



# Service Repair Manual

## **Model**

322C and 322C L 322CL Excavator

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Product: EXCAVATOR

Model: 322C EXCAVATOR FED

Configuration: 322C &amp; 322C L Excavators FED00001-UP (MACHINE) POWERED BY 3126 Engine

## Disassembly and Assembly 322C Excavator Machine Systems

Media Number -REN3843-07

Publication Date -01/02/2017

Date Updated -20/02/2017

i02349029

# Control Manifold (Pilot Oil) - Install - NFC Control Valve

SMCS - 5059-012-M9

## Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	FT-2674	Vacuum Cap	1

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### 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<sup>®</sup> products.

Dispose of all fluids according to local regulations and mandates.

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Illustration 1

g00691105

1. Install control manifold (10), the washers and bolts (11).

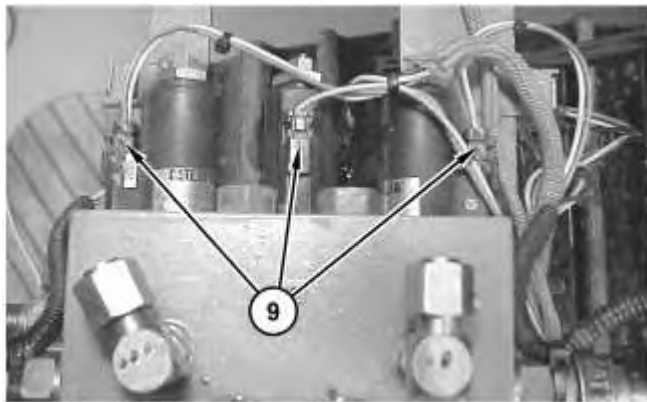


Illustration 2

g01175140

2. Connect harness assemblies (9).



Illustration 3

g00691101

3. Connect harness assembly (8) and hose assemblies (7).

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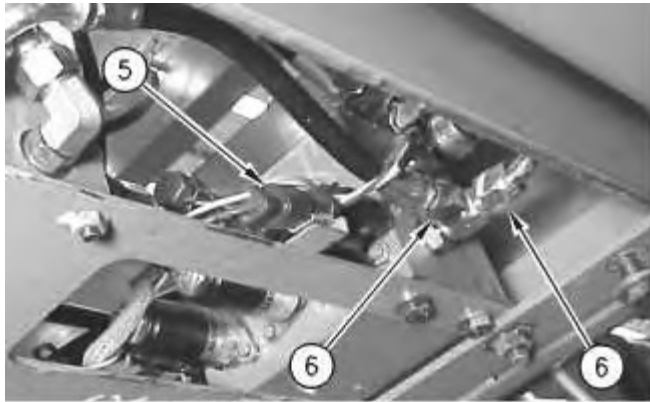


Illustration 4

g00691097

4. Remove the plugs and the caps.
5. Connect hose assemblies (6) and harness assemblies (5).

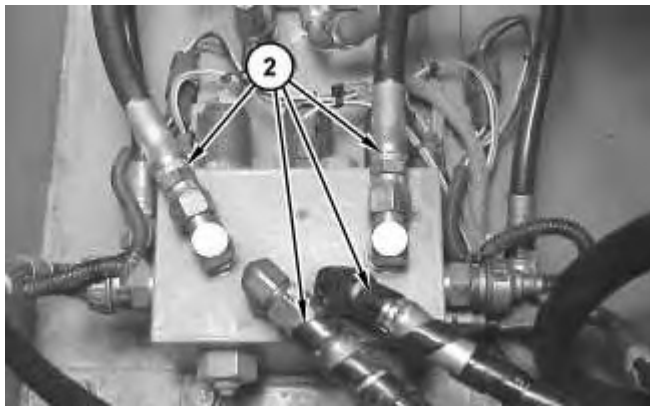


Illustration 5

g01175139

6. Connect hose assemblies (2).

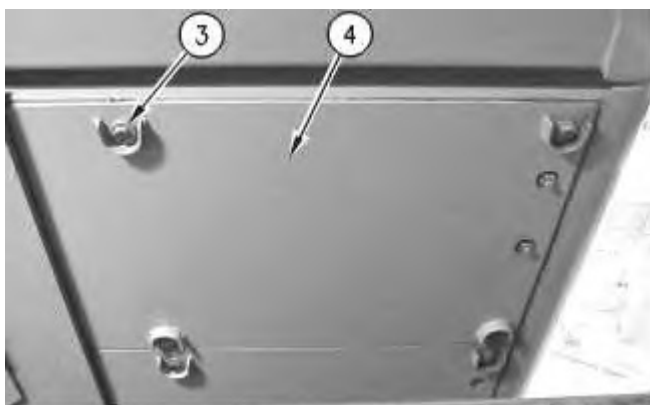


Illustration 6

g00691104

7. Install access cover (4), the washers and bolts (3).
8. Remove Tooling (A) and install the cap to the hydraulic tank.

9. Install high efficiency filters in place of the pilot filter, the case drain filter, and the return filter.

**Note:** High efficiency filters should not be run for more than 250 hours before you change back to the standard filters.

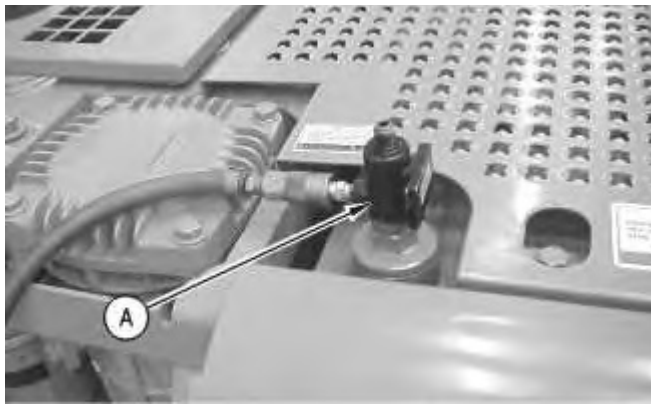


Illustration 7

g00690963

10. Remove Tooling (A).
11. Check the hydraulic system level.



Illustration 8

g01175136

12. Close access door (1) on the right side of the machine.

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Product: EXCAVATOR

Model: 322C EXCAVATOR FED

Configuration: 322C &amp; 322C L Excavators FED00001-UP (MACHINE) POWERED BY 3126 Engine

## Disassembly and Assembly 322C Excavator Machine Systems

Media Number -REN3843-07

Publication Date -01/02/2017

Date Updated -20/02/2017

i01968161

### Pilot Valve (Travel) - Remove

SMCS - 3220-011

### Removal Procedure

#### Start By:

- a. Release the hydraulic system pressure. Refer to Disassembly and Assembly, "Hydraulic System Pressure - Release".

**Note:** Before you begin the following procedure swing the upper structure in order to gain access to the cover that is located under the cab.

**Note:** A hydraulic oil sample should be obtained before any maintenance is performed in order to establish the system contaminant level. Refer to Fluid Analysis Laboratory Guide, SEBF3116, "Obtaining an Oil Sample for S·O·S Analysis". Refer to Operation and Maintenance Manual, "Sampling Interval and Location of Sampling Valve" for the correct location.

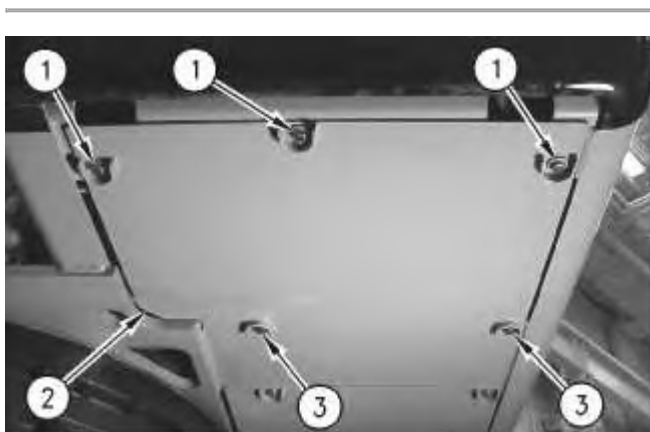


Illustration 1

g00704086

1. Loosen bolts (3).

2. Remove bolts (1) in order to remove cover (2).

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## NOTICE

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Dispose of all fluids according to local regulations and mandates.

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## WARNING

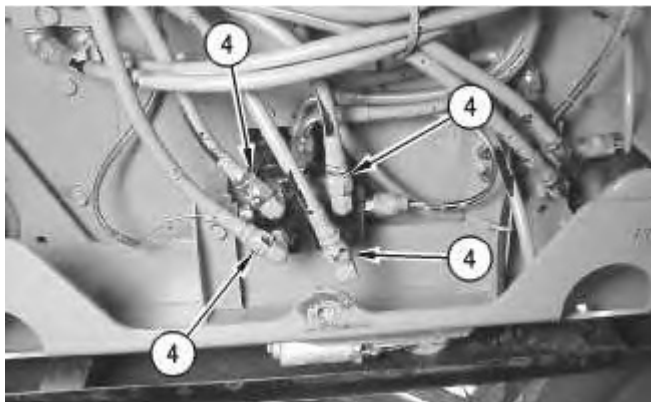
At operating temperature, the hydraulic oil is hot and under pressure. Hot oils can cause burns.

To prevent possible personal injury, release the pressure in the work tool hydraulic circuit (boom, stick, bucket, and swing), travel circuits, and the hydraulic oil tank at the filler cap before any hydraulic lines or components are disconnected or removed.

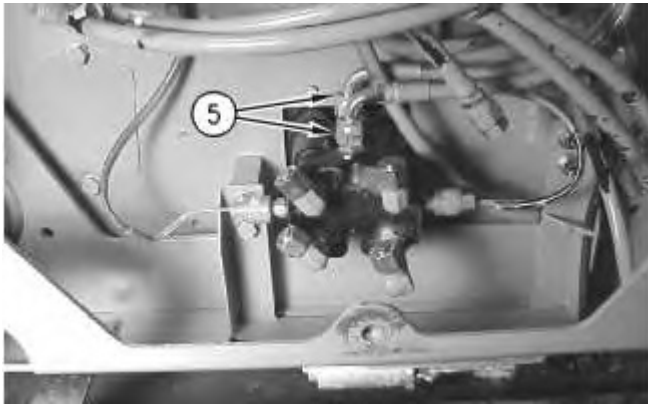
Remove the filler cap only when the engine is stopped and the filler cap is cool enough to touch.

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**Note:** Put identification marks on all lines, on all hoses, on all wires, and on all tubes for installation purposes. Plug all lines, hoses and tubes. This helps to prevent fluid loss and this helps to keep contaminants from entering the system.



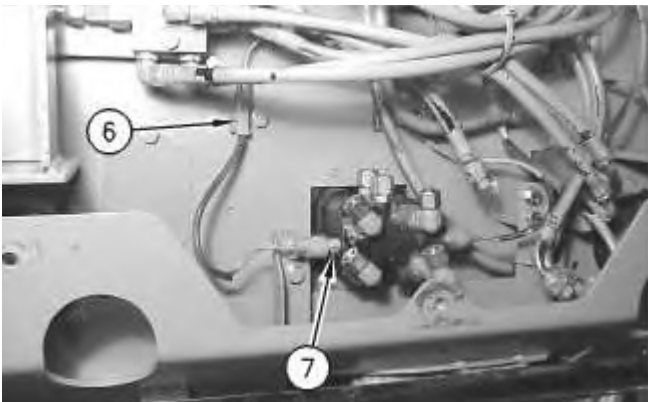
3. Disconnect hose assemblies (4) from the pilot valve.



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Illustration 3

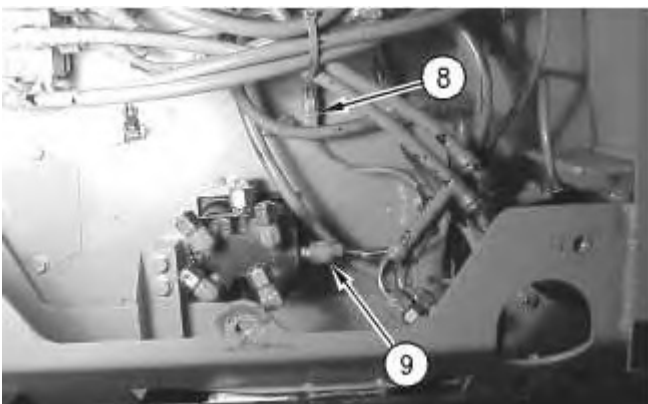
4. Disconnect hose assemblies (5) from the pilot valve.



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Illustration 4

5. Disconnect harness assembly (6). Remove the harness assembly from the clip.
6. Remove left travel pressure switch (7).



7. Disconnect harness assembly (8). Remove the harness assembly from the clip.
8. Remove right travel pressure switch (9).

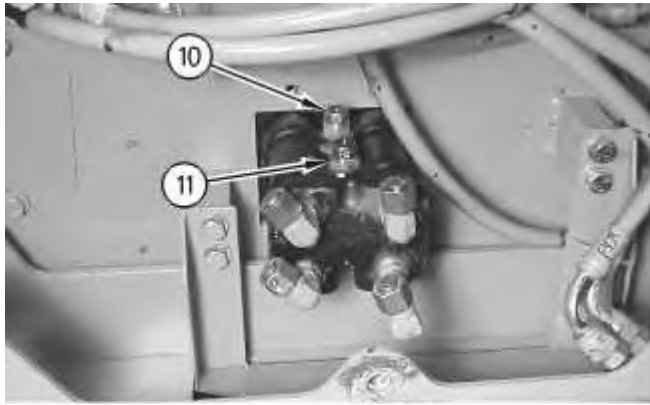


Illustration 6

**Note:** Mark the location of hydraulic connector (11) that has a filter for installation purposes.

9. Remove hydraulic connector (11) from the pilot valve.
10. Remove hydraulic connector (10) from the pilot valve.
11. Remove the O-ring seals from the connectors.



Illustration 7

12. Remove rubber floormat (12) from the travel pedals.
-



Illustration 8

g00704120

13. Remove rubber pedal (13).
14. Remove rubber pedal (14).

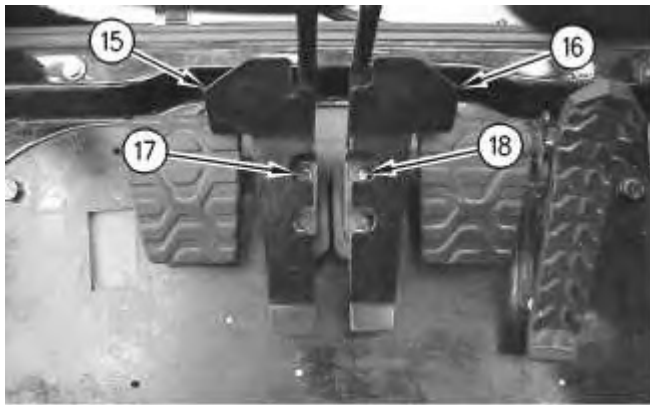


Illustration 9

g00704123

15. Remove bolts (17) in order to remove left travel pedal (15).
16. Remove bolts (18) in order to remove right travel pedal (16).

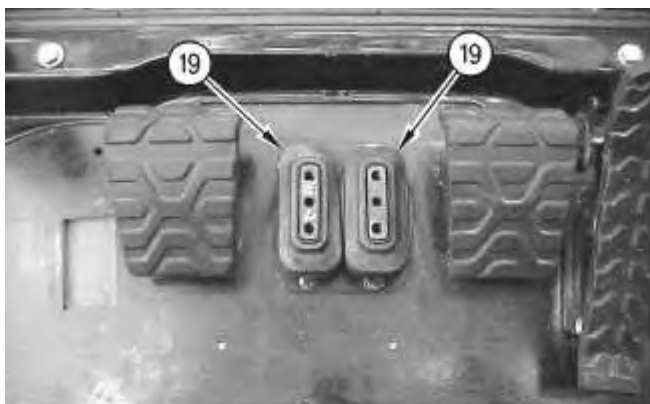


Illustration 10

g00704128

17. Remove bellows (19) from the pilot valve.

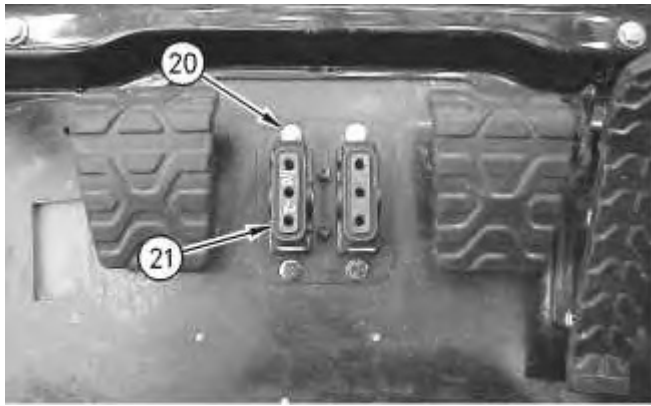


Illustration 11

g00704131

18. Remove bolts (20).

19. Remove pilot valves (21).

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Product: EXCAVATOR

Model: 322C EXCAVATOR FED

Configuration: 322C &amp; 322C L Excavators FED00001-UP (MACHINE) POWERED BY 3126 Engine

## Disassembly and Assembly 322C Excavator Machine Systems

Media Number -REN3843-07

Publication Date -01/02/2017

Date Updated -20/02/2017

i02375113

### Pilot Valve (Travel) - Disassemble

SMCS - 3220-015

### Disassembly Procedure

#### Start By:

- a. Remove the pilot valve. Refer to Disassembly and Assembly, "Pilot Valve (Travel) - Remove".

**Note:** Cleanliness is an important factor. Before the disassembly procedure, the exterior of the component should be thoroughly cleaned. This will prevent dirt from entering the internal mechanism.

**Note:** During the disassembly of the pilot valve, put identification marks on each component for assembly purposes.

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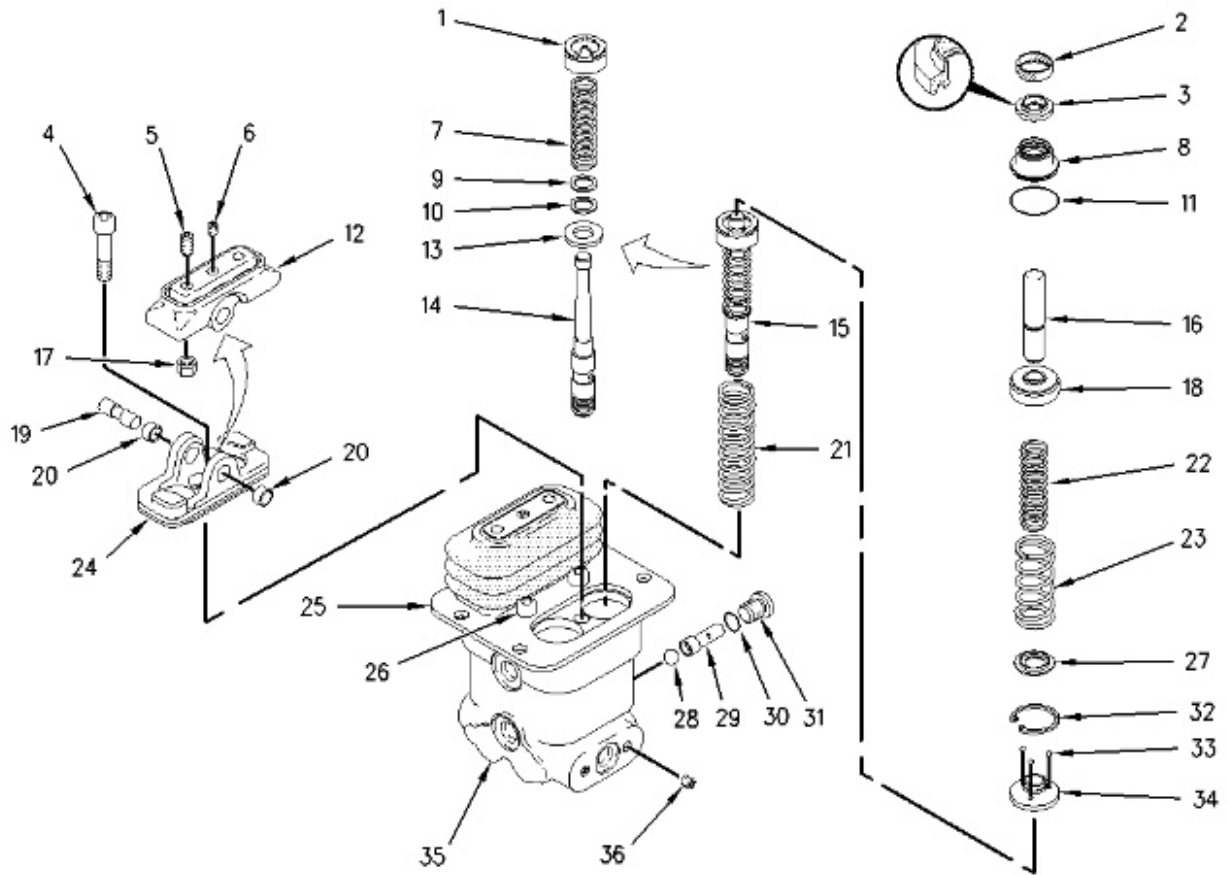


Illustration 1

g00704366

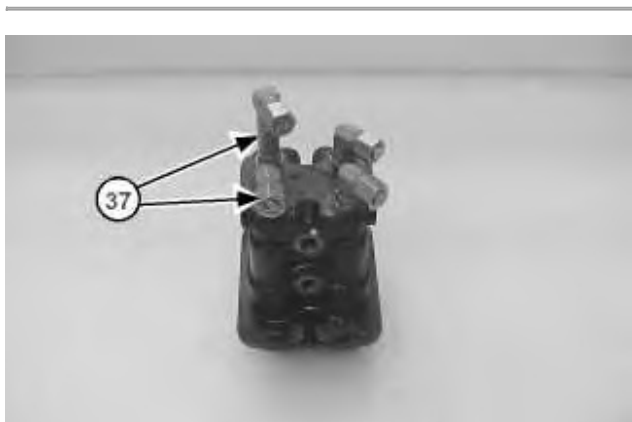


Illustration 2

g01021619

1. Remove fittings (37) from the pilot valve.

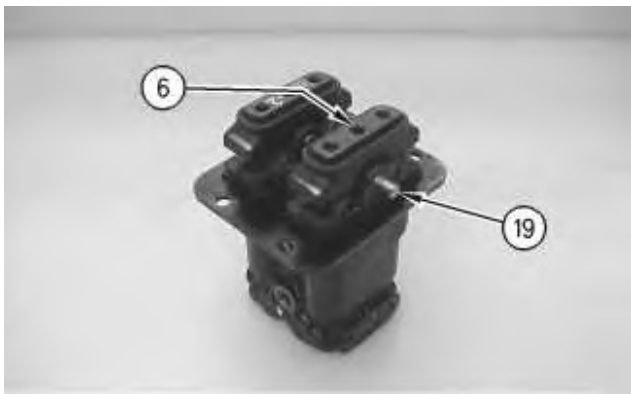


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Illustration 3

g00711962

2. Remove O-ring seals (38) and (39) from fittings (37).

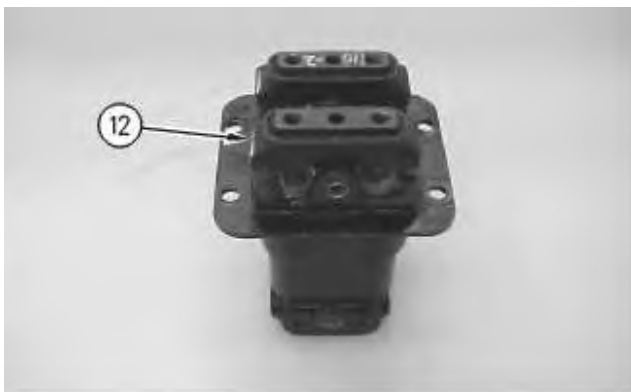


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Illustration 4

g00711974

3. Remove setscrew (6) and camshaft (19) from the pedal.

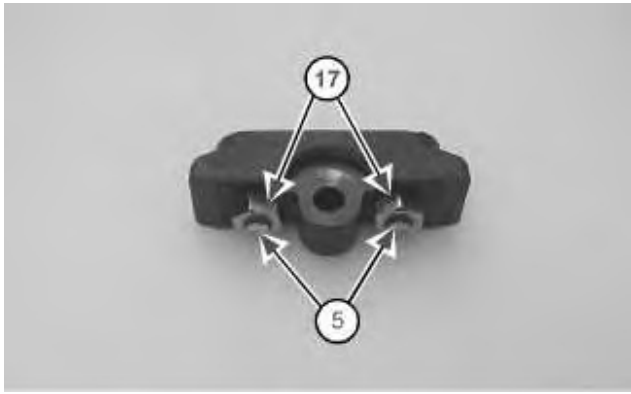


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Illustration 5

g00711976

4. Remove pedal (12) from the pilot valve.
-

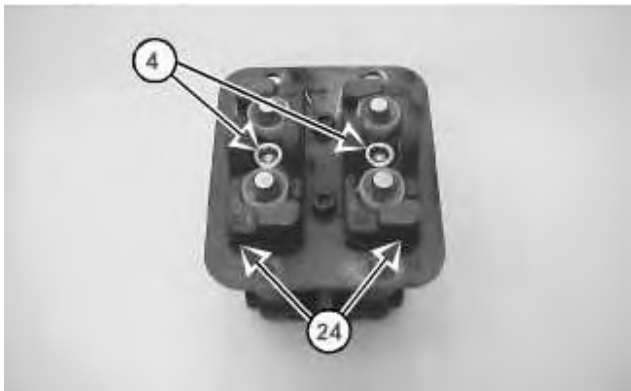


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Illustration 6

g01021620

5. Remove nuts (17) and setscrews (5).
6. Repeat Steps 3 through 5 for the remaining pedal.

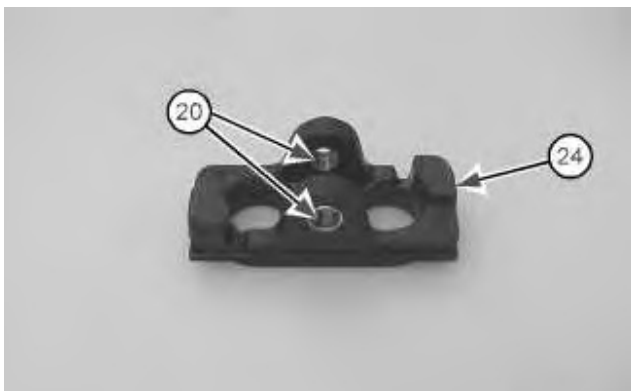


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Illustration 7

g01021621

7. Remove bolts (4) and covers (24).



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Illustration 8

g01021622

8. Remove bushings (20) from covers (24).
-

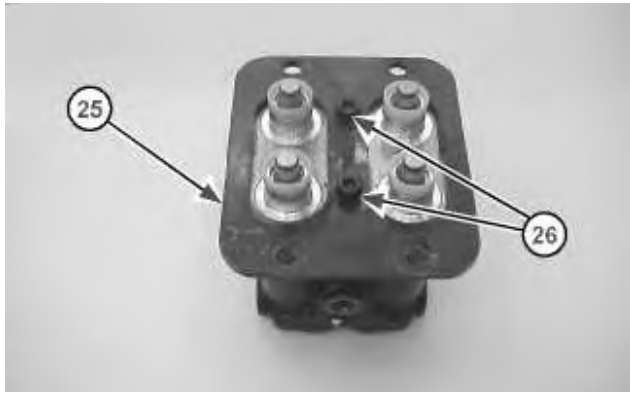


Illustration 9

g01021623

9. Remove bolts (26) and cover (25).

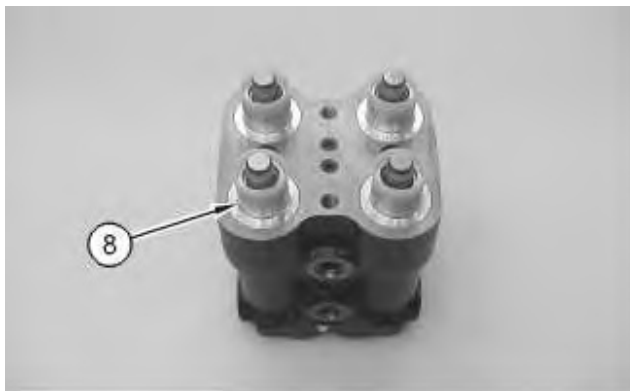


Illustration 10

g00712108

## **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.**

10. Remove plug (8) and the pushrod from the body assembly.



Illustration 11

g00712111

11. Remove piston (18) from pushrod (16).
12. Remove pushrod (16) from plug (8).

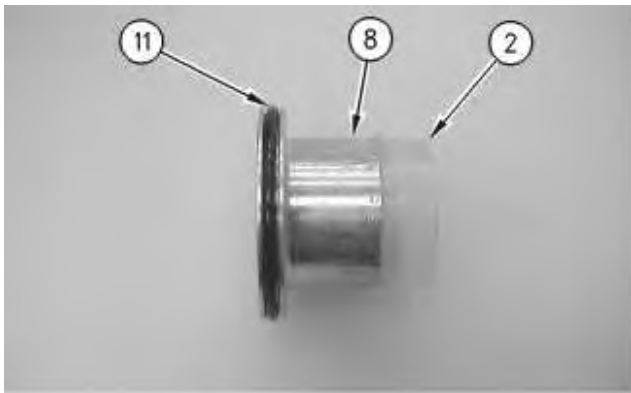


Illustration 12

g00712118

13. Remove O-ring seal (11) and cap (2) from plug (8).



Illustration 13

g00712119

14. Remove packing (3) from plug (8).

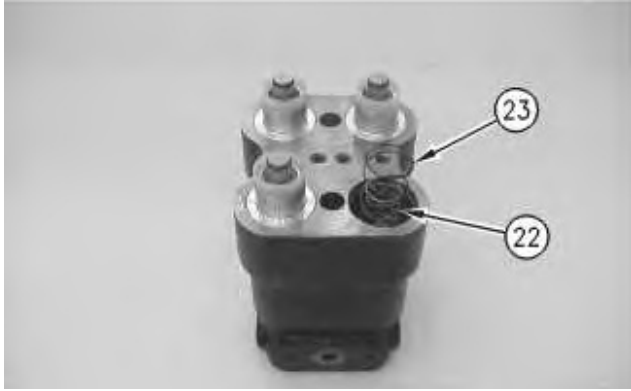


Illustration 14

g00712122

15. Remove outer spring (23) and inner spring (22).

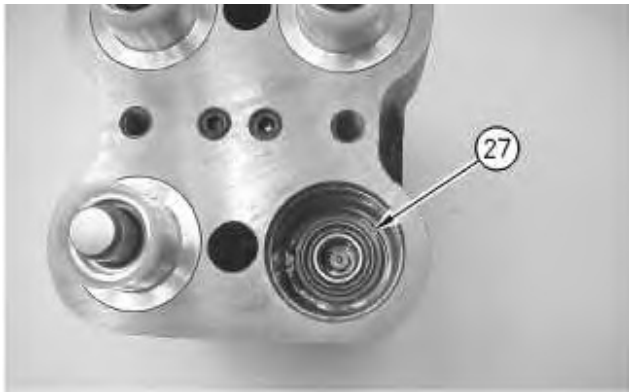


Illustration 15

g00712126

16. Remove spring seat (27).

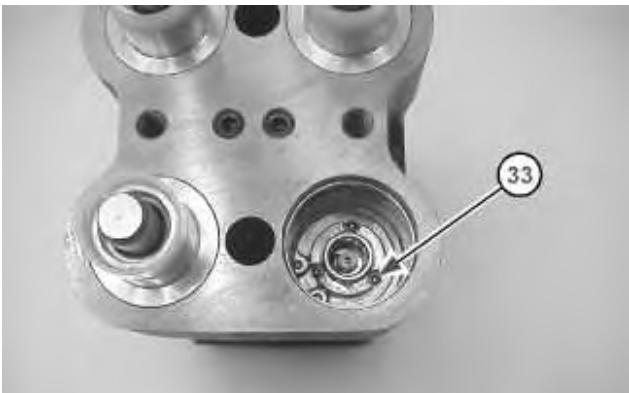


Illustration 16

g01021624

17. Remove balls (33).

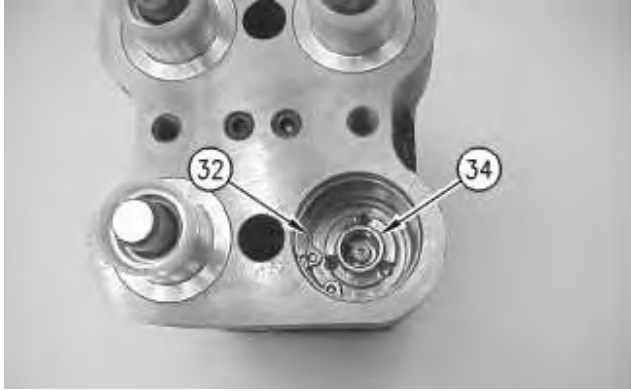


Illustration 17

g00712130

 **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.**

18. Apply pressure to bushing (34).
19. Remove retaining ring (32).
20. Slowly release the pressure on bushing (34).

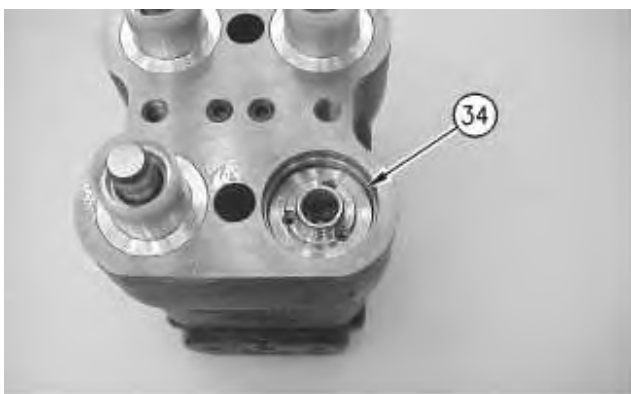


Illustration 18

g00712136

21. Remove bushing (34).

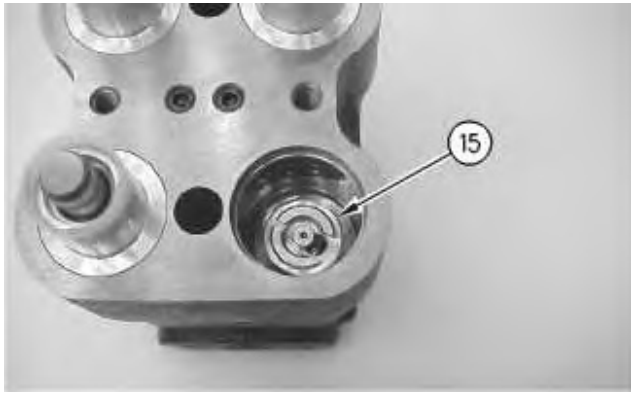


Illustration 19

g00712139

22. Remove spool assembly (15).
23. Use the following procedure to disassemble spool assembly (15).

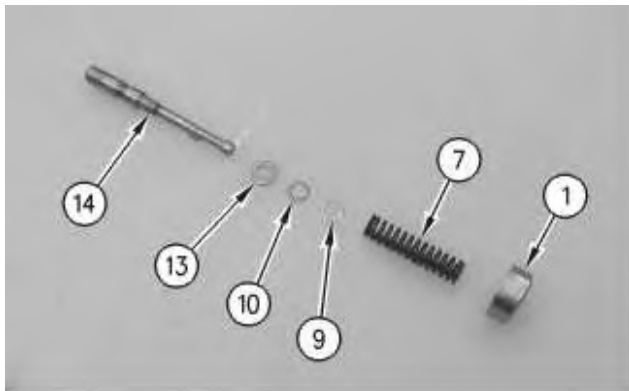


Illustration 20

g00712141

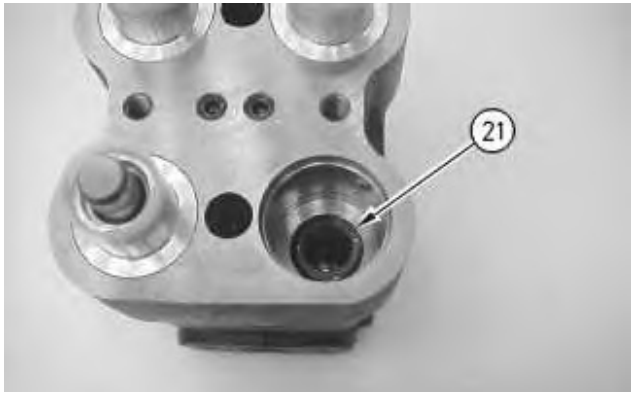
## **WARNING**

**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.**

- a. Apply pressure to seat (1) by hand. Put the end of spool (14) in the slotted opening of seat (1). Remove seat (1).
- b. Remove spring (7) from spool (14).
- c. Remove washers (9), (10), and (13) from spool (14).

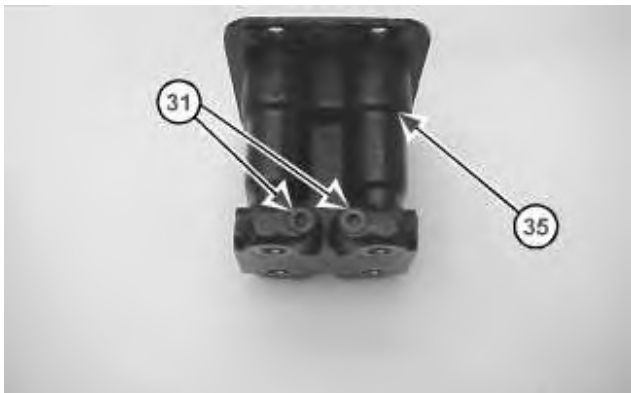


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Illustration 21

g00712165

24. Remove spring (21).
25. Repeat Steps 10 through 24 in order to remove the other three spool assemblies.

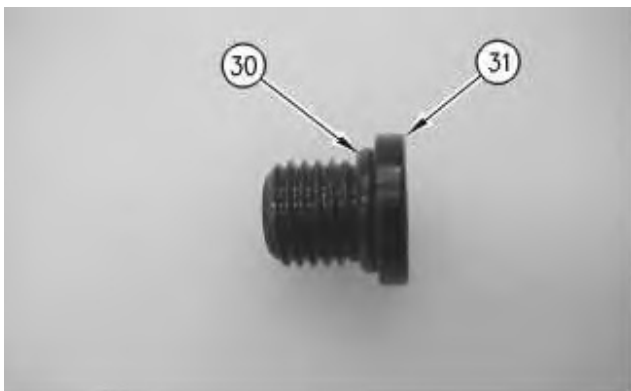


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Illustration 22

g01021626

26. Remove plugs (31) from body assembly (35).

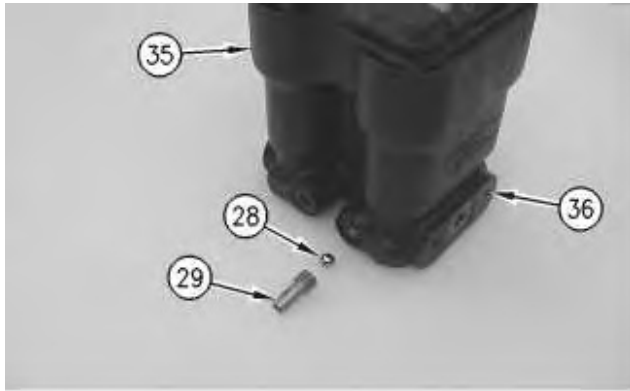


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Illustration 23

g00712173

27. Remove O-ring seals (30) from plugs (31).
-



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Illustration 24

g00712178

28. Remove seat (29), ball (28), and plugs (36) from body assembly (35).

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Product: EXCAVATOR

Model: 322C EXCAVATOR FED

Configuration: 322C &amp; 322C L Excavators FED00001-UP (MACHINE) POWERED BY 3126 Engine

## Disassembly and Assembly 322C Excavator Machine Systems

Media Number -REN3843-07

Publication Date -01/02/2017

Date Updated -20/02/2017

i02375115

### Pilot Valve (Travel) - Assemble

SMCS - 3220-016

### Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-6396	O-Ring Assembly Compound	

**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. All disassembly and all assembly procedures must be performed on a clean work surface and in a clean hydraulic area. Keep cleaned parts covered and protected at all times.

**Note:** O-rings, gaskets, and seals should always be replaced. A used O-ring may not have the same sealing properties as a new O-ring. Apply a thin coating of Tooling (A) during the assembly procedure.

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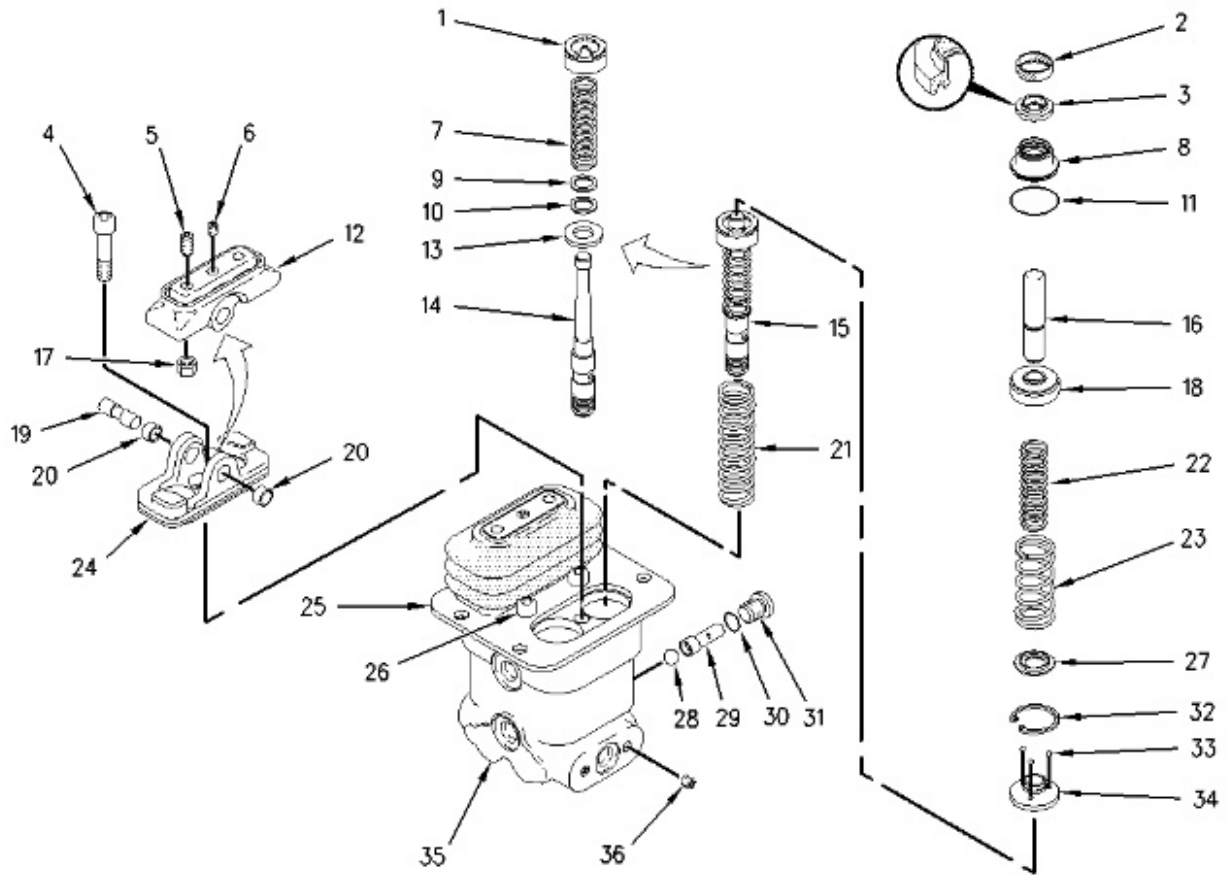


Illustration 1

g00704366

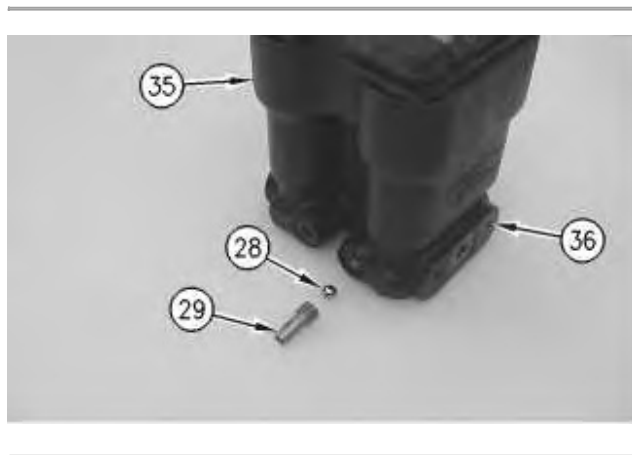


Illustration 2

g00712178

1. Install plugs (36) in body assembly (35). Tighten plugs (36) to a torque of  $6.9 \pm 1.0$  N·m ( $61.07 \pm 8.9$  lb in).
2. Install ball (28) and seat (29) in body assembly (35).

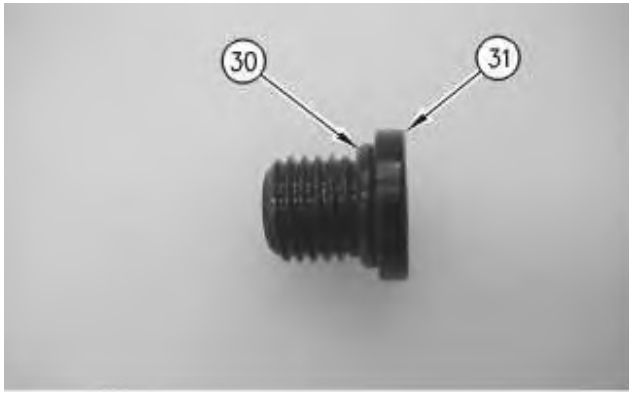


Illustration 3

g00712173

3. Install new O-ring seals (30) on plugs (31).

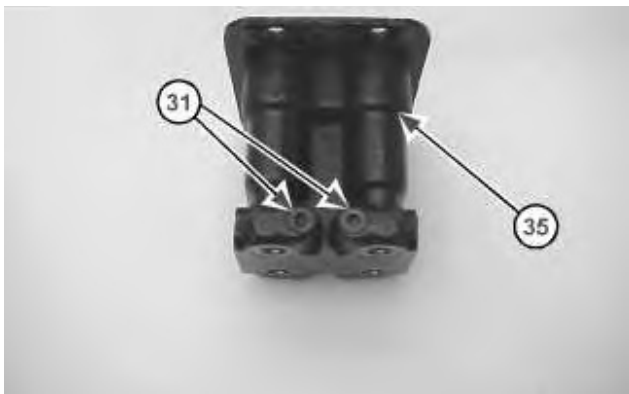


Illustration 4

g01021626

4. Install plugs (31) in body assembly (35). Tighten plugs (31) to a torque of  $27 \pm 3$  N·m ( $20 \pm 2$  lb ft).

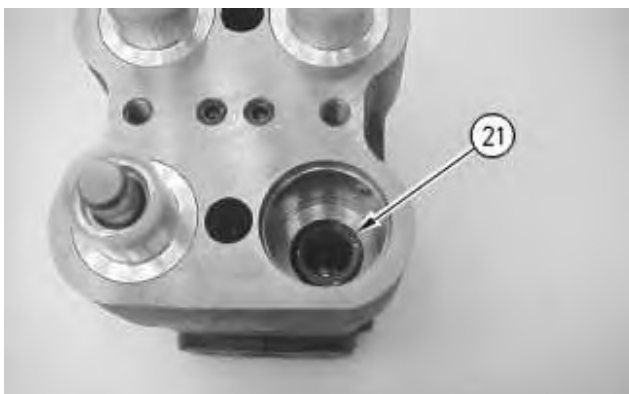


Illustration 5

g00712165

5. Install spring (21).
6. Use the following procedure to assemble spool assembly (15).



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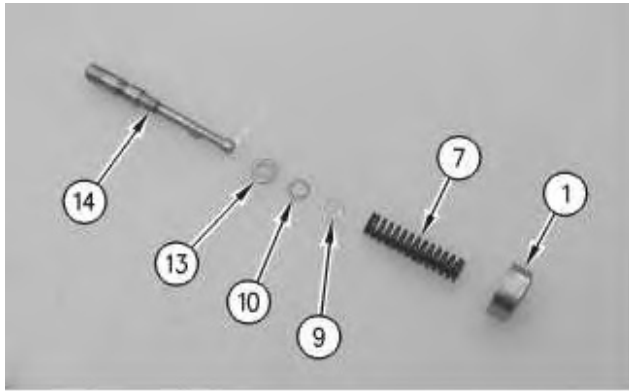


Illustration 6

g00712141

## **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.**

- a. Install washers (13), (10), and (9) on spool (14).
- b. Install spring (7) on spool (14).
- c. Put the end of spool (14) in the slotted opening of seat (1). Install seat (1).

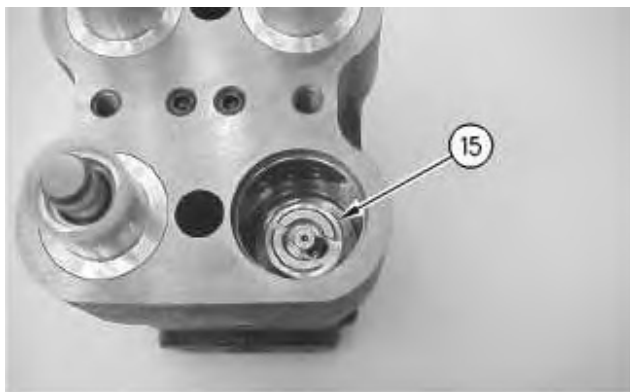


Illustration 7

g00712139

7. Install spool assembly (15).

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