TENNANT INSTRUCTION BULLETIN

No. 3730
Machine: 355, 385, 355E, 385LH
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NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in your machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save you the cost of ordering an entire kit.

NOTE: Numbers in parenthesis ( ) are reference numbers for parts listed in Bill of Materials.

Installation Instructions for Kit number 48761 and 48762

SYNOPSIS / **PROBLEM:**

This kit contains the parts needed to replace the main hydraulic control valve on the machines listed above. This kit only applies to machines with serial numbers below, (2775–**355**), (6329–**385**), (2846–**355E**). Machines with this serial number or higher have the new style valve already installed. Please follow step-by-step instructions.

SPECIAL TOOLS / **CONSIDERATIONS:** None

(Estimated Time to complete: 6 hours)

PREPARATION:

FOR SAFETY: Before leaving or servicing machine, stop on level surface and set parking brake. Then turn off machine and remove key.

1. Disconnect battery cables from machine.

WARNING: Always disconnect battery cables from machine before working on electrical components.

2. Open the engine cover and side door.

TO REMOVE OLD VALVE:
(Refer to FIG. 1, 2 and 3)

FOR SAFETY: Before leaving or servicing machine, stop on level surface and set parking brake. Then turn off machine and remove key.

1. Remove and retain the plastic knobs from the three valve handles. (Refer to Fig. 1, 2, and 3)

NOTE: Mark each hydraulic hose location to assure proper reassembly.

2. Remove and plug the hydraulic hoses leading to the main control valve starting from the side of the valve nearest the outside of the machine and working inward. (Refer to Fig. 1, 2, and 3)

NOTE: Observe hydraulic cleanliness requirements when opening hydraulic lines.

3. On the **385** and **355E** models; the hydraulic pressure switch must be disconnected from the main harness. (Refer to Fig. 2 and 3)

4. Remove and discard the two hex screws holding the control valve to the valve mount bracket. (Refer to Fig. 1, 2, and 3)

5. Disconnect the spring from the inside valve handle. (Refer to Fig. 1, 2, and 3)

6. Carefully drop the valve and handle assembly down and then out of the machine.

NOTE: Be careful not to tear the rubber valve handle boot on top of the center panel.

7. Remove and retain the three hex screws holding the valve mount bracket to the center panel. Make sure to retain the three washers, rubber bushings, sleeves, and rubber rings after removing the hex screw. (Refer to Fig. 1, 2, and 3)

8. Discard the old valve mount bracket. (Refer to Fig. 1, 2, and 3)

9. Position the trim molding (11) on the machine's angled, center frame support. This will protect the control valve hoses from damage.

TO INSTALL *355* CONTROL VALVE:

(Refer to Fig. 1)

1. Remove and retain the hair pins and clevis pins holding the three handles to the old valve. Remove and retain the three valve handles. Discard the three valve handle links. (Refer to Fig. 1)

2. Remove the existing fittings from the **A**, **B**, **C**, and **E** ports on the old valve. Install these fittings in the new valve (1) in the same orientation as they were removed. (Refer to Fig. 1)

3. Make sure the tee fitting that is on the 90° fitting in the **BYD** port on the old valve is removed and retained. (Refer to Fig. 1)

4. The old valve can now be set aside and used as a reference for proper fitting orientation on the new valve.

5. Install the 90° fitting (8) in the **BYD** port of the new valve (1). (Refer to Fig. 1)

6. Install the straight fitting (6) in the **OUT** port of the new valve (1). (Refer to Fig. 1)

7. Install one of the 90° fittings (5) on the fitting installed in step 6. (Refer to Fig. 1)

8. Install the tee fitting (7) on the fitting installed in step 7. (Refer to Fig. 1)

9. Install the second 90° fitting (5) on the 90° outlet of the fitting installed in step 8. (Refer to Fig. 1)

10. Install the 90° fitting (4) in the **IN** port of the new valve (1). (Refer to Fig. 1)

NOTE: Check the old valve for proper fitting orientation.

11. Install the old valve handles on the new valve (1) using the new handle links (12). (Refer to Fig. 1)

NOTE: The inside link is installed in the reversed direction from the two outside links. Two washers (15) are installed on the outside of this link before the cotter pin is installed.

NOTE: Make sure the straight handle is installed in the center position and the handles with a bend are installed with the top of the handle pointing outward. (Refer to Fig. 1)

12. Install the new valve mount bracket (2) in the machine using the three washers, rubber bushings, sleeves, and rubber rings that were removed in step 7 of the TO REMOVE OLD VALVE instructions. Tighten the hardware firmly. (Refer to Fig. 1)

13. Position the new valve assembly in the machine. Carefully push the valve handles up through the rubber boot. A small amount of WD40 or other lubricant will make this easier. (Refer to Fig. 1)

14. Attach the new valve assembly to the new valve mount bracket (2) using the two hex screws (13), two sleeves (3), and two nyloc nuts (14). *The sleeves are placed between the valve and valve mount bracket.* Tighten the hardware to 7 – 10 ft lb. (Refer to Fig. 1)

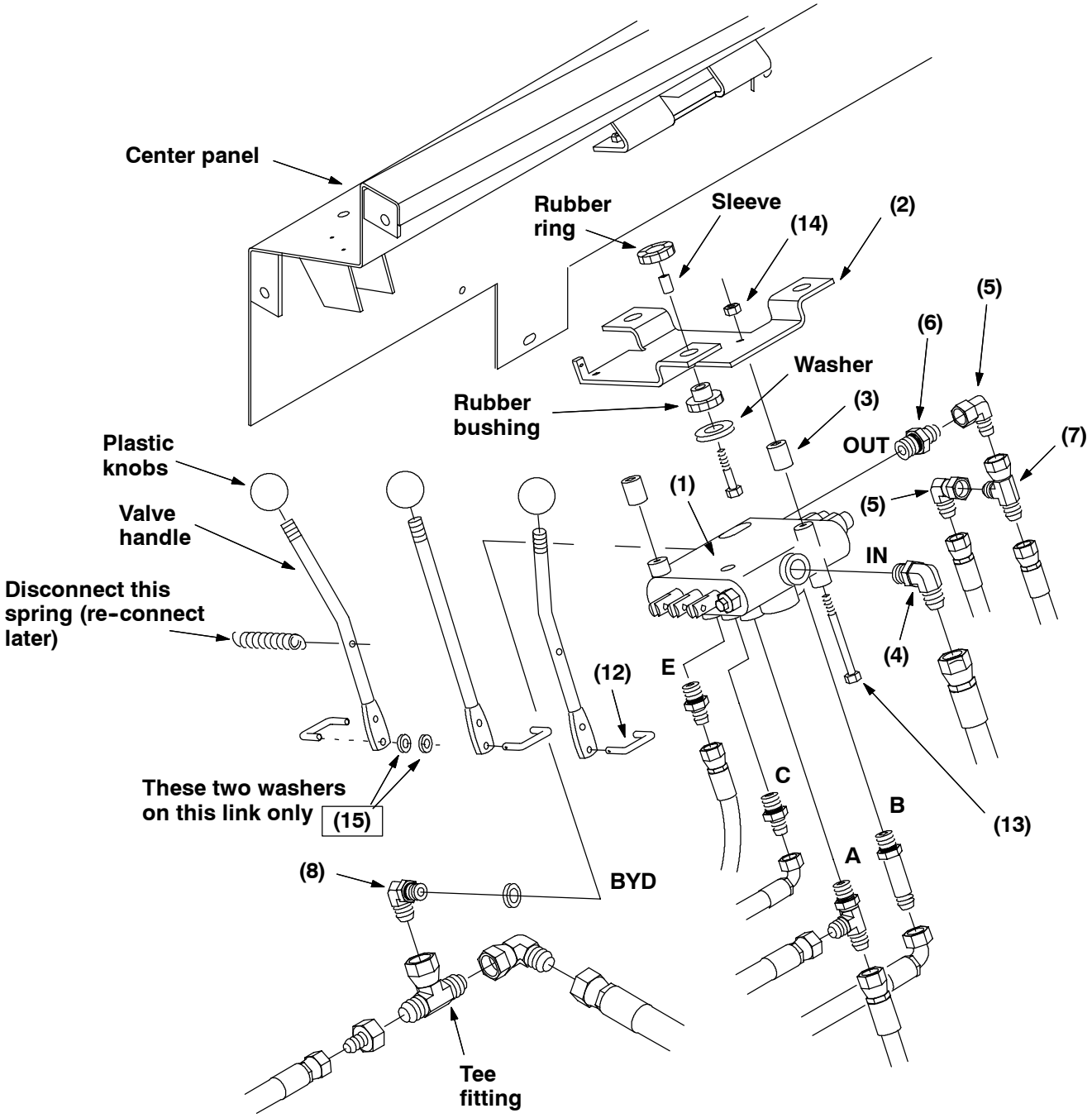


FIG. 1 – 355 Valve Installation

15. Reconnect the hydraulic hoses to the new valve (1) starting from most inside fitting and working outward. (Refer to Fig. 1)

NOTE: Observe hydraulic cleanliness requirements when opening hydraulic lines.

16. Reinstall the plastic knobs to the three valve handles. (Refer to Fig. 1)

17. Start the machine and operate the hydraulic components. Check the new valve and hoses for any leaks. Turn off the machine and check the hydraulic fluid reservoir for proper fluid level. (Refer to Fig. 1)

TO INSTALL *385 (385 LH)* CONTROL VALVE:

(Refer to Fig. 2 and 3)

1. Remove and retain the hair pins and clevis pins holding the three handles to the old valve. Remove and retain the three valve handles. Discard the three valve handle links. (Refer to Fig. 2)

2. Remove the existing fittings from the **A**, **B**, **C**, and **E** ports on the old valve. Install these fittings in the new valve (1) in the same orientation as they were removed. (Refer to Fig. 2)

NOTE: Make sure the fitting block containing the pressure switch is carefully oriented when reinstalling the fittings in the new valve. (Refer to Fig. 2)

3. Make sure the tee fitting that is on the 90° fitting in the **BYD** port on the old valve is removed and retained. (Refer to Fig. 2)

4. The old valve can now be set aside and used as a reference for proper fitting orientation on the new valve.

5. Install the 90° fitting (8) in the **BYD** port of the new valve (1). (Refer to Fig. 2)

6. Install the 90° fitting (4) in the **OUT** port of the new valve (1). (Refer to Fig. 2)

NOTE: Cap on spool #3 must be removed to install fitting (4).

7. Install the tee fitting (9) on the 90° fitting installed in step 6. (Refer to Fig. 2)

8. Install the straight fitting (10)) on the 90° outlet of the tee fitting installed in step 7. (Refer to Fig. 2)

9. Install the 90° fitting (5) on the straight fitting installed in step 8. (Refer to Fig. 2)

10. Install the 90° fitting (4) in the **IN** port of the new valve (1). (Refer to Fig. 2)

NOTE: Check the old valve for proper fitting orientation.

11. Install the old valve handles on the new valve (1) using the new handle links (12). (Refer to Fig. 2)

NOTE: The inside link is installed in the reversed direction from the two outside links. Two washers (15) are installed on the outside of this link before the cotter pin is installed.

NOTE: Make sure the straight handle is installed in the center position and the handles with a bend are installed with the top of the handle pointing outward. (Refer to Fig. 2)

12. Install the new valve mount bracket (2) in the machine using the three washers, rubber bushings, sleeves, and rubber rings that were removed in step 7 of the TO REMOVE OLD VALVE instructions. Tighten the hardware firmly. (Refer to Fig. 2)

13. Position the new valve assembly in the machine. Carefully push the valve handles up through the rubber boot. A small amount of WD40 or other lubricant will make this easier. (Refer to Fig. 2)

14. Attach the new valve assembly to the new valve mount bracket (2) using the two hex screws (13), two sleeves (3), and two nyloc nuts (14). *The sleeves are placed between the valve and valve mount bracket.* Tighten the hardware to 7 – 10 ft lb. (Refer to Fig. 2)

15. Reconnect the hydraulic hoses to the new valve (1) starting from most inside fitting and working outward. (Refer to Fig. 2)

NOTE: Observe hydraulic cleanliness requirements when opening hydraulic lines.

16. Reinstall the plastic knobs to the three valve handles. (Refer to Fig. 2)

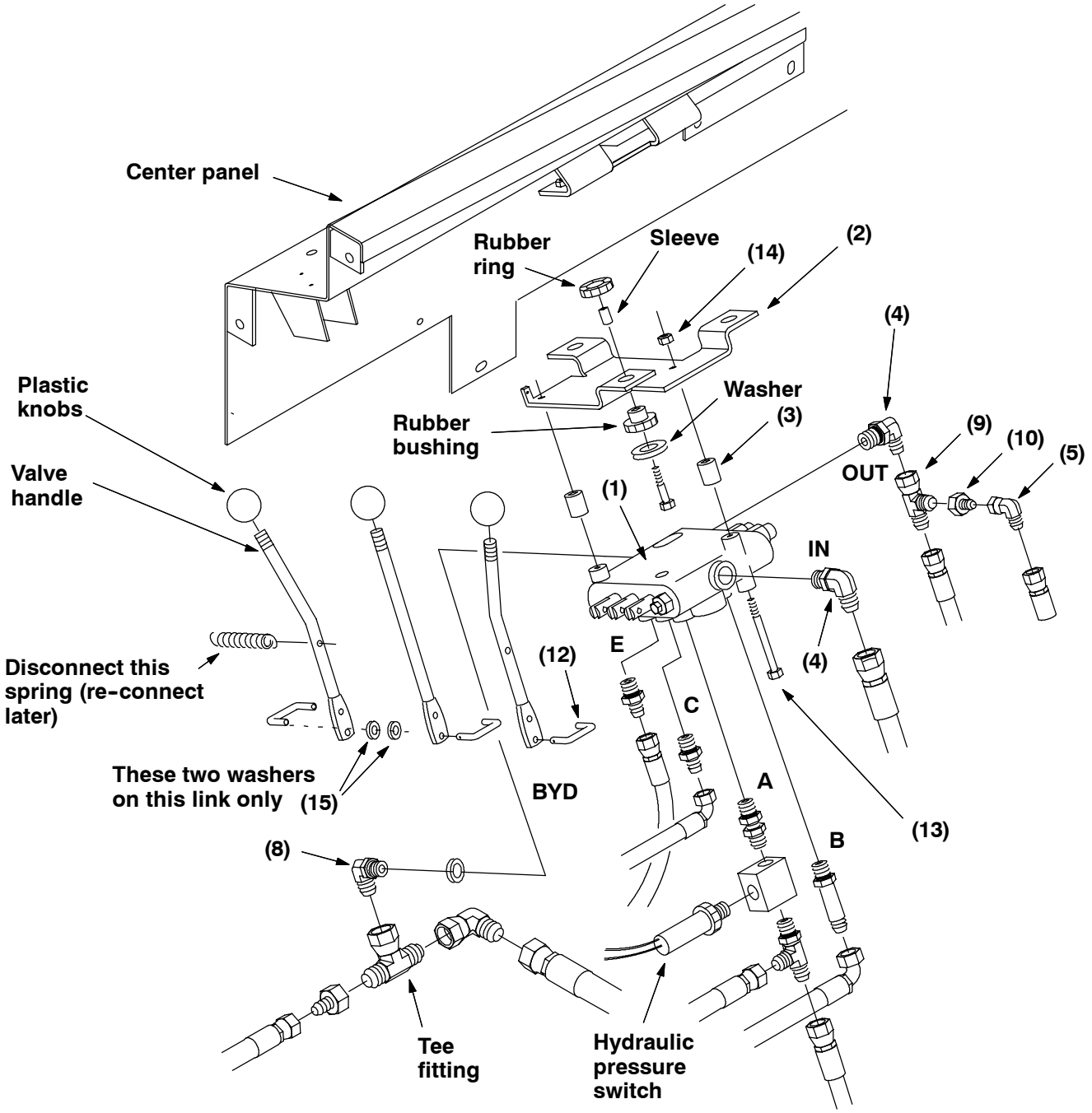


FIG. 2 - 385 Valve Installation

17. Reconnect the hydraulic pressure switch to the main electrical harness. (Refer to Fig. 2)

NOTE: Make sure the wires and hoses are properly tied out of the way of any moving components.

18. Start the machine and operate the hydraulic components. Check the new valve and hoses for any leaks. Turn off the machine and check the hydraulic fluid reservoir for proper fluid level. (Refer to Fig. 2)

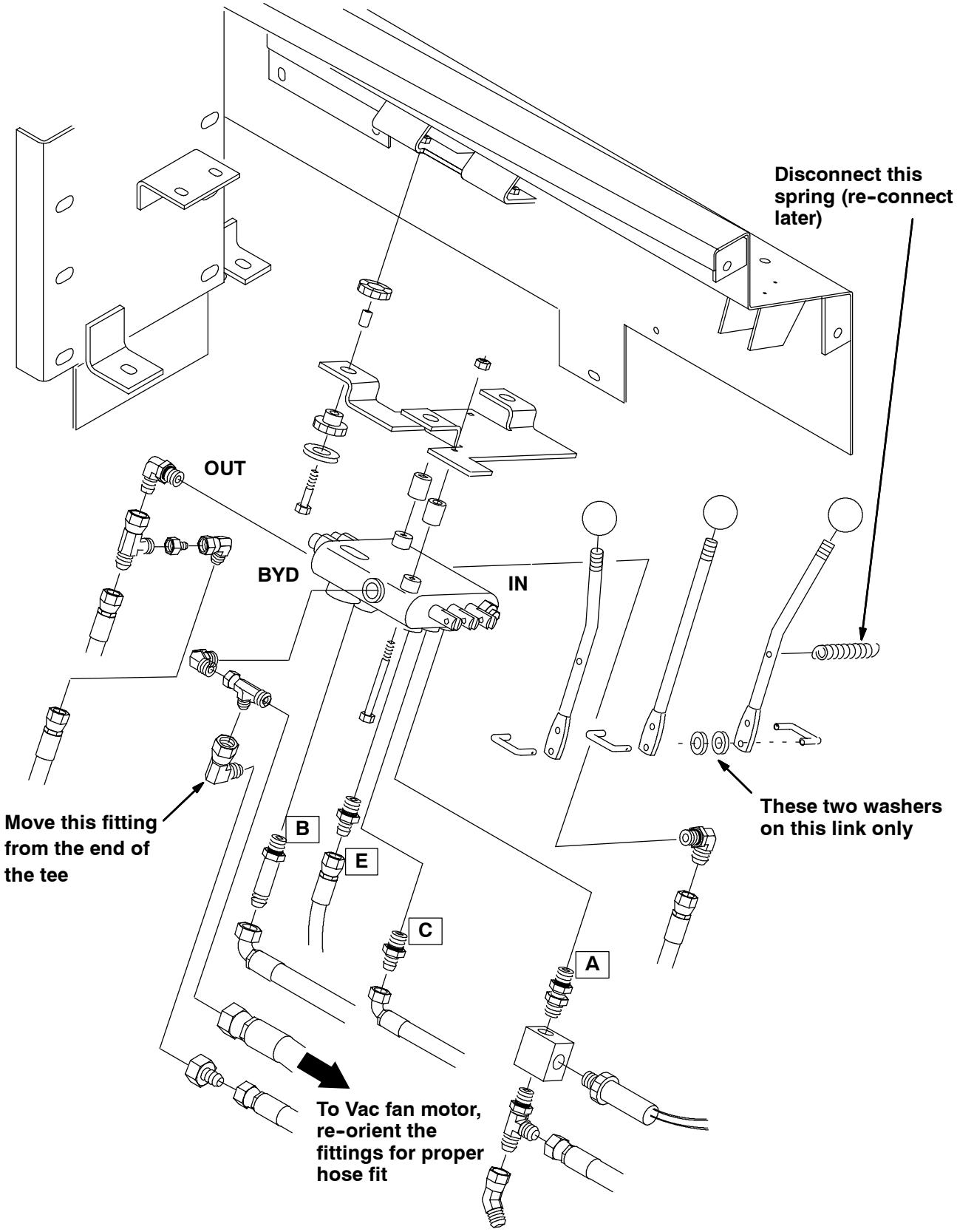


FIG. 3 - Reference 385 LH Valve Installation

1. The 385 LH valve installation is basically the same as a standard 385 except for moving the 90°fitting on the vacuum fan hose. Use Fig. 3 for a reference guide while following the 385 control valve replacement instructions.

TO INSTALL *355E* CONTROL VALVE:

(Refer to Fig. 4)

1. Remove and retain the hair pins and clevis pins holding the three handles to the old valve. Remove and retain the three valve handles. Discard the three valve handle links. (Refer to Fig. 4)
2. Remove the existing fittings from the **A**, **B**, **C**, and **E** ports on the old valve. Install these fittings in the new valve (1) in the same orientation as they were removed. (Refer to Fig. 4)

NOTE: Make sure the fitting block containing the pressure switch is carefully oriented when reinstalling the fittings in the new valve. (Refer to Fig. 4)

3. Remove the straight fitting in the **OUT** port of the old valve and install in the new valve (1) in the same location. (Refer to Fig. 4)
4. The old valve can now be set aside and used as a reference for proper fitting orientation on the new valve.
5. Install the plug assembly (2) in the **BYD** port of the new valve (1). (Refer to Fig. 4)
6. Install the 90° fitting (6) on the straight fitting installed in step 3. (Refer to Fig. 4)
7. Install the 90° fitting (5) in the **IN** port of the new valve (1). (Refer to Fig. 4)

NOTE: Check the old valve for proper fitting orientation.

8. Install the old valve handles on the new valve (1) using the new handle links (12). (Refer to Fig. 4)

NOTE: The inside link is installed in the reversed direction from the two outside links. Two washers (15) are installed on the outside of this link before the cotter pin is installed.

NOTE: Make sure the straight handle is installed in the center position and the handles with a bend are installed with the top of the handle pointing outward. (Refer to Fig. 4)

9. Install the new valve mount bracket (2) in the machine using the three washers, rubber bushings, sleeves, and rubber rings that were removed in step 7 of the TO REMOVE OLD VALVE instructions. Tighten the hardware firmly. (Refer to Fig. 4)
10. Position the new valve assembly in the machine. Carefully push the valve handles up through the rubber boot. A small amount of WD40 or other lubricant will make this easier. (Refer to Fig. 4)
11. Attach the new valve assembly to the new valve mount bracket (2) using the two hex screws (13), two sleeves (3), and two nyloc nuts (14). *The sleeves are placed between the valve and valve mount bracket.* Tighten the hardware to 7 – 10 ft lb. (Refer to Fig. 4)
12. Reconnect the hydraulic hoses to the new valve (1) starting from most inside fitting and working outward. (Refer to Fig. 4)

NOTE: Observe hydraulic cleanliness requirements when opening hydraulic lines.

13. Reinstall the plastic knobs to the three valve handles. (Refer to Fig. 4)

14. Install the 90° fitting (5) in the straight fitting installed in step 5. (Refer to Fig. 4)

15. Reconnect the hydraulic pressure switch to the main electrical harness. (Refer to Fig. 4)

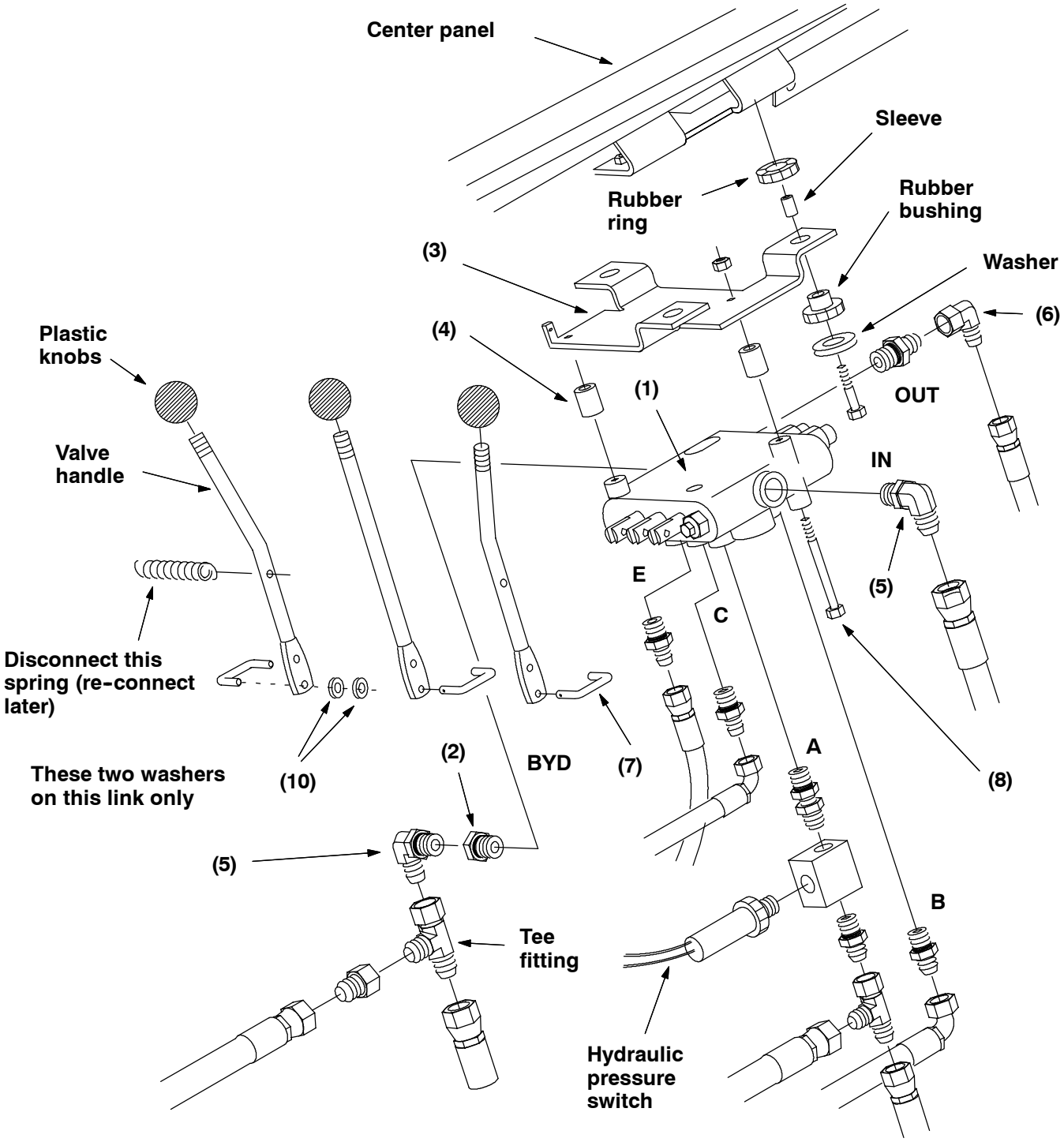


FIG. 4 - 355E Valve Installation

NOTE: Make sure the wires and hoses are properly tied out of the way of any moving components. (Refer to Fig. 4)

16. Start the machine and operate the hydraulic components. Check the new valve and hoses for any leaks. Turn off the machine and check the hydraulic fluid reservoir for proper fluid level. (Refer to Fig. 4)

NOTE: If any spool binds in the detent position, loosen the detent cover cap and work the lever back and forth while re-tightening the cap. Check for proper operation.

BILL OF MATERIALS FOR MAIN CONTROL VALVE REPLACEMENT KIT 48761

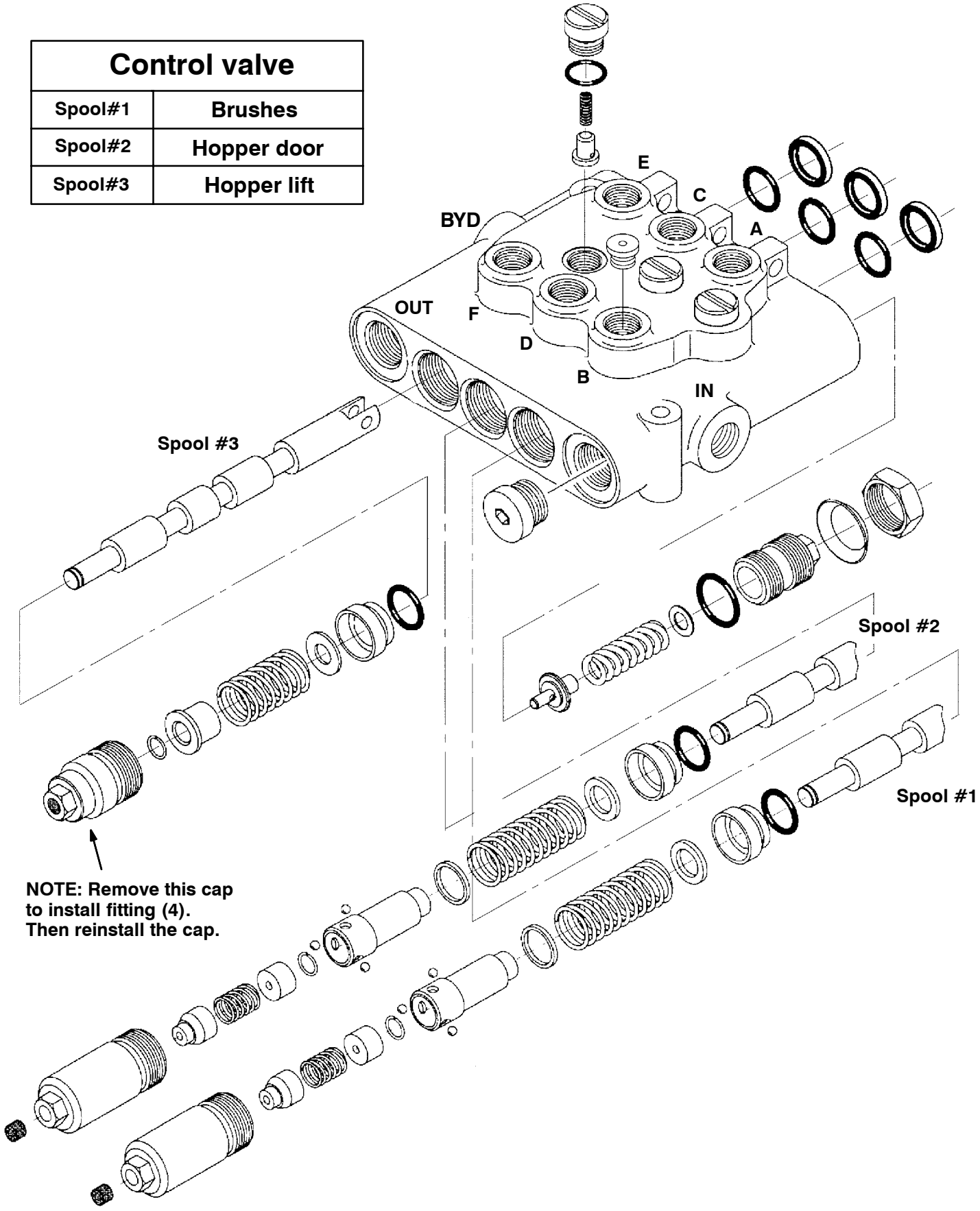
Ref.	TENNANT Part No.	Description	Qty.
1	48751	Hydraulic control valve	1
2	55446	Valve mounting bracket	1
3	09900-1	Sleeve	2
4	44868	Hydraulic fitting, 90°, 8-8	2
5	39210	Hydraulic fitting, 90°, 4-4	2
6	55686	Hydraulic fitting, straight, 4-8 (355 only)	1
7	57988	Hydraulic fitting, tee, 4-4-4 (355 only)	1
8	374567	O-ring, special, .103 x .612 ID	1
9	45482	Hydraulic fitting, tee, 8-8-8 (385 only)	1
10	57979	Hydraulic fitting, straight, 4-8 (385 only)	1
11	48763	Molding, trim, 10 in.	1
12	21903	Valve handle links	3
13	06950	M6 hex screw, 70mm	2
14	08708	M6 nyloc nut	2
15	32483	1/4 in. flat washer	2

BILL OF MATERIALS FOR MAIN CONTROL VALVE REPLACEMENT KIT 48762 (355E ONLY)

Ref.	TENNANT Part No.	Description	Qty.
1	48751	Hydraulic control valve	1
2	79823	Plug assembly	1
3	55446	Valve mounting bracket	1
4	09900-1	Sleeve	2
5	44868	Hydraulic fitting, 90°, 8-8	2
6	39210	Hydraulic fitting, 90°, 4-4	2
7	21903	Valve handle links	3
8	06950	M6 hex screw, 70mm	2
9	08708	M6 nyloc nut	2
10	32483	1/4 in. flat washer	2

TENNANT COMPANY
P. O. Box 1452
Minneapolis, MN 55440-1452

Control valve	
Spool#1	Brushes
Spool#2	Hopper door
Spool#3	Hopper lift



Valve 48751 Breakdown