INSTRUCTION BULLETIN

No. 340589
Machine: 7300 / 8300
Published: 12-2009
Rev. 06

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 387643** / **9006969**

DESCRIPTION:

This kit contains the parts needed to install/replace the contactor upgrade on 7300 and 8300 machines. Contactors M1, M2, M3, M5 and associated cables will be replaced.

Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS:

PREPARATION:
(Refer to FIG. 1 through FIG. 7)

1. Park machine on a clean, level work surface.

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

2. Disconnect battery connector from machine.

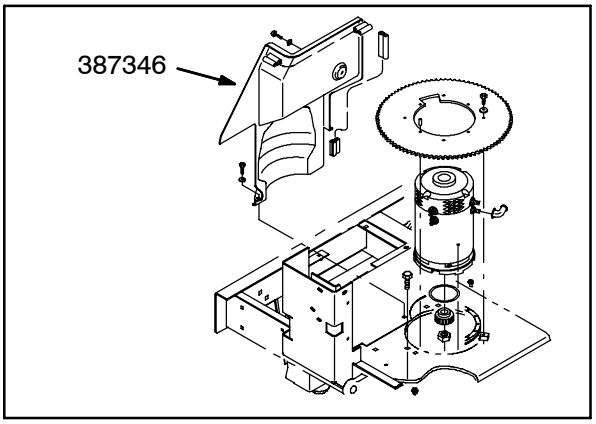
   WARNING: Always disconnect battery cables from machine before working on electrical components.

3. Open the top cover and side door.

4. Remove and set aside drive motor cover panel 387346 from the operator's compartment.

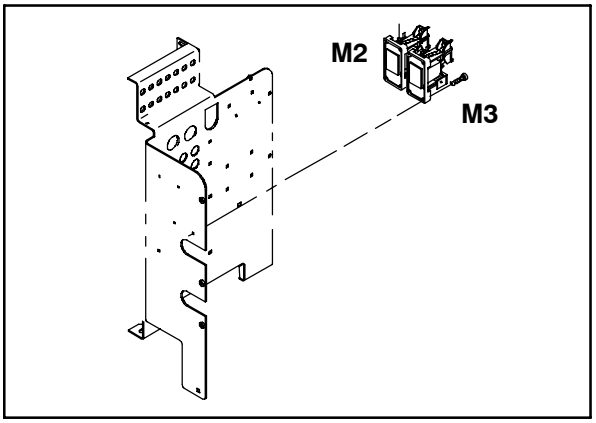
5. Remove and set aside detergent tank 386163 (option).

6. Remove and set aside control box cover 386128.

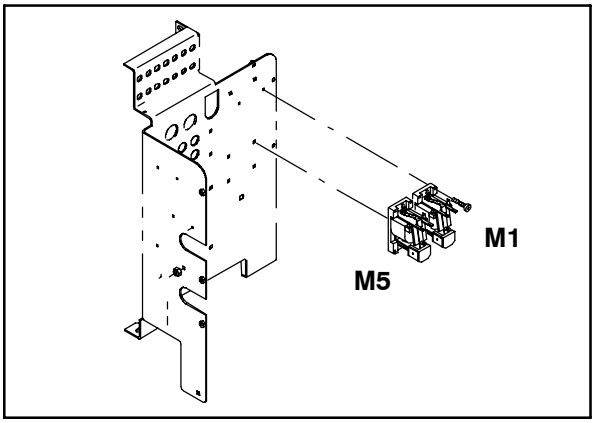


INSTALLATION:
(Refer to FIG. 1, FIG, 2, and FIG. 3)

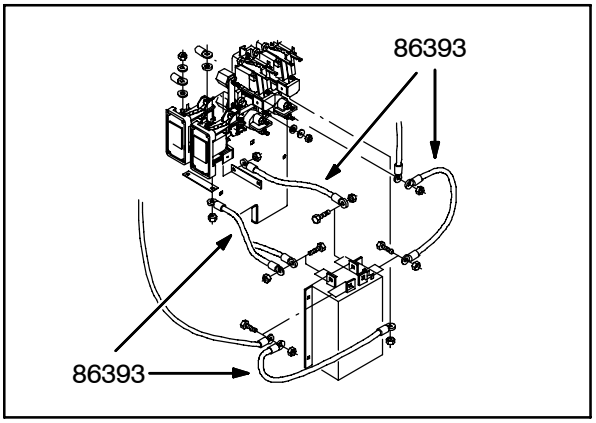
1. Remove and discard contactors **M2** and **M3** and bus bars. (Refer to FIG. 1)



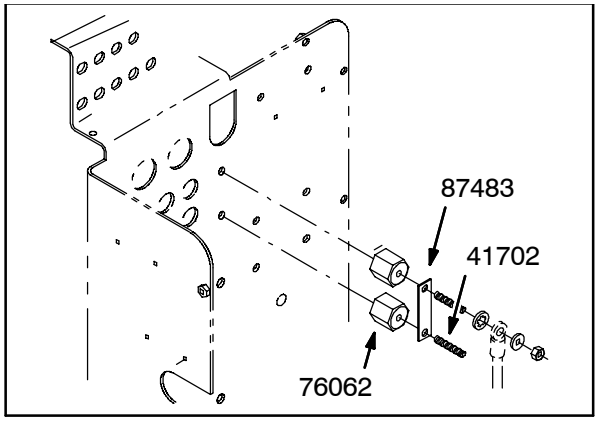
2. Remove and discard contactors **M1** and **M5.** and bus bars. (Refer to FIG. 1)



3. Disconnect and remove the four short cables 86393 from the controller and contactors. They will later be replaced by larger capacity cables. (Refer to FIG. 2)



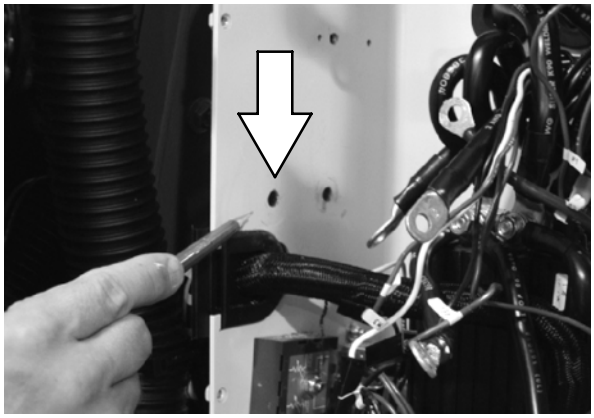
4. Remove and discard lower insulator 76062, stud 41702 and bus bar 87483. (Refer to FIG. 1)



5. Drill out the two lower contactor mounting holes on the left face of the control box to 3/8 in [9.5 mm].

   The mounting holes may have to be elongated 1/4 to 1/2 inch towards the inside of the box if the cover does not mount in place. (Refer to FIG.6)

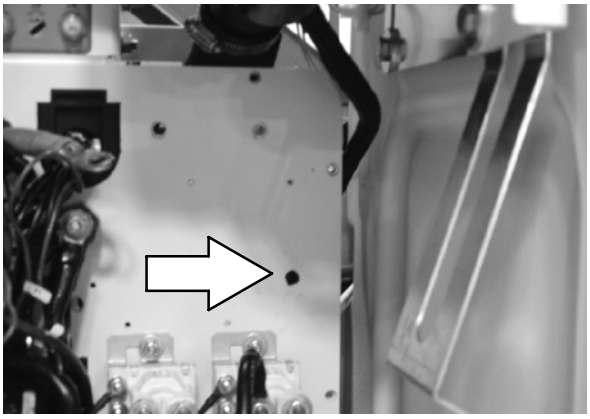
   NOTE: Cover electrical components before drilling holes. Steel shavings can come into contact with electrical components, causing shorts and or machine failure.



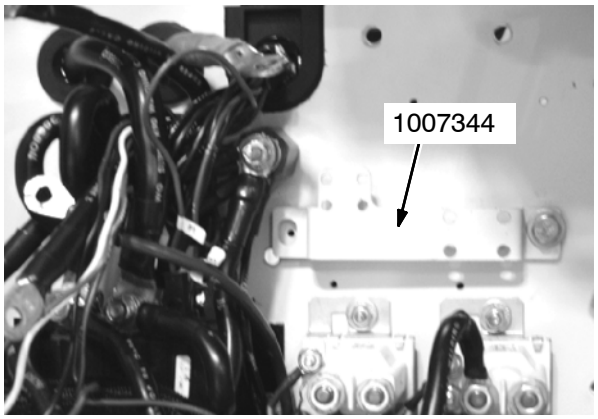
6. Drill one small locating hole on the right side of the control box according to dimensions in rework drawing hole “A”. Drill the hole out using a 5/16 [7.94 mm] drill bit.

   Mount the right hand side of bracket 1007344 to the new hole with mounting hardware. (Refer to FIG. 7)

   NOTE: Cover electrical components before drilling holes. Steel shavings can come into contact with electrical components, causing shorts and or machine failure.



7. Using mounting bracket 1007344 as a template, and the dimensions for hole “B” in FIG 7, mark and drill a small locating hole using a 1/8 [0.125 mm] in drill bit. (Refer to FIG. 7)

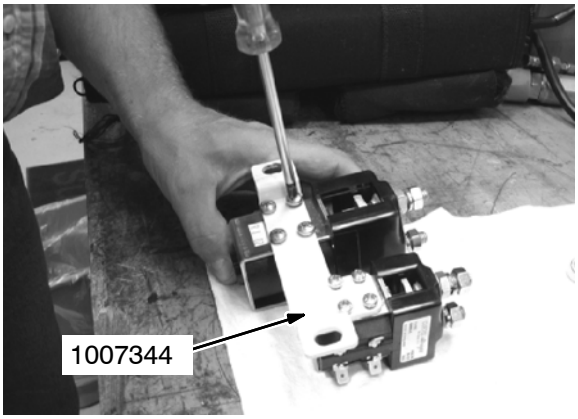


8. Drill out locating hole using 5/16 drill.

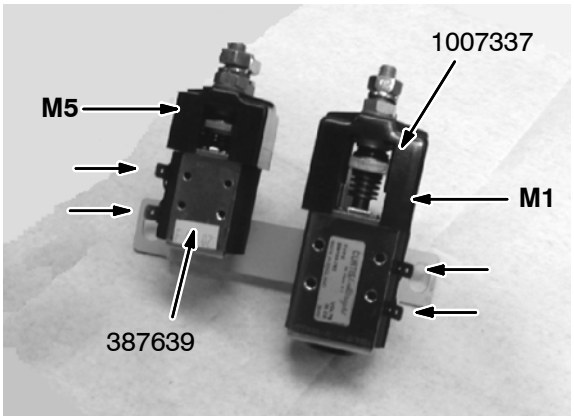
   NOTE: Use caution not to damage the wire harness on the opposite side of the control box plate.

   NOTE: Cover electrical components before drilling holes. Steel shavings can come into contact with electrical components, causing shorts and or machine failure.

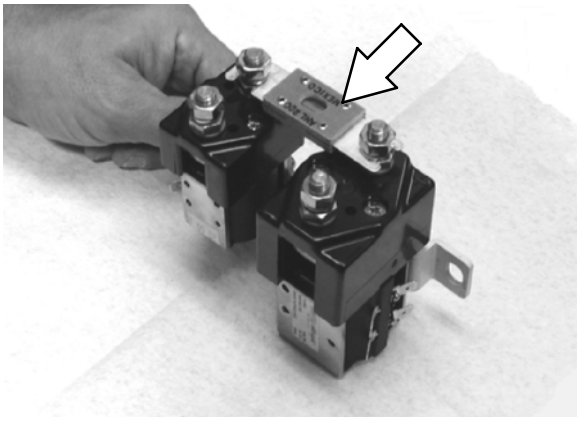
9. Subassemble new contactors to new mounting bracket 1007344 using screws and lock washers provided.



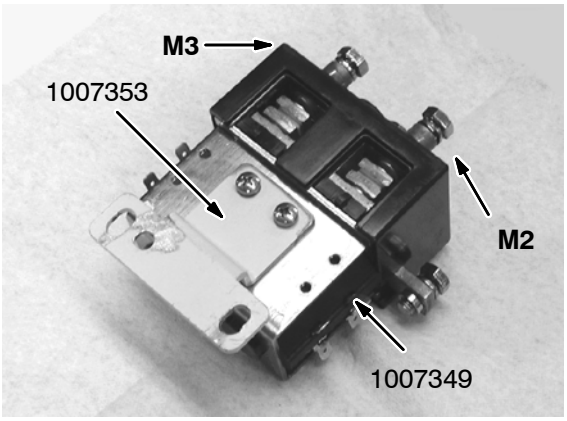
*NOTE: Locations of new coil wire terminals for **M5** and **M1** contactors are shown in photo.*



10. Mount the original 200 amp fuse removed from insulators onto new contactor. Do not tighten nut at this time.

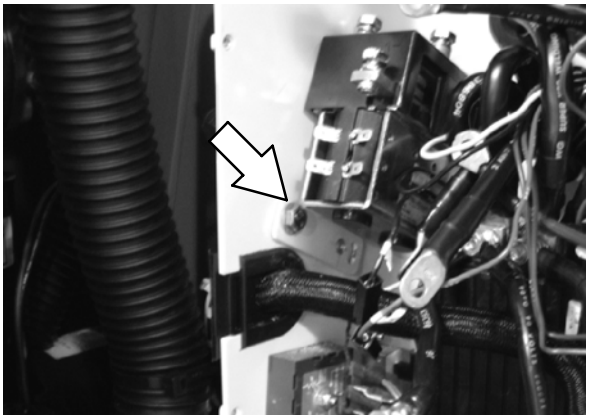


11. Install new mounting bracket 1007353 to the new motor reversing contactor (**M2**, **M3**) 1007349.



12. Install the new reversing contactor 1007349 w/ bracket 1007353 to the left, inside wall of the control box. Mount the bracket with the mounting hardware in the left side mounting hole only at this time.

    Match the holes on the contactor mounting bracket with the pre-drilled holes on the control box.

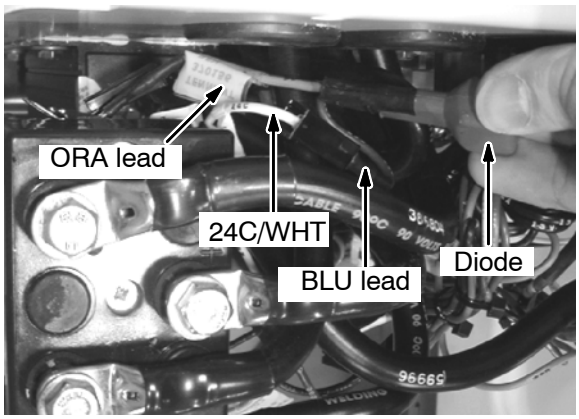


13. Rotate contactor counterclockwise. Connect the blue lead of the diode harness (370156) to the open terminal of harness wire 24C/WHT. Connect the orange lead of the diode harness to one of the top terminals for the forward contactor coil.

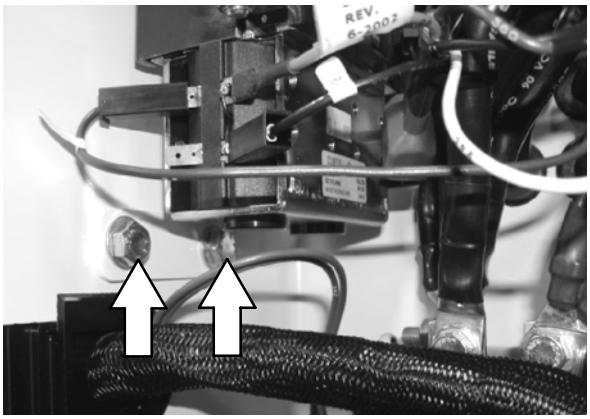
    The forward contactor coil terminals are on the right side of new M3 contactor, and the reverse contactor coil terminals are on the left side.
    On each side, the top two terminals are internally connected to the positive side of the contactor coil, and the bottom two terminals are internally connected to the negative side of the contactor coil.
    (Refer to FIG. 3)

    NOTE: Both wires are labeled M3.

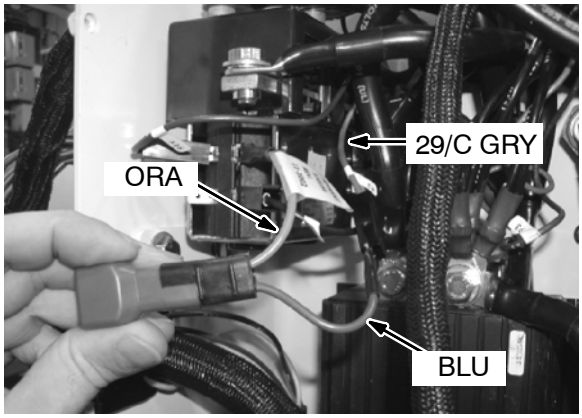
    NOTE: The top two terminals and the bottom two terminals are the same



14. Rotate the contactor clockwise back upright. Secure the mounting bracket with the right hand side mounting hardware.

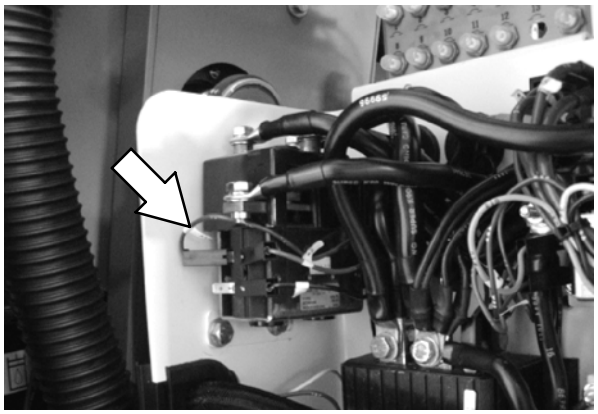


15. Using another diode harness (370156), connect blue lead to the open terminal of harness wire 29C/GRY. Connect the orange lead of the second diode harness to one of the top terminals for the reverse contactor coil. (Refer to FIG. 3)

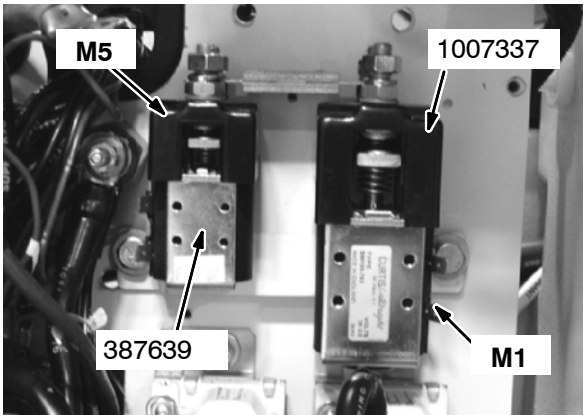


16. Connect **72**/**BLU** only to the top left side terminal when equipped with a back-up alarm option. Tape off extra 9/GRY wire on two head brush machines.

    *NOTE: Optional wire **73C**/**BRN** may be tied off on all machines.*

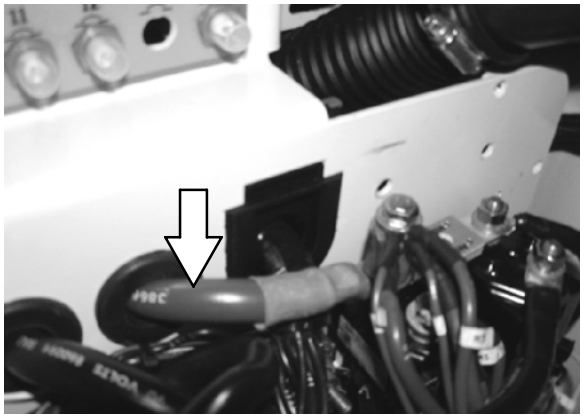


17. Install the new **M1** and **M5** contactor assembly with new bracket, two hex head bolts, flat washers and self locking nuts.



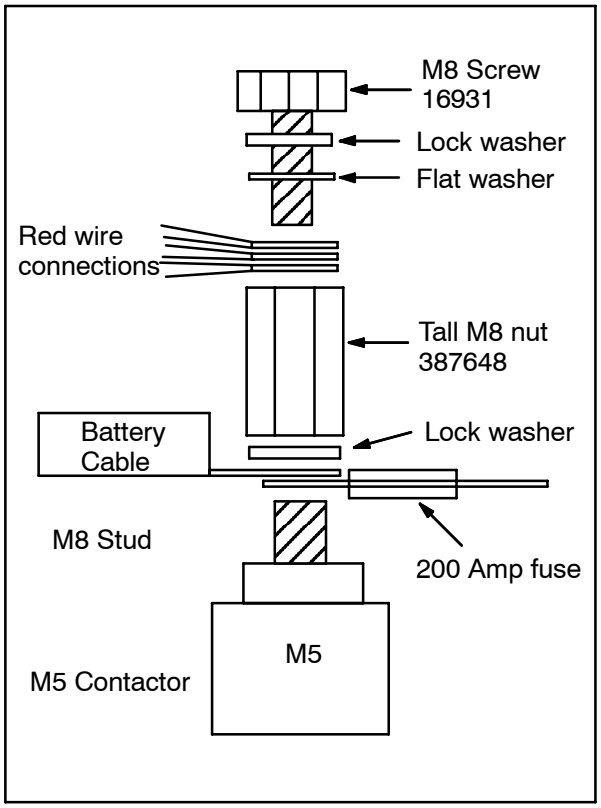
18. Connect positive battery cable to rear post of left contactor w/ **1E**/**RED** cable (also labeled 1M5).

    Install the tall M8 hex nut over the positive battery cable.



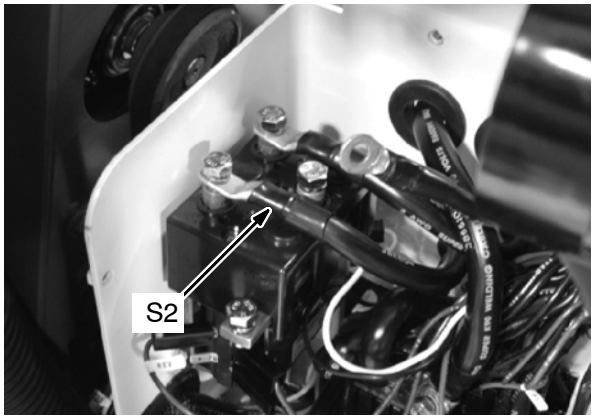
19. Add remaining positive red wires to the top of the tall M8 hex nut (14), using an M8 bolt.

    1A/RED, 1C/RED, 1E/RED, 1D, RED, 1B/RED

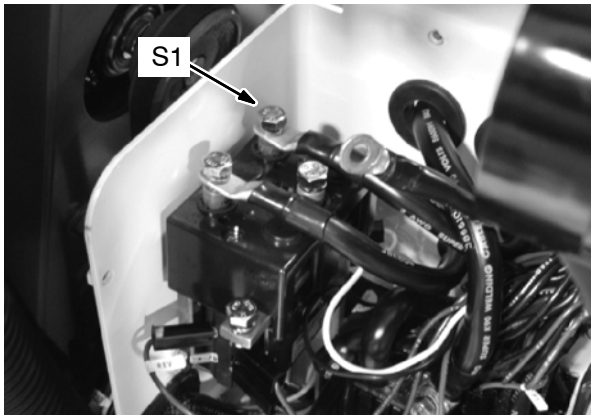


20. Route the new cable 386804 from the propel motor **S2** terminal and connect to the front, left post, on top of the large contactor. (Refer to FIG. 3 and 5)

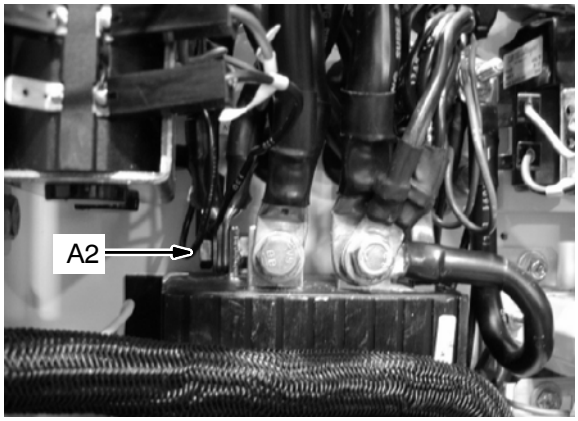
    NOTE: Follow the routing of the original cables from the mounting panel to the propel motor to make sure that there is free movement when the propel motor rotates.



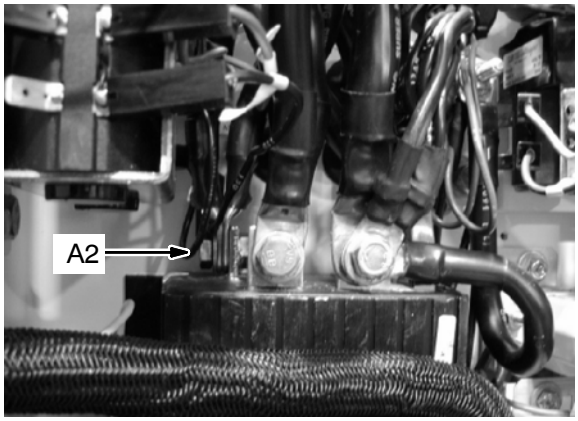
21. Route the new cable 386804 from the propel motor **S1** terminal to the top rear post on the right side of the contactor.



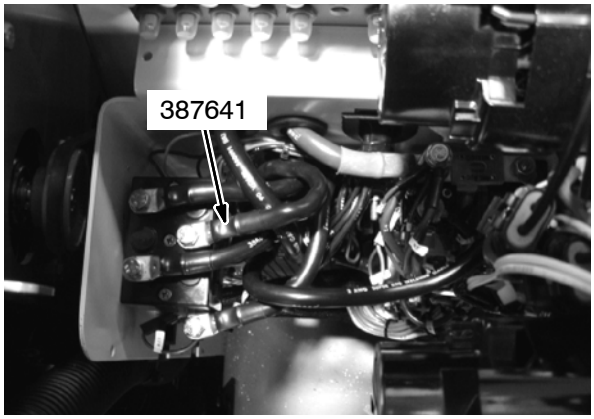
22. Connect cable **A2** from the propel motor post to the rear, left post (**A2**) of the motor controller. (Refer to FIG. 3 and 5)



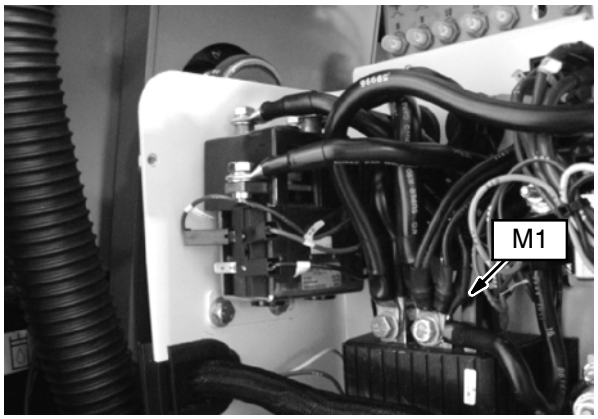
23. Connect one end of wire 387641 to motor controller terminal **A2**.



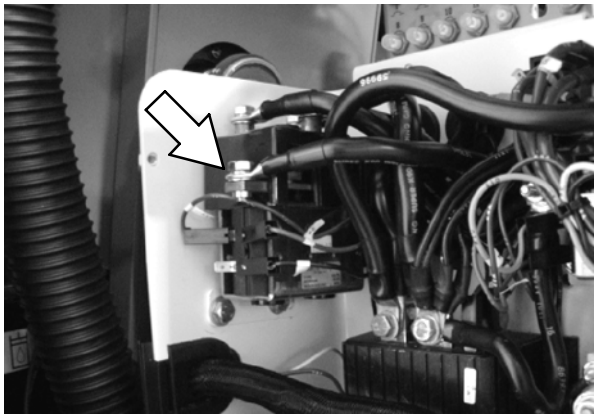
24. Connect the open end of wire 387641 to the top post on the right hand side of the contactor. (Refer to FIG. 3 and 5)



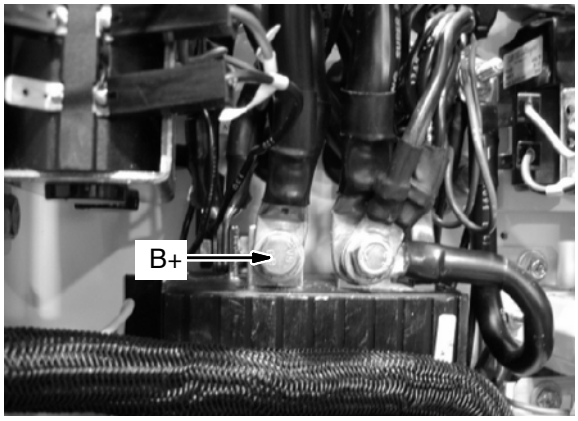
25. Connect one end of a second 387641 wire to motor controller post **M–**.



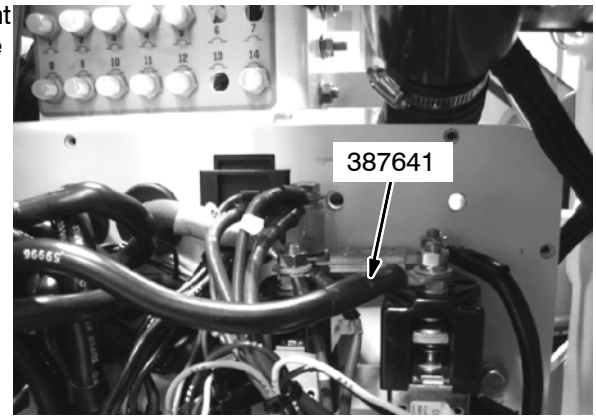
26. Connect the open end of the second 387641 wire from the propel motor controller post **M–** terminal, to the remaining post extending out the left side of the reversing contactor. (Refer to FIG. 3 and 5)



27. Connect one end of the third wire 387641 to motor controller post **B+**.



28. Connect the other end of #3 wire 387641 to the front right side contactor **M1** on the right hand side of the control box. (Refer to FIG. 4 and 5)



29. Motor controller post B– needs to be 25mm w/ lock washer and nut. **DISCARD ANY NYLOC NUTS.** Check that the following set aside ring terminals are secure on the post:

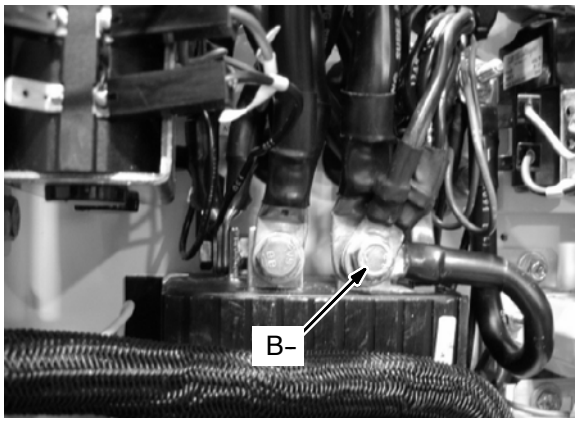
    Wire 86393 (Original Cable)

    Ring terminal: 13AR/BLK
    13AS/BLK

    2nd Ring terminal: 13AQ/BLK
    13AP/BLK

    3rd Ring terminal: 13AU/BLK
    13AT/BLK

    Black battery feed cable 386610



30. Check that the following set aside ring terminals are secure on the only remaining insulator on the back wall of the control box.

    Open end of wire 86393 (Original Cable)

    Ring terminal: 13BL/BLK
    13BP/BLK

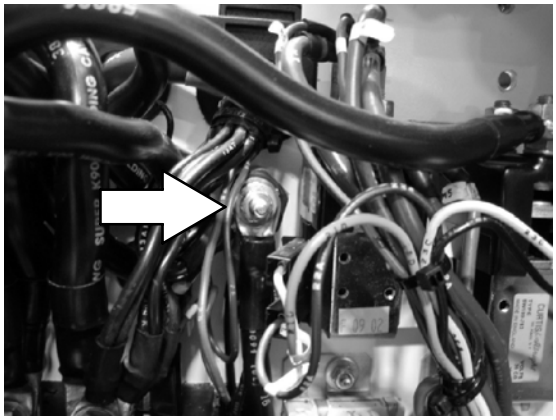
    2nd Ring terminal: 13A/BLK
    13E/BLK

    3rd Ring terminal: 13V/BLK
    13AA/BLK

    4th Ring terminal: 13AK/BLK
    13AL/BLK

    5th Ring terminal: 13R/BLK
    13T/BLK
    13S/BLK

    6th Ring terminal: 13BQ/BLK



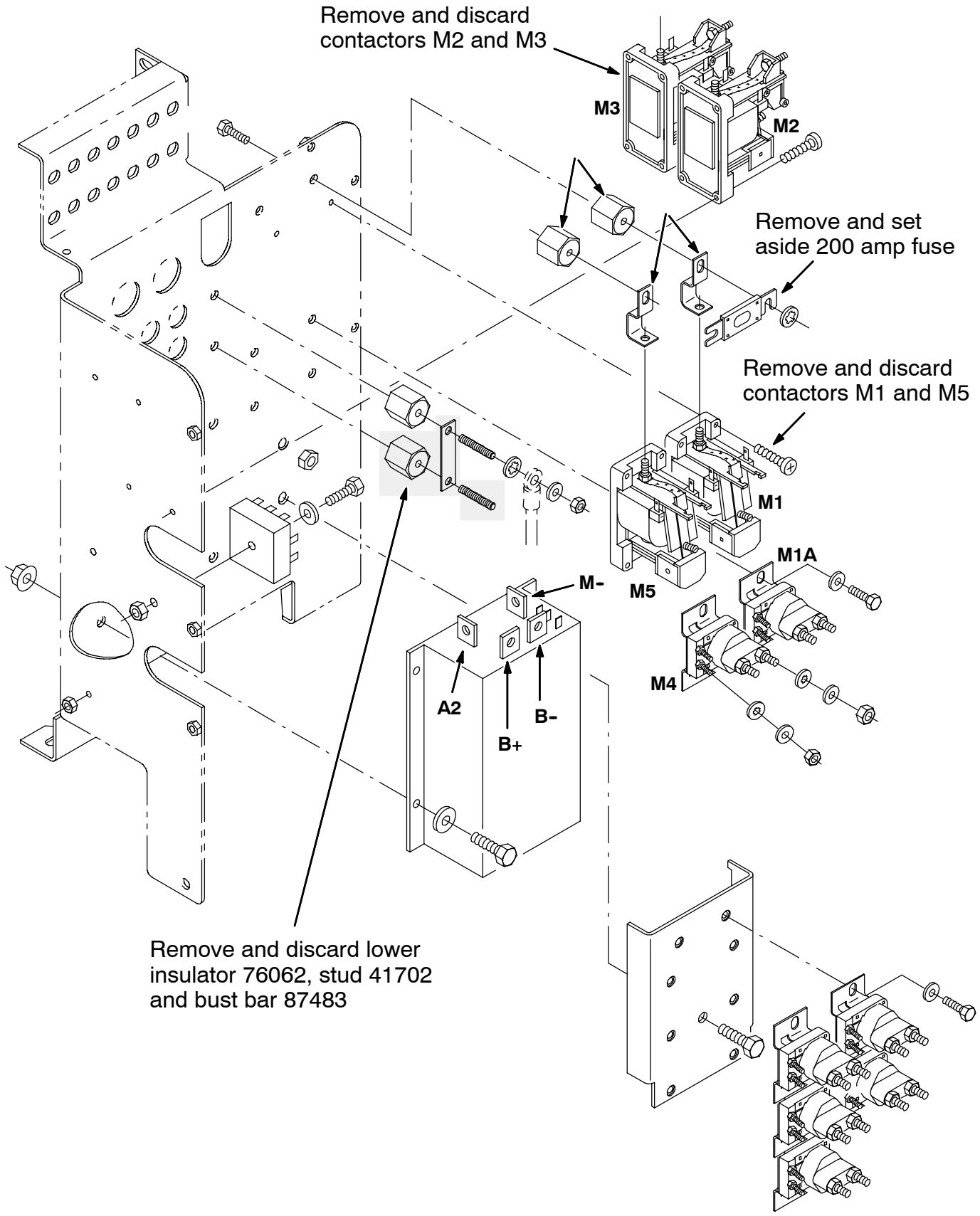


FIG. 1 - Contactor and Insulator Removal

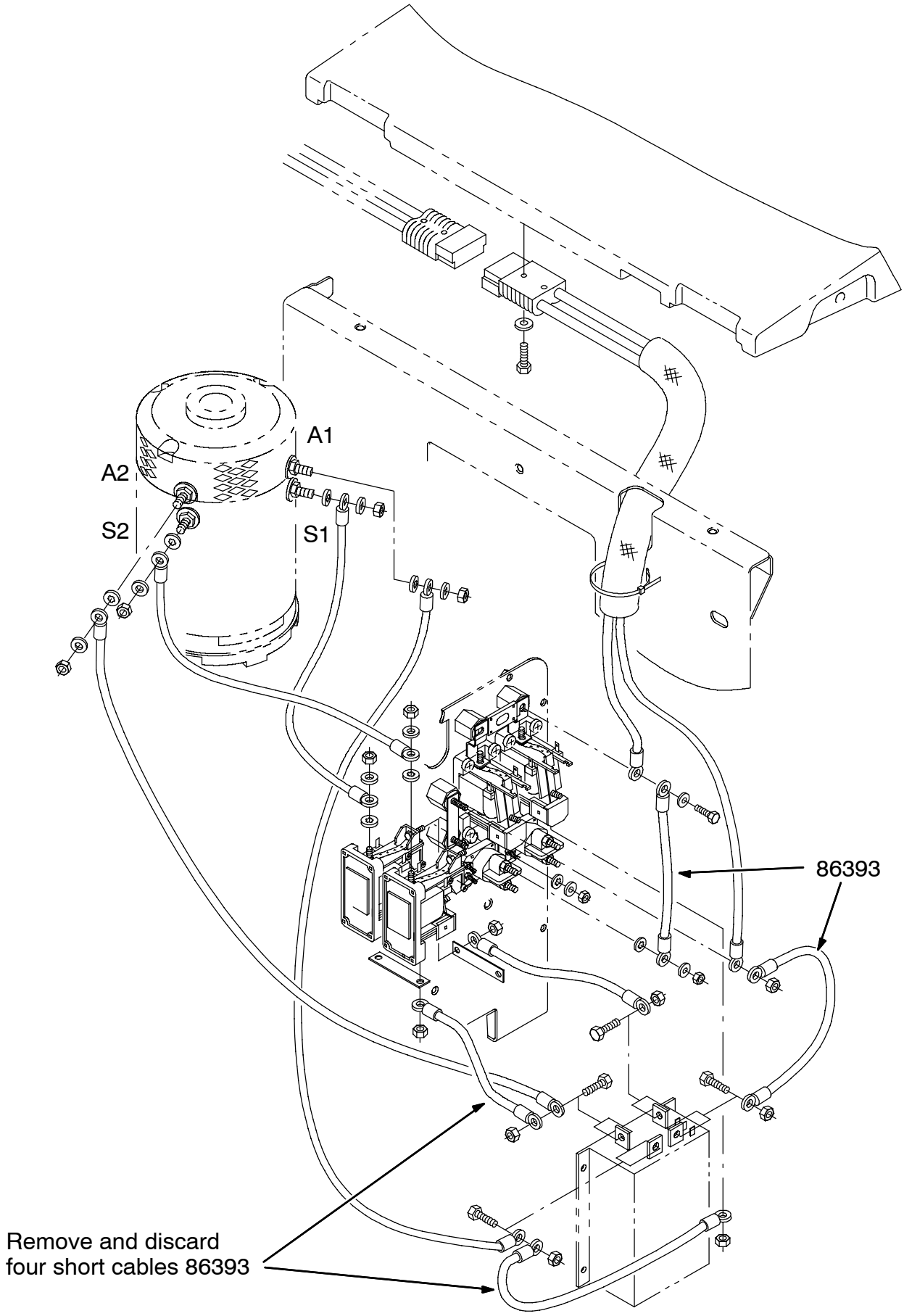


FIG. 2 - Cable Removal

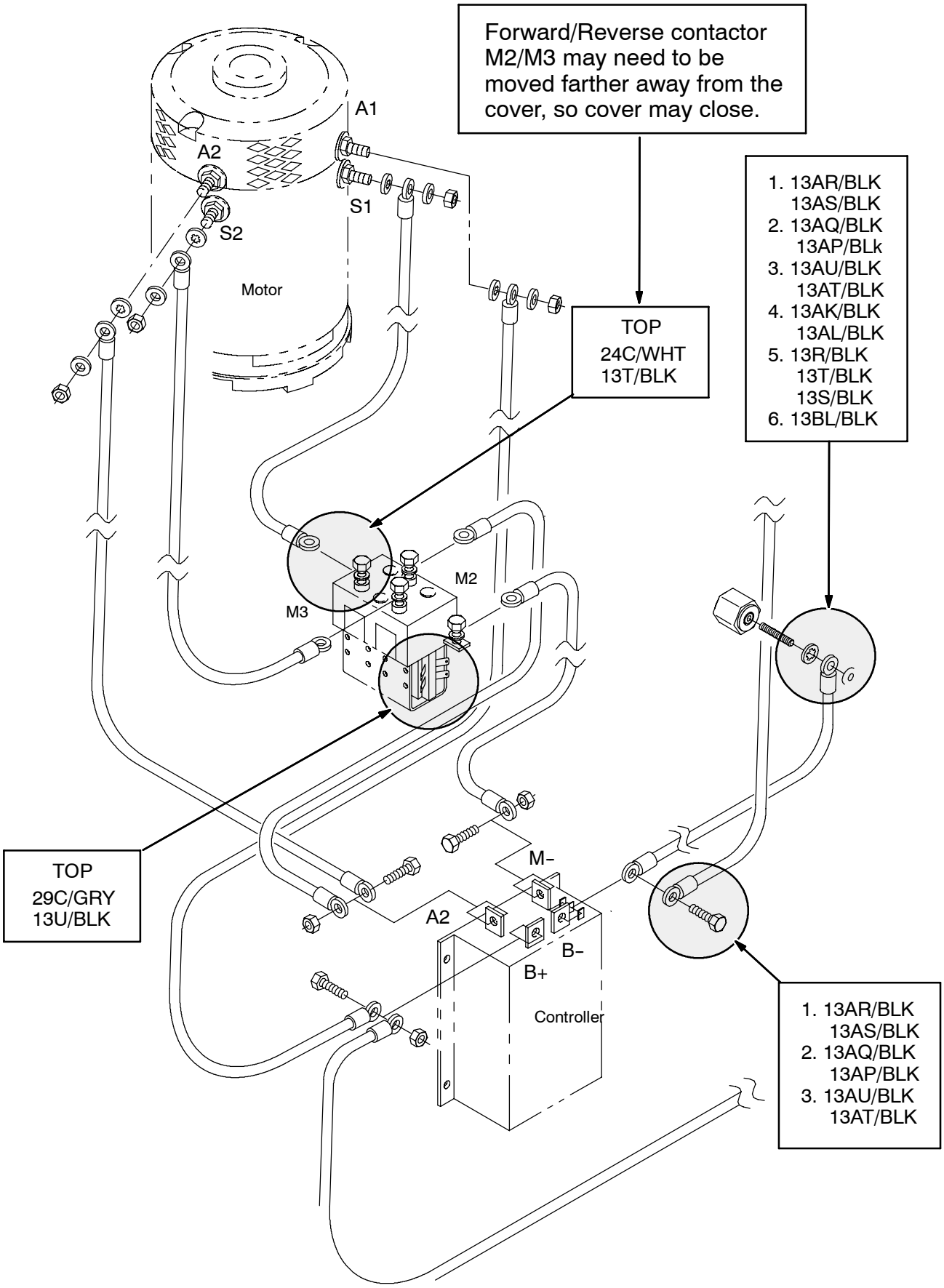


FIG. 3 - New Control Box Wires Group

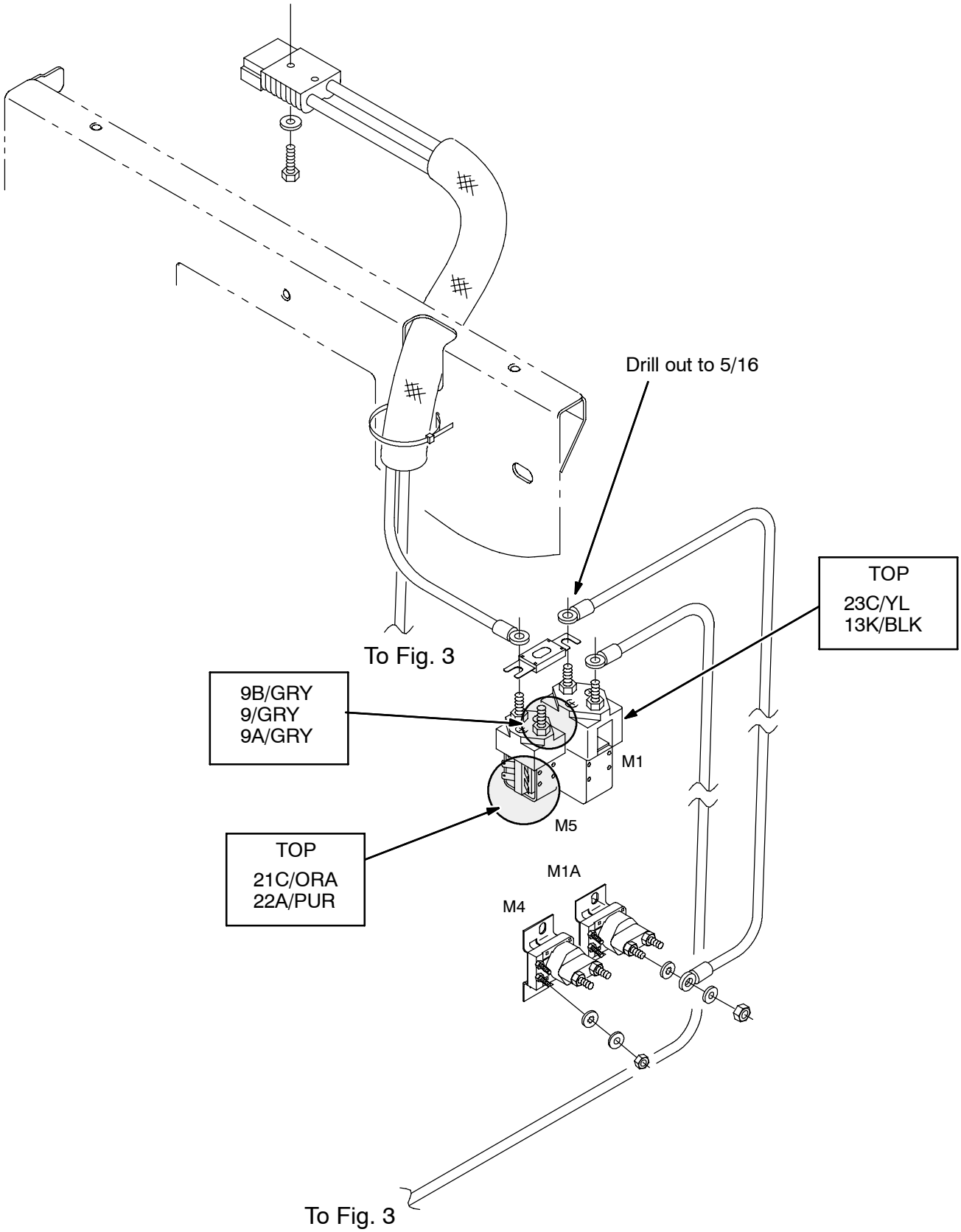


FIG. 4 - New Control Box Wires Group

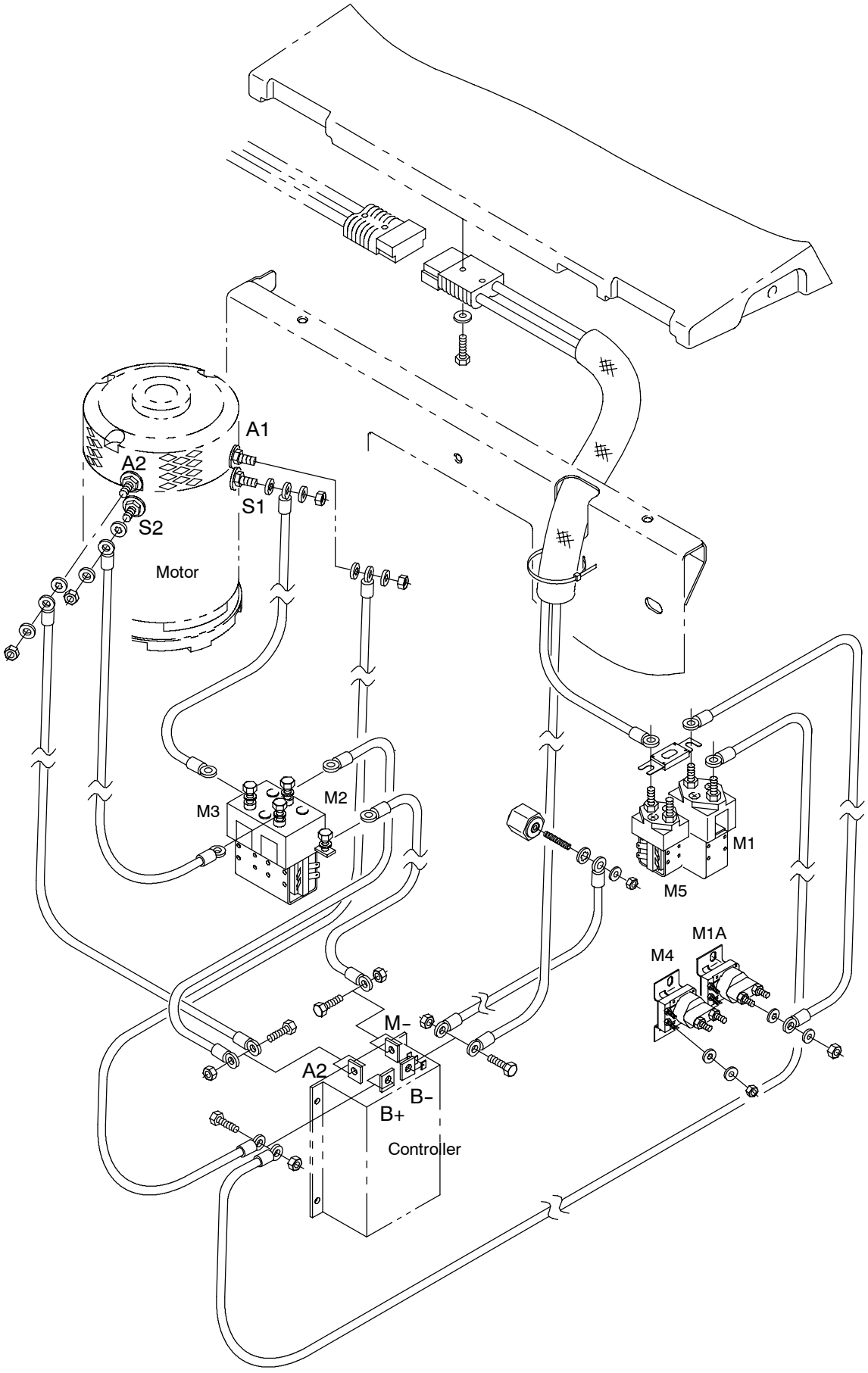


FIG. 5 - Control Box Rework

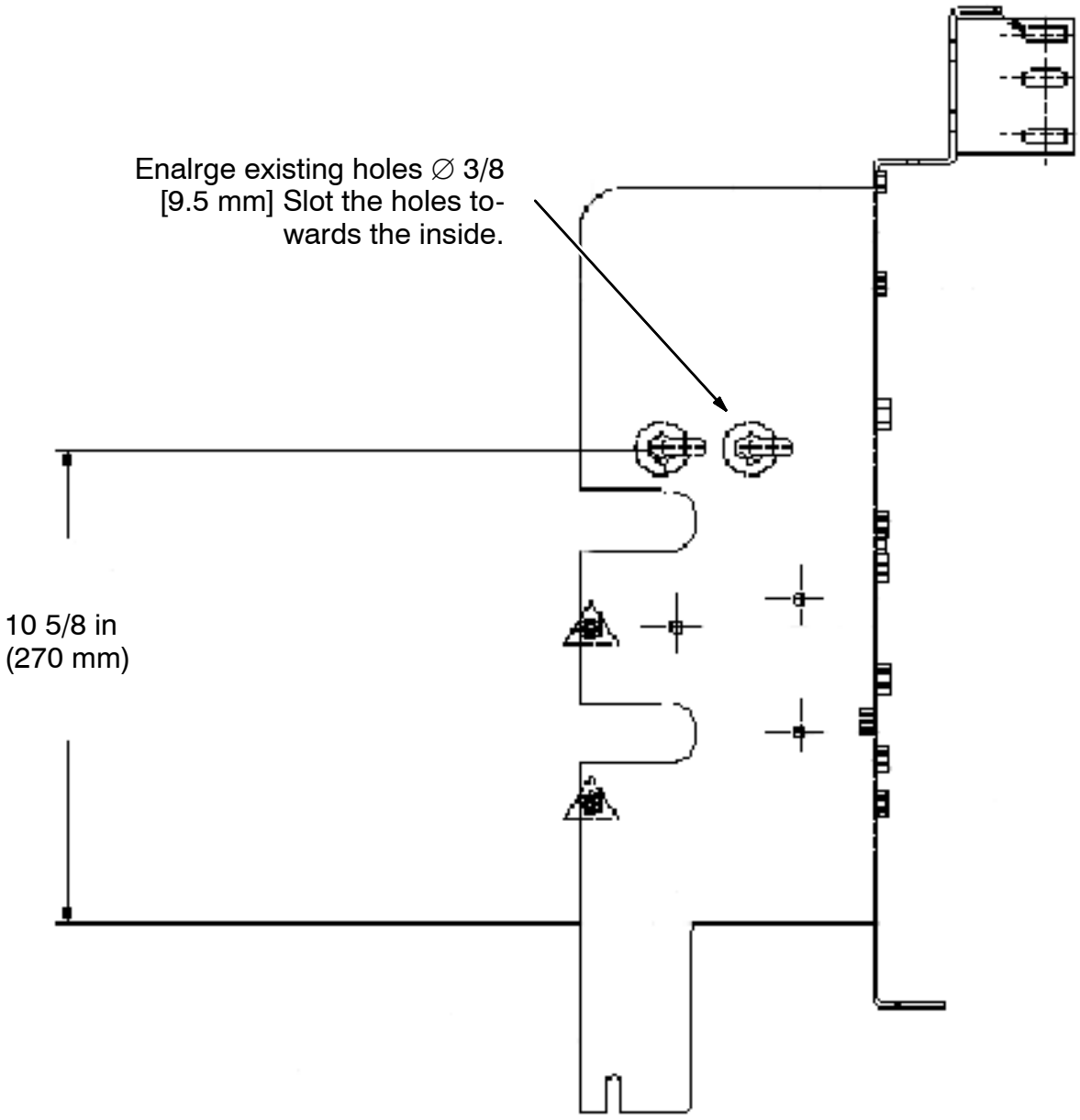


FIG. 6 - Control Box Rework

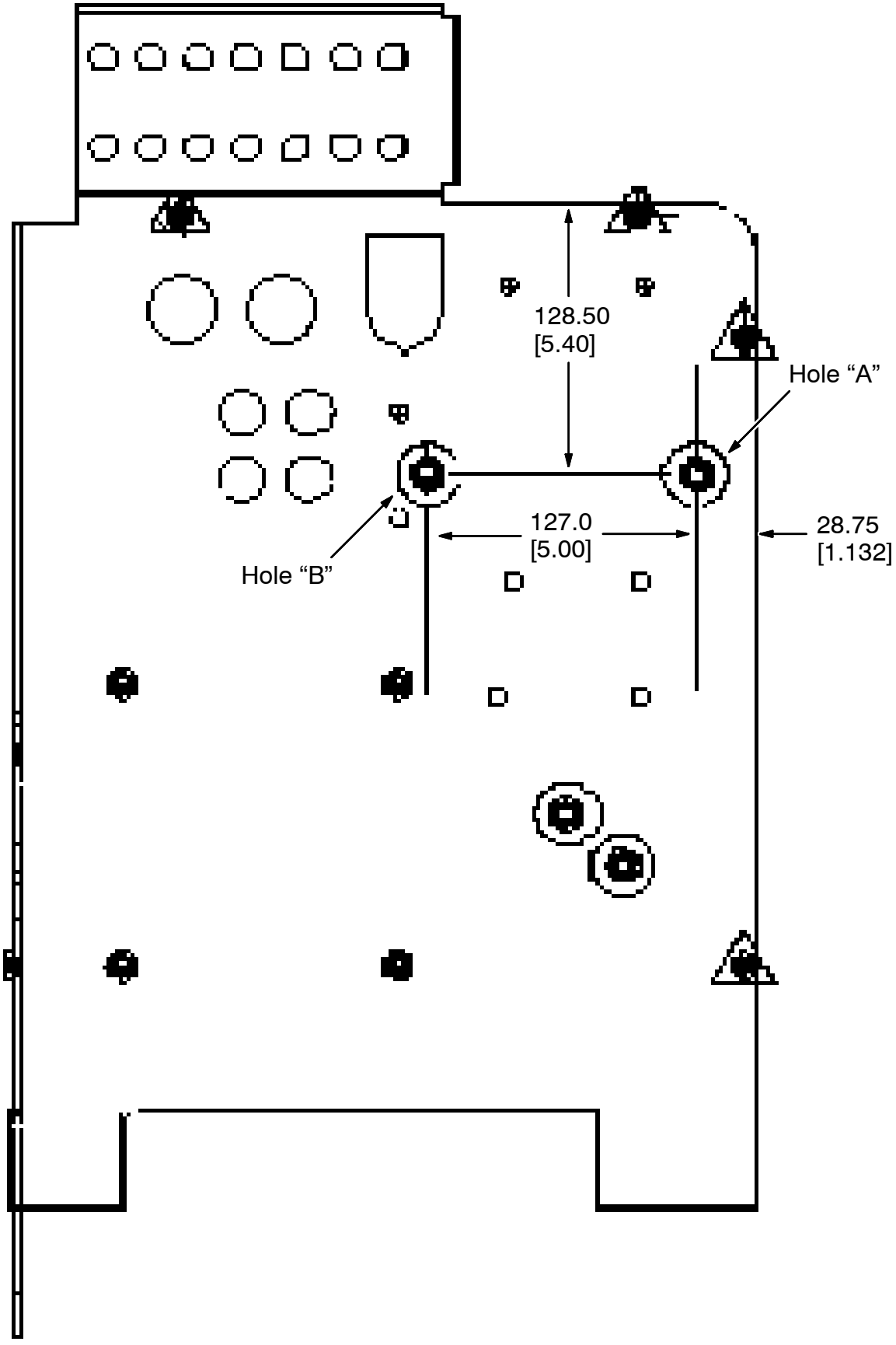


FIG. 7 - Control Box Rework

BILL OF MATERIALS FOR 200 AMP CONTACTOR KIT 387643

Ref.	TENNANT Part No.	Description	Qty.
1	1007349	Contactor, 36 VDC, 200 AMP, DPDT	1
2	1007353	Bracket, mtg, relay	1
3	06931	Screw, pan, M5 X 0.8 X 6, 4.8	8
4	07514	Washer, lock, int, #10, Ss	12
5	09010	Screw, hex, M8 X 1.25 X 25, 8.8	4
6	07791	Nut, hex, flng, M08 X 1.25	4
7	1007337	Contactor, 36 VDC, 200 AMP, SPST	1
8	387639	Contactor, 36 VDC, 100 AMP, SPST	1
9	06925	Screw, pan, M4 X 0.7 X 6, 4.8	4
10	02938	Washer, lock, int, #08, Ss	4
11	1007344	Bracket, mt, controller, sol	1
12	386804	Wire assy, 2 Ga, 27.0L Blk, 0.34H/0.34H	2
13	387641	Wire assy, 2 Ga, 10.0L Lng, Blk	3
14	387648	Nut, tall	1
15	222290	Diode, ele, plug	2
16	370156	Harness, switch, key, diode	2
17	16931	Screw, hex, M8 X 1.25 X 20, 8.8	1

BILL OF MATERIALS FOR CONTACTOR KIT, 200A, IRON GRAY, CI 9006969

Ref.	TENNANT Part No.	Description	Qty.
1	1007349	Contactor, 36 VDC, 200 AMP, DPDT	1
2	1056489	Bracket, Mtg, Relay, Iron Gray	1
3	06931	Screw, pan, M5 X 0.8 X 6, 4.8	8
4	07514	Washer, lock, int, #10, Ss	12
5	09010	Screw, hex, M8 X 1.25 X 25, 8.8	4
6	07791	Nut, hex, flng, M08 X 1.25	4
7	1007337	Contactor, 36 VDC, 200 AMP, SPST	1
8	387639	Contactor, 36 VDC, 100 AMP, SPST	1
9	06925	Screw, pan, M4 X 0.7 X 6, 4.8	4
10	02938	Washer, lock, int, #08, Ss	4
11	1056488	Bracket, Mtg, Controller, Sgl, Iron Gray	1
12	386804	Wire assy, 2 Ga, 27.0L Blk, 0.34H/0.34H	2
13	387641	Wire assy, 2 Ga, 10.0L Lng, Blk	3
14	387648	Nut, tall	1
15	222290	Diode, ele, plug	2
16	370156	Harness, switch, key, diode	2
17	16931	Screw, hex, M8 X 1.25 X 20, 8.8	1

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