



# INSTRUCTION BULLETIN

No. 9008961  
Machine: Sentinel  
Published: 07-2015  
Rev. 01

**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.*

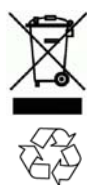
Installation instructions for **kit number 9008962**

## SYNOPSIS:

This kit contains the parts needed to replace the auto-lube pump on Sentinel sweepers (machines serial numbers 009033 and below).  
Please follow step-by-step instructions.

## SPECIAL TOOLS / CONSIDERATIONS: NONE

(Estimated time to complete: 4 hours)



### PROTECT THE ENVIRONMENT

Please dispose of packaging materials, used machine components such as batteries and fluids in an environmentally safe way according to local waste disposal regulations.

Always remember to recycle.

## PREPARATION:

1. Park the machine on a clean level surface, turn off the machine, set the parking brake, and remove the key.

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

2. Disconnect the battery cables from the battery.



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

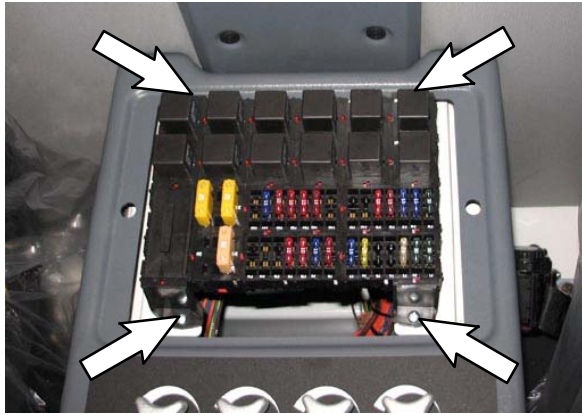
## INSTALLATION:

1. Remove the cover from the fuse compartment. Set the cover aside. (Fig. 1)



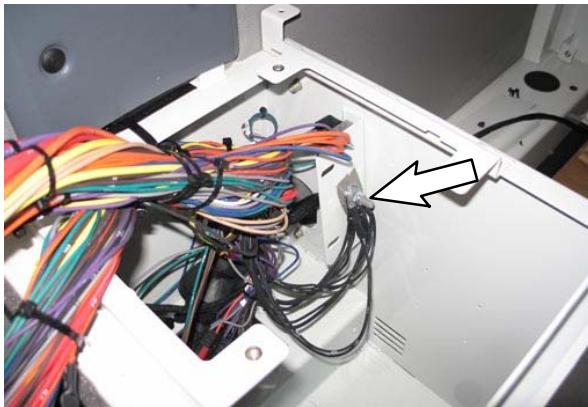
FIG. 1

2. Remove the hardware securing the fuse panel to the console and set the hardware aside. (Fig. 2)



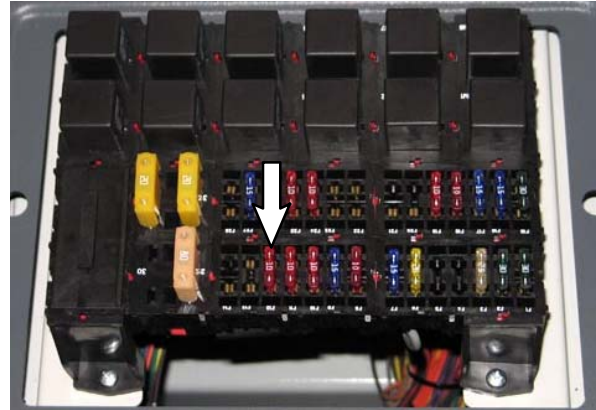
**FIG. 2**

3. Carefully pull the fuse panel away from the console until it is possible to access the ground and connection underneath the panel. Do not break any wire connections when pulling the fuse panel from the console.
4. Cut the existing auto-lube harness from fuse 12 and 23 in the fuse panel. Leave 6 in. of wire still attached to both fuses.
5. Tape off the end of the 6 in. wire from fuse 12.
6. Remove the existing auto-lube harness ground wire from the ground stud and push the end of the harness down through the hole at the bottom of the electrical box. (Fig. 3)



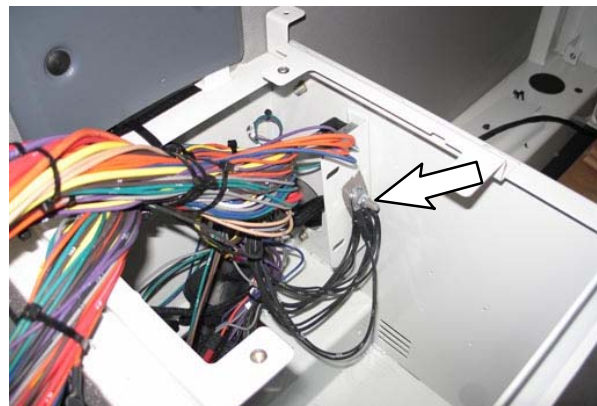
**FIG. 3**

7. Remove the fuse from fuse panel location 12. (Fig. 4)



**FIG. 4**

8. Install a splice connector (17) onto the end of the red wire of the auto-lube harness included with the pump assembly (1).
9. Install a ring terminal (18) onto the end of the black wire of the auto-lube harness included with the pump assembly (1).
10. Tilt the cab of the machine forward. Refer to TILT THE CAB FORWARD at the end of this IB (Instruction Bulletin) for instructions how to safely tilt the cab forward.
11. Route the auto-lube harness included with the pump assembly (1) up into the electrical box.
12. Neatly tie off the ends of the remaining wires from the auto-lube harness included with the pump assembly (1).
13. Connect the auto-lube harness included with the pump assembly (1) to the machine ground and the 6 in. wire from fuse 23 in the fuse panel. (Fig. 5)

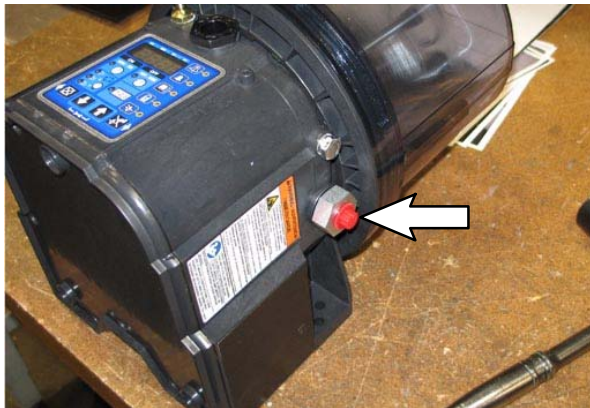


**FIG. 5**

14. Reinstall the fuse panel onto the console.

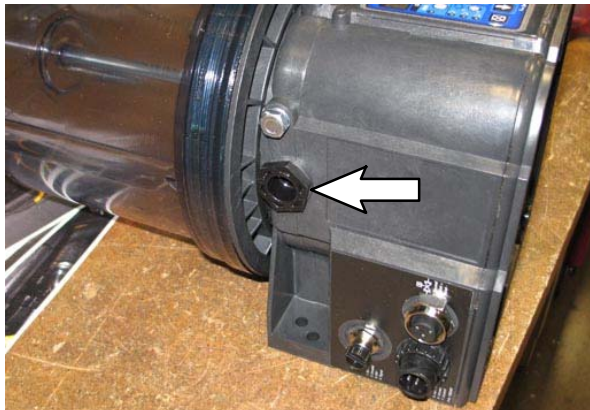


15. Disconnect the grease dispensing hose from the auto-lube dispensing pump.
16. Disconnect all wire / cable connections from the auto-lube dispensing pump.
17. Remove the auto-lube pump from front of the hydraulic tank. Discard removed hardware.
18. Remove the fill stud and gauge from the auto-lube pump removed from the machine in the previous step. Discard the auto-lube assembly.
19. Remove the steel fitting from the pump assembly (1). (Fig. 6)



**FIG. 6**

20. Remove the plastic plug from the other side of the pump assembly (1). (Fig. 7)



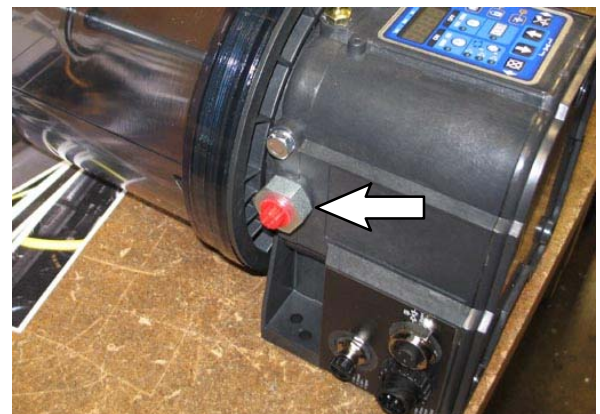
**FIG. 7**

21. Install the plastic plug removed in the previous step into the port where the steel fitting was previously located in the pump assembly (1). (Fig. 8)



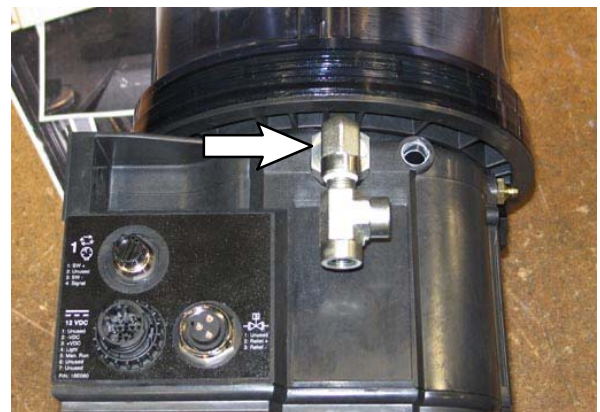
**FIG. 8**

22. Install the steel fitting into the port where the plastic plug was previously located in the pump assembly (1). (Fig. 9)



**FIG. 9**

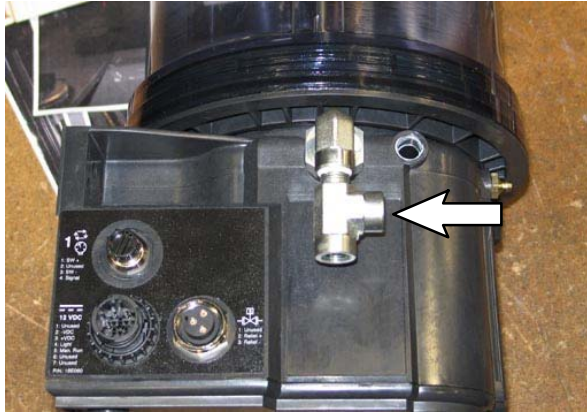
23. Install the 90° fitting (4) into the steel fitting on the pump assembly (1). (Fig. 10)



**FIG. 10**

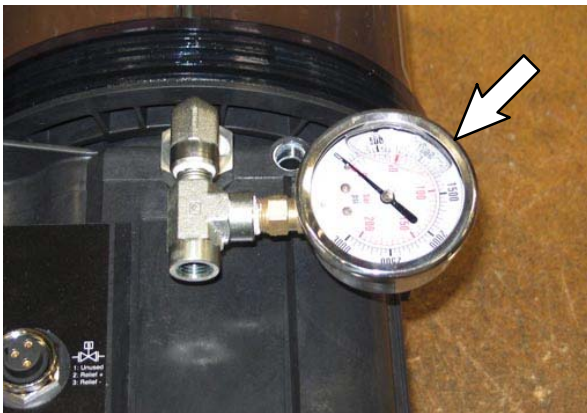


24. Install the t-fitting (5) onto the 90° fitting (4) installed in the previous step. (Fig. 11)



**FIG. 11**

25. Install the gauge removed from the old auto-lube pump onto the t-fitting (5) installed in the previous step. (Fig. 12)



**FIG. 12**

26. Install the 90° fitting (7) onto the t-fitting (5). Note angle of the 90° fitting on the t-fitting. (Fig. 13)



**FIG. 13**

27. Remove the hex plugs from the ports located on each side of the pump assembly (1). (Fig. 14)



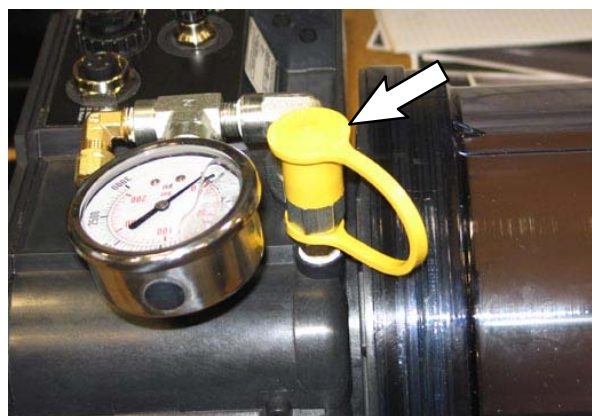
**FIG. 14**

28. Install a straight fitting (6) into the vent port on the side of the pump assembly (1) where the plastic plug is installed. (Fig. 15)



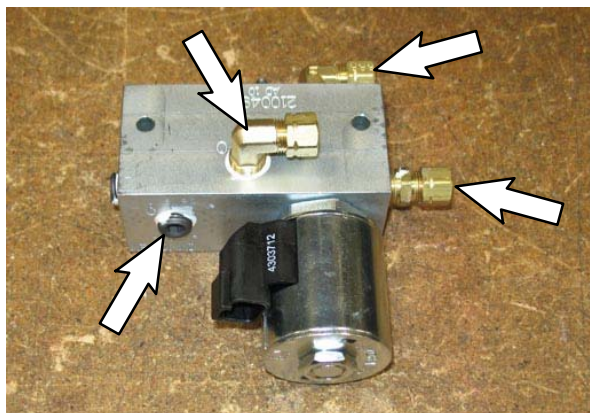
**FIG. 15**

29. Install the fill tube removed from the old pump into the fill port on the pump assembly (1). (Fig. 16)

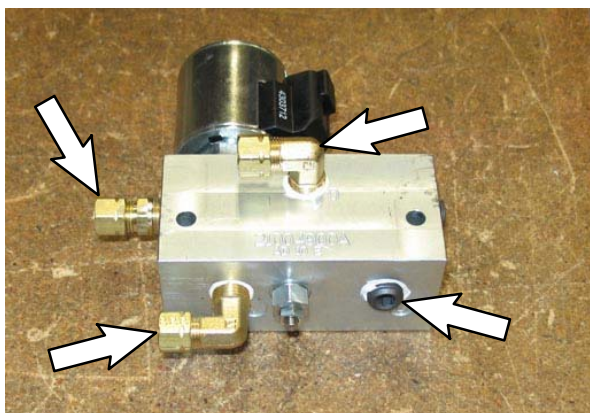


**FIG. 16**

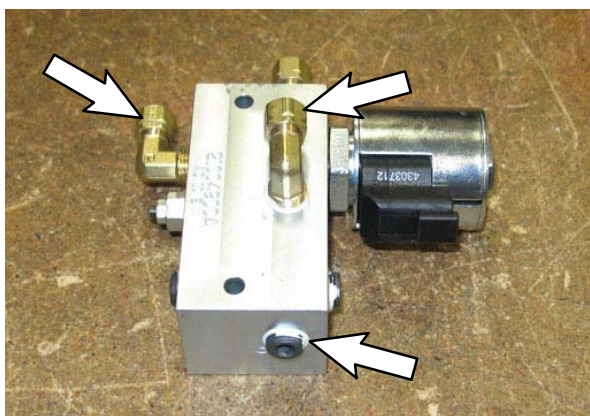
30. Install two 90° fittings (7), a straight fitting (6), and three plugs included with the vent manifold (3) into the vent manifold. (Fig. 17 / Fig. 18 / Fig. 19).



**FIG. 17**



**FIG. 18**



**FIG. 19**

31. Drill two 0.3125 in. (7.9375 mm) holes into the battery tray bracket. (Fig. 20)

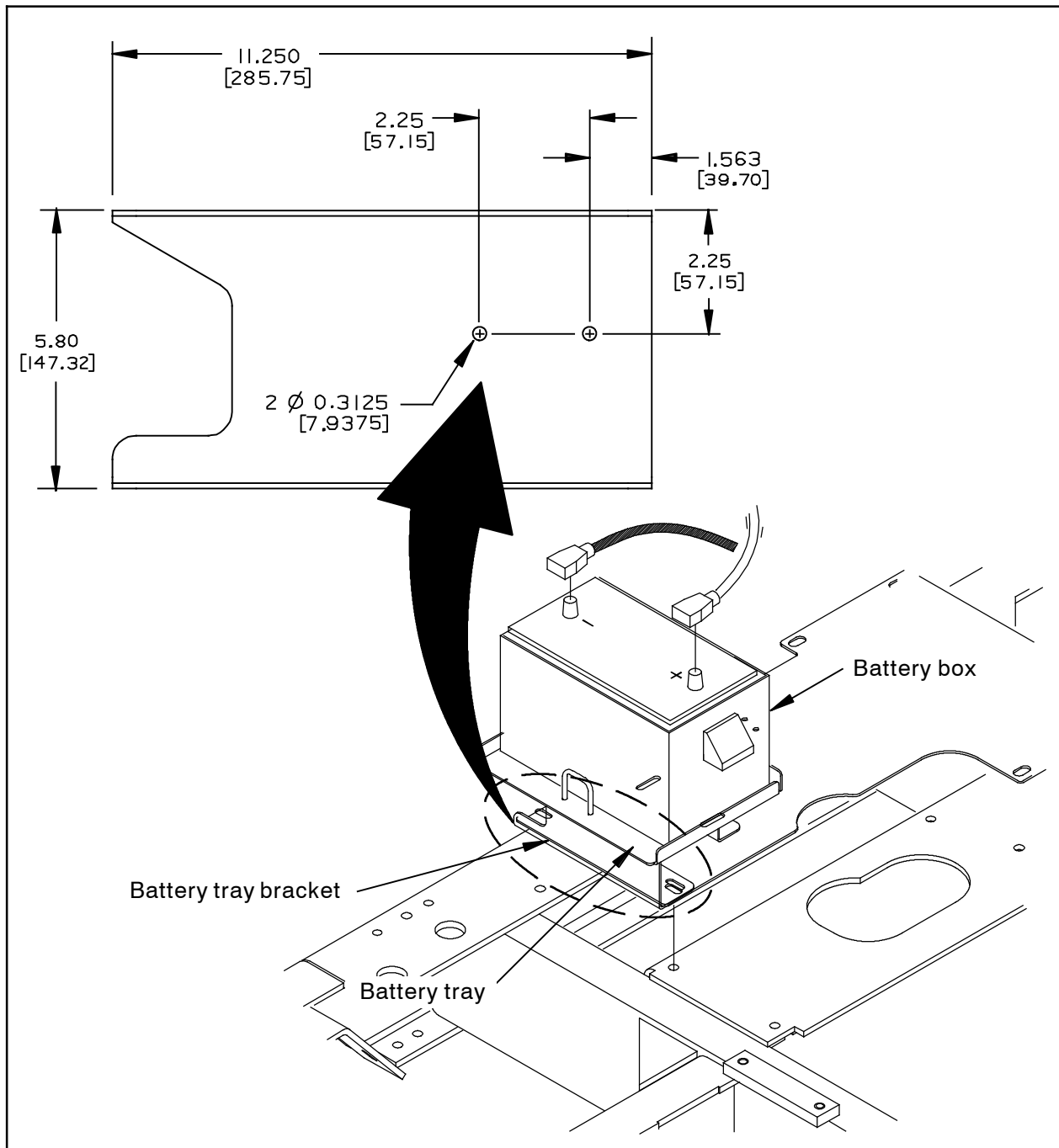
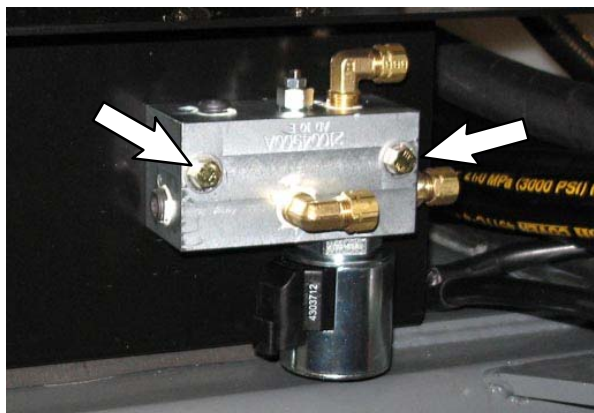


FIG. 20

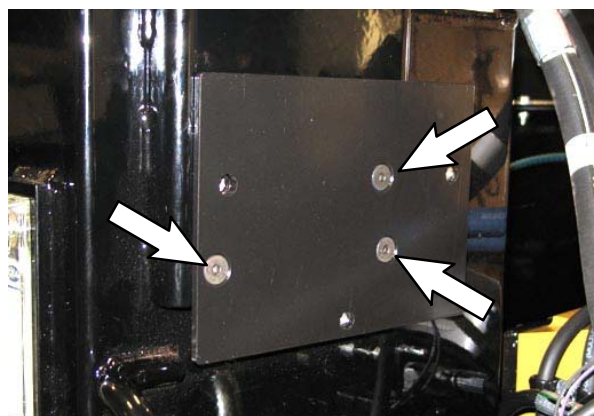


32. Use two hex screws (16), four flat washers (15), and two hex nuts (14) to install the vent manifold (3) onto the battery tray bracket. (Fig. 21)



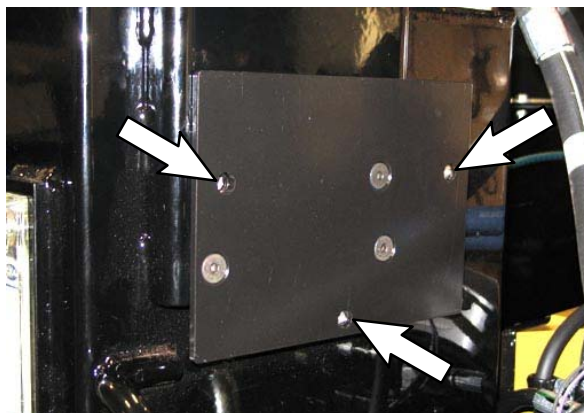
**FIG. 21**

33. Use three flat screws (10) to install the auto-lube adapter plate (2) onto the front of the hydraulic tank. (Fig 22)



**FIG. 22**

34. Use three M8 hex screws (11) and three flat washers (12) to install the pump assembly (1) onto the auto-lube adapter plate (2) / front of hydraulic tank. (Fig 23 / Fig. 24)



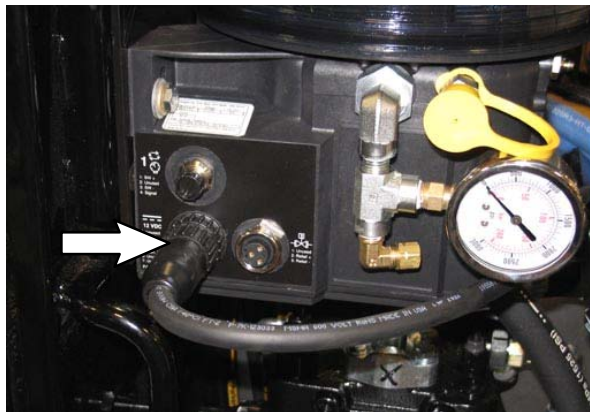
**FIG. 23**



**FIG. 24**

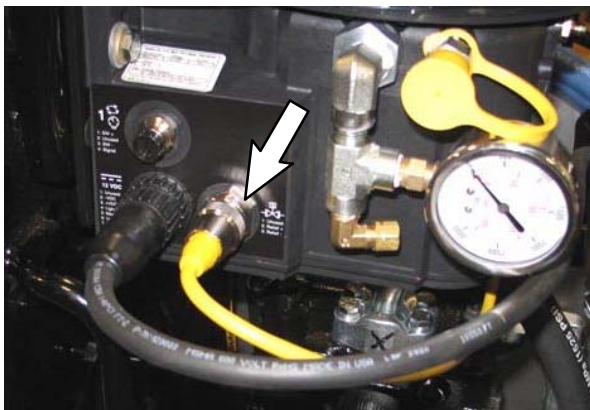
35. Remove the existing yellow auto-lube harness from the machine.
36. Route the new auto-lube harness from the bottom of the cab along where the yellow auto-lube harness was previously routed and to the pump assembly (1).

37. Connect the auto-lube harness to the pump assembly (1). (Fig. 25)



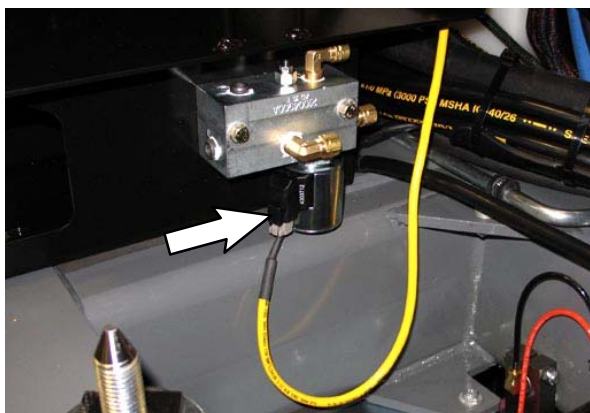
**FIG. 25**

38. Connect the vent valve power cable to the pump assembly (1). (Fig. 26)



**FIG. 26**

39. Route the vent valve power cable along the auto-lube harness and down to the vent valve on the battery tray bracket. (Fig. 27)



**FIG. 27**

40. Connect the vent valve power cable to the vent valve. (Fig. 27)

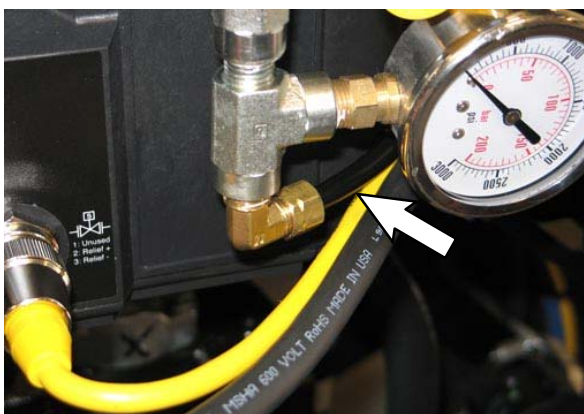
41. Cut a 78 in. length of plastic tube (8).

42. Insert a ferrule (9) into one end of the 78 in. plastic tube cut in the previous step. (Fig. 28)



**FIG. 28**

43. Connect the end of the 78 in. plastic tube (8) with the ferrule (9) to the 90° fitting (7) connected to the pump assembly (1) OUT port. (Fig. 29)

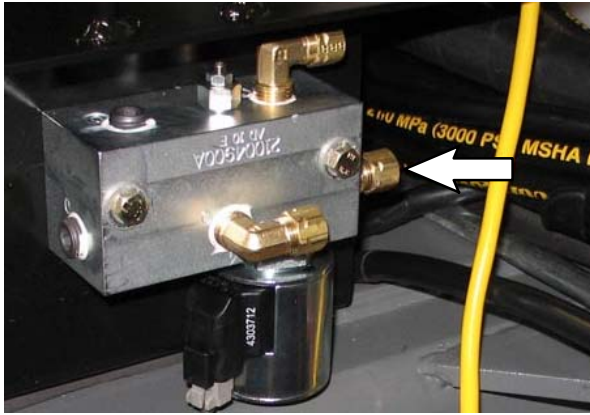


**FIG. 29**

44. Route the 78 in. tube (8) from the pump assembly (1) and down to the vent valve (3) on the battery tray bracket.

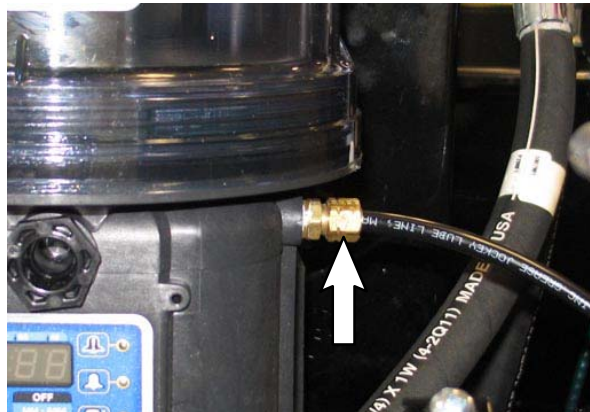


45. Insert a ferrule (9) into the 78 in. plastic tube and connect the plastic tube to the vent valve (3) IN port. (Fig. 30)



**FIG. 30**

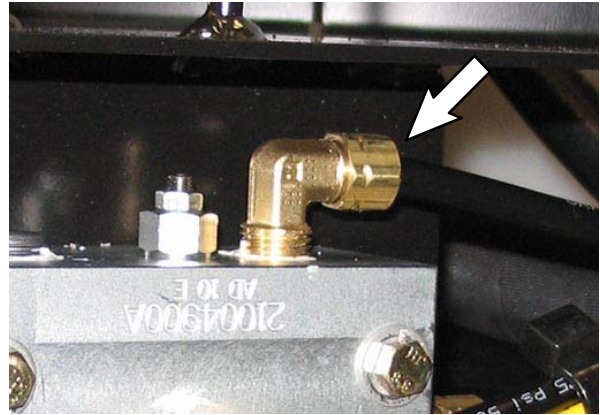
46. Cut another 78 in. length of plastic tube (8).  
47. Insert a ferrule (9) into one end of the 78" plastic tube cut in the previous step.  
48. Connect the end of the 78 in. plastic tube (8) with the ferrule (9) to the straight fitting (6) in the pump assembly (1) VENT port. (Fig. 31)



**FIG. 31**

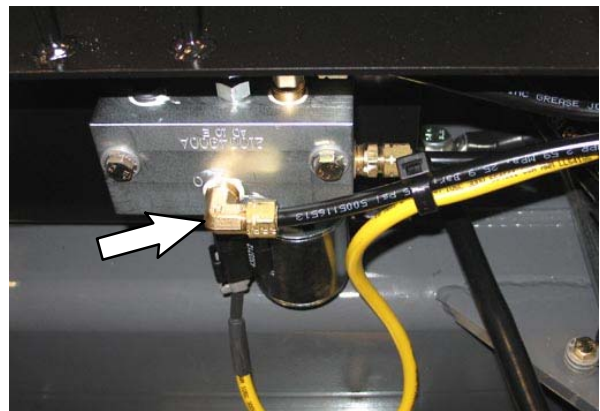
49. Route the 78 in. tube (8) from the pump assembly (1) and down to the vent valve (3) on the battery tray bracket.

50. Insert a ferrule (9) into the 78 in. plastic tube and connect the plastic tube to the vent valve (3) VENT port. (Fig. 32)



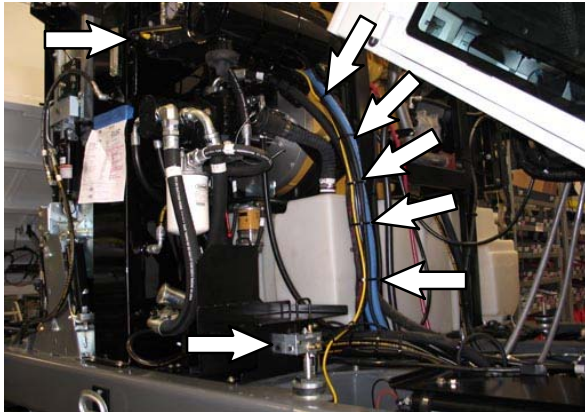
**FIG. 32**

51. Route the existing tube connected to the lube valve on the frame of the machine to the vent valve (3) OUT port and cut the tube to length.  
52. Insert a ferrule (9) into the existing tube cut in the previous step.  
53. Connect the existing tube to the 90° fitting in the vent valve (3) OUT port. (Fig. 33)



**FIG. 33**

54. Use wire ties to secure the vent valve power cable, auto-lube harness, and tubes to the other tubes, cables, and main wire harness. (Fig. 34)

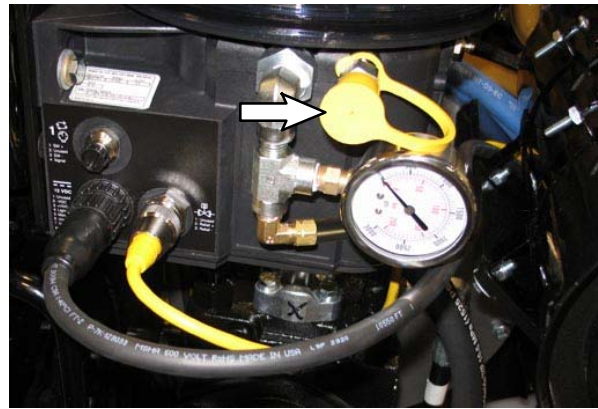


**FIG. 34**

55. Disengage the cab prop arm and use the pin to secure the prop arm to the bottom of the cab.
56. Use the hoist to lower the cab down onto the frame of the machine.
57. Reinstall the M20 hex nuts and washers to secure the cab to the frame of the machine.
58. Reinstall the plastic plugs into the cab.
59. Disconnect the hoist chain from the lug on the center rear of the roof of the cab
60. Cut the small cable tie from the windshield washer hose by the wiper arm.
61. Reconnect the battery cables to the battery.

## **FILL THE AUTO-LUBE PUMP**

1. Remove the rubber cap from the fill fitting (Fig. 35)



**FIG. 35**

2. Connect the fill nozzle to the fill port on the auto-lube pump. (Fig. 36)



**FIG. 36**

3. Fill the auto-lube pump with grease.
4. Disconnect the fill nozzle from the auto-lube pump and reinstall the rubber cap onto the fill fitting.



## PROGRAM THE AUTO-LUBE PUMP

1. Press both arrow buttons until P1 appears in the display. (Fig. 37)



FIG. 37

2. Press the UP arrow button twice. OFF should appear in the display. (Fig. 38)

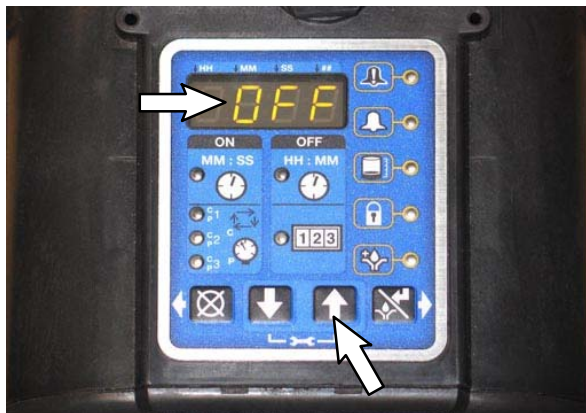


FIG. 38

3. Press the ENTER button. The green light in the ON TIME pane should illuminate and the number 0 (zero) should appear in HH, MM, SS, and ## columns on the display. (Fig. 39)



FIG. 39

4. Press the UP arrow button to enter 1 (one) into the HH column. (Fig. 40)



FIG. 40

5. Press the ENTER button to save 1 (one) entered in the previous step. (Fig. 41)



FIG. 41

6. Press the ENTER button to save 0 (zero) in the MM column. (Fig. 42)



FIG. 42



7. Press the ENTER button to save 0 (zero) in the SS column. (Fig. 43)



**FIG. 43**

10. Press the ENTER button to save 0 (zero) in the HH column. (Fig. 46)



**FIG. 46**

8. Press the ENTER button to save 0 (zero) in the ## column. (Fig. 44)



**FIG. 44**

11. Press the UP arrow button to enter 1 into the MM column. (Fig. 47)



**FIG. 47**

9. Press the ENTER button to exit the ON TIME pane. The light in the OFF TIME pane should be illuminated and the number 0 (zero) should appear in HH, MM, SS, and ## columns on the display. (Fig. 45)



**FIG. 45**

12. Press the ENTER button to save 1 in the MM column.

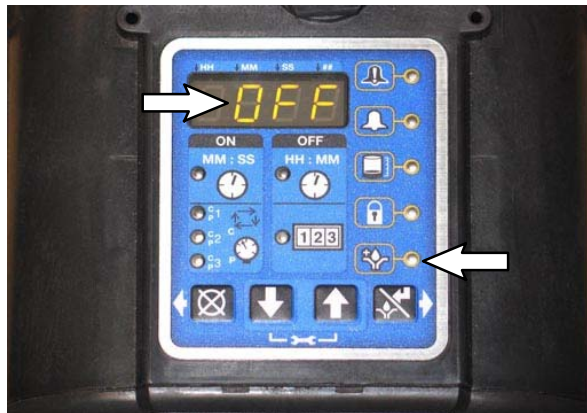
13. Press the UP arrow button to enter 3 into the SS column. (Fig. 48)



**FIG. 48**

14. Press the ENTER button to save 3 in the SS column.

15. Press the ENTER button to save 0 (zero) in the ## column of the display. The light next to the pre-lube symbol should illuminate and OFF should appear in the display. (Fig. 49)



**FIG. 49**

16. Press the ENTER button again.

17. Press the UP arrow button until A1 appears in the display. (Fig. 50)



**FIG. 50**

18. Press the UP arrow two additional times until A3 appears in the display. (Fig. 51)



**FIG. 51**

19. Press the ENTER button to set up the pressure / cycle for the pump. The light next to CP 1, CP 2, and CP 3 should be illuminated. (Fig. 52)



**FIG. 52**

20. Press the ENTER button to save 0 (zero) in the HH column.



21. Press the UP arrow button to enter 5 into the MM column. (Fig. 53)

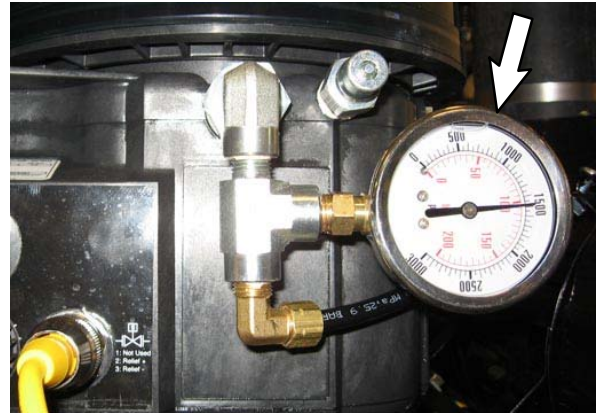


**FIG. 53**

22. Press the ENTER button to save 5 in the MM column.
23. Press the ENTER button to save 0 (zero) in the SS column.
24. Press the ENTER button to save 0 (zero) in the ## column.

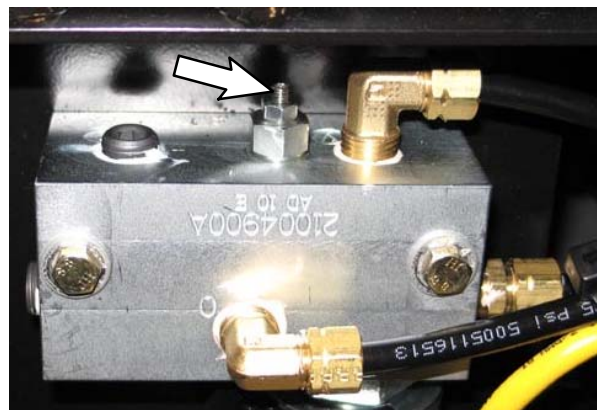
## SET THE AUTO-LUBE SYSTEM RELIEF

1. Start the machine.
2. Observe the auto-lube pump gauge. Allow the gauge time to reach 1200 psi. (Fig. 54)



**FIG. 54**

3. When the auto-lube pump gauge reaches 1200 psi, adjust the allen screw in the vent valve relief port until the valve releases when the system reaches 1200 psi. The auto-lube system relief must be set to 1200 psi. The auto-lube system could be damaged if the pressure is set above 1200 psi. (Fig. 55)



**FIG. 55**



## TILT THE CAB FORWARD

1. Disconnect the gas springs (one on each side of the cab) from the back of the cab. The gas springs can remain attached to the doors.
2. Use a small cable tie to tie off the windshield washer hose by the wiper arm.
3. Pry the plastic hole plugs located inside both rear corners of the cab to expose the hardware holding the cab down to the frame of the machine. Set the plastic plugs aside. (Fig. 56)



FIG. 56

4. Remove the M20 hex nuts and washers holding the cab down to the machine. Set the hex nuts and washers aside. (Fig. 57)

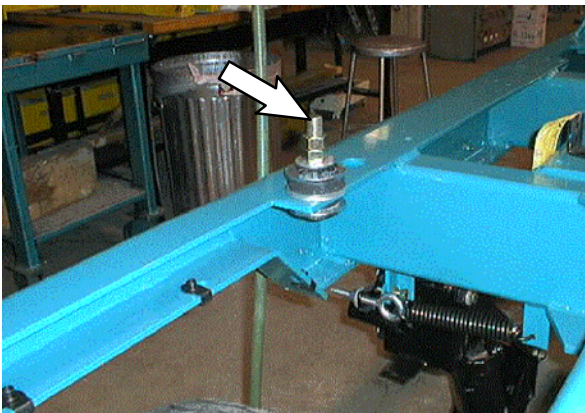


FIG. 57

**CAUTION; DO NOT TILT THE CAB WITHOUT AN OVERHEAD MOTORIZED TROLLEY CRANE.**

5. Hook the overhead hoist chain to the lug located on the cab. (Fig. 58)

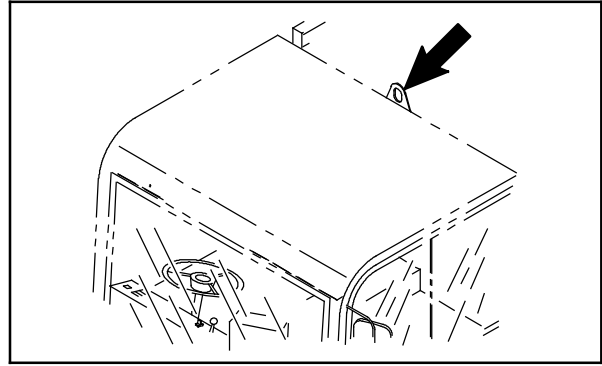


FIG. 58

6. Start lifting the cab and simultaneously moving the hoist toward the front of the machine. The cab is completely tilted when the retaining cable is taut.
7. Pull the pin from the cab prop arm on the bottom of the cab, let arm drop down, install pin into the lower hole on the arm and frame bracket to engage the prop arm. Engage the prop arm whenever the cab is tilted forward. (Fig. 59 / Fig. 60)

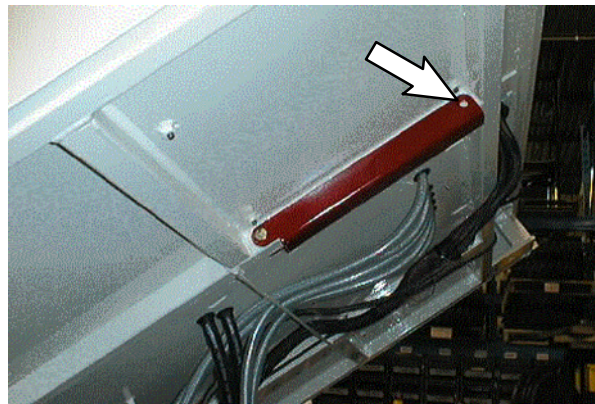


FIG. 59

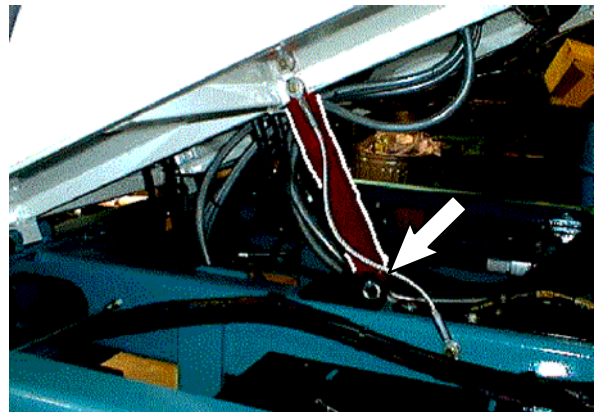


FIG. 60

8. Leave the hoist chain hooked to the cab while working under the cab.

**Bill Of Materials For Pump Kit, Lube, Replmt - 9008962**

	<b>Ref.</b>	<b>Tennant Part No.</b>	<b>Description</b>	<b>Qty.</b>
▽		9008962	Pump Kit, Lube, Replmt	1
▲	1	9008960	Vr, Pump Assy, Lube	1
▲	2	1067524	Plate, Adaptor, Auto- Lube	1
▲	3	9008959	Vr, Manifold Vent Kit, Auto Lube	1
▲	4	9008956	Vr, Fitting, Hyd, E90, PF04/PF04	1
▲	5	9008954	Vr, Fitting, Hyd, Tee, PF04/PF04/PM04	1
▲	6	9008958	Vr, Fitting, Hyd, Str, PM04/T05	2
▲	7	9008957	Vr, Fitting, Hyd, E90, PM04/T05	5
▲	8	761759	Vr, Tube, Plstc, 0.310D 0.18ID, Blk	1
▲	9	761787	Vr, Fitting, Cmpr, Ferrule, .312ID	5
▲	10	07810	Screw, Flt, SOC, M8 X 1.25 X 25, 10.9	3
▲	11	06955	Screw, Hex, M8 X 1.25 X 35, 8.8	3
▲	12	32491	Washer, Flat, 0.31, Std	3
▲	13	763041	Washer, Flat, Belleville, M8	3
▲	14	08708	Nut, Hex, Lock, M6 X 1.00, NL	2
▲	15	32483	Washer, Flat, 0.25, SAE	4
▲	16	06950	Screw, Hex, M6 X 1.00 X 70, 8.8	2
▲	17	04174B	Connector, Ele, Splice, 16GA & 14GA	1
▲	18	29856	Terminal, Ring, .38Stud 16- 14GA, INS	2

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