TENNANT INSTRUCTION BULLETIN

No. 340328
Machine: 7300/8300
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Rev. 04

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 386557**

SYNOPSIS / **PROBLEM:**

This kit contains the parts needed to install an ES™ kit on the 7300 model scrubber or 8300 model sweeper/scrubber.

Please follow step-by-step instructions.

SPECIAL TOOLS / **CONSIDERATIONS:** Chain Hoist of Lift

(Estimated time to complete: 3 hours)

PREPARATION:

1. Empty the solution and recovery tanks before working on the machine.

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

2. Open the top battery compartment cover, and secure in position with the cover support rod.
3. Disconnect the battery cables from machine.

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

4. Use a chain hoist or lift to remove the battery pack from machine.

NOTE: When servicing machine, use hoist or lift that will support the weight of the battery pack.

5. Raise the machine with a hoist or jack stands to work on the underside of the machine.

FOR SAFETY: When servicing the machine, block the machine tires before jacking the machine up.

FOR SAFETY: When servicing the machine, jack machine up at designated locations only. Block the machine up with jack stands.

FOR SAFETY: When servicing the machine, use a hoist or jack that will support the weight of the machine.

PUMP STRAINER ASSEMBLY INSTALLATION:

(Refer to FIG. 2, FIG. 4, FIG. 16, and FIG. 17)

1. Remove the plastic plug fitting from the tank bulkhead underneath the recovery tank. (Refer to FIG. 2)
2. Disassemble the bulkhead fitting and rubber washers and remove from the recovery tank. (Refer to FIG. 2)
3. Connect the new 90° plastic elbow fitting (30) to the top portion of the removed bulkhead fitting. (Refer to FIG. 4)
4. Use a hose clamp (29) to connect one end of the 28” vinyl hose (31) to the 90° plastic elbow fitting (30). (Refer to FIG. 4)
5. Reinstall the bulkhead fitting in the bottom of the recovery tank. Use the newly attached vinyl hose (31) to help guide it back into position. (Refer to FIG. 4)
6. Guide the open end of the vinyl hose up through the strainer support frame in the recovery tank and connect to the second 90° plastic elbow fitting (32) with a hose clamp (29). (Refer to FIG. 4)
7. Thread the ES™ pump strainer (33) onto the second 90° plastic elbow fitting (32). Set the ES™ pump strainer (33) in the strainer support frame. (Refer to FIG. 4)
8. Disconnect and remove the 8” tube and switch assembly from the recovery tank. (Refer to FIG. 2)
9. Install two plastic plugs (36) into holes the old level sensor tube and plug came from on top the tank. (Refer to FIG. 4)
10. Measure and mark two holes as shown in Fig. 16 on the inside of the tank. Measure from the bump for the insert to mark hole locations inside the tank.
11. Drill two 5/8” holes. Clean the rough edges from the holes. (Refer to FIG. 16)
12. Remove the nuts from the liquid level sensors (35). **Do Not** discard the nuts from the liquid level sensors since they are needed to install the liquid level sensors. (Refer to FIG. 4)
13. Before installing the liquid level sensors (35): Hold the sensor, oriented in mounting position, and use a black permanent marker to draw a line across the top of the threads. (Refer to FIG. 17)
14. Route the wires from the level sensors (35) through the switch protector holes in the float switch protector brackets (34). (Refer to FIG. 4)
15. Install the connectors and locks onto the liquid level sensor (35) wire terminals.
16. Install the liquid level sensors (35) from the inside of the tank, running the wires through each hole. (Refer to FIG. 4)
17. Install the nuts onto the liquid level sensors (35). Do not tighten. (Refer to FIG. 4)
18. Position each sensor so the narrow end of the float mechanism is pointed up and the black mark drawn on the threads earlier is on the top in the 12:00 position. (Refer to FIG. 4)
19. Tighten the nuts onto the liquid level sensors (35). (Refer to FIG. 4)

20. Draw a small black line in the 12:00 position on the outside of each level sensor mounting hole. Regularly check to ensure the black marks on the liquid level sensors (35) and the machine remain aligned. The float may not work properly if the sensor is twisted or rotated when the red filter is being serviced.
21. Connect the upper liquid level sensor (35) to the main harness connector mark “FULL”.
22. Connect the lower liquid level sensor (35) to the main harness connector mark “HALF”.

SOLENOID/PUMP ASSEMBLY INSTALLATION:

(Refer to FIG. 1 thru 15)

1. Use two hex screws (3) and two washers (2) to mount the solenoid/pump assembly to the frame underneath the machine. (Refer to FIG. 3)
2. Use two hex screws (8) to mount the ES™ AutoFill mounting bracket (7) to the front of the left rear fender. (Refer to FIG. 3 and 7)
3. Locate the middle 19” PVC hose (15) on the solenoid assembly. Place the back end of the quick connect assembly (4, 5 and 6) through the mounting bracket (7). Connect the open end of the 19” PVC hose to the quick connect assembly (4, 5 and 6) with a hose clamp (14). (Refer to FIG. 3,6 and 7)
4. Locate the plastic tee fittings connected to the bottom of the solution tank. Remove the plastic plug fitting from the side of the designated plastic tee fitting. (Refer to FIG. 1)
5. Replace the removed plastic plug fitting with a plastic elbow fitting (28). Use a hose clamp (14) to connect the plastic elbow fitting (28) to the open end of the 19” PVC hose (15) connected to the solenoid (21). (Refer to FIG. 3)
6. Install a plastic straight fitting (27) to the bottom of the bulkhead fitting located at the bottom of the recovery tank. Connect the 45° plastic fitting (26) to the straight fitting (27). (Refer to FIG. 3)
7. Locate the open end of 26” PVC hose (16) from the solution pump (9). Connect the PVC hose (16) to the 45° plastic fitting (26) with a straight fitting (17), and a hose clamp (14). (Refer to FIG. 3 and 8)
8. Connect the solution pump harness and the solenoid valve harness to the main electrical harness. (Refer to FIG. 12)
9. Route the 55” hose (50) from the solution pump (9) up through the frame and up along the back side of the solution tank. (Refer to FIG. 3, 4, 9 and 10)
10. Use a hose clamp (29) to connect the end of the 55” hose (50) to the top connection of the solution tank. (Refer to FIG. 4 and 9)
11. Secure the 55” hose (50) to the back of the solution tank with the cable clamp (53), hex screw (54), and cable ties (52). (Refer to FIG. 4, 9 and 10)
12. Remove the old filter from the inside of the solution tank and replace with a new strainer (47). (Refer to FIG. 1 and 4)
13. Remove the grommet and plug fitting from the solution tank pressure switch location, and replace with the 8” tube (49) and pressure switch assembly (48). (Refer to FIG. 1 and 4)
14. Connect the solution tank pressure switch harness to the main harness. (Refer to FIG. 10)

15. Route the 65” hose (51) from the solenoid (21) up through the frame and up along the back side of the recovery tank. (Refer to FIG. 3, 4 and 11)
16. Remove the cap from the hole in the back side of the recovery tank and guide the rest of the 65” hose (51) into the hole. (Refer to FIG. 4 and 11)
17. Lower the machine off the hoist.
18. Replace the solution tank cover assembly with the new solution tank drain assembly. (Refer to FIG. 1 and 5)
19. Mount the clean-out wand mounting clamps to the underside of the rear battery cover. Refer to the rework diagram in Fig. 15.
20. Mount the clean-out wand to the mounting clamps for storage. (Refer to FIG. 4)
21. Use a chain hoist or lift to replace the battery pack back into machine.
22. Close the rear battery compartment door and reconnect the battery cables to the machine.
23. Release the top cover support rod and close the top battery compartment cover.
24. Turn the machine power on.
25. Fill the solution and recovery tanks, ensure there are no leaks around the level sensors or other newly installed components, the water transfers from the recovery tank to the solution tank, and the vacuum fan shuts off and the squeegee raises. Check the ES system for proper operation.

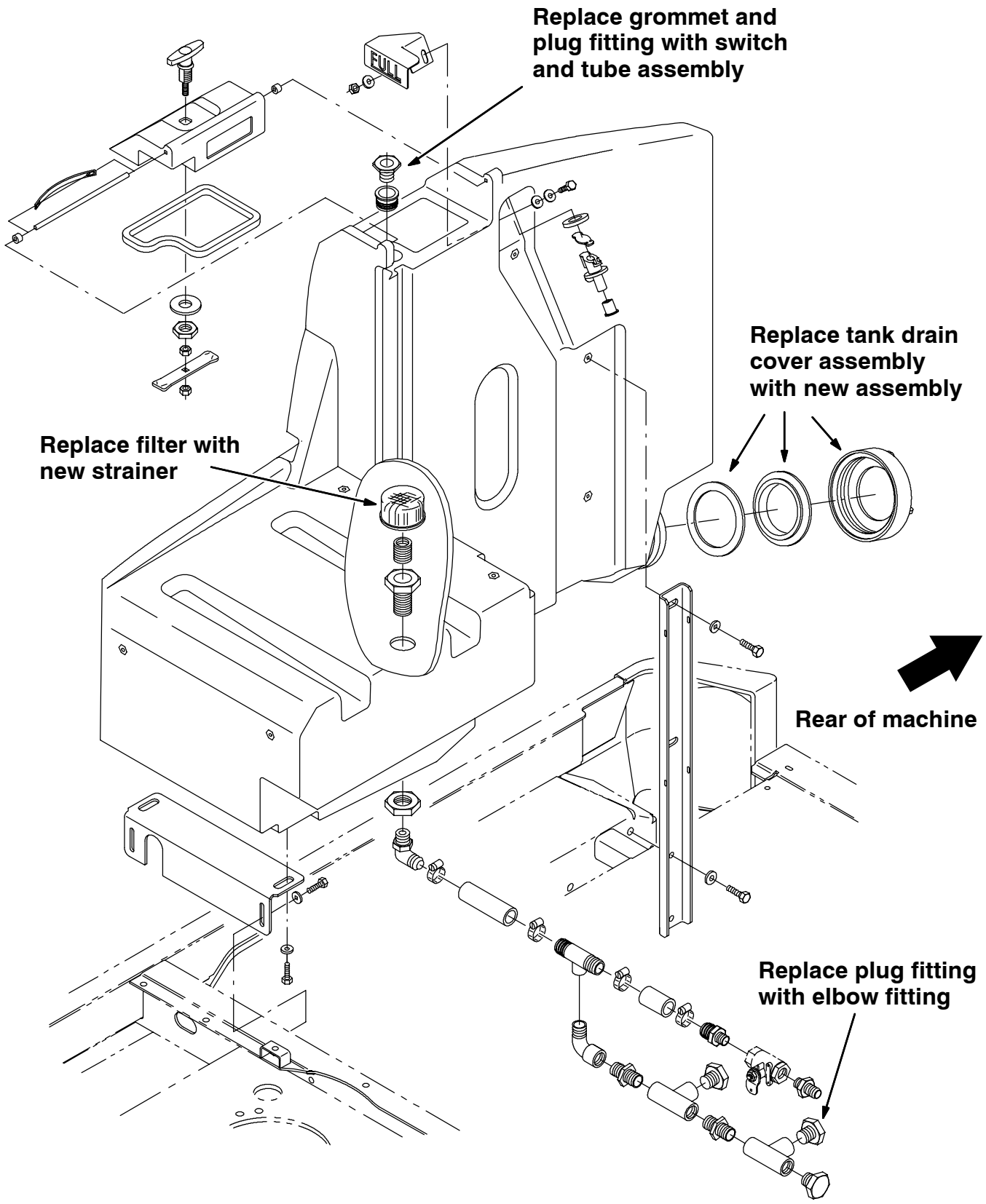


FIG. 1-Solution Tank Group

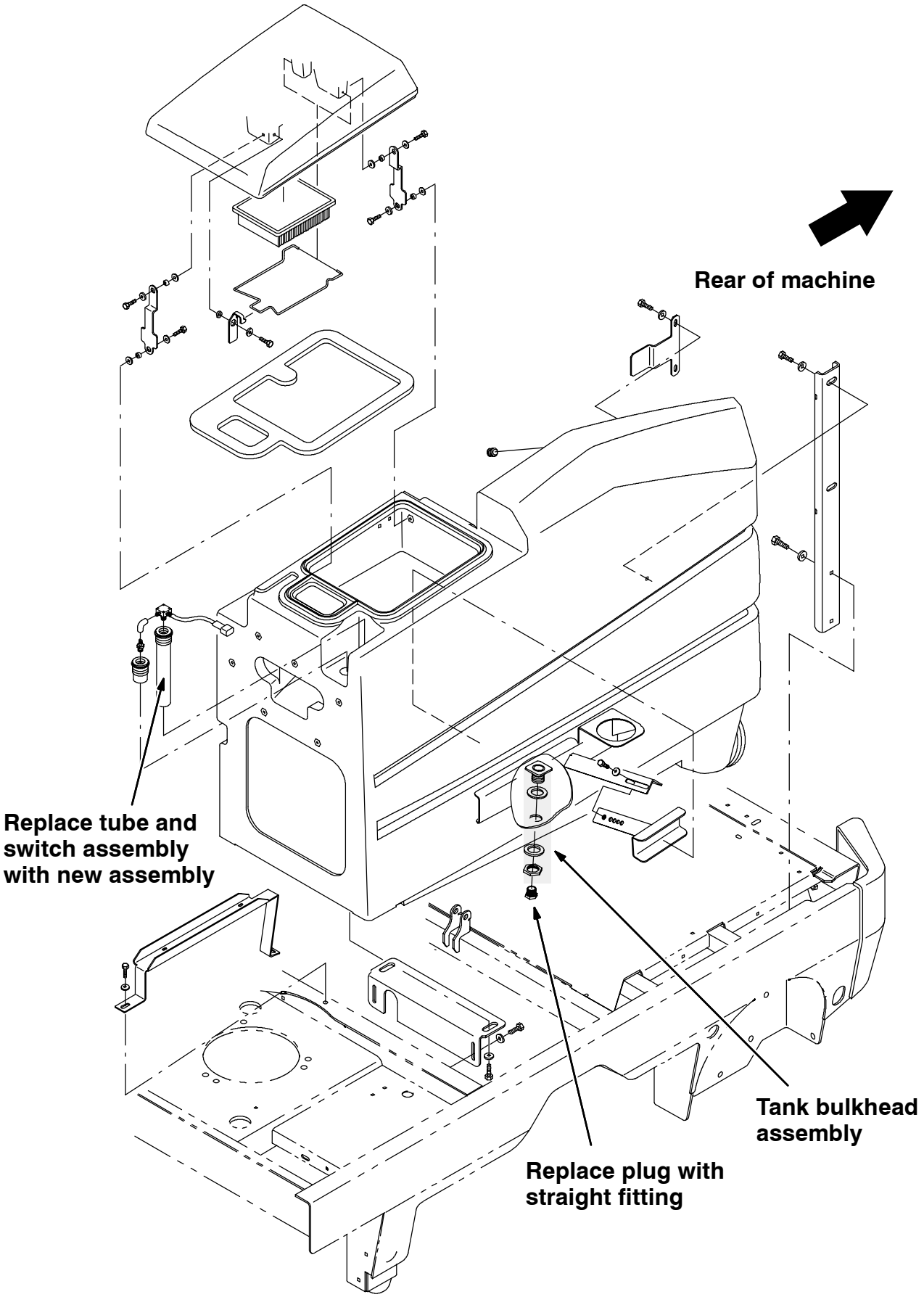


FIG. 2-Recovery Tank Group

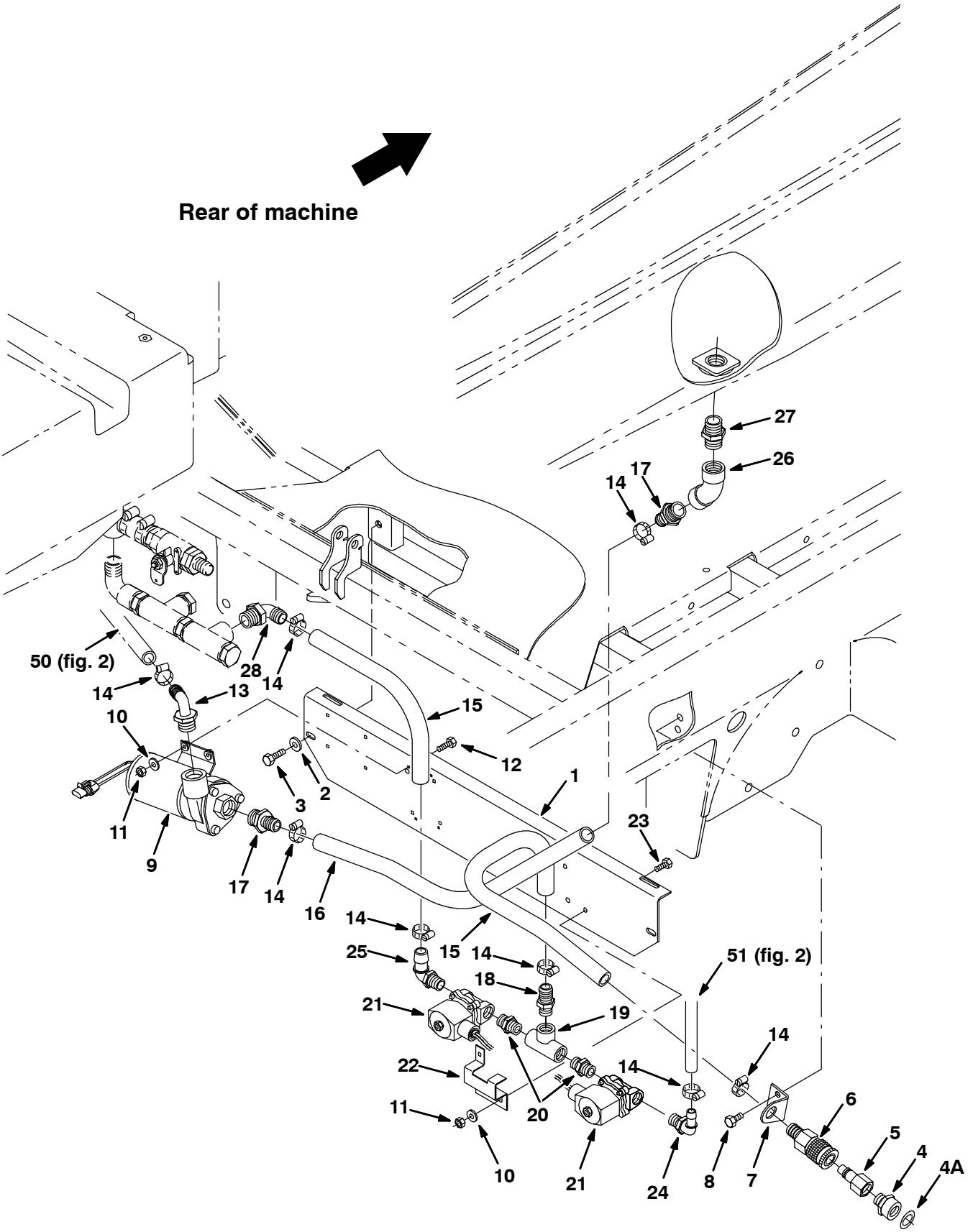


FIG. 3-ES™ Pump Group

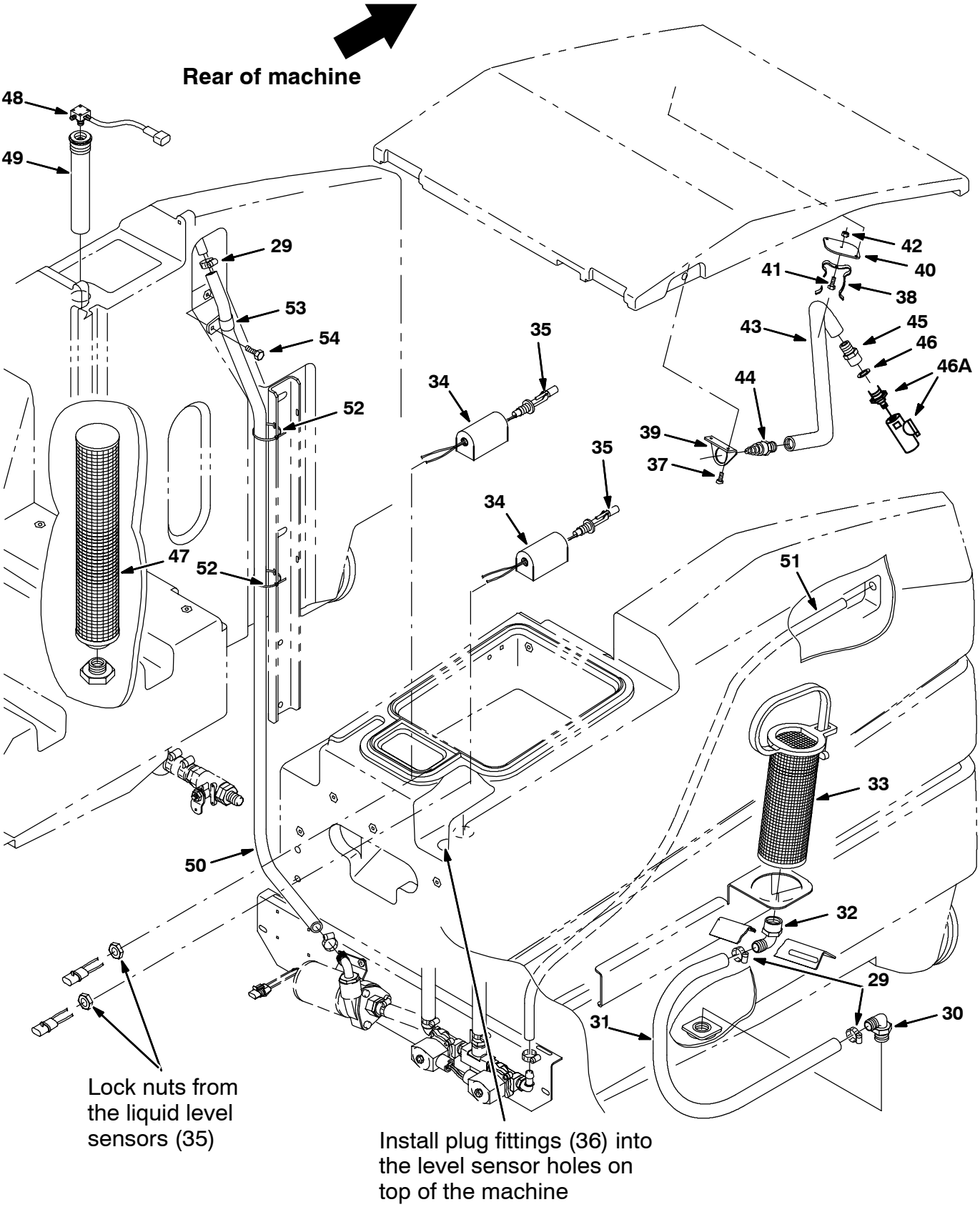


FIG. 4-ES™ Tank Assembly

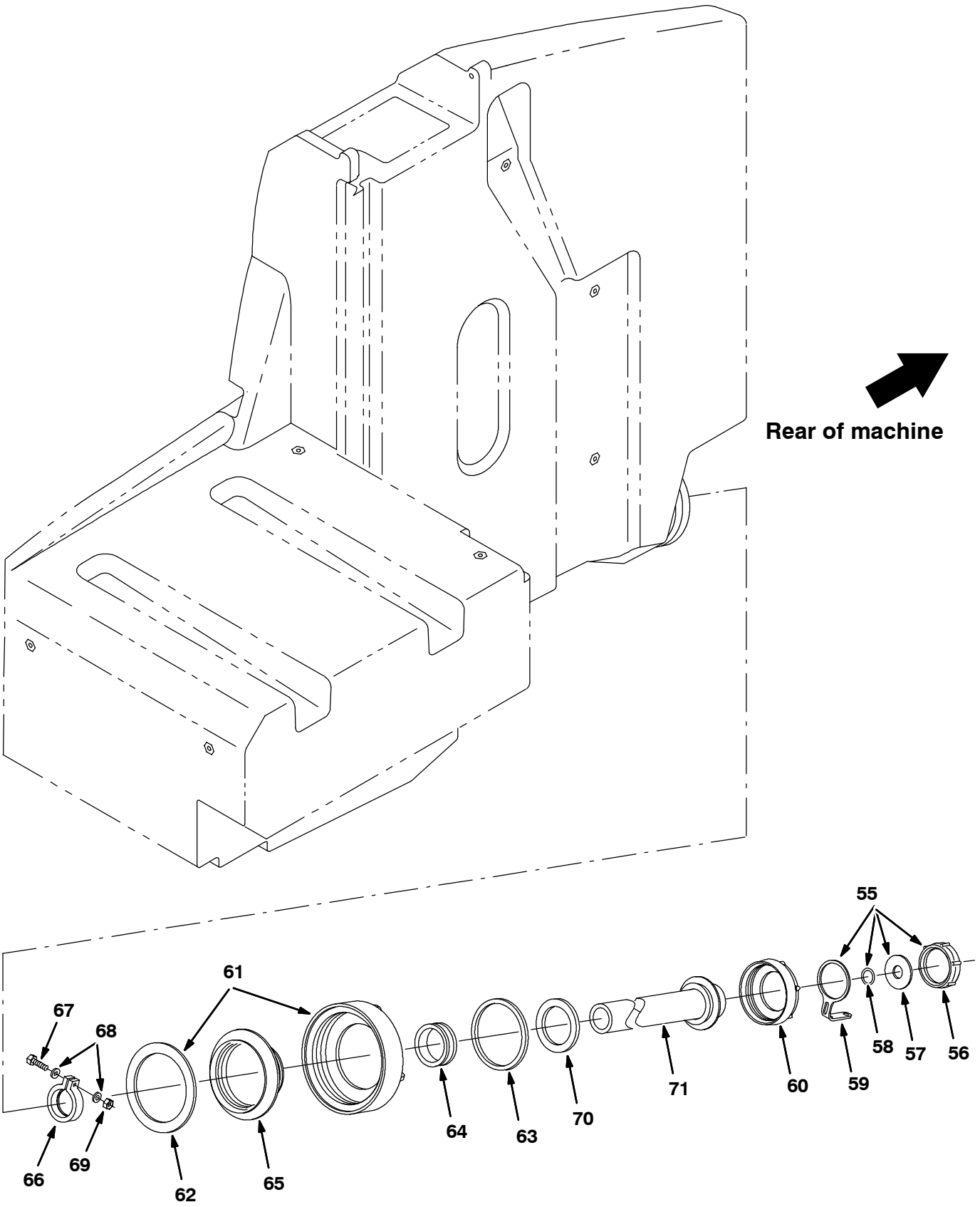


FIG. 5-ES™ Drain Assembly

Route the middle hose from the solenoid valve assembly over to the quick connect mounting bracket.

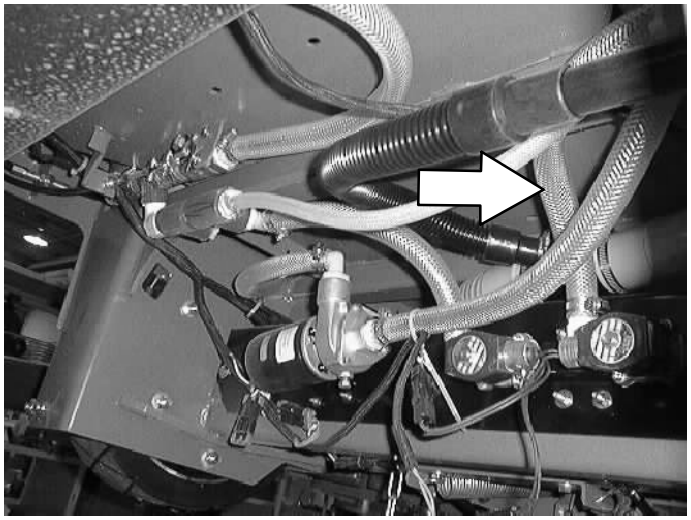


FIG. 6

Connect the middle hose from the solenoid valve assembly to the quick connect valve at the mounting bracket.

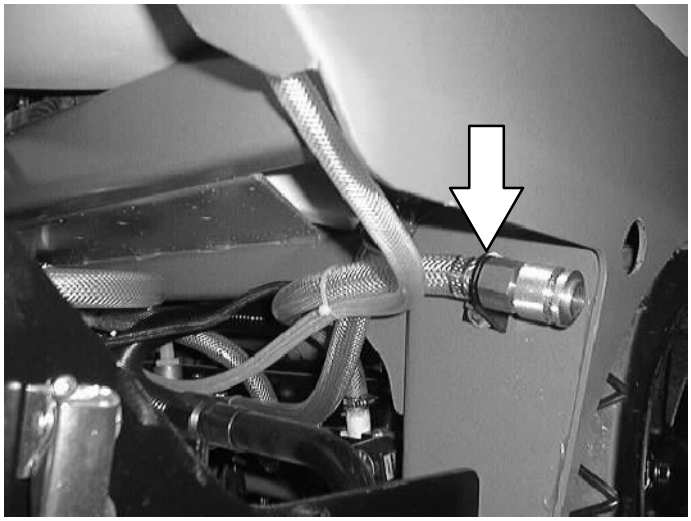


FIG. 7

Route the braided hose from the solution pump up to the 45° plastic fitting under the recovery tank.

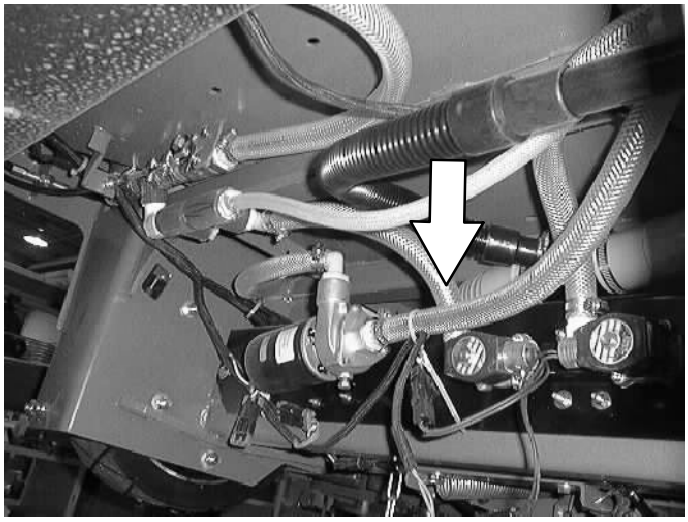


FIG. 8

Route the 55” hose (50) up through the frame and up along the back side of the solution tank.

Connect the hose with a hose clamp (29), and secure with a cable clamp (53).

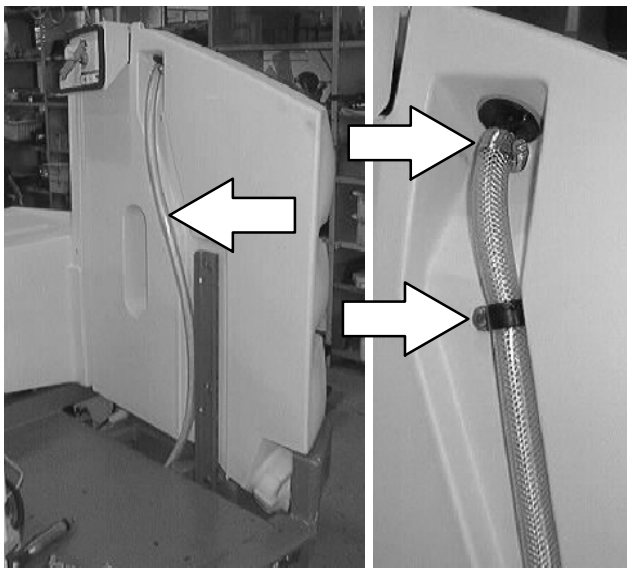


FIG. 9

Secure the hose (50) to the frame of the machine with cable ties (52).

Connect the new pressure switch harness to the main harness.

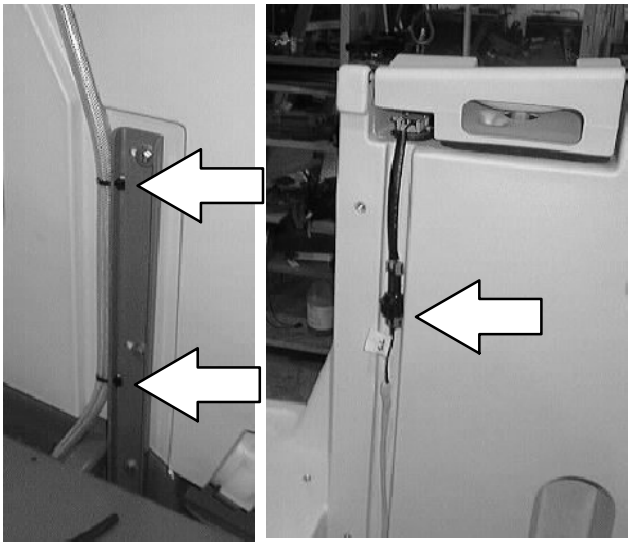


FIG. 10

Route the 65” hose (51) from the solenoid (21) up through the frame, and along the back side of the recovery tank.

Remove the cap plugging the hole, and route the hose into the hole in the back side of the recovery tank.

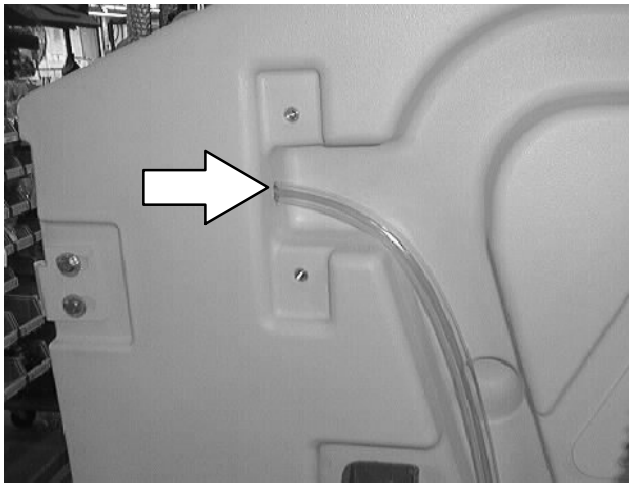


FIG. 11

Connect each solenoid/pump assembly harness to the main harness.

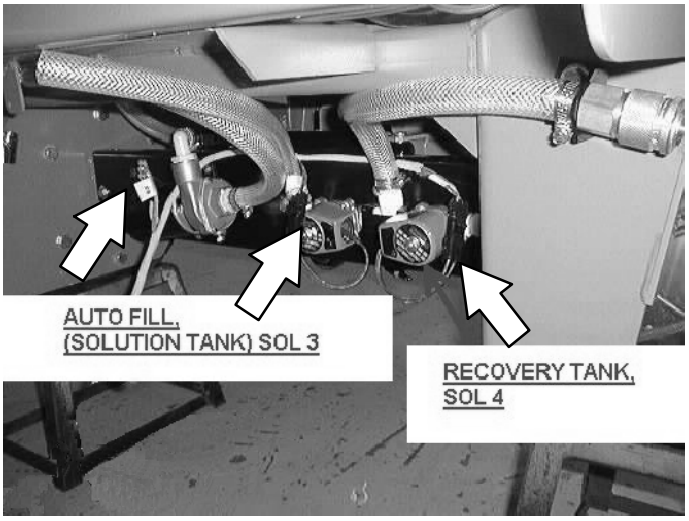


FIG. 12

Connect the half full switch harness to the main harness.

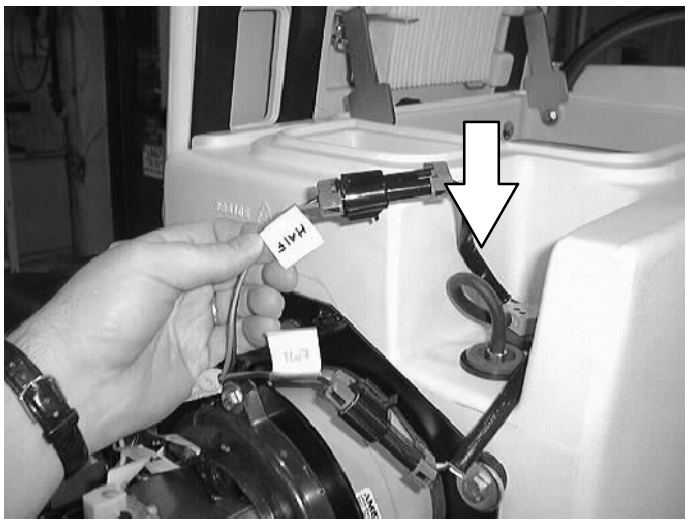


FIG. 13

Connect the full switch harness, opposite the half full switch, to the main harness.

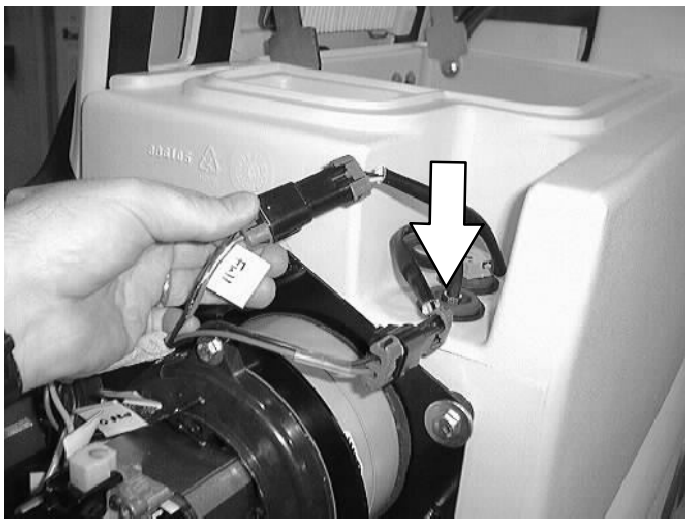


FIG. 14

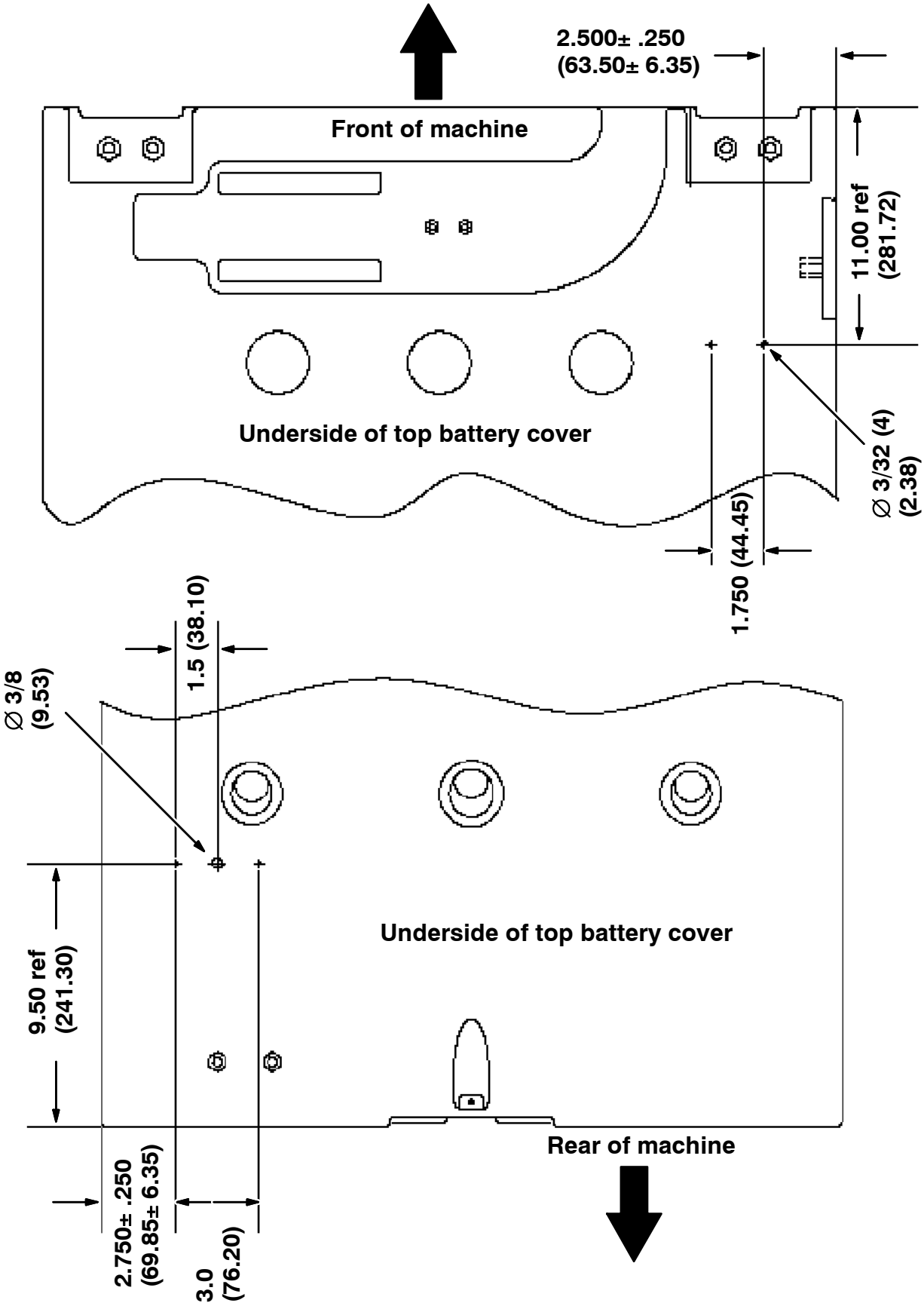


FIG. 15-CLEAN-OUT WAND MOUNTING CLIP MOUNTING LOCATIONS

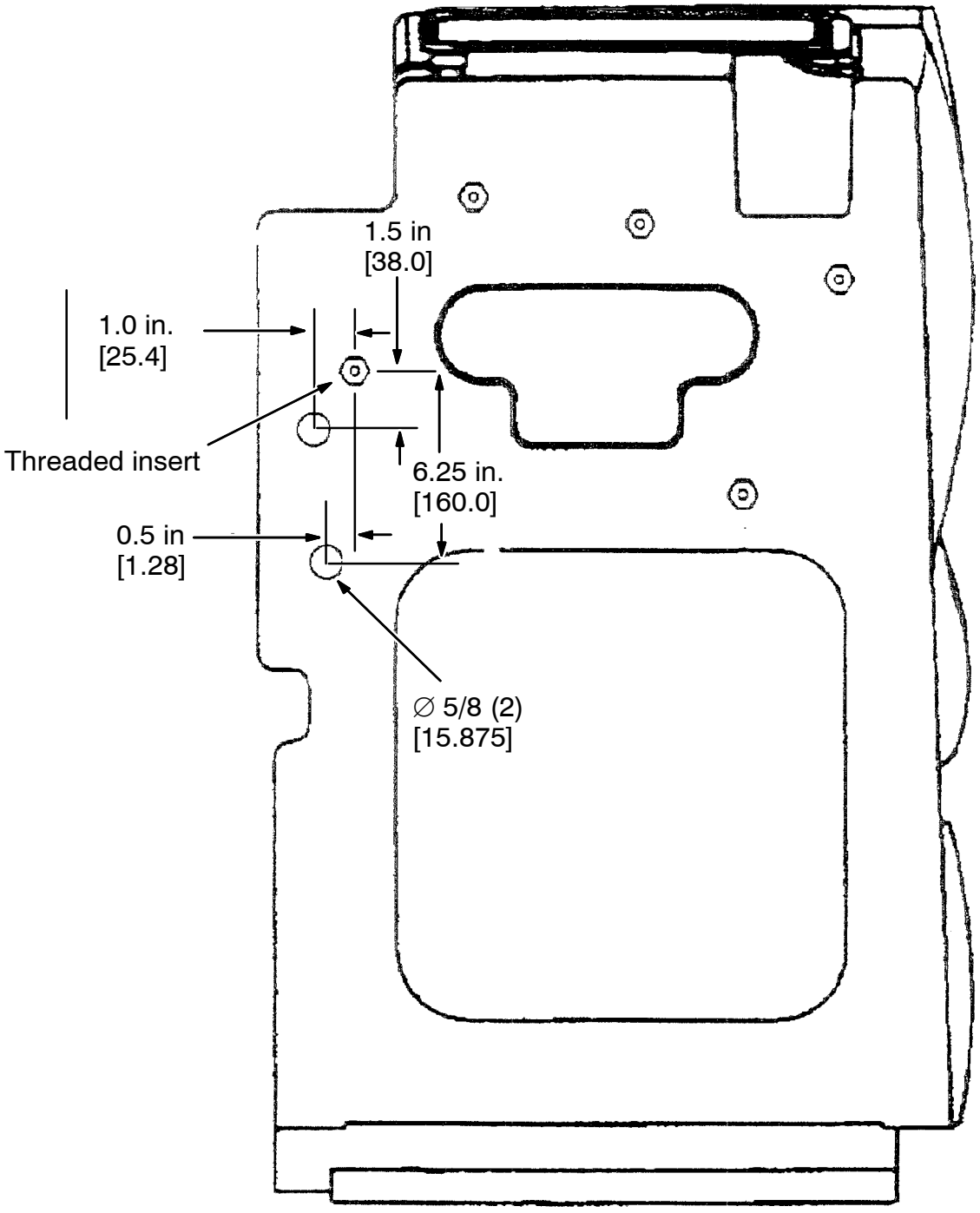
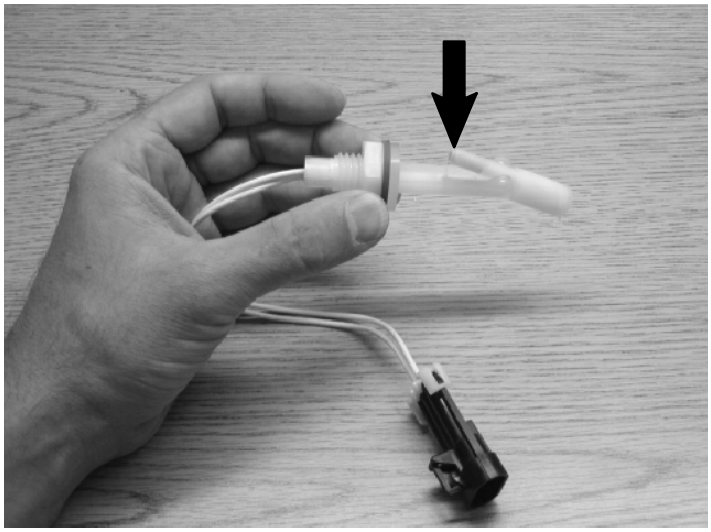


FIG. 16-TANK REWORK / HOLE LOCATIONS

Orient the float switch so the narrow end of the float mechanism is pointed up



Mark the top edge of the threaded end of the liquid level sensors (35) with a permanent marker to orient sensor on the machine. The top edge must be in the 12:00 position for the float to function properly.

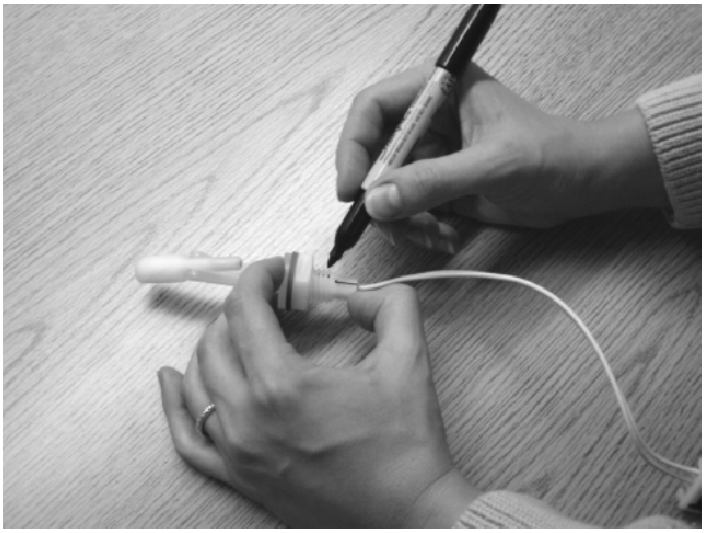


FIG. 17-FLOAT SWITCH ORIENTATION

BILL OF MATERIALS FOR FIG. 3, ES PUMP GROUP

Ref.	TENNANT Part No.	Description	Qty.
1	386392	Angle, mtg, ES	1
2	01685	Washer, flt, .31 SS	2
3	09010	Screw, hex, M08 X 1.25 X 25, SS	2
4	33294	Fitting, brs, str, PM08/Garden hose	1
4A	01316	Washer, rubber, 0.12 1.00D	1
5	33295	Fitting, qm, male,	1
6	24105	Fitting, brs, qdc, bm 12/Qf08	1
7	386394	Bracket, mtg, ES	1
8	15675	Screw, hex, M08 X 1.25 X 16, SS	2
9	369865	Pump, solution, impeller, 36vdc	1
10	01684	Washer, flt, .25 SS	7
11	08712	Nut, hex, lock, M06 X 1.0, NI, SS	7
12	09007	Screw, hex, M06 X 1.0 X 25, SS	4
13	73468	Fitting, plstc, E90, Bm10/ PM12	1
14	63810	Clamp, hose, wormdrive, 0.56-1.06d	6
15	73475	Hose, PVC, brd, 0.75 ID, 1.0 OD, 19.0L	2
16	385666	Hose, PVC, brd, 0.75 ID, 1.0 OD, 26.OL	1
17	79273-2	Fitting, plstc, str, bm12/pm12	2
18	78398	Fitting, plstc, str, bm12/pm08	1
19	79497	Fitting, plstc, tee, pf08/pf08/pf08	1
20	86508	Fitting, plstc, str, pm08/pm08	2
21	41410	Valve, solenoid, 36vdc	2
22	364545	Bracket, sppt, auto-fill	1
23	15678	Screw, hex, M06 X 1.0 X 16, SS	3
24	63244-1	Fitting, plstc, E90, bm08/pm08	1
25	63244-2	Fitting, plstc, E90, bm12/pm08	2
26	10575	Fitting, plstc, E45, pf12/pf12	1
27	24544	Fitting, plstc, str, pm12/pm12	1
28	14877	Fitting, plstc, E90, bm12/pm12	2

BILL OF MATERIALS FOR FIG. 4, ES TANK ASSEMBLY

Ref.	TENNANT Part No.	Description	Qty.
29	63810	Clamp, hose, wormdrive, 0.56–1.06d	3
30	14877	Fitting, plstc, E90, bm12/pm12	2
31	387266	Hose, vyl, brd, 0.75ID, 28.0L	1
32	24543	Fitting, plstc, E90, bm12/pf12	1
33	386652	Strainer, pump, ES™	1
34	1019285	Bracket, Protector, Float Switch	2
35	385685	Sensor, Level, Liquid, 14VDC 01A .62–11	2
36	49745	Fitting, Plstc, Plug, PM16	2
37	360943	Screw, pan. #10–14 X 0.75, f/plstc	4
38	67004	Clip, finger grip	1
39	387225	Angle, wand, clean–out	1
40	387226	Plate, wand, clean–out	1
41	09206	Screw, hex, M04 X 0.7 X 12, 8.8	1
42	02650	Nut, hex, lock, M04 X 0.7, NI	1
43	387109	Wand, clean–out	1
44	387159	Nozzle, water	1
45	387160	Fitting, plstc, str, 08pm, garden	1
46	387161	Washer, rbr, 68ID X 1.0OD	1
46A	382991	Valve, hose control, hose adapter	1
47	387045	Strainer, tank, solution	1
48	385732	Switch assy, press, 4 in	1
49	385744	Tube assy, 8 in	1
50	387236	Hose, vyl, brd, 0.62ID, 55.0L	1
51	222451	Hose, pvc, clr, 0.50ID, 0.69OD, 65.0L	1
52	49266	Tie, cable, nyl, 07.31, 0.19W, 1.8maxD	2
53	69234	Clamp, cable, stl, 1.0D X 0.62W, 1H	1
54	49826	Screw, hex, M08 X 1.25 X 16, SS, NL	1

BILL OF MATERIALS FOR FIG. 5, ES DRAIN ASSEMBLY GROUP

Ref.	TENNANT Part No.	Description	Qty.
55	32501	Kit, cap, drain	1
56	32613	Cap, tank, drain, 2.25 thread pye	1
57	32614	Gasket, cap	1
58	32669	Ring, retaining, ext, 0.75d, SS	1
59	32508	Strap	1
60	14880	Cap, tank, drain, 3.85 thread pye	1
61	223674	Cover, assy	1
62	375200	Gasket, lid	1
63	79320	Gasket, cap, drain	1
64	41421	Seal	1
65	14864	Cover, insert	1
66	41454	Clamp, hose, plstc, 1.60D X 0.62W	1
67	12316	Screw, hex, M05 X 0.8 X 25, SS	1
68	01683	Washer, flt, #10, SS	1
69	09739	Nut, hex, lock, M05 X 0.8, NL, SS	1
70	41451	Gasket, lid	1
71	386423	Hose assy, drain	1

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