



INSTRUCTION BULLETIN

No. 9006809
Machine: S20
Published: 12-2009
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 9006315**

SYNOPSIS:

This kit contains the parts needed to install a backup alarm / flashing light kit on S20 machines. Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS: NONE

(Estimated time to complete: 1.5 hours)

PREPARATION:

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



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

3. Open the main cover.

INSTALLATION:

1. Drill a 0.25" pilot hole into the center of the slot in the main cover. Refer to Fig. 1.
2. Use the 0.25" drilled in the previous step as a reference to measure locations for the 0.50" holes. Refer to Fig. 1.
3. Use a hole saw to cut a 1.25" hole into the main cover. Refer to Fig. 1.
4. Drill two 0.50" holes into the main cover. Refer to Fig. 1.
5. Deburr the 1.25" and 0.50" holes. Refer to Fig. 1.

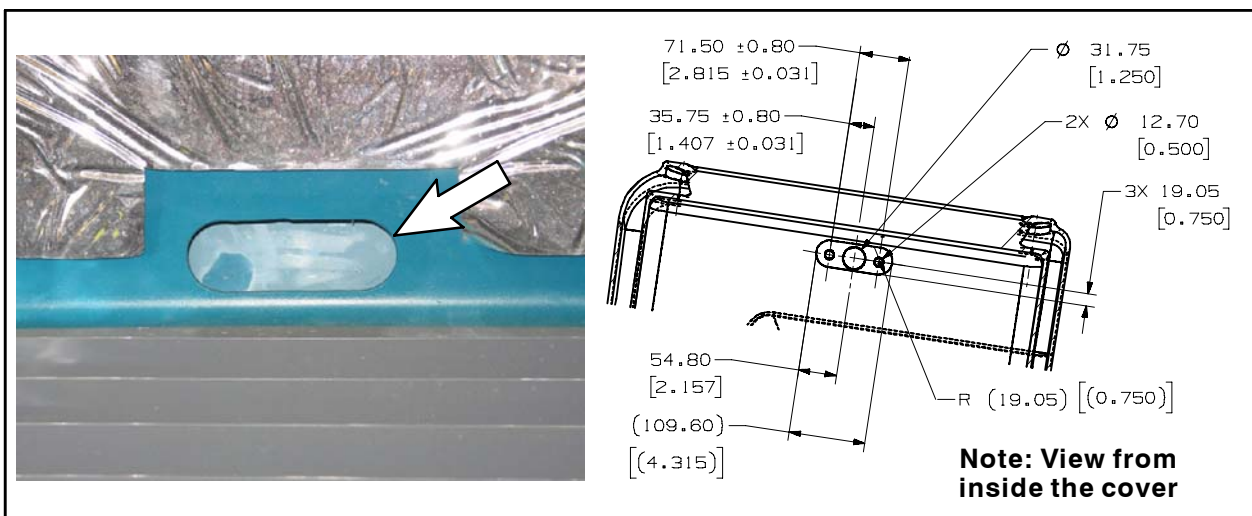


FIG. 1

6. Trim the flashing light (11) wires to a 9" length and backup alarm (1) wires to a 5" length. Crimp the bullet terminals (27) onto the wires.
7. Trim the spot light (8) wires to a 6" length and crimp the QF terminals (28) onto the wires.
8. Route the flashing light (11) cable through the hole in the light mounting plate (18) and use two pan screws (12), two flat washers (14), and two hex nuts (13) to install the light onto the light mounting plate. Refer to Fig. 2.

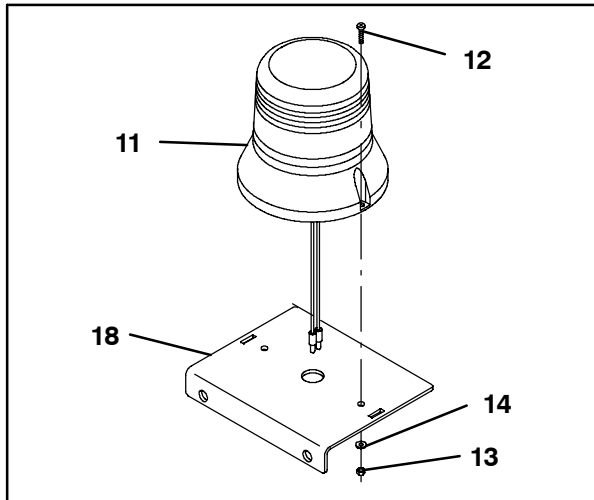


FIG. 2

9. Route the spot light (8) wires through the hole in the alarm bracket (15) and use a hex screw (9) and a flat washer (10) to install the spot light onto the alarm bracket. Refer to Fig. 3.

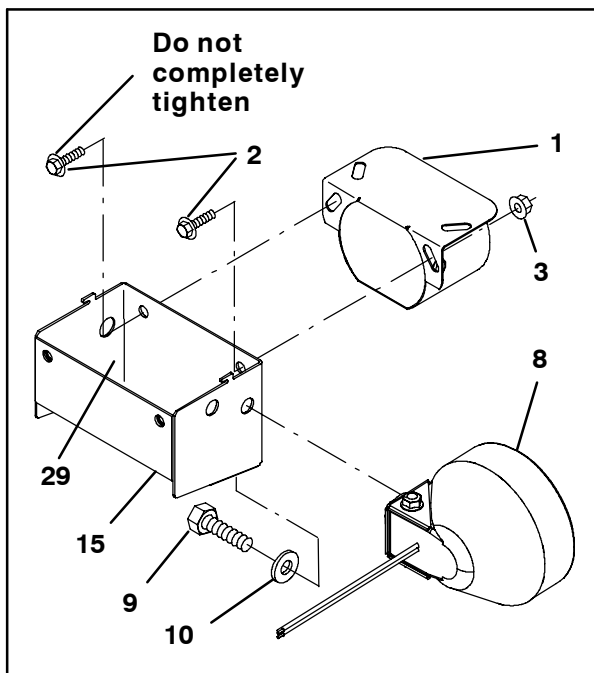


FIG. 3

10. Use two hex screws (2) and two flange hex nuts (3) to install the backup alarm (1) onto the alarm bracket (15). Do not completely tighten the hex screw and hex nut labeled in Fig. 3. Refer to Fig. 3.

11. Route the backup alarm (1) wires through the hole in the alarm bracket (15) and into the interior of the alarm bracket. Refer to Fig. 4.

12. Use two pan screws (5), two flat washers (6), and two hex nuts (7) to install the flasher (4) inside the alarm bracket (15). Refer to Fig. 4.

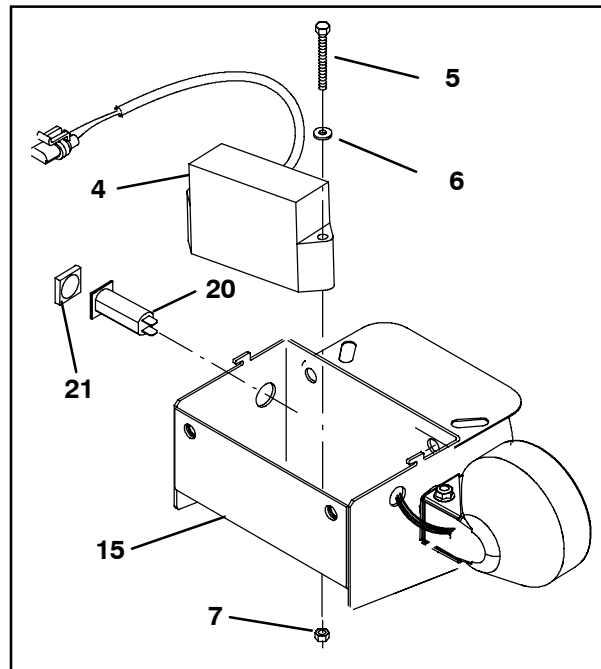


FIG. 4

13. Install the boot (21) onto the 5 Amp circuit breaker (20). Refer to Fig. 4.

14. Insert the 5 Amp circuit breaker (20) into the alarm bracket (15). Refer to Fig. 4.

15. Use two hex screws (2), two flat washers (16), and two hex nuts (17) to install the alarm bracket (15) onto the main cover. Refer to Fig. 5.

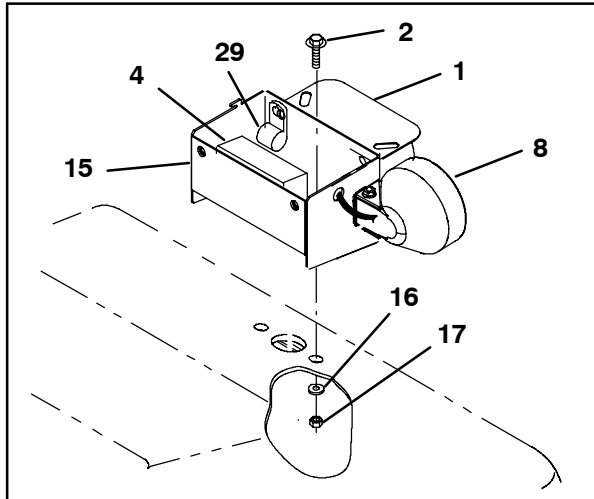


FIG. 5

16. Route the alarm / strobe harness (19) through the 1.25" hole in the main shroud and into the alarm bracket (15).

17. Remove the hex screw (2) and flange hex nut (3) from the alarm bracket (15), place the p-clamp (29) onto the alarm / strobe harness (19), and use the hex screw and flange hex nut to install the p-clamp onto the alarm bracket. Refer to Fig. 5 and Fig. 7.

18. Connect the alarm / strobe harness (19) to the backup alarm (1), spotlight (8), flasher (4), and 5-Amp circuit breaker (20). Refer to Fig. 5 and Fig. 7.

19. Connect the alarm / strobe harness (19) to the flashing light (13) and use two hex screws (2) to attach the light mounting plate (18) to the alarm bracket (15). Refer to Fig. 6 and Fig. 8.

NOTE: Take care to not pinch wires between the mounting plate (18) and alarm bracket (16) when assembling the mounting plate onto the alarm bracket.

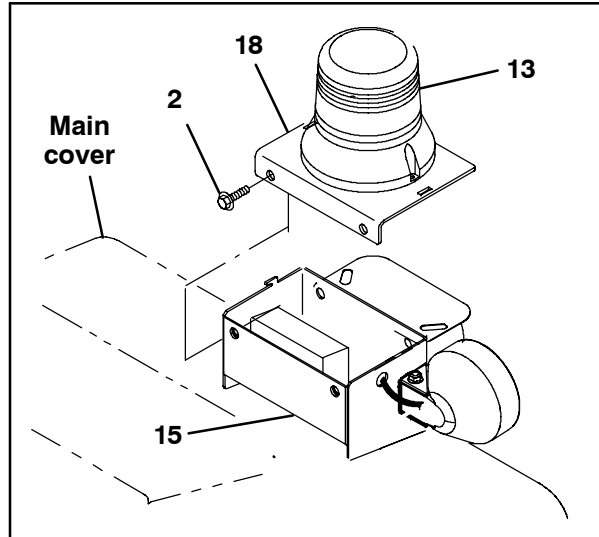


FIG. 6

20. Tighten the hex screw (2) and flange hex nut (3) holding the p-clamp (29) onto the alarm bracket (15). Refer to Fig. 3.

21. Connect the alarm / strobe harness (19) to the main wire harness. Refer to Fig. 7 and Fig. 11.

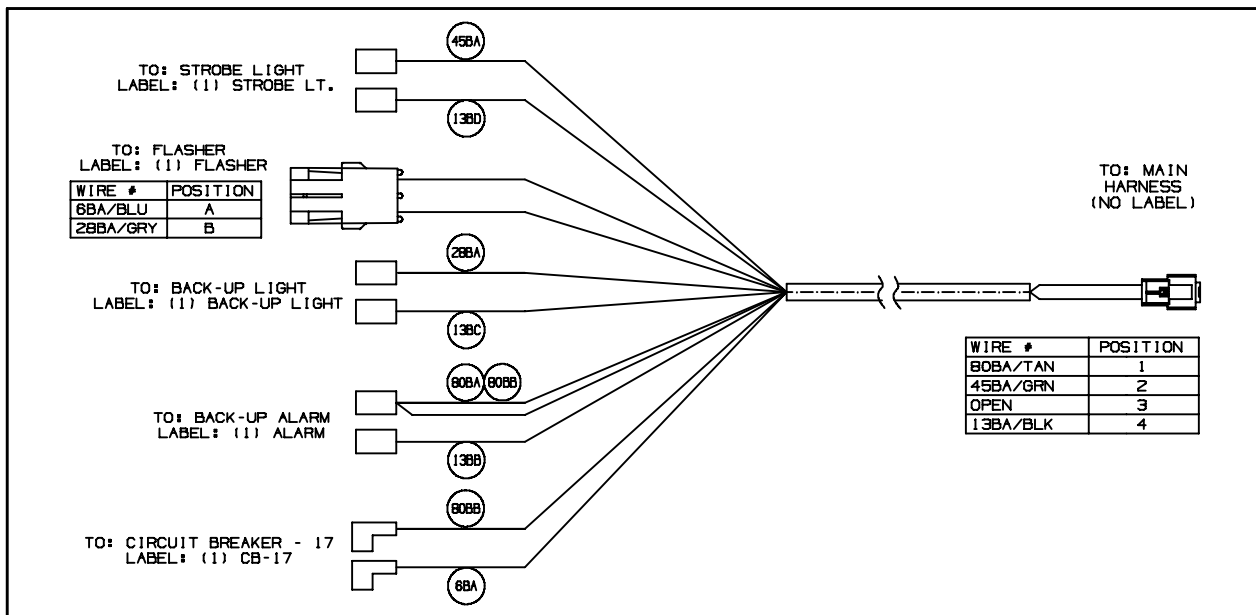


FIG. 7

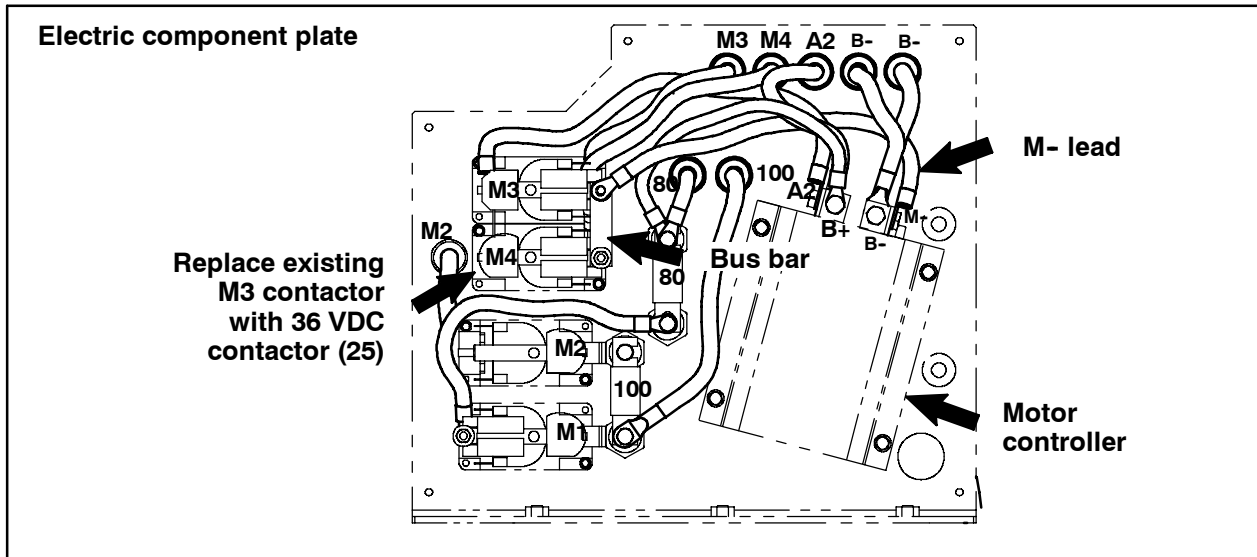


FIG. 8

22. Use two cable ties to secure the alarm / strobe harness (19) to the rear louvre panel on the main cover. Refer to Fig. 9.

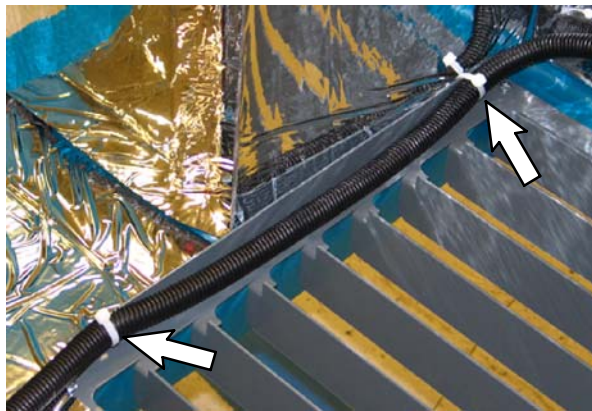


FIG. 9

23. Remove the cover from the electrical control box.

24. Remove the existing M4 contactor from the electric component plate. Discard the contactor.

25. Install the 36 VDC contactor (25) into M4 on the electric component plate. Refer to Fig. 8.

26. Reinstall the bus bar onto the M3 and M4 contactors and reconnect the M- lead to the M4 contactor. Refer to Fig. 8.

27. Reinstall the cover onto the electrical control box.

28. Use two screws (24), two flat washers (14), and two hex nuts (13) to install the 36 VDC contactor (23) onto the circuit breaker bracket. Refer to Fig. 10.

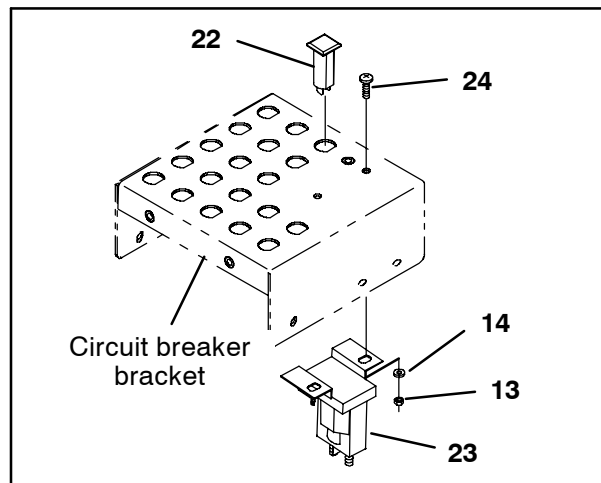


FIG. 10

29. Install the 2.5 Amp resettable circuit breaker (22) into the circuit breaker bracket. Refer to Fig. 10.

30. Connect the main wire harness to the 2.5 Amp circuit breaker (22) and 36 VDC contactor (23) installed in the circuit breaker bracket. Refer to Fig. 10 and Fig. 11.

31. Plug the diode (26) into the main wire harness. Refer to Fig. 11.

32. Reconnect the battery cables to the batteries.

33. Start and test the machine. Use the headlight/ flashing light switch to turn on the flashing light. Operate the machine in reverse and to ensure the alarm / light function.

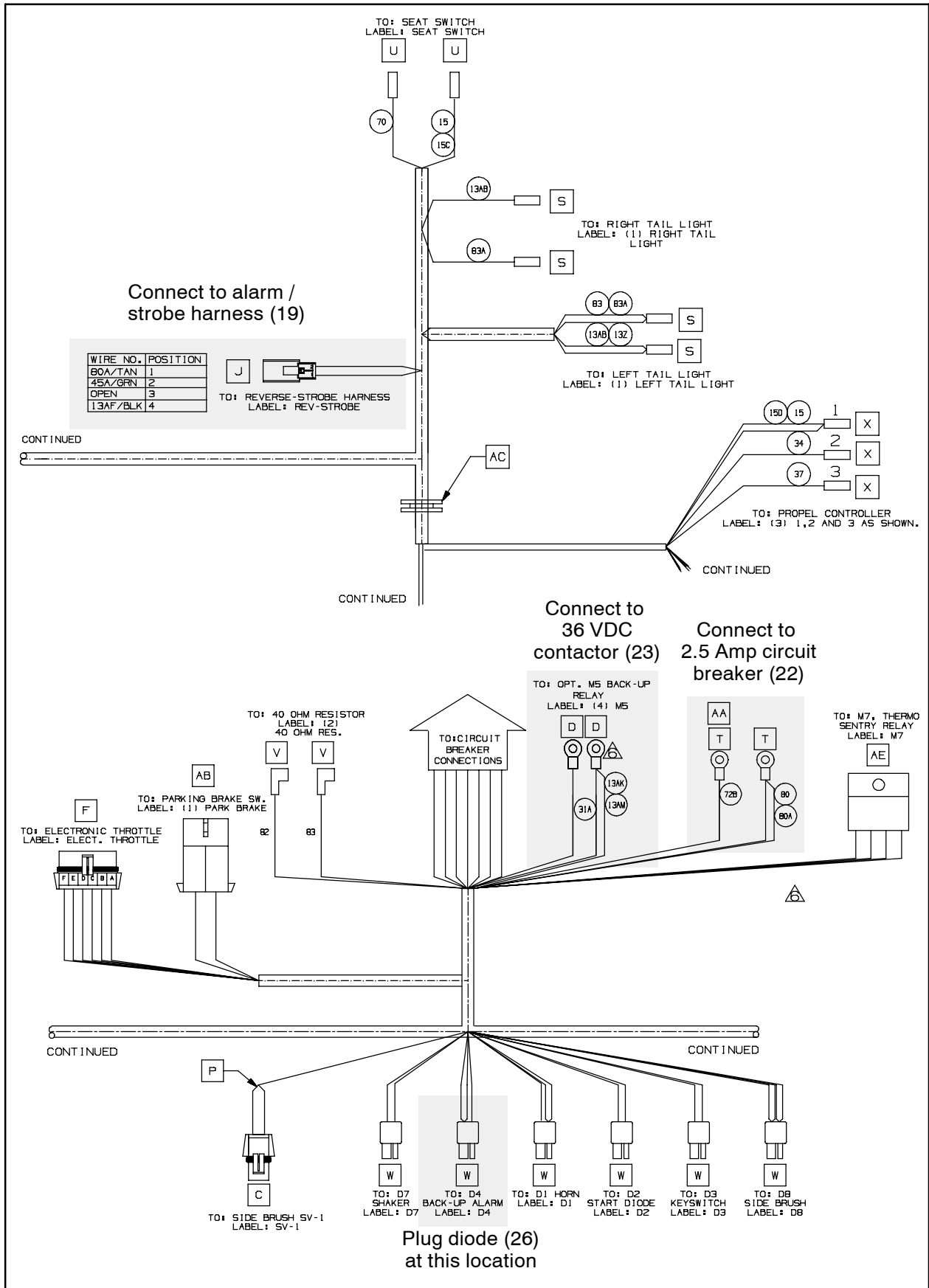


FIG. 11

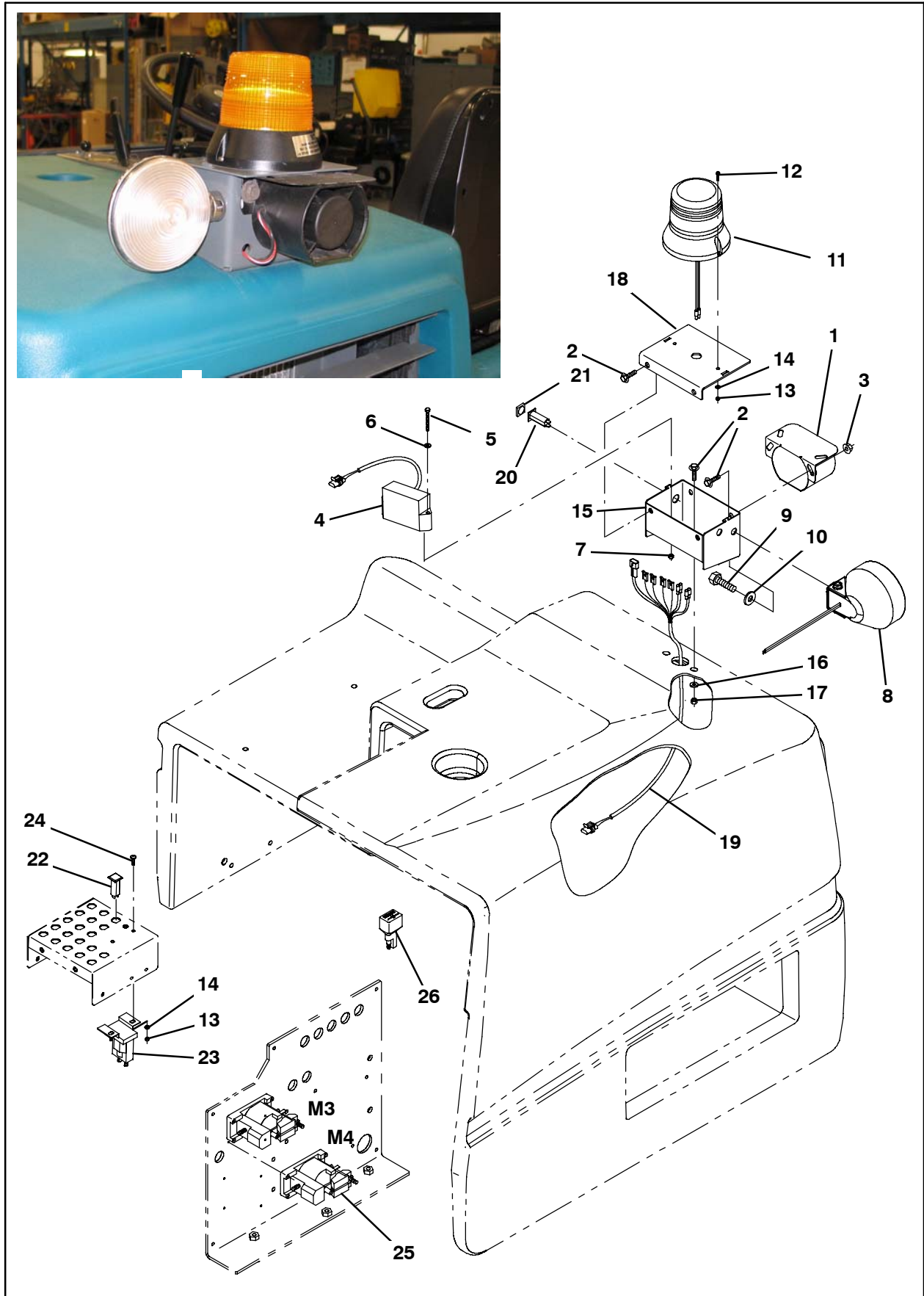
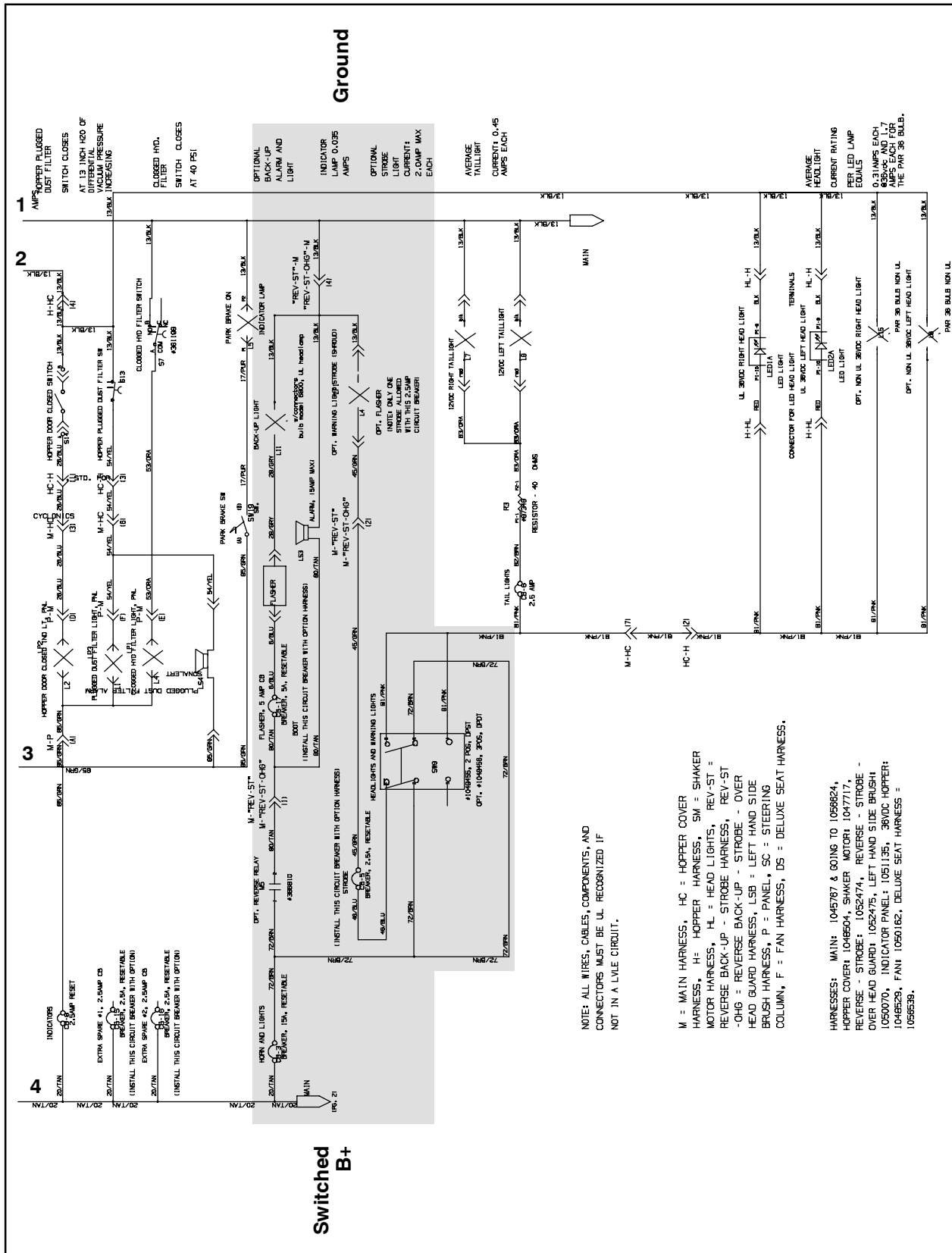


FIG. 12



Switched B+

Ground

NOTE: ALL WIRES, CABLES, COMPONENTS, AND CONNECTORS MUST BE UL RECOGNIZED IF NOT IN A LVLE CIRCUIT.

M = MAIN HARNESS, HC = HOPPER COVER HARNESS, HE = HOPPER HARNESS, SM = SHAKER MOTOR HARNESS, HL = HEAD LIGHTS, REV-ST = REVERSE BACK-UP - STROBE HARNESS, REV-ST-OHG = REVERSE BACK-UP - STROBE - OVER HEAD GUARD HARNESS, LSB = LEFT HAND SIDE BRUSH HARNESS, P = PANEL, SC = STEERING COLUMN, F = FAN HARNESS, DS = DELUXE SEAT HARNESS.

HARNESSES: MAIN: 104E767 & GOING TO 1056624, HOPPER COVER: 104B604, SHAKER MOTOR: 1047717, REVERSE - STROBE: 1052474, REVERSE - STROBE - OVER HEAD GUARD: 1052475, LEFT HAND SIDE BRUSH: 1050070, INDICATOR PANEL: 1051135, 38VDC HOPPER: 104B529, FAN: 1050182, DELUXE SEAT HARNESS: 1056539.

FIG. 14 - Schematic Provided For Troubleshooting

Bill of Materials for Alarm Kit, Backup, Flsh, Rear, EV, CI - 9006315

Ref.	Tennant Part No.	Description	Qty.
▽	9006315	ALARM KIT, BACKUP, FLSH, REAR, EV, CI	1
▲	1 72171	ALARM ASSY, BACKUP, 12-48VDC 82-102DBA	1
▲	2 1037346	SCREW, HEX, M8 X 1.25 X 25, 9.8, SEMS	6
▲	3 07791	NUT, HEX, FLNG, M8 X 1.25	2
▲	4 72164	FLASHER, 12/48VDC 5A [6309/12-48V]	1
▲	5 06949	SCREW, HEX, M6 X 1.00 X 50, 8.8	2
▲	6 32483	WASHER, FLAT, 0.25, SAE	2
▲	7 08708	NUT, HEX, LOCK, M6 X 1.00, NL	2
▲	8 72173	LIGHT, SPOT, 36VDC, 60WATT. A 4.8D	1
▲	9 39807	SCREW, HEX, .50-13 X 0.75, G5	1
▲	10 32486	WASHER FLAT,0.50,SAE	1
▲	11 1017248	LIGHT, FLSH, AMB, 12-48VDC	1
▲	12 06933	SCREW, PAN, PHL, M5 X 0.80 X 16, 4.8	2
▲	13 06549	NUT, HEX, LOCK, M5 X 0.80, NL	2
▲	14 19066	WASHER, FLAT, 10	2
▲	15 1049554	ANGLE, MTG, ALARM	1
▲	16 32491	WASHER, FLAT, 0.31, STD	2
▲	17 08709	NUT, HEX, LOCK, M8 X 1.25, NL	2
▲	18 1049553	PLATE, MTG, LIGHT	1
▲	19 1052474	HARNESS, ALARM / STROBE, 36VDC [S20]	1
▲	20 1046882	CIRCUITBREAKER, 05.0A, RESETTABLE	1
▲	21 1046173	BOOT, CIRCUITBREAKER	1
▲	22 1046152	CIRCUITBREAKER, 2.5A, RESETTABLE	1
▲	23 386810	CONTACTOR, 36VDC, 100A, SP, NO	1
▲	24 09200	SCREW, PAN, PHL, M5 X 0.80 X 12, SS	2
▲	25 86377	CONTACTOR, 36VDC [SPCO]	1
▲	26 222290	DIODE, ELE, PLUG	1
▲	27 55272	TERMINAL, BULLET, MAL, .157D, 12GA	4
▲	28 50470	TERMINAL, QF, .25 16-14GA, BLU	2
▲	29 67767	CLAMP, CABLE, STL, 0.69D X 0.62W, 1HOLE	1

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