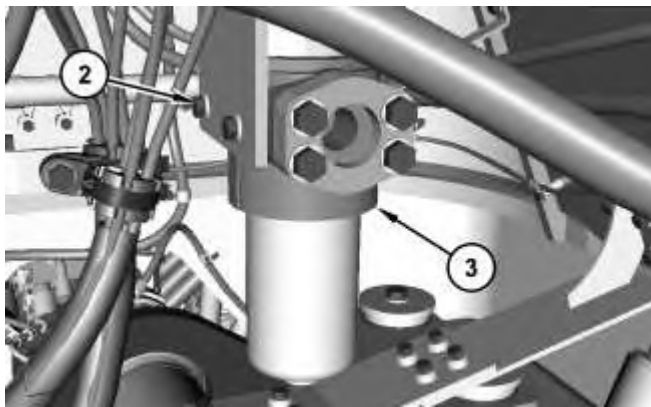


Illustration 3

g02553916

3. Remove bolts (2). Remove high-pressure screen (3).
4. Repeat Step 1 through Step 3 for the remaining steering high-pressure screen.



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Model: 994H WHEEL LOADER DWC

Configuration: 994H Wheel Loader DWC00001-UP (MACHINE) POWERED BY 3516B Engine

Disassembly and Assembly 994H Wheel Loader Machine Systems

Media Number -UENR0765-01

Publication Date -01/07/2011

Date Updated -08/11/2016

i04385603

High Pressure Screen - Disassemble

SMCS - 431F-015-Z3; 5068-015-Z3

Disassembly Procedure

Start By:

- a. Remove the high-pressure screen. Refer to Disassembly and Assembly, "High Pressure Screen (Implement) - Remove" or Disassembly and Assembly, "High Pressure Screen (Steering) - Remove".

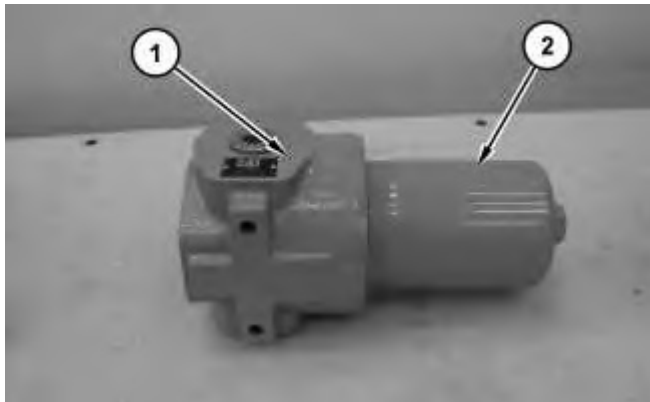


Illustration 1

g01361619

1. Remove housing (2) from base (1).

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