



INSTRUCTION BULLETIN

No. 340847
Machine: Sentinel
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Rev. 00

NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in the machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save 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 9003364**

SYNOPSIS:

This kit contains parts needed to install a left side brush assembly (WET) onto the Sentinel sweeper. Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS: NONE

(Estimated time to complete: 10 hours)

When assembling/disassembling hydraulic components:

1. Thoroughly clean outside of hydraulic components **before** disconnecting hydraulic hoses or fittings to prevent contaminants from entering system.
2. Cap disconnected hoses and open ports to prevent contaminants from entering system.
3. Flush hoses and fittings with air, solvent, or hydraulic fluid to prevent contaminants from entering system.
4. Mark hydraulic hoses with locations of where they are attached. Markings make it easier to reconnect hoses to proper locations.
5. Discard all hydraulic fluid drained from the system. Use only new approved hydraulic fluid to replenish hydraulic reservoir. Hydraulic fluid is potentially dangerous to the environment. Obey all federal, state, and local laws/regulations governing the disposal of environmentally hazardous materials when disposing hydraulic fluid.

PREPARATION:

1. Park the machine on a clean level surface and engage the parking brake.

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

2. Disconnect the battery cables from the batteries.



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

INSTALL LEFT SIDE BRUSH:
(Refer to Fig. 1, Fig. 2, and Fig. 3)

1. Remove the flat cover (768096) to access the side brush area. Refer to Fig. 7.
2. Install the stop bolt (1) and jam nut (46) onto the angle under the machine frame by the bearing boss.

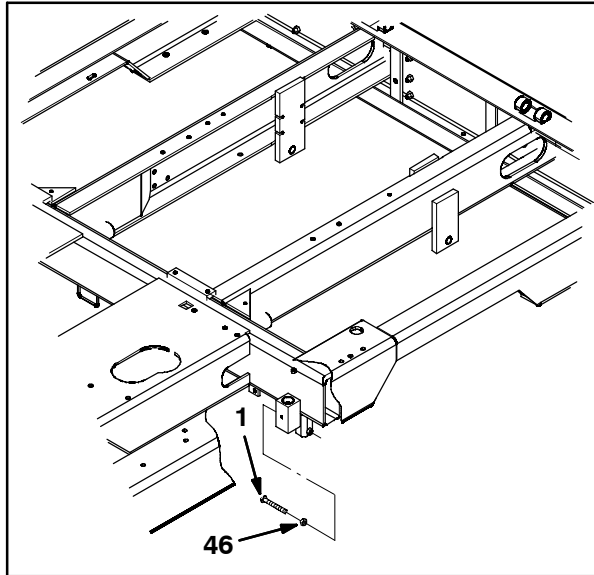


FIG. 1

3. Apply a small amount of grease to the sides of the two bearings (40).
4. Install the two bearings into the left side brush mounting boss. Use the bearing pressing tool provided--**threaded rod (58), washers (16), and nuts (13)**. Use a 3/4" impact to install one bearing (40) on each side of the bearing boss. Tighten the tool until the bearings (40) are completely seated.
5. Install a grease fitting (24) into the bearing boss.
6. Grease bearing (42) and press into left side brush bracket (26) until the bearing is completely seated.
7. Grease bearings (33) and press into each end of the side brush bars (34) until the bearings are completely seated. If necessary, use a 1/2 X 4" bolt with a washer and nut to make installation easier.
8. Apply a light coat of grease to the pin (32) and insert the pin through the clevis on the lift cylinder (38) and attach to the left side brush bracket (26). Secure pin with retaining ring (41).

NOTE: Review right side brush for assembly.

9. Mount upper bars (34) with flange bearings (33), sleeve (35) with hex screws (4), washers (14), and nuts (68).

NOTE: Orient bars (34) so the distance from bracket holes (26) to center larger hole in bar is 225mm (8.88")

10. Install the shaft (36) between the bars (34) and through rod end of the lift cylinder (38). Install the washers (10) and nuts (20). Torque the nuts (20) to 68–88 Nm (50–65 ft. lb). The joints must move freely.
11. Use a hex screw (23), washer (14), and nut (7) to install the motor support bracket (27) onto the lower support bracket (28). Tip lift the upper corner of motor support plate down 3/16" from the upper edge of the lower support bracket.

NOTE: Rotate the motor until the small test port between the two motor fittings is oriented toward the left rear machine corner. Tighten hardware to secure motor into place.

12. Use four hex screws (21) and four nuts (8) to install the side brush motor (39) onto the motor support bracket (27). Torque the nuts (8) to 64–83 Nm (47–61 ft. lb).
13. Use the hex screws (23), washers (14), and nuts (7) to install the side brush motor (39) and mount bracket (27) onto the lower support bracket (28). Torque the nuts (7) to 64–83 Nm (47–61 ft. lb).
14. Lubricate the shaft and castle nut on the side brush motor (39). Install the brush hub (37) on the motor (39) using washer (18) and cotter pin (5). Torque the castle nut to 95–122 Nm (70–90 ft. lb) plus additional torque needed to align castle nut to cross hole.
15. Use the hex screws (4), washers (14), and nuts (68) to install the brush motor assembly onto the brush assembly. Torque the nuts (68) to 64–83 Nm (47–61 ft. lb). The joint must move freely.
16. Use the hex screws (4), washers (14), and nuts (7) to install the lower support bar (34) with flange bearings (33) and sleeve (35) onto the side brush assembly. Torque the nuts (7) to 38–48 Nm (27–34 ft. lb). The joint must move freely.

17. Put a small amount of blue Loctite 242 into the internal threads on the shaft of bracket (26). Install the side brush assembly to the under side of the frame. Slide the assembly up through the bearing boss on the machine frame. From the top of the bearing boss, install hex screw (23), conical washer (45), and fender washer (47).

18. Adjust the stop bolt (1) so the side brush support arms and hardware clear the frame channel (when the lift cylinder (38) is fully retracted) by 1/2".

19. Use two nuts (19) and a flat washer (15) to install the eye bolt (31) and spring (30) onto the left side brush bracket (26). Tighten the spring until the spring coils separate.

20. Use the grease fitting (24) on the bearing boss to lubricate the bearings (40).

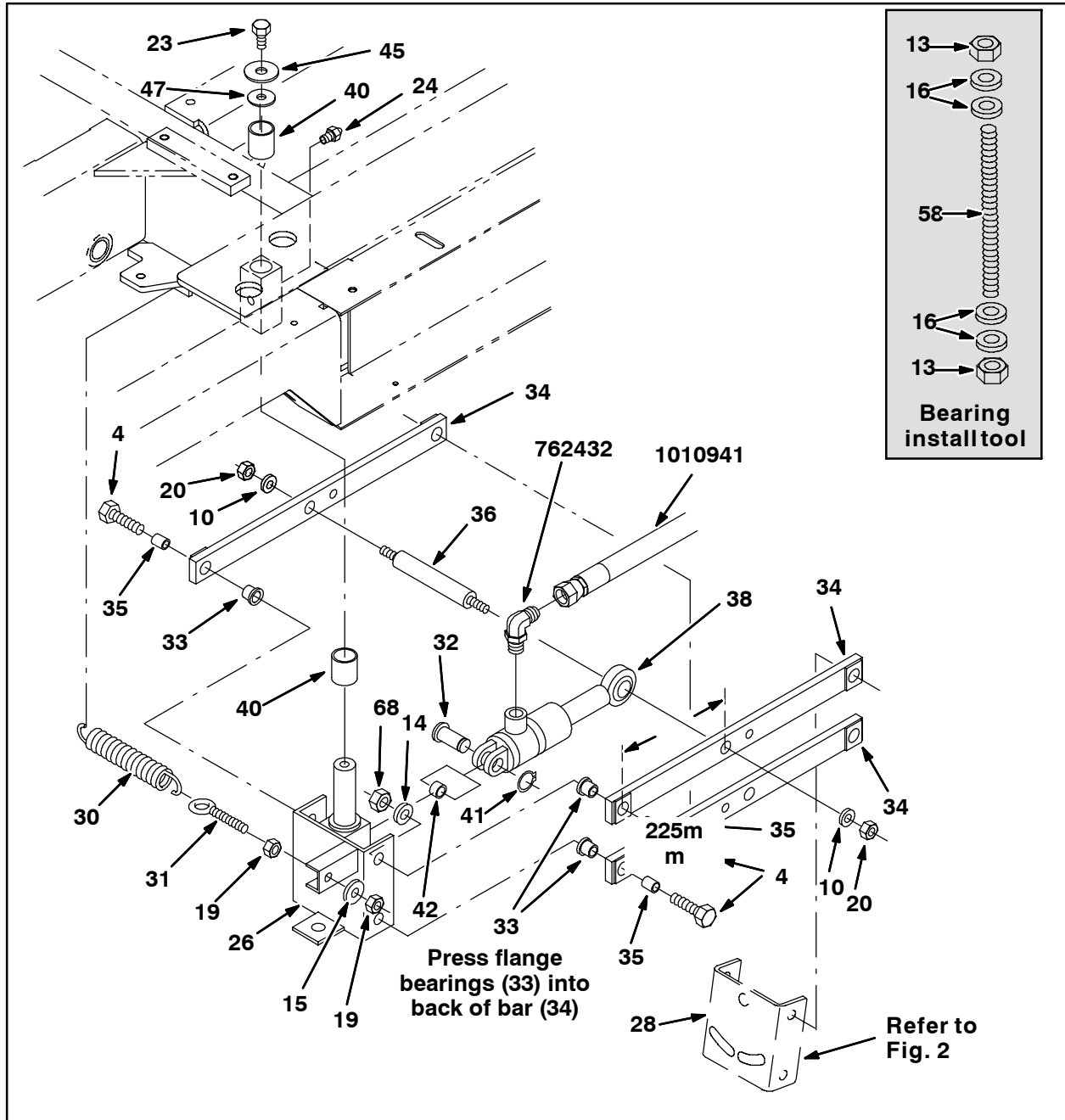


FIG. 2 - Left Hand Side Brush Assembly

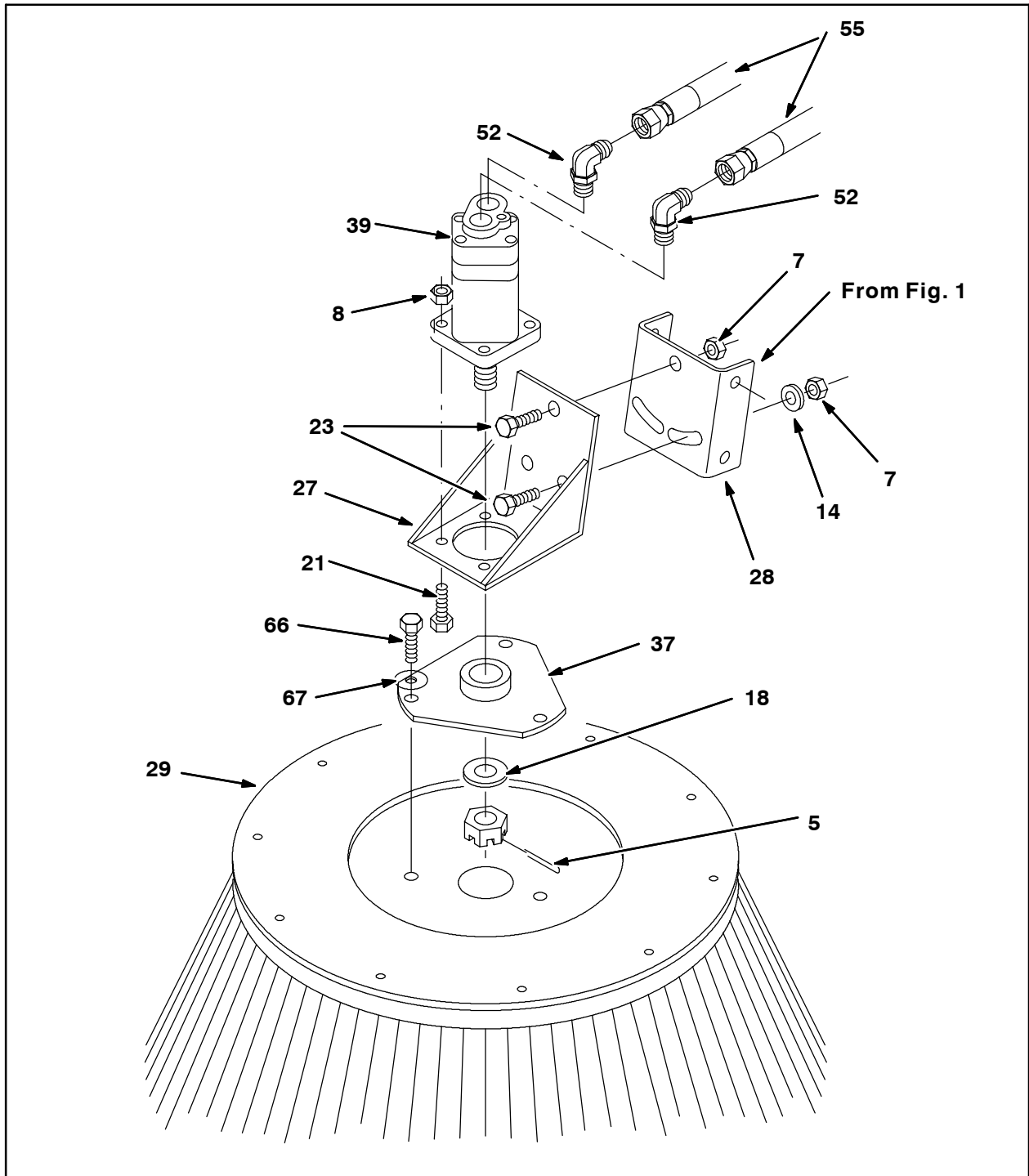


FIG. 3 - Left Hand Side Brush Assembly

**INSTALL HYDRAULIC HOSES AND FITTINGS:
(Refer to Fig. 4 and Fig. 5)**

NOTE: Lubricate all o-rings with hydraulic fluid before installation.

1. Remove plugs from ports SV7, SV10, PC1, M3 and C8 of the side brush valve located inside the inside frame rail on the front left side of the machine. Discard the plugs.
2. Install a flow control valve (64) into port SV10.
3. Install solenoid coil (12) onto the flow control valve (64) in port SV10. Torque the nut to 7–8 Nm (4–5 ft. lb).
4. Install a valve stem (11) into port SV7.
5. Install solenoid coil (69) onto the valve stem (11) in port SV7. Torque the nut to 7–8 Nm (4–5 ft. lb).
6. Install a check valve (63) into port PC1.
7. Install two 90° fittings (52) into the LH side brush motor (39). Point the fittings to the rear of the machine.
8. Install a 90° fitting (53) into the side brush lift cylinder (38). Point the fitting to the rear of the machine.
9. Install a T-fitting (54) into port M3 on the side brush valve.
10. Install a 90° fitting (53) into port C8 on the side brush valve.
11. Connect a hydraulic hose (55) to the 90° fitting (52A) on the side brush motor (39). Route the hose under the frame, through the slot in the frame channel, and through the hose hanger. Connect the other end of the hose to the T-fitting (54) in port M3 of the side brush valve.
12. Connect a hydraulic hose (55) to the 90° fitting (52B) on the side brush motor (39). Route the hose under the frame, through the slot in the frame channel, and through the hose hanger. Connect the other end of the hose to the manifold.
13. Connect a hydraulic hose (56) to the 90° fitting (53) on the side brush lift cylinder (38). Route the hose under the frame, through the slot in the frame channel, and through the hose hanger. Connect the other end of the hose to the 90° fitting (58) in port C8 of the side brush valve.

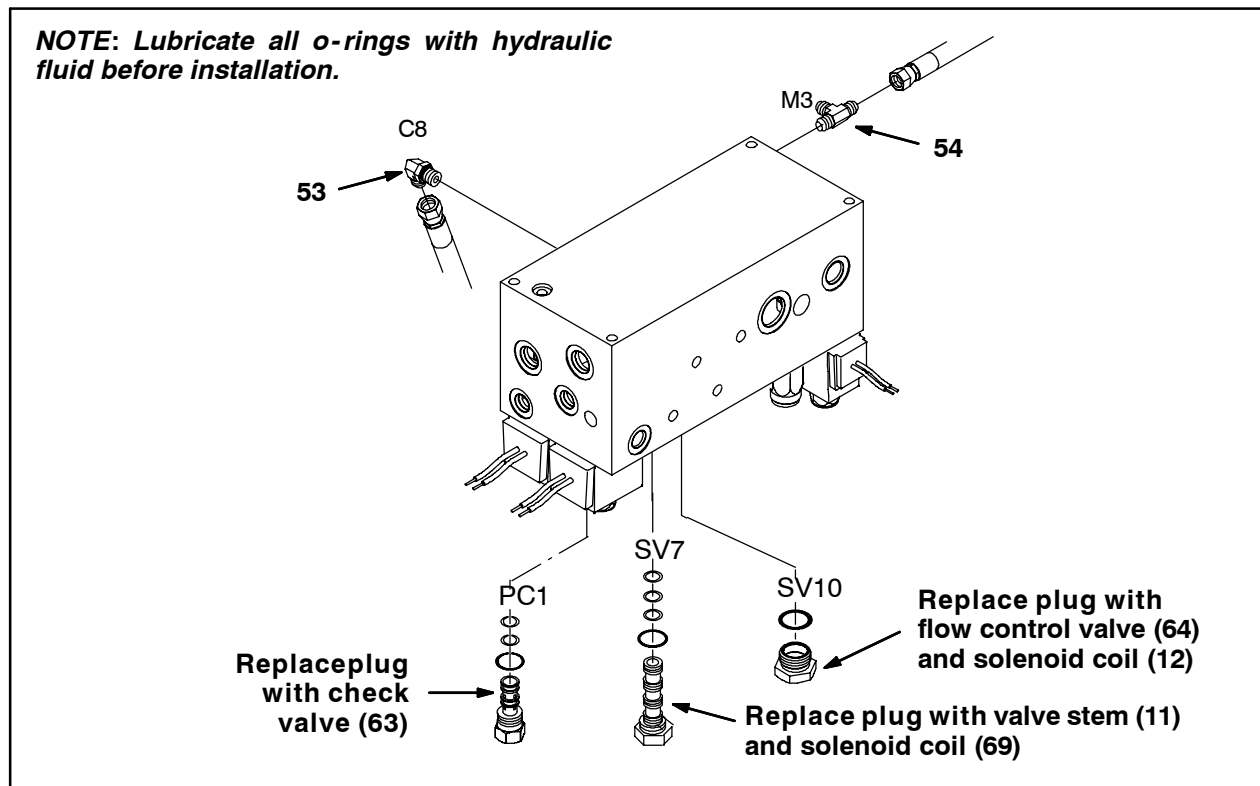


FIG. 4 - Side Brush Valve Assembly

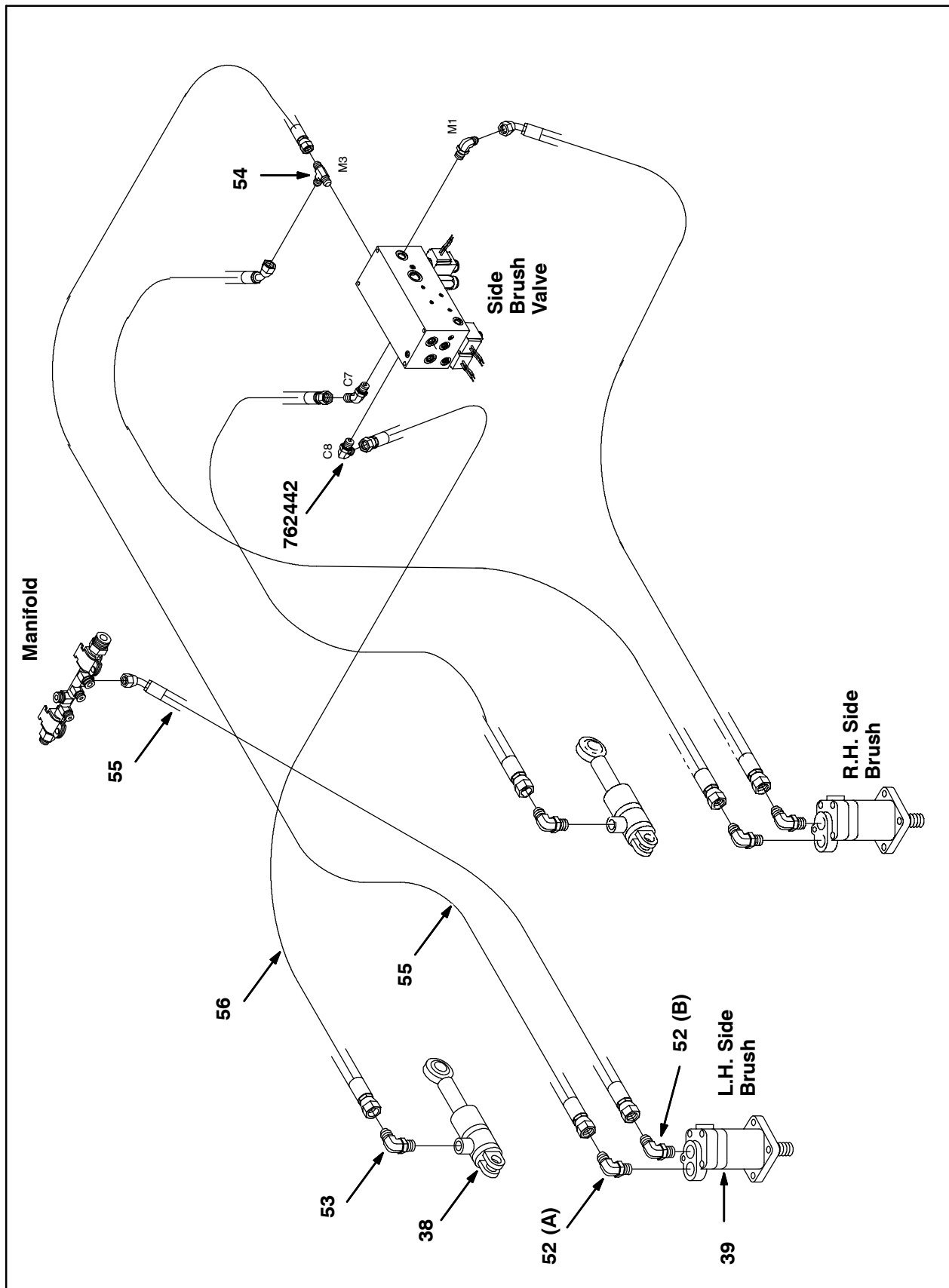


FIG. 5 - Left Hand Side Brush Valve Assembly

INSTALL ELECTRICAL CONNECTIONS: (Refer to Fig. 6 and Fig. 4)

1. Locate the side brush valve on the front, left side of the machine, inside of the inner frame rail. Locate the main electrical harness attached to the frame rail. The connectors for the valve are tied up to the main harness.
2. Connect the main harness connector labeled SV7 with wires 91C/PUR and 96A/ORA to the solenoid (12) at SV7 on the side brush valve.
3. Connect the main harness connector labeled SV10 with wires 91F/PUR and 96B/ORA to the solenoid coil (12) at SV10 on the side brush valve.

INSTALL LIGHT: (Refer to Fig. 6)

1. Remove the plug from the left side rear of the cab door.
2. Remove the side channel cover from inside the cab.
3. Add RTV to the bottom of the light U-bracket (62). Install the light (62) through the 1/2" hole in the back of the cab.
4. Route the 13BB/BLK and 82C/ORA wires located at the right rear corner of the passenger side of the cab along the bottom rear of the cab and connect the wires to the wires on the new light (62).
5. Reinstall the side channel removed in Step 2.

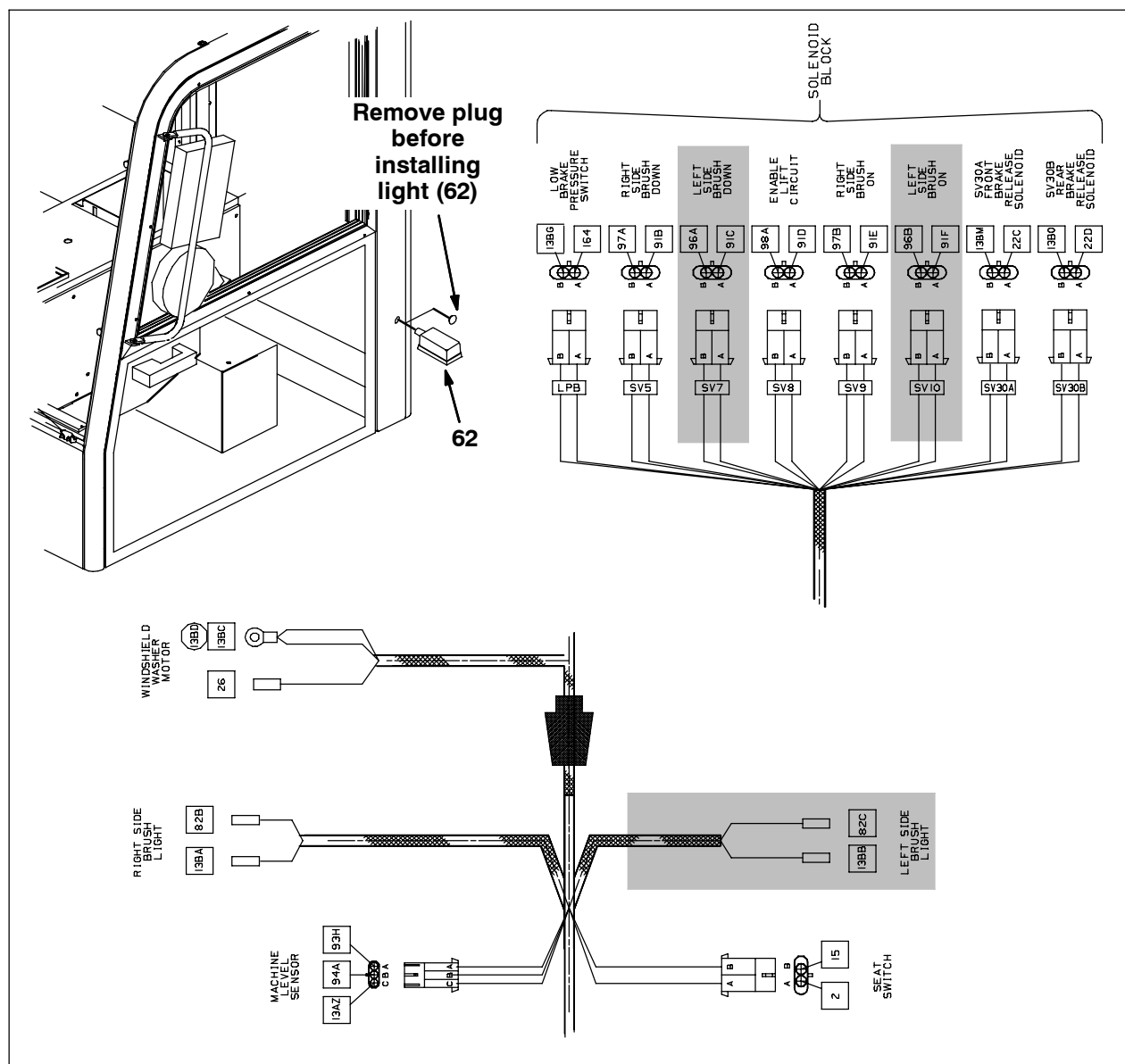


FIG. 6 - Left Hand Dust Skirts

INSTALL OD DUST CONTROL:
(Refer to Fig. 7, Fig. 8, and Fig. 9)

1. Remove and discard the left hand main brush door cover. Refer to Fig. 7.

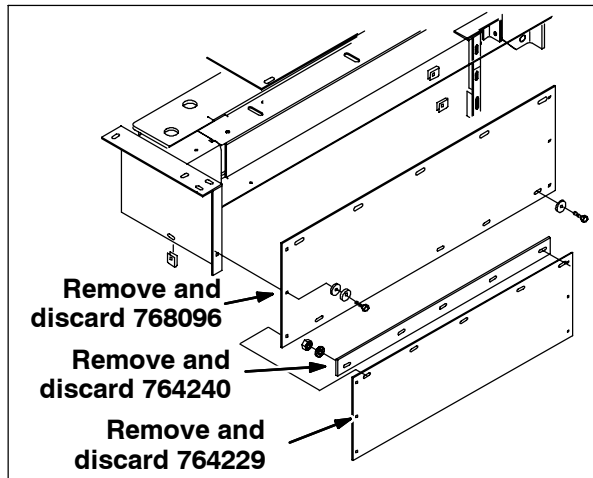


FIG. 7 - Left Hand Dust Skirts

2. Remove and discard the plastic cover.
3. Measure 8" on the end of skirt (48). Mark a line and cut the skirt.
4. Center the bar (60) on top the flap of the shroud assembly (61) approximately 2-3/16" from either edge.
5. Mark the center of the slots and punch a 9/32" hole on the shroud assembly (61) material.
6. Loosely assemble arm seal (59) to the shroud assembly (61) using the hardware listed.

7. Wedge the cover flap from the shroud assembly (61) between the upper arm seal (59) and the bar seal (60) and use four hex screws (2), eight fender washers (22), and four hex nuts (6) to secure the shroud assembly onto the upper arm seal.
8. Use twelve hex screws (2), twenty-four fender washers (22), and twelve hex nuts (6) to install the rubber skirt (48) and retainer (49) onto the shroud assembly (61).
9. Use three hex screws (3), three belleville washers (43), and three fender washer (22) to install a skirt retainer (50) onto the front of the left side brush assembly.
10. Use a hex screw (3), two hex screws (57), a belleville washer (43), two belleville washers (44), a fender washer (22), and two fender washers (65) to install a skirt retainer (50) onto the rear of the left side brush assembly.
11. Install the SBDC assembly onto the left side of the frame using the hardware listed.
12. Adjust the SBDC assembly so the bottom skirt is between 1/8" to 1/4" from the ground.
13. Adjust the arm (59) so it is to the top edge of the bottom of the frame so it seals the area.

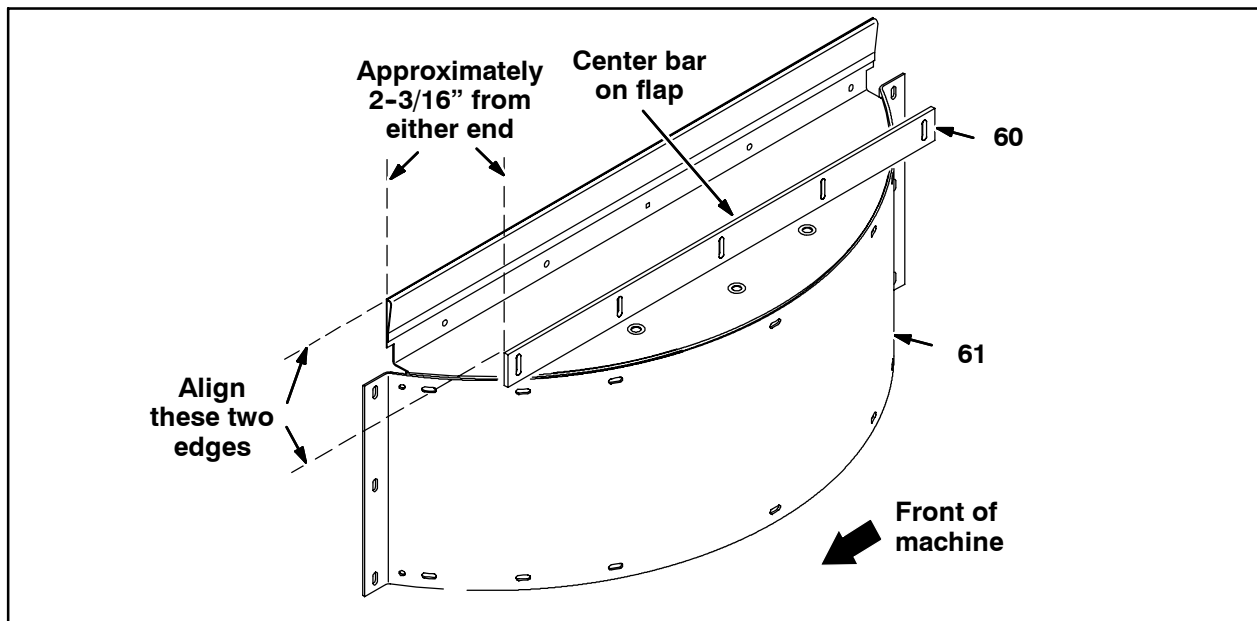


FIG. 8 - Cover Assembly

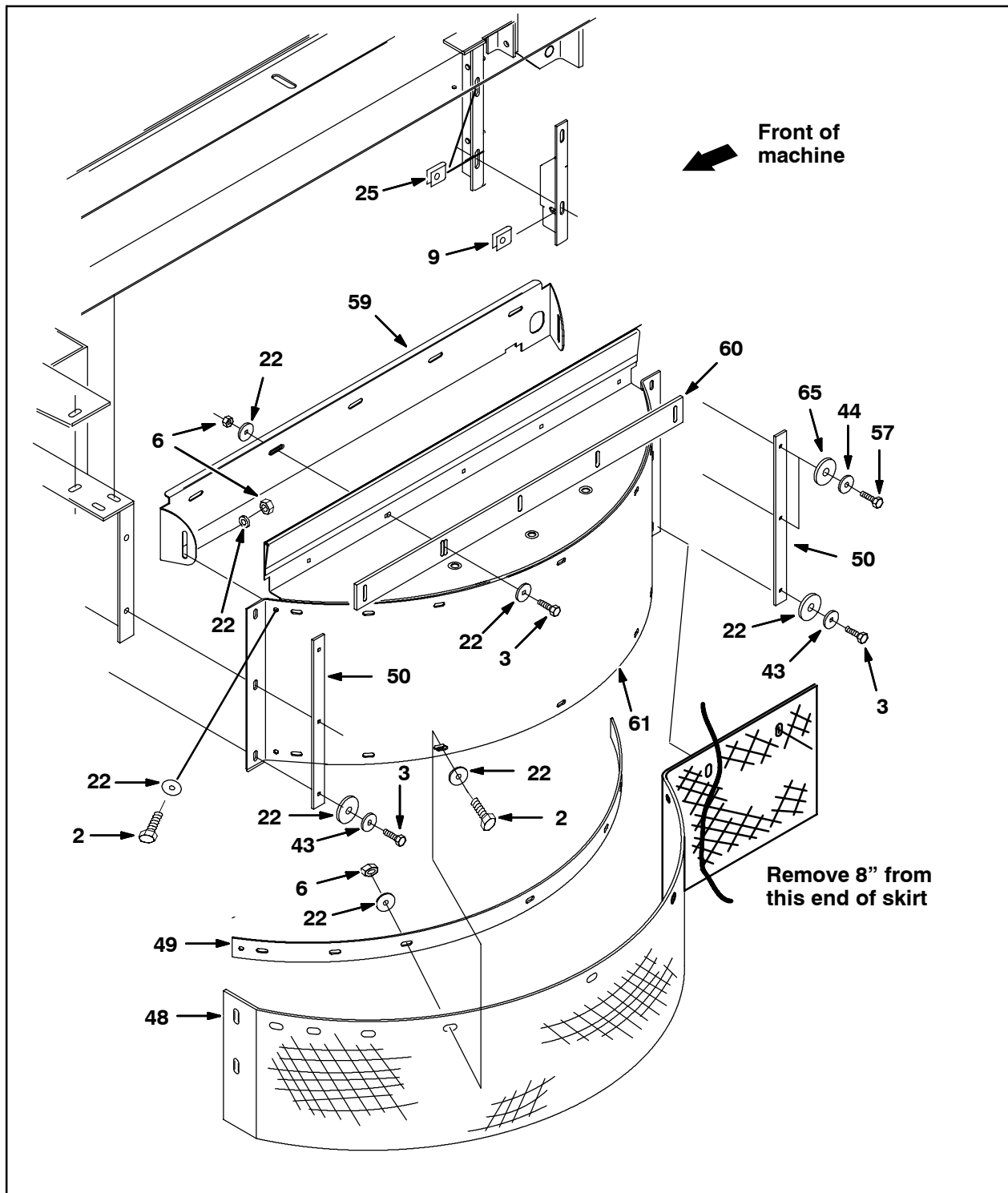


FIG. 9 - Left Hand Side Brush Skirt Installation

INSTALL WATER LINE COMPONENTS:
(Refer to Fig. 10, Fig. 11, Fig. 12, Fig. 13, and Fig. 14)

1. Remove the knobs from the water valves.
Refer to Fig. 10.

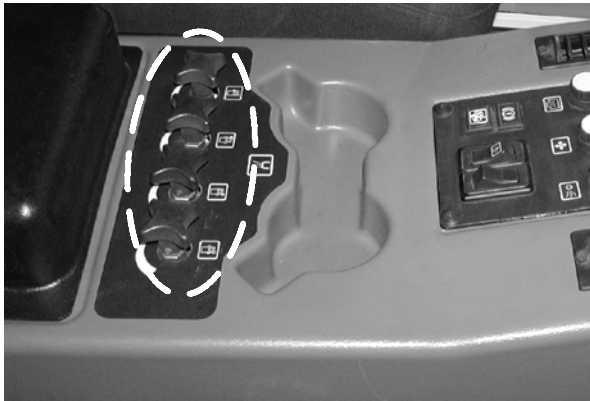


FIG. 10

2. Remove the plastic plug from the center console. Discard the plastic plug. Refer to Fig.11.

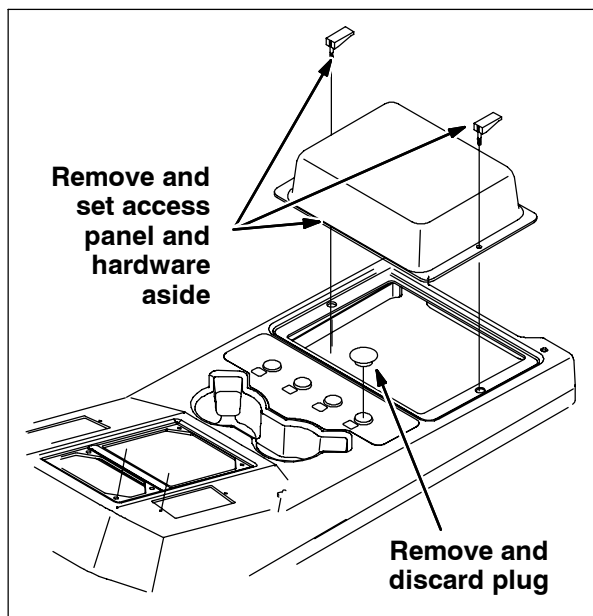


FIG. 11

3. Remove the access panel from the rear of the center console. Set the access panel and hardware aside. Refer to Fig.11.
4. Remove the water manifold from the rear console. Refer to Fig.14.

5. Remove the plug from the left end of the water manifold. Discard the plug. Refer to Fig.12.

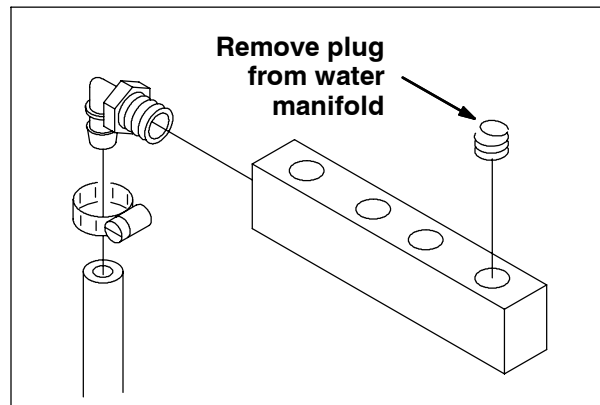


FIG. 12

6. Remove the pin from the water valve (75) stem. Pin must be removed before the new knob (76) can be installed. Refer to Fig.14.
7. Apply sealant (70) onto the external threads of the water valve (75) and install the water valve where the plug was removed in the previous step. Refer to Fig. 14.
8. Apply RTV (71) onto the threads of the 90° plastic fitting (74) and install the plastic fitting onto the water valve (75). Refer to Fig. 14.
9. Remove the plastic floor plug from the center console. Discard the plug. Refer to Fig. 13 and Fig. 14.

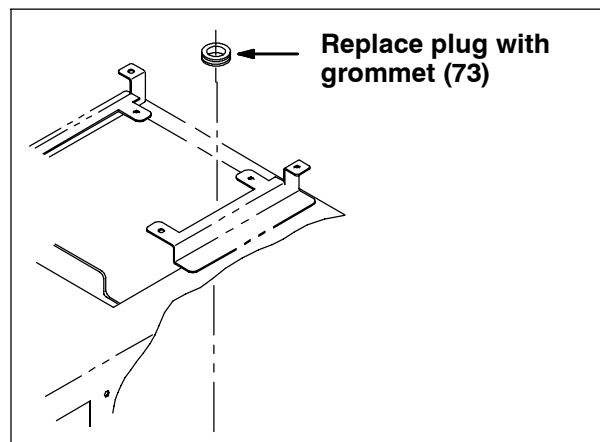


FIG. 13

10. Insert a grommet (73) into the hole where the plug was previously located,. Refer to Fig. 13 and Fig. 14.
11. Apply RTV (71) onto the threads at the other end of the 90° plastic fitting (74) installed on the water valve (75). Refer to Fig. 14.

12. Use a hose clamp (72) to install the PVC hose (79) onto the 90° plastic fitting (74). Refer to Fig. 14.
13. Route the PVC hose (79) down through the grommet (73) installed in the floor of the cab. Refer to Fig. 13 and Fig. 14.
14. Reinstall the water manifold into the center console. Refer to Fig. 14.
15. Reinstall the knobs onto the valves and install the new knob (76) onto the water valve (75). Refer to Refer to Fig. 10 and Fig. 14.
16. Reinstall the access panel onto the center console. Refer to Fig. 11.
17. Install the spray fitting (77) and brass fitting (78) onto the left side brush bracket (26). Refer to Fig. 14.
18. Install the spray nozzle (80) and spray nozzle cap (81) onto the spray fitting (77) . Refer to Fig. 14.
19. Apply RTV to the barbed end of the brass fitting (78) and use a hose clamp (72) to attach the PVC hose (79) to the brass fitting. Refer to Fig. 14.
20. Reinstall the left brush door onto the machine.

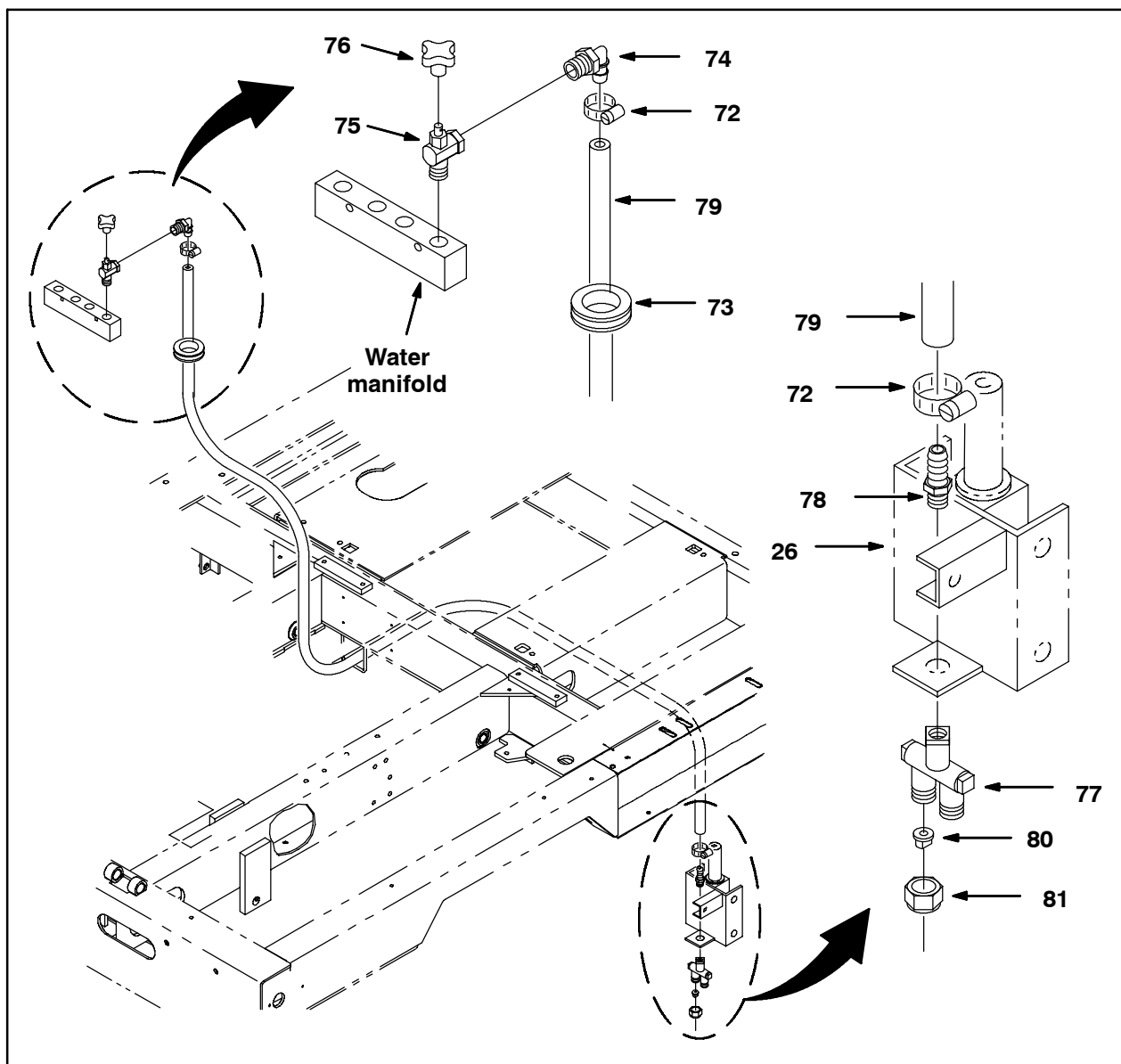


FIG. 14

Bill of Materials for Brush Kit, Side, LH, Wet, CI-9003364

Ref.	Tennant Part No.	Description	Qty.
▽	9003364	Brush Kit, Side, LH, Wet, CI	1
▲	1 06416	Screw, Hex, M12 X 1.75 X 50, FL	1
▲	2 06943	Screw, Hex, M6 X 1.0 X 20, 8.8	16
▲	3 06944	Screw, Hex, M6 X 1.0 X 25, 8.8	12
▲	4 06971	Screw, Hex, M12 X 1.75 X 50, 8.8	6
▲	5 08180	Pin, Cotter, .125 X 2.00	1
▲	6 08708	Nut, Hex, Lock, M6 X 1.00, NL	16
▲	7 08711	Nut, Hex, Lock, M12 X 1.75, NL	3
▲	8 09741	Nut, Hex, Lock, M12 X 1.75, NL, SS	4
▲	9 12271	Nut, U, M6 X 1.00	4
▲	10 15331	Washer, Flat, 0.62, SAE	2
▲	11 79719	VR, Stem, Valve, Hyd [4W2P, CEC]	1
▲	12 373478	Solenoid, Hyd, 12VDC, 12 Watt	1
▲	13 25017	Nut, Hex, Std, .75-10	2
▲	14 32486	Washer, Flat, 0.50, SAE	14
▲	15 32493	Washer, Flat, 0.50, Std	1
▲	16 32495	Washer, Flat, 0.75, Std	4
▲	17 32676	Adhesive, Thread, 0.5ML [242Blu]	1
▲	18 32969	Washer, Flat, 1.00, SAE	1
▲	19 32985	Nut, Hex, Lock, .50-13, NL	2
▲	20 33342	Nut, Hex, Lock, M16 X 2.00, NL	2
▲	21 33440	Screw, Hex, M12 X 1.75 X 40, SS, NL	4
▲	22 41178	Washer, Flat, 0.25, Fendr	36
▲	23 41346	Screw, Hex, M12 X 1.75 X 30, 8.8	4
▲	24 47801	Fitting, Grease, Str PM04 .63L	2
▲	25 58595	Nut, U, M8 X 1.25	2
▲	26 768852	Bracket, Wldt, Brush, Side, LH	1
▲	27 761209	Bracket	1
▲	28 768834	Channel Wldt, Sppt, Lower	1
▲	29 761211	Brush, Disk, SWP, 32.0D, Pyp/Ftw	1
▲	30 761223	Spring	1
▲	31 761225	Bolt, Eye, .50-13 X 3.50 X 1.00 Eye	1
▲	32 761229	Pin, Cyl, Hyd	1
▲	33 767641	Bushing, Flng, 0.63B 0.82D 0.75L, Bnz	6
▲	34 768836	Bar Wldt, Sppt, Brush	3
▲	35 768842	Tube, Rnd, 0.47ID 0.62OD, Stl	6
▲	36 767644	Shaft, Brush, Side	1
▲	37 761428	Hub, Brush	1
▲	38 1028505	Cylinder, Hyd, 1.8B 07.7L 01.70Strk 3000	1
▲	39 771072	Motor, Hyd, Gear, Int 11.9 B--Dir 3000	1
▲	40 763003	Bearing, Sleeve [MB3020DU]	2
▲	41 763005	Ring, Retaining, M16	1
▲	42 763007	Bearing, Sleeve [MB1620DU]	1
▲	43 763040	Washer, Flat, Belleville, M6	4
▲	44 763041	Washer, Flat, Belleville, M8	2
▲	45 763043	Washer, Flat, Belleville, M12	1
▲	46 763065	Nut, Hex, Jam, M12 X 1.75, [DIN439]	1
▲	47 763074	Washer, Flat, M16, Fendr	1
▲	48 764261	Skirt Kit, Dust-Cntrl, Side	1
▲	49 764240	Retainer, Skirt, Side	1

	Ref.	Tennant Part No.	Description	Qty.
▲	50	764256	Retainer, Skirt, Side	2
▲▽	51	771068	Hose Kit, Hyd [Sentinel - LS Brush]	1
▲▲	52	1007954	Fitting, Hyd, E90, FM06/OM10	2
▲▲	53	762432	Fitting, Hyd, E90, FM06/OM06	2
▲▲	54	762434	Fitting, Hyd Tee, FM06/FM06/OM06, Run	1
▲▲	55	771043	Hose, Hyd, TC06, FF06STR/FF06STR, 062.0L	2
▲▲	56	1010941	Hose, Hyd, TC06, FF06STR/FF06STR, 066.0L	1
▲	57	76570	Screw, Hex, M8 X 1.25 X 30, 8.8	2
▲	58	768045	Rod, Thrd, Full, .75-10 08.5L	1
▲	59	769087	Arm, Seal, Upper	1
▲	60	768091	Bar, Seal, Upper	1
▲	61	768100	Shroud Assy	1
▲	62	768591	Light, Flood, Side Brush	1
▲	63	31476	VR, Valve, Check, Valve, Hyd	1
▲	64	771020	Valve, Hyd, Cntrl, Flow, 24GPM	1
▲	65	39890	Washer, Flat, M8, Fendr	2
▲	66	39285	Screw, Hex, M10 X 1.5 X 40, 8.8	3
▲	67	763042	Washer, Flat, Belleville, M10	3
▲	68	08167	Nut, Hex, Stover, M12 X 1.75	6
▲	69	21916	Solenoid, 12VDC, Valve, Hyd [CEC]	1
▲	70	04415	Sealant, 06.0ML [PST]	1
▲	71	08317	Sealant [RTV]	1
▲	72	54333	Clamp, Hose, Wormdrive, 0.31-0.88D, .31W	2
▲	73	10632	Grommet, Rbr, 0.89ID, F/1.2H, .14 Matl	1
▲	74	63244-1	Fitting, Plstc, E90, BM08/PM08, PP	1
▲	75	762217	Valve, Water, Flow Cntrl	1
▲	76	762236	Knob, Star, 1.96D 4Ear 1.30L 0.33B	1
▲	77	762220	Fitting, Spray, Water	1
▲	78	762249	Fitting, Brs, Str, BM08/PM04	1
▲	79	376716	Hose, PVC, Brd, 0.50ID, 0.73OD, Bulk, Clr	1
▲	80	762221	Nozzle, Spray, Water	2
▲	81	762234	Cap, Nozzle, Spray, Ny	2

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