



INSTRUCTION BULLETIN

No: 340635
Machine: Sentinel
Published: 05-2004
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 770173

SYNOPSIS / PROBLEM:

This kit contains the parts needed to install a vacuum wand kit on the Sentinel sweeper.
Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS:

1. Hand drill
2. 3/8" drill bit
3. 3/16" drill bit
4. 9/32" drill bit
5. 11/64" drill bit
6. Plastic pipe sealant
7. Rivet gun

(Estimated time to complete: 6 hours)

PREPARATION:

1. Ensure the hopper has been emptied of all debris.
2. Tilt the hopper all the way back.
3. Engage the hopper supports.

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

INSTALLATION OF CONVEYOR DOOR:

1. Use four hex screws (38), flat washers (20), and lock nuts (39) to install the RH (27) and LH (28) hinge mounting brackets to the top front edge of the conveyor assembly. Loosely tighten the RH (27) and LH (28) hinge mounting brackets into place. (Refer to Fig. 1)
2. Use four hex screws (38), flat washers (20), and lock nuts (39) to mount a hinge (29) to front of each bracket installed in the previous step. Loosely tighten hinges (29) into place. (Refer to Fig. 1)
3. Use four hex screws (36), flat washers (20), and lock nuts (39) to mount the conveyor door (26) onto the hinges (29). Loosely tighten the conveyor door (26) into place. (Refer to Fig. 1)
4. Align the edge of the conveyor door (26) with the front edge of the conveyor assembly. Tighten the hardware from previous three steps to 18-24 Nm (15-20 ft lb). (Refer to Fig. 1)
5. Use four hex screws (38), eight flat washers (20), and four lock nuts (39) to mount the brackets (48) onto the conveyor assembly. Loosely tighten the brackets (48) into place. (Refer to Fig. 1)
6. Use two rivets (37) and washers (6) to install two neoprene bumpers (30) onto the conveyor door (26). (Refer to Fig. 1)

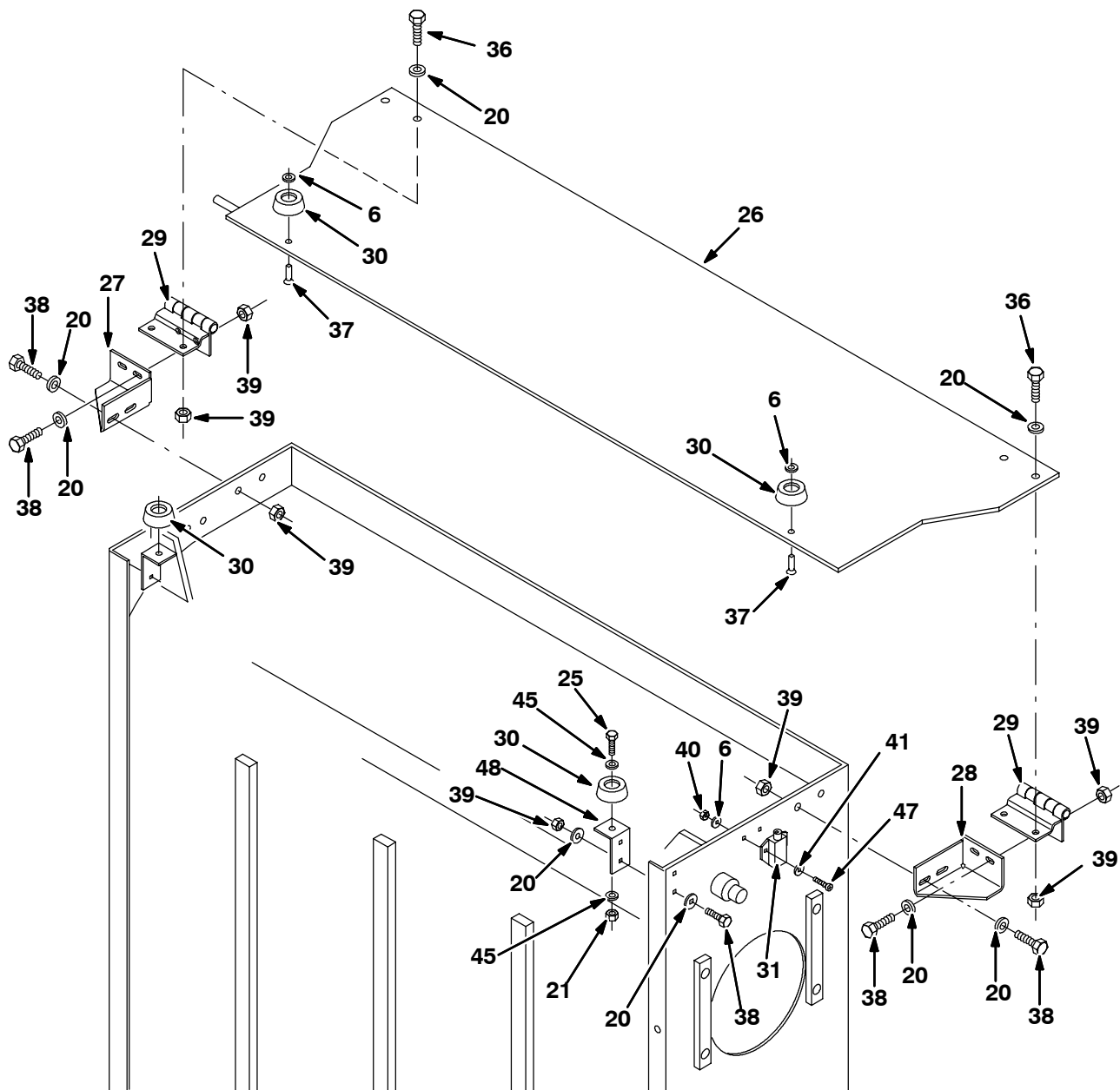


FIG. 1 - Conveyor Door Assembly

7. Use two hex screws (25), four flat washers (45), and two lock nuts (21) to install two neoprene bumpers (30) onto the brackets (48) installed in Step 5. (Refer to Fig. 1)
8. Install the micro switch (31) to the right side of the conveyor assembly. Hand tighten the two screws (47), lock washers (41), lock washers (6), and lock nuts (40). (Refer to Fig. 1)
9. Locate the main harness branch containing wire number 140/BLU and 13BY/BLK. This branch of the harness is tied up with main harness in the right side of the conveyor assembly.
10. Connect the 13BY/BLK and 140/BLU wires to the "NC" (normally closed) terminal on the micro switch (31).
11. Swing the conveyor door (26) up over the conveyor.
12. Move the micro switch (31) up until it touches the conveyor door (26). Listen for the click when these items touch.
13. Tighten the two screws (47) and lock nuts (40) installed in Step 8.

INSTALLATION OF THE VACUUM WAND TUBE ASSEMBLY:

1. The hopper dump door must be in the open position with the hooper down. (Refer to Fig. 2)
2. Locate the vacuum shutter located in the rear right side of the hopper above the hopper door. This shutter is sealed with RTV. Use a razor knife to cut the RTV away from the edge of the shutter. Ensure the shutter swings open smoothly. (Refer to Fig. 3)
3. Drill one $\frac{3}{8}$ " hole in the hopper dump door 1" up from the bottom tube and $7\text{--}\frac{3}{8}$ " over from point A. (Refer to Fig. 2)

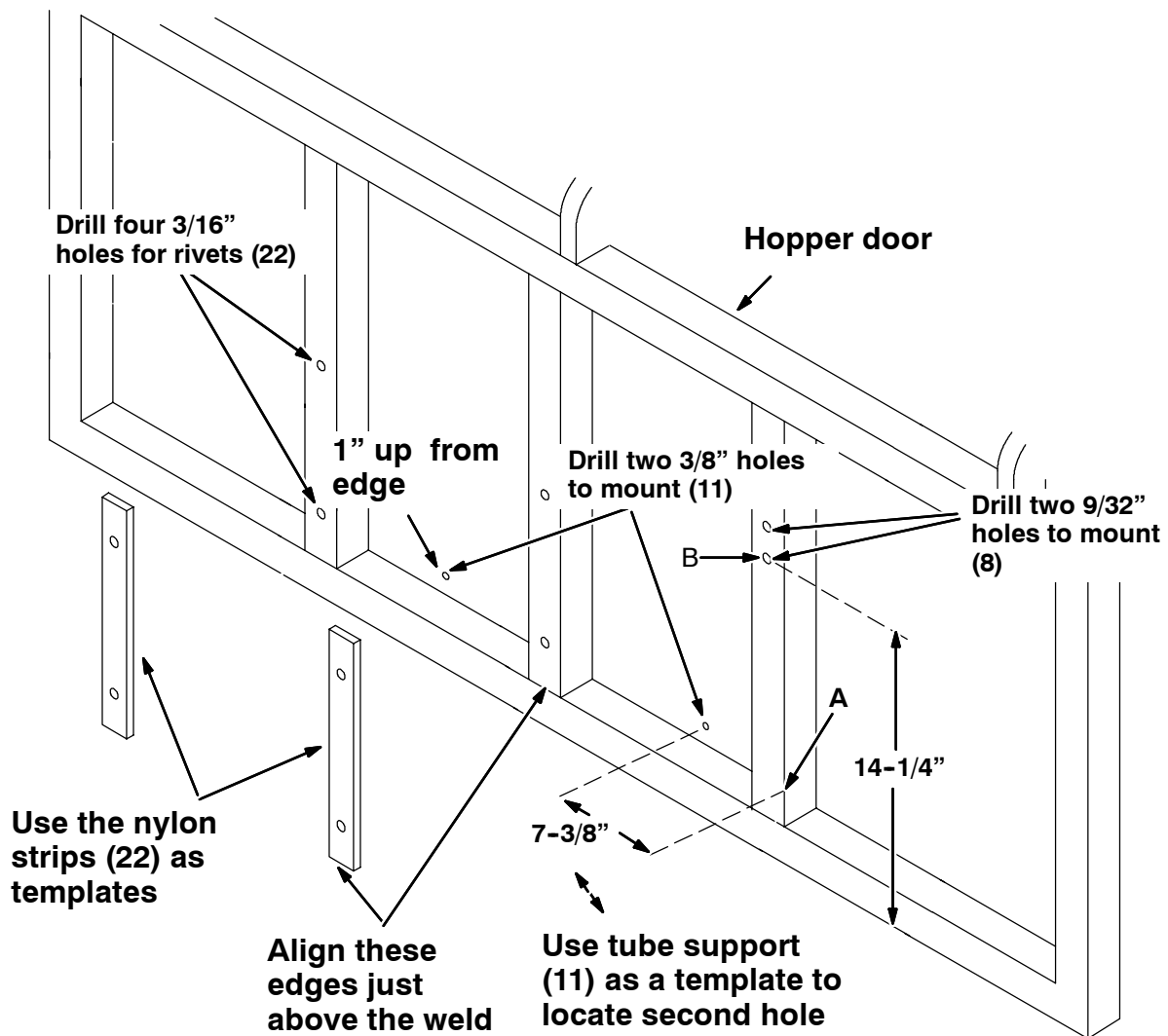


FIG. 2 - Mount Hole Locations In Hopper Door

4. Align a hole in the rear tube support (11) with the hole just drilled and then use the other hole in the tube support (11) and mark a second hole onto the left side of the dump door 1" up from the top of the bottom tube. Drill another $\frac{3}{8}$ " hole into the hopper dump door. (Refer to Fig. 2 and Fig. 3)
5. Use two hex screws (19), flat washers (20), and lock nuts (46) to install the tube support (11) to the hopper dump door. Tighten to 18–24 Nm (15–20 ft lb). Apply RTV around the nuts inside the hopper. (Refer to Fig. 3)
6. Use one nylon rub strip (15) as a template and center the strip on the center vertical tube. Align the bottom edge of the nylon strip (15) with the top edge of the weld. Mark both holes. Repeat this procedure on the vertical tube to the left of the center vertical tube. (Refer to Fig. 3)

7. Drill four 3/16" holes at the markings made in the previous step. (Refer to Fig. 3)
8. Use the four rivets (22) to attach the two nylon strips (15). (Refer to Fig. 2 and Fig. 3)
9. Use two hex screws (19) and flat washers (20) to install a vacuum hose support (13) to the lower set of tapped holes just above the vacuum tube inlet nozzle. Tighten the two hex screws (19) to 18–24 Nm (15–20 ft lb). (Refer to Fig. 3)
10. Place the vacuum wand hose boom (7) on the vacuum hose support (13) installed in the previous step. Use two hex screws (19) and flat washers (20) to install the other vacuum hose support (13) to the upper set of tapped holes. Tighten the two hex screws (19) to 18–24 Nm (15–20 ft lb). (Refer to Fig. 3)
11. Drill one 9/32" hole into the hopper dump door 14 1/2" up from the bottom tube and centered on the vertical tube–point B. (Refer to Fig. 2)
12. Use the retainer (8) as a template, center the bottom hole in the retainer (8) on the hole drilled in the previous step, and mark the point where the the top hole in the retainer (8) is positioned. (Refer to Fig. 2 and Fig. 3)
13. Drill another 9/32" hole into the hopper dump door. (Refer to Fig. 2)
14. Slide a hose clamp (9) onto one end of the vacuum hose (14). (Refer to Fig. 3)
15. Install one end of the vacuum hose (14) to the vacuum inlet nozzle on the back of the hopper and loosely tighten the hose clamp (9) to secure the vacuum hose (14) to the vacuum inlet nozzle . (Refer to Fig. 3)
16. Use two vacuum wand straps (16), two hex screws (25), four flat washers (20), and two lock nuts (21) to attach the vacuum hose (14) to the boom (7). Rotate the hose (14) so it flows neatly from the hopper, up the boom, and out to the end where the vacuum wand (4) will be installed. Tighten both hex screws (47) to 18–24 Nm (15–20 ft lb). (Refer to Fig. 3)
17. Tighten the hose clamp (9) left loose in Step 15. (Refer to Fig. 3)
18. Slide a hose clamp (9) onto the other end of the vacuum hose (14). (Refer to Fig. 3)
19. Install the vacuum wand (4) onto the end of the vacuum hose (14). Use the hose clamp (9) to secure the vacuum hose (14) onto the vacuum wand (4). Hand tighten the hose clamp (9). (Refer to Fig. 3)
20. Use a rivet (5) to install the wand adapter tube (2) onto the vacuum wand (4). (Refer to Fig. 3)
21. Slide a clamp (49) onto the end of the vacuum wand rubber nozzle (3). (Refer to Fig. 3)
22. Install the vacuum wand rubber nozzle (3) onto the wand adapter tube (2) and tighten the clamp (49) enough to hold the vacuum wand rubber nozzle (3) firmly on the wand adapter tube (2). (Refer to Fig. 3)
23. Install the vacuum hose support bracket (1) and the retainer (8) onto the hose (14) and use two hex screws (23) and washers (24) to secure the vacuum hose support bracket (1) and the retainer (8) into place on the hopper door. (Refer to Fig. 2 and Fig. 3)
24. Install one cable (12) and a hair cotter pin (17) onto the left side of the support tube bracket (11). (Refer to Fig. 3)
25. Install the chain snap (10) onto the other cable (12). (Refer to Fig. 3)

26. Clip the chain snap (10) into the hole in the lower left bottom flange of the fan cover. (Refer to Fig. 3)

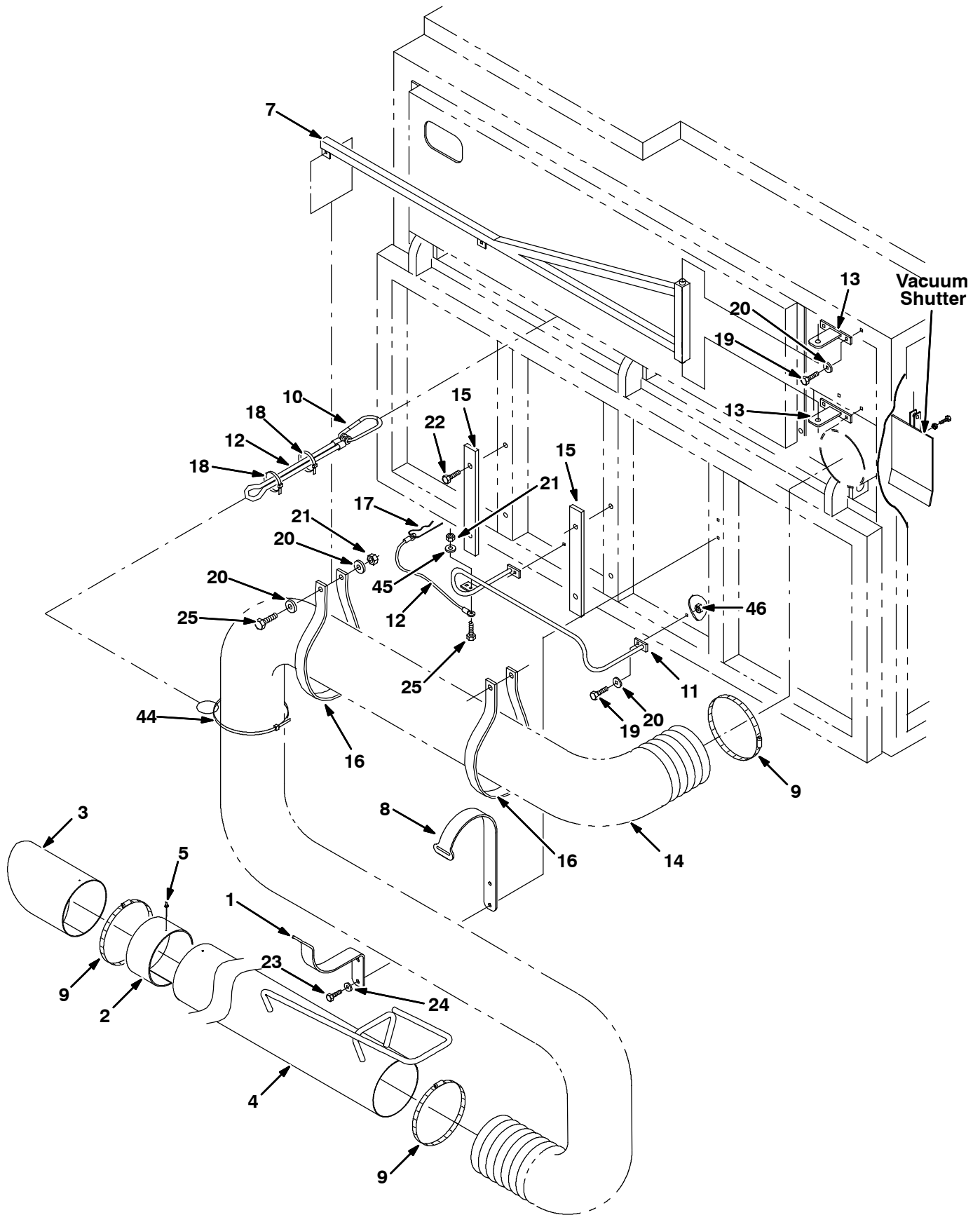


FIG. 3 - Vacuum Hose Assembly

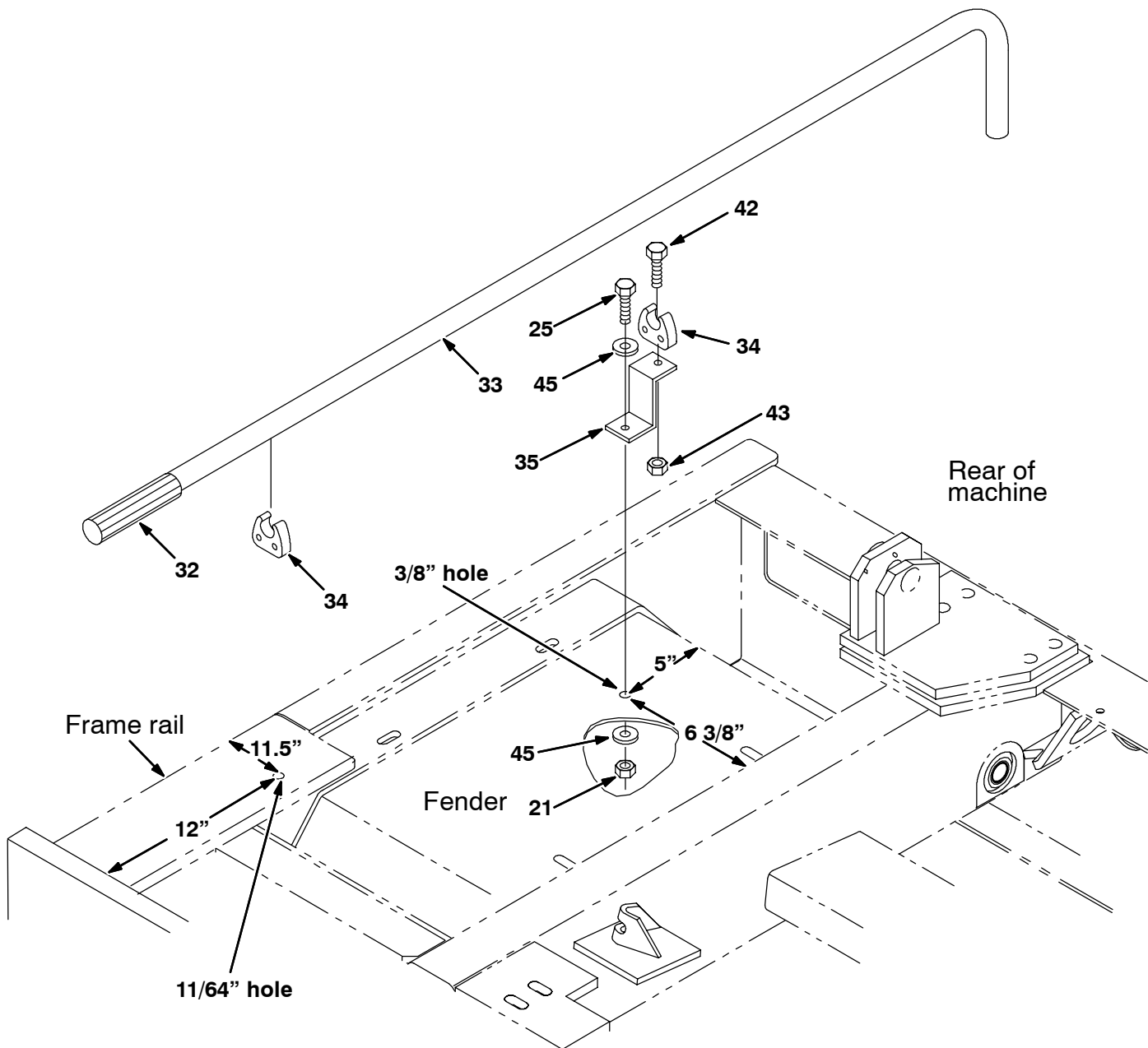


FIG. 4 - Tool Mount Holes

INSTALLATION OF CONVEYOR DOOR TOOL MOUNT:

(Refer to FIG. 4 and 5)

1. Drill a 3/8" hole in the right rear fender. Refer to the dimensions provided in Fig. 4.
2. Drill a 11/64" hole in the right rear frame rail. Refer to the dimensions provided in Fig. 4.
3. Use a M5 tap to tap the 11/64" hole drilled into the right rear frame rail in the previous step.
4. Use a hex screw (25), two flat washers (45), and a lock nut (21) to mount the clip mount bracket (35) to the hole in the fender. (Refer to Fig. 4)
5. Use a pan screw (42) and lock nut (43) to mount a finger grip clip (34) to the clip mount bracket (35) and the hole in the frame rail. (Refer to Fig. 4)
6. Install the conveyor door tool (33) and grip (32) into the clips (34). (Refer to Fig. 4)

7. Use the tool (33) to flip the conveyor door over the opening of the conveyor assemble. (Refer to Fig. 5)

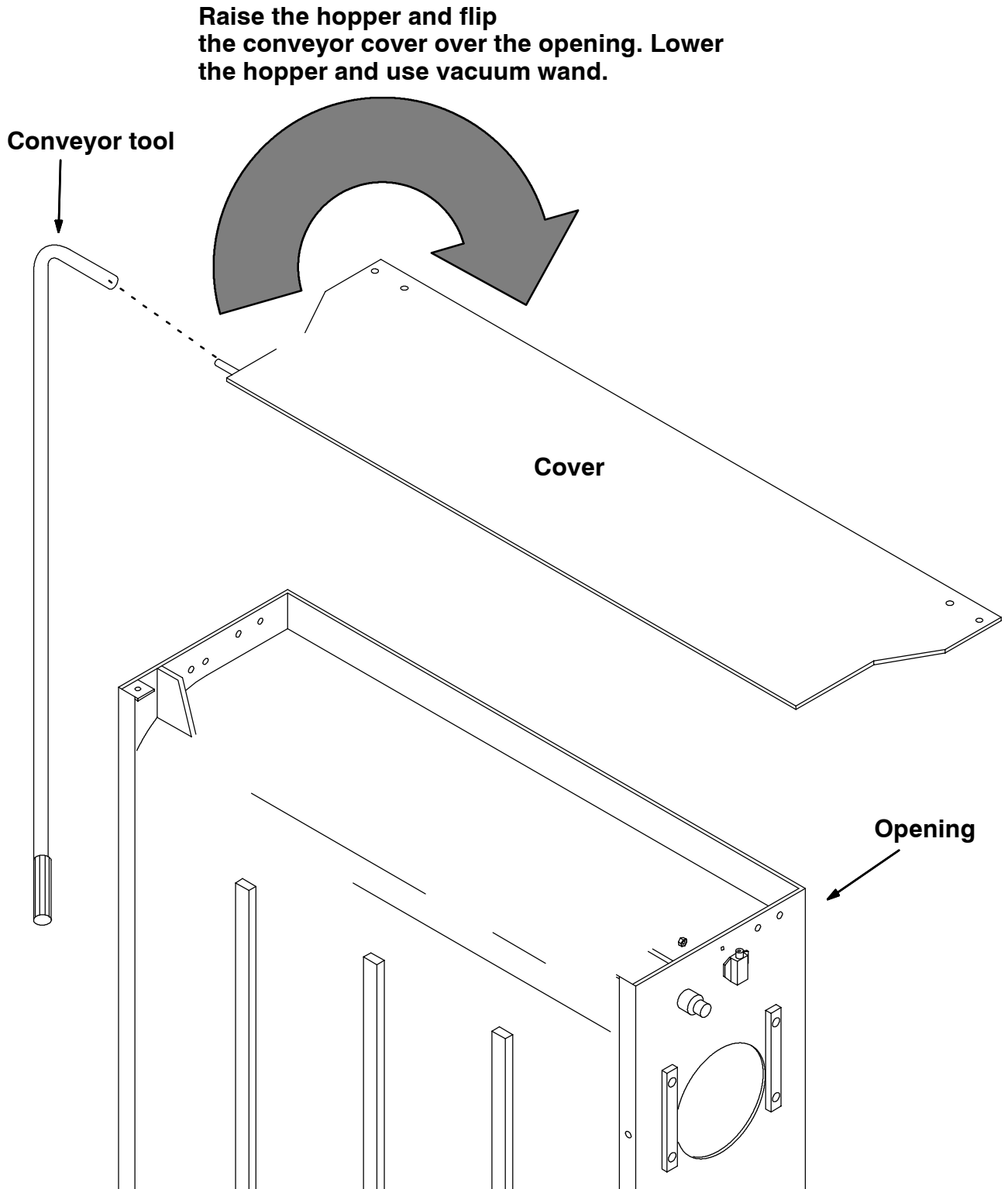


FIG. 5 - Flip The Conveyor Door To Operate Vacuum Wand

Bill of Materials for Wand Kit, Vacuum, CI (770173)

Ref.	Tennant Part No.	Description	Qty.
▽	770173	Wand Kit, Vacuum, CI	1
▲	1 760591	Bracket, Sppt, Hose, Vacuum	1
▲	2 770682	Tube, Adaptor, Wand	1
▲	3 770696	Nozzle, Rubber, Vac Wand	1
▲	4 765650	Wand, Vacuum, Extended	1
▲	5 763075	Rivet, Blind, .156d X 0.71 X .31d	5
▲	6 19065	Washer, Flat, #08	4
▲	7 770155	Boom Wldt, Vacuum Wand	1
▲	8 768717	Retainer	1
▲	9 763212	Clamp	2
▲	10 761233	Chain, Snap	1
▲	11 760991	Tube Wldt, Sppt, Rear	1
▲	12 57702	Cable, .06d, 12.0l, .26eye /.26eye	2
▲	13 760507	Support, Hose, Vacuum	2
▲	14 760509	Hose	1
▲	15 760640	Strip, Nylon, 0.38 01.5w 11.8b 2/.2h	2
▲	16 760649	Strap, Wand, Vacuum	2
▲	17 761490	Pin, Hair Cotter	1
▲	18 763114	Tie, Cable, 11.3L, 2.75D Max	2
▲	19 09010	Screw, Hex, M8 X 1.25 X 25, SS	6
▲	20 32490	Washer, Flat, 0.25 Std	34
▲	21 08708	Nut, Hex, Lock, M6 X 1.0, NL	4
▲	22 68567	Rivet, Blind, .188D X 0.53 X .62D, ALM	4
▲	23 763045	Screw, Hex, M8 X 1.25 X 20, FMG	2
▲	24 763041	Washer, Belleville, M08	2
▲	25 06943	Screw, Hex, M6 X 1.0 X 20, 8.8	5
▲	26 760726	Door, Weldt Vacuum Door	1
▲	27 1014045	Bracket, Mtg, Hinge, Rh	1
▲	28 1014044	Bracket, Mtg, Hinge, Lh	1
▲	29 1013454	Hinge, .31pin .15, Offset, 3.5l 4/0.34h	2
▲	30 364614	Bumper, Rubber Recessed	4
▲	31 1010413	Switch, Micro	1
▲	32 03292B	Grip, Handle-Rnd .72ld X 5.0L	1
▲	33 760653	Tube, Vac Wand Door	1
▲	34 760660	Clip, Finger Grip	2
▲	35 760661	Bracket, Clip Mount	1
▲	36 16931	Screw, Hex, M8 X 1.25 X 20, 8.8	4
▲	37 763127	Rivet, Blind, .188D X 0.69 X .62D	2
▲	38 39277	Screw, Hex, M8 X 1.25 X 25, 8.8	12
▲	39 08709	Nut, Hex, Lock, M8 X 1.25, NL	16
▲	40 02850	Nut, Hex, Lock, M4 X 0.7, NL	2
▲	41 32978	Washer, Lock, Int, #08	2
▲	42 06935	Screw, Pan, M5 X 0.8 X 25, 4.8	2
▲	43 06549	Nut, Hex, Lock, M5 X 0.8, NL	2
▲	44 32815	Tie, Cable, Nyl, 28.5L .50W Max D	1
▲	45 19066	Washer, Flat, #10	6
▲	46 08713	Nut, Hex, Lock, M8 X 1.25, NL, SS	2
▲	47 06928	Screw, Pan, M4 X 0.7 X 20, 4.8	2
▲	48 1007738	Bracket	2
▲	49 49891	Clamp	2

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