

# Repair Kits for 390 PC Cordless and ES 500 Stencil Sprayers

3A8313B

EN

*For repair of 390 PC Cordless and ES 500 Stencil sprayers. For professional use only.*



## Important Safety Instructions

Read all warnings and instructions in this manual and in your 390 PC Cordless or ES 500 Stencil sprayer manual before using this equipment. Be familiar with the controls and the proper usage of the equipment. Save all instructions.

## Contents


Section	Kit Description	Kit #*
1 Drive	Motor shroud replacement, page 6	25U300, 826283, 19D615
	Motor replacement, page 6	20A554
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	Battery compartment replacement, page 10	19D606
2 Control	Control board replacement, page 12	20A555
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* Refer to Owners/Operations manual 3A8179 for information on kits		






Refer to the illustrations in this document and your Owners/Operators manual (3A8179) for additional parts, kits, information, wiring diagrams, and any additional torques.

## Pressure Relief Procedure

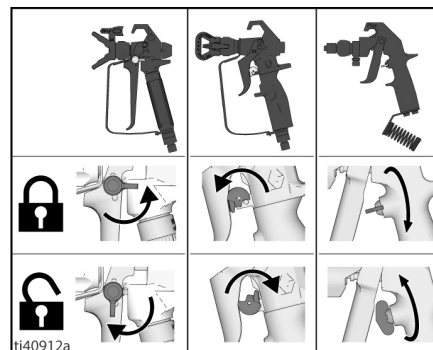
Before servicing the sprayer, pressure must be relieved.

1. Follow **Grounding Instructions** in your sprayer manual if using flammable materials.
2. Engage the trigger lock.

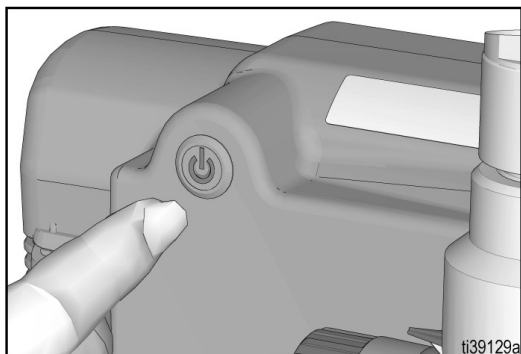

WARNING

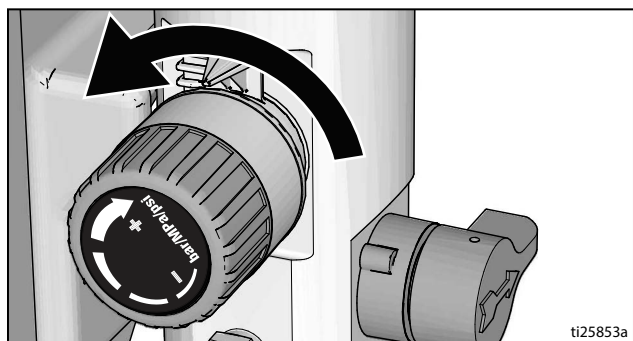
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, moving parts and splashed fluid, follow the Pressure Relief Procedure whenever sprayer is stopped and before sprayer is cleaned or checked, and before equipment is serviced.



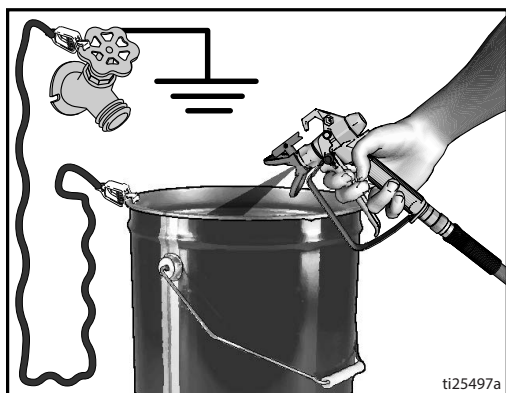
3. Turn ON/OFF switch to **OFF** position. Button is NOT illuminated when OFF. Wait seven seconds for power to dissipate.



4. Turn pressure control to lowest setting. Disengage the trigger lock.

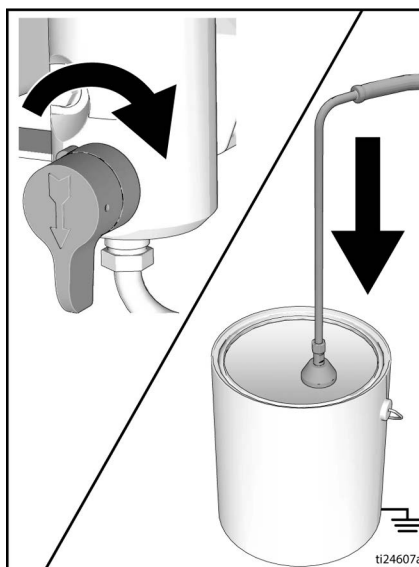


5. Hold a metal part of the gun firmly to a grounded metal pail. Point gun into pail. Disengage the trigger lock and trigger the gun to relieve pressure.



6. Engage trigger lock.

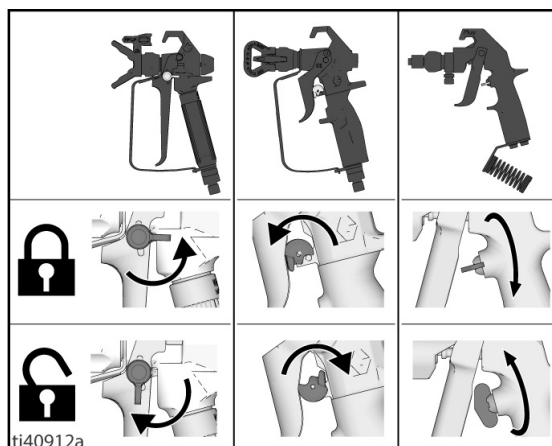
7. Put drain tube in a pail. Turn prime/spray valve down. Leave prime/spray valve in down (drain) position until you are ready to spray again.



8. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:
  - a. VERY SLOWLY loosen the tip guard retaining nut or the hose end coupling to relieve pressure gradually.
  - b. Loosen the nut or coupling completely.
  - c. Clear hose or tip obstruction.

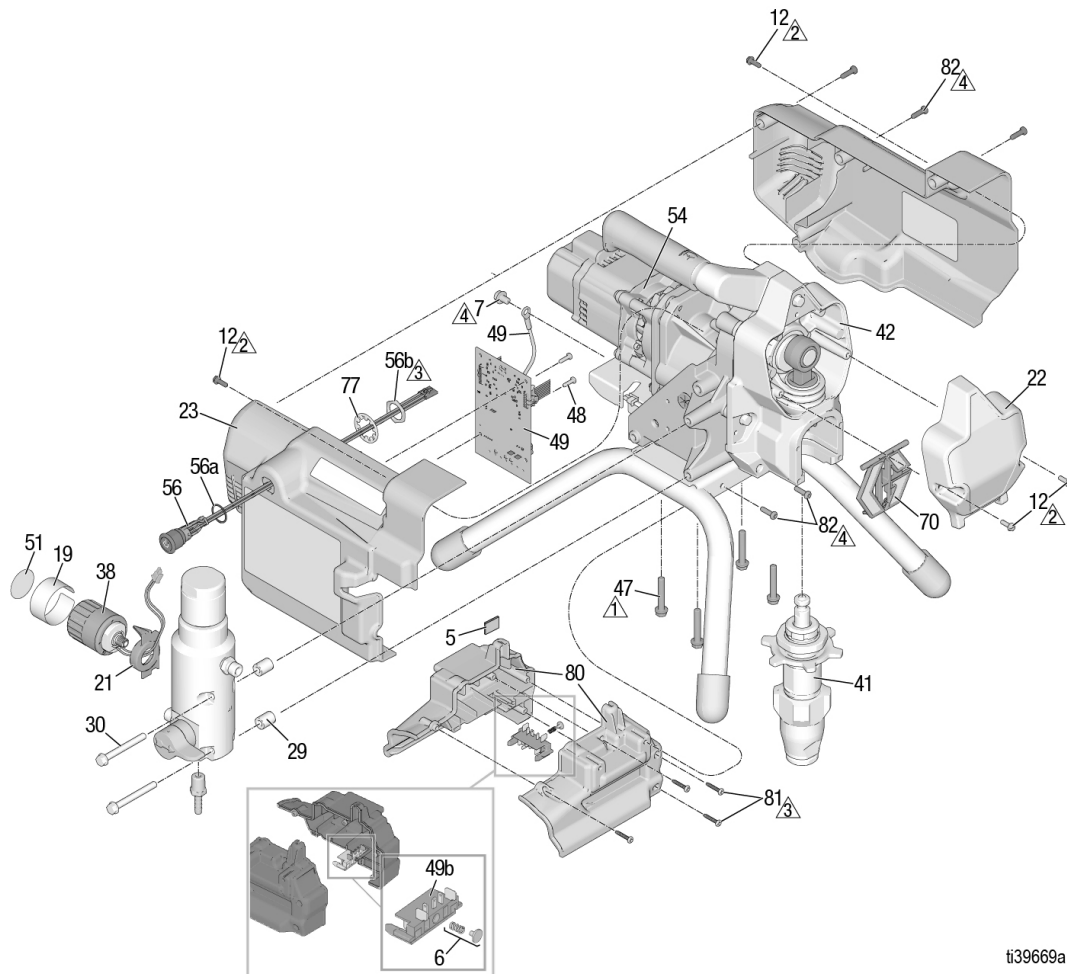
## Trigger Lock

Always engage the trigger lock when sprayer is stopped to prevent the gun from being triggered accidentally by hand or if dropped or bumped.



# Sprayer Assembly Drawing

Ref	Description	Ref	Description
5	GASKET, foam pad	47	SCREW, machine, hex washer hd.
6	SPRING BUTTON	48	SCREW, torx (x2)
7	SCREW, mach, ground	49	CONTROL BOARD
12	FASTENER, shroud, top, 0.25 in. hex hd. (x4)	51	PRESSURE CONTROL LABEL, top
15	MANIFOLD	54	MOTOR MODULE KIT
19	PRESSURE CONTROL LABEL	56	SWITCH, power
21	PRESSURE CONTROL INDICATOR	56a	O-RING
22	COVER, front	56b	LOCK NUT
23	MOTOR SHIELD	59	FRAME
29	SPACER (x2)	70	COVER, pump rod
30	SCREW, machine, hex (x2)	77	WASHER, lock
38	PRESSURE CONTROL	80	BATTERY COMPARTMENT
41	PUMP	81	FASTENER, battery compartment (x4)
42	HOUSING, drive	82	FASTENER shroud, torx, T20 (x6)

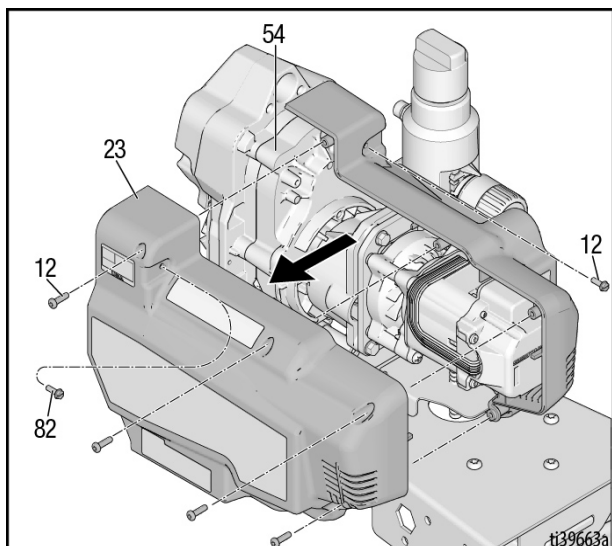


Ref.	Torque	Ref.	Torque
1	140-160 in-lbs. (15.8-18.1 N•m)	3	10-20 in-lbs (1.13 - 2.26 N•m)
2	23-27 in-lbs (2.6-3.1 N•m)	4	25-35 in-lbs (2.8 - 4.0 N•m)

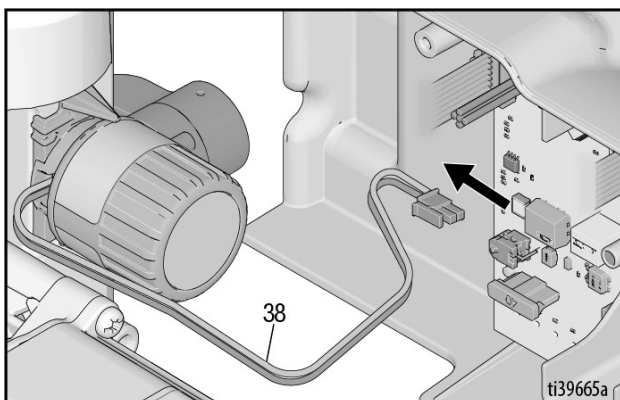
# Pressure Control Replacement

## Removal

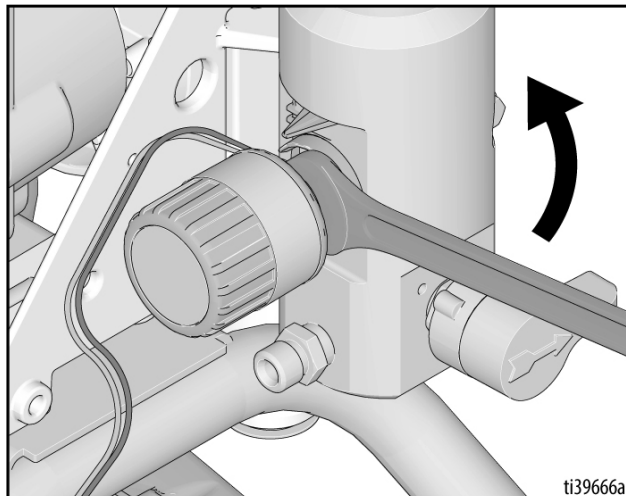
1. Perform **Pressure Relief Procedure**, see page 4.
2. Turn ON/OFF switch to **OFF** and remove battery.
3. Remove motor shroud, see **Motor Shroud Replacement**, page 6.



4. Disconnect pressure control assembly connector (38) from control board. See **Wiring Diagram**, page 19.



5. Loosen and remove pressure control (38).

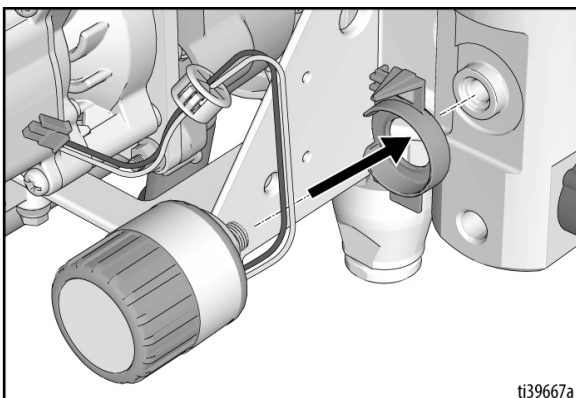


### NOTICE

If you intend to reuse the pressure control, be careful not to damage or tangle the wires when unscrewing the pressure control.

## Installation

1. Verify that the o-ring (56a) is installed on the pressure control (38) before installing it.
2. Align pressure control indicator (21) on the manifold (15) so the opening for the wires faces the motor and the indicator faces up.

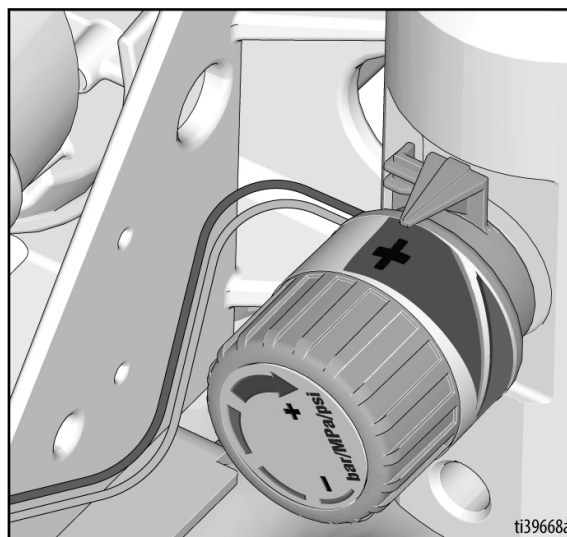


3. Apply thread sealant to pressure control (38) threads.
4. Install pressure control (38). Torque to 140-160 in-lb (15.8 - 18.1 N•m).

### NOTICE

Be careful when tightening pressure control (38), the wires can be damaged if pinched between pressure control (38) and manifold (15).

5. Tuck wires into pressure control indicator (21) and out the opening.
6. Connect pressure control assembly connector (38) to control board. See **Wiring Diagram**, page 19.
7. Install motor shield (23), see **Motor Shroud Replacement**, page 6.
8. Turn pressure control knob (38) clockwise as far as it will go. Apply new pressure control labels (19 and 51) to knob.
9. When label (19) is positioned properly, the indicator and hi-spray position symbol on the pressure control label are aligned.



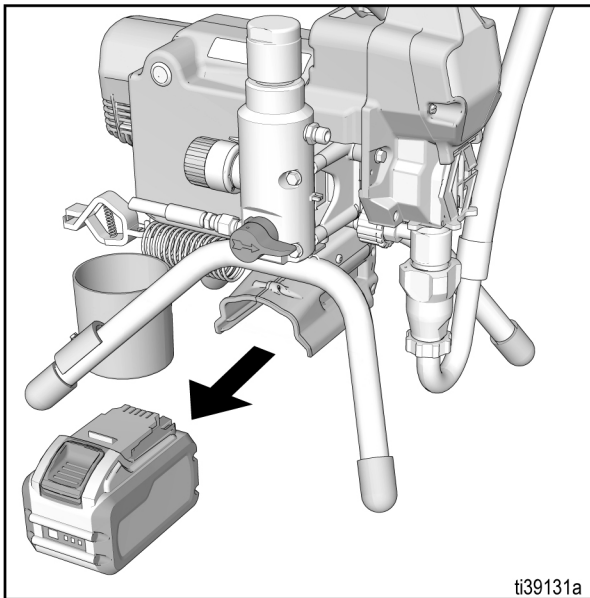
# Motor Shroud Replacement

## Removal

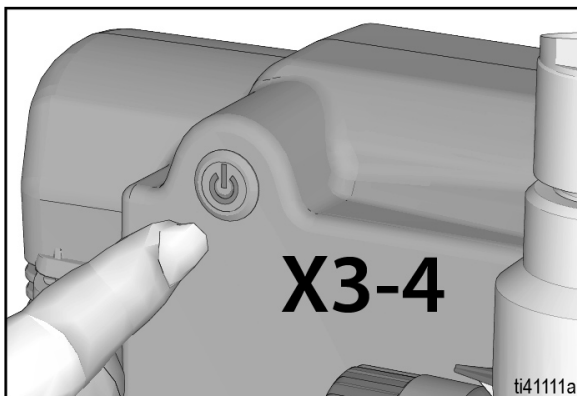
### NOTICE

Follow the order of instructions shown in the image in step 7 when disconnecting and re-connecting the control board connectors. Failure to remove or install the board connectors in the proper order may result in damage to the control board, motor, or both.

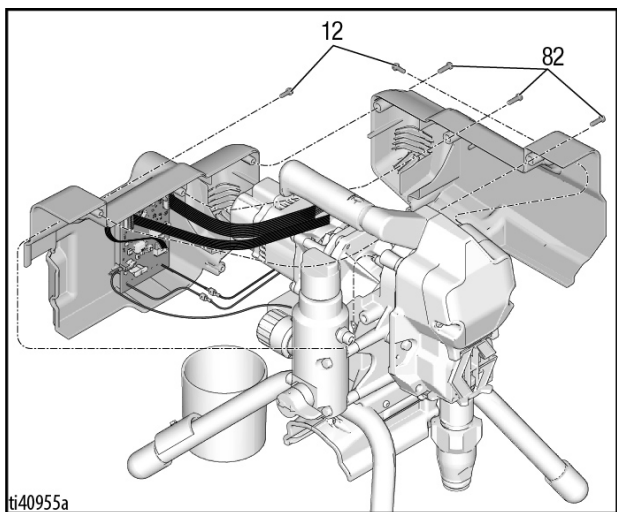
1. Perform **Pressure Relief Procedure**, page 1.
2. Remove battery.



3. Press power switch three to four times to discharge motor capacitors.

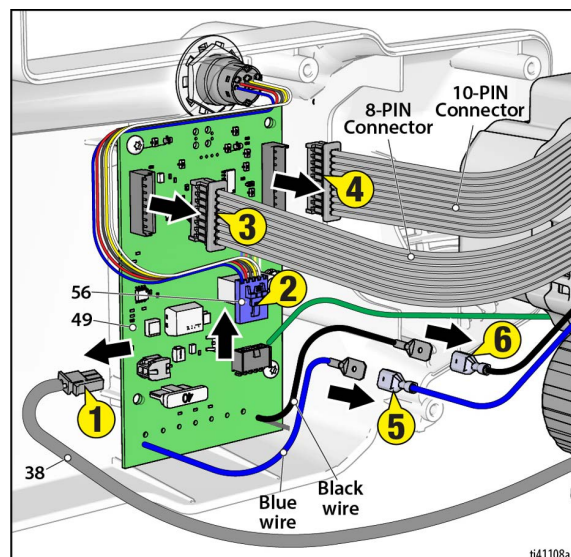


4. Remove two fasteners (12) connecting motor shield (23) to motor module (54).
5. Remove four fasteners (82) holding two shroud halves (23) together. Separate and remove left shroud half (not containing the control board).
6. Carefully slide right shroud out and away from motor enough to allow access to control board connectors.



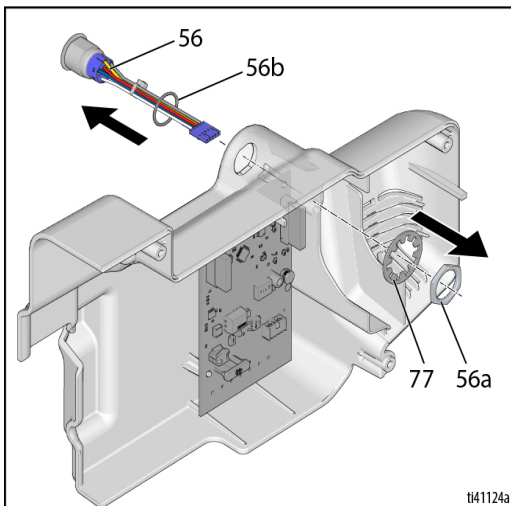
7. Disconnect pressure control connector (38) from control board (49).

**Note:** Follow the order of instructions as shown in the image below.



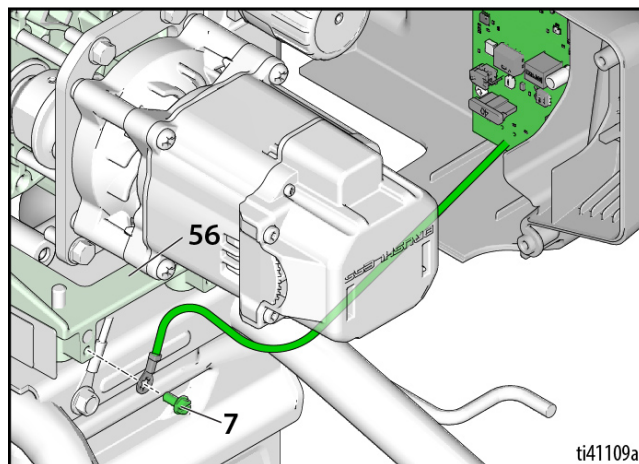


8. Disconnect power switch connector (56b) from control board (49) and remove switch from shroud, see **Power Switch Replacement**, page 17.

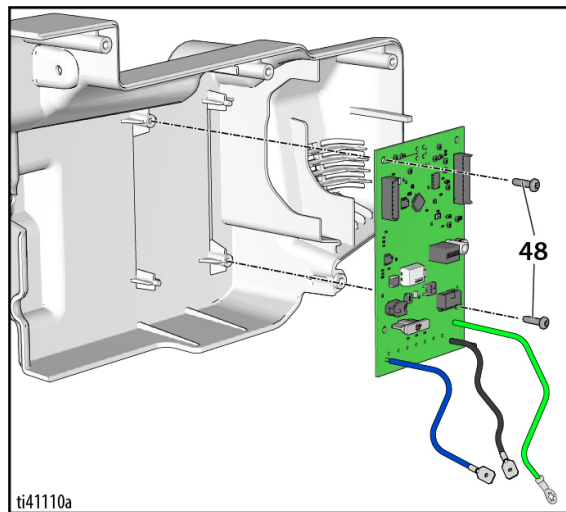


9. Disconnect all motor connectors from control board. Disconnect 8 and 10 pin connectors first, then disconnect blue wire connector then black wire connector. See **Wiring Diagram**, page 19.

10. Remove control board ground screw (7) from motor module (54).



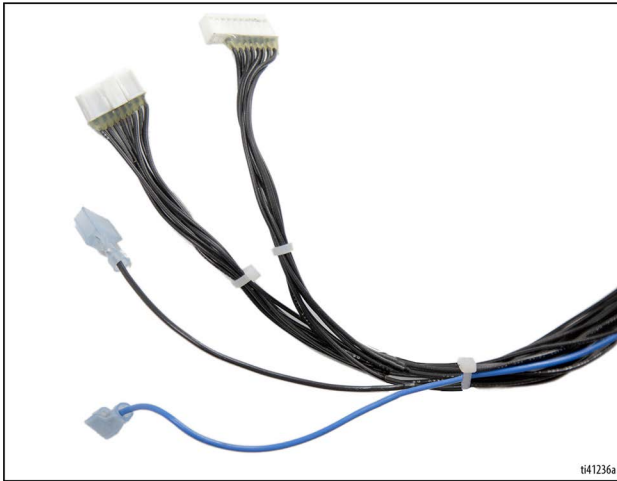
11. Remove two screws (48) securing control board to shroud.



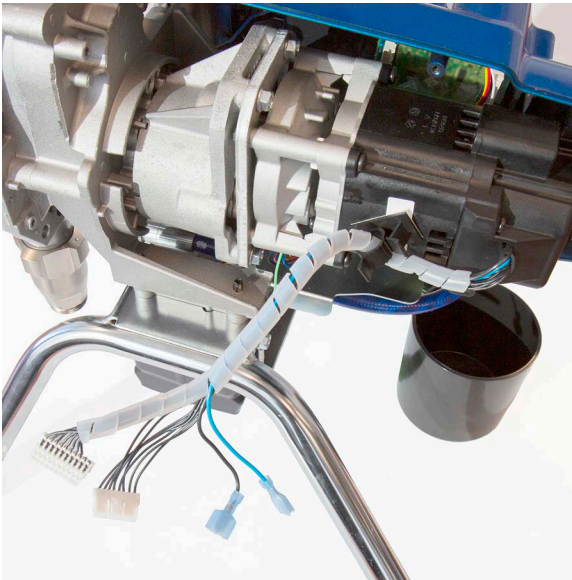
## Installation

If your unit does not have the wire wrap around the motor wire harness in the areas shown below, please follow steps 1-3 to add the wire wrap to provide proper wire routing during reassembly of the motor shroud.

### Unwrapped Harness

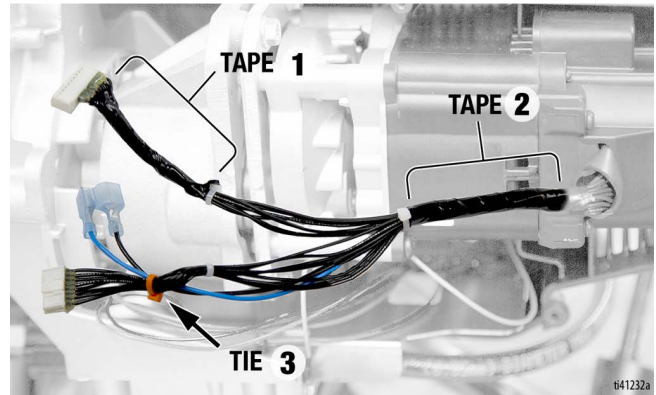


### Properly Wrapped Harness

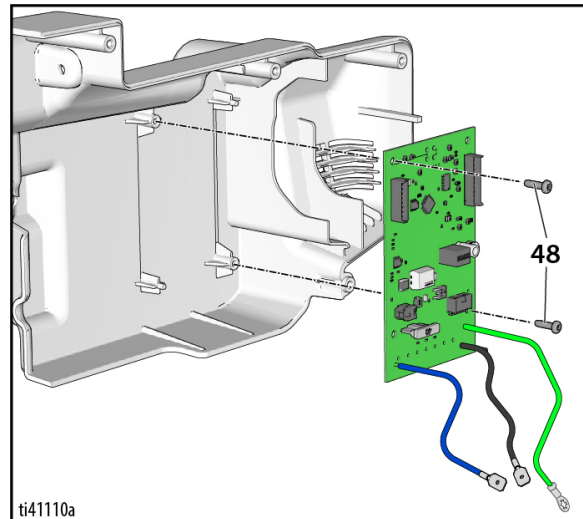


1. Wrap wire harness from 10 pin connector to the zip tie (approximately 2 to 3 in.).
2. Wrap wire harness from where wire harness exits motor to the zip tie (approximately 2 to 3 in.).

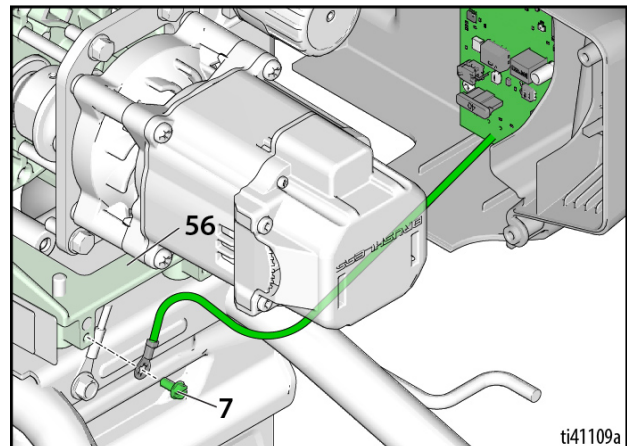
3. Place a zip tie around the 8 pin connector wire harness, black wire, and blue wire approximately 1 to 2 in. from the 8 pin connector.



4. Secure control board to shroud with two screws (48).

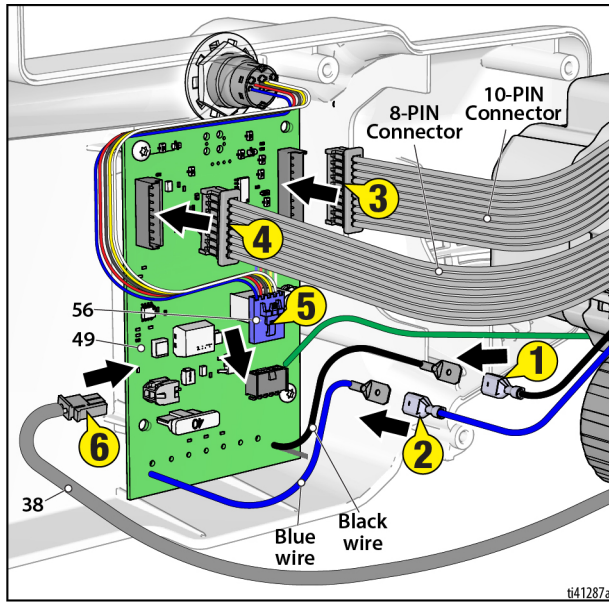


5. Attach control board ground screw (7) into the motor module (56).

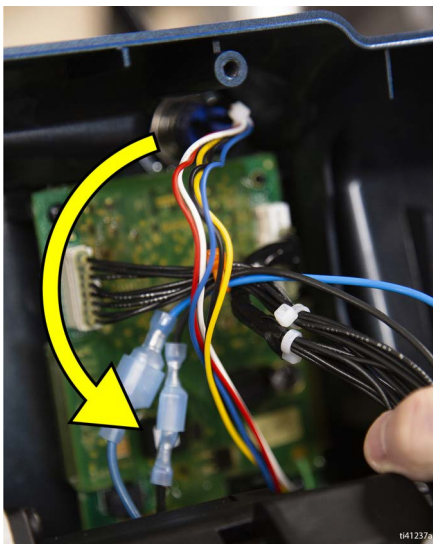




6. Reconnect all motor connectors to control board. Connect 8 and 10 pin connectors first, then connect blue wire then black wire connector.
7. Connect power switch connector (56) to control board.
8. Connect pressure control connector (38) to control board.



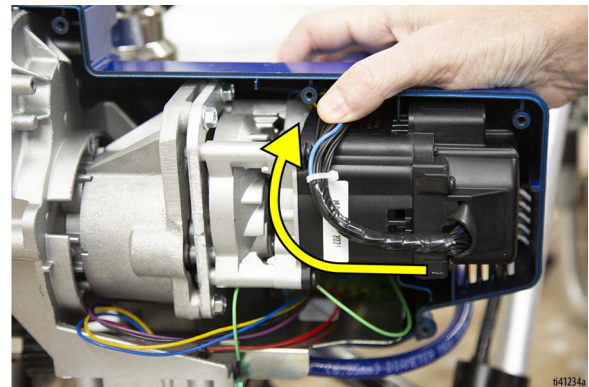
9. Route power button wires as shown. The wires should be to the left of the eight and ten pin connector wires.



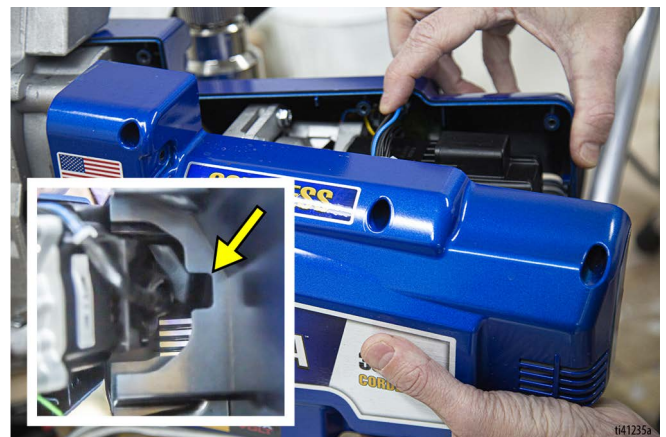
10. When re-installing shroud half with the control board attached, make sure no wires are pinched between the motor shroud and motor.



11. Wire harness routing should be positioned as shown prior to installing the front motor shroud.



12. When installing front motor shroud, make sure wire harness is positioned in the wire harness relief. Shroud should come together without obstruction.

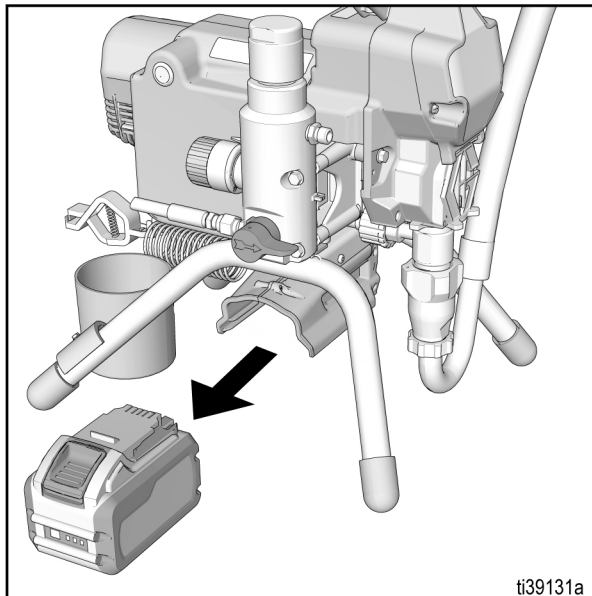


13. Carefully re-install shroud with four fasteners (82).
14. Re-install two machine screws (12) connecting shroud to motor housing (54).
15. Re-install battery.

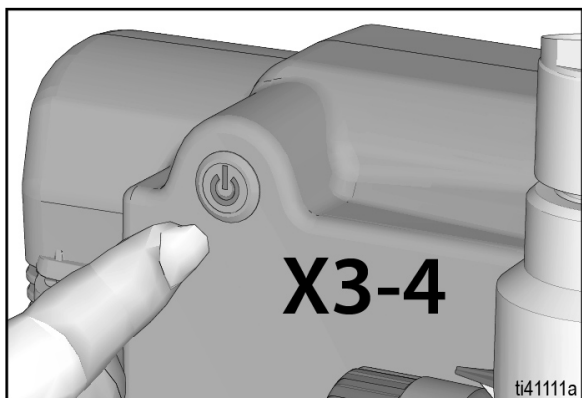
# Battery Compartment Replacement

## Removal

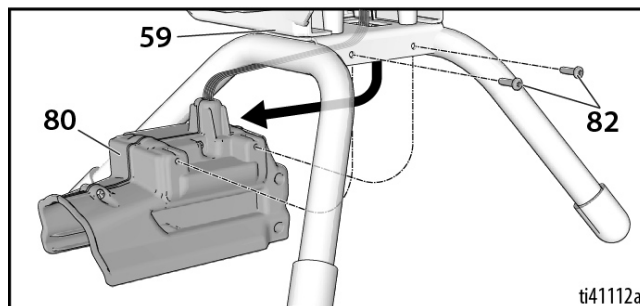
1. Perform **Pressure Relief Procedure**, page 1.
2. Remove battery.



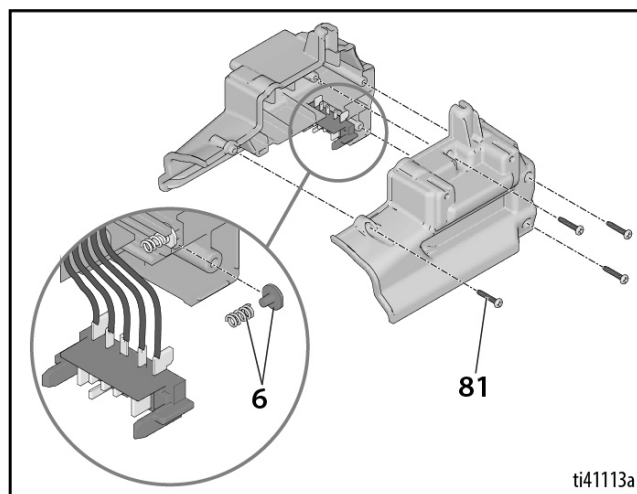
3. Press power switch three to four times to discharge motor capacitors.



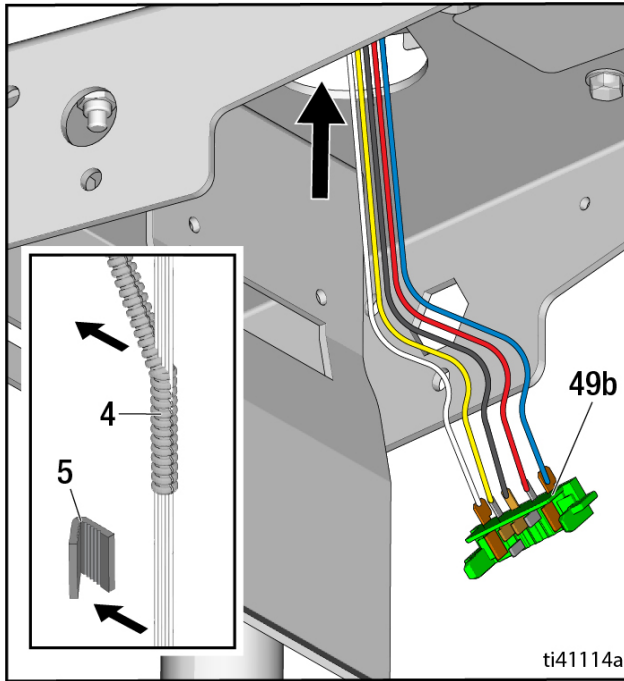
4. Remove two fasteners (82) holding the battery compartment (80) to the frame (59).



5. Tip the battery compartment (80) and slide assembly out of the slot in frame.
6. Remove four screws (81) holding battery compartment together.
7. Separate battery compartment halves.
8. Notice the spring button assembly (6) in one half of the battery compartment. DO NOT lose these parts.



9. Remove foam pad (5) and wire cover (4, Hi-boy only) from wires.



10. If replacing control board (49), remove control board battery terminal by carefully pulling it through opening in bottom of frame.

## Installation

1. Carefully install control board battery terminal (49) through opening in bottom of frame (if installing new control board).
2. Install foam pad (5) and wire cover (4, Hi-boy only) from wires.
3. Install spring button (6) and control board (49) into one side of the compartment. Re-connect battery compartment halves with four screws (81).
4. Carefully slide the assembly into the frame (59).
5. Install two screws (82) holding the battery compartment to the frame (59).
6. Install battery.

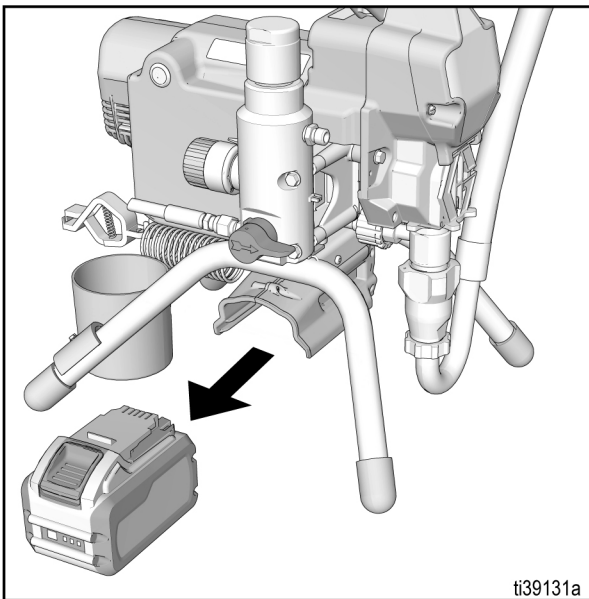
# Control Board Replacement

## Removal

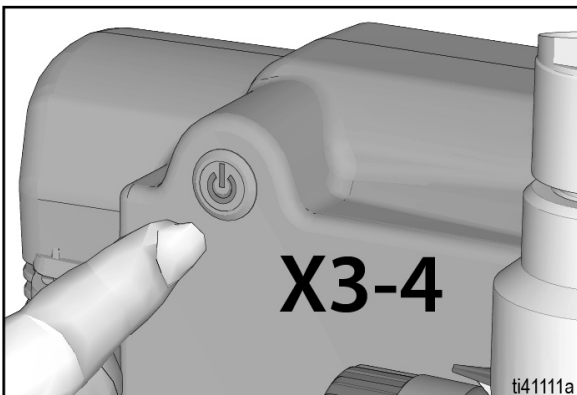
### NOTICE

Follow the order of instructions in the image in step 4 when disconnecting and re-connecting the control board connectors. Failure to remove or install the board connectors in the proper order may result in damage to the control board, motor, or both.

1. Perform **Pressure Relief Procedure**, page 1.
2. Remove battery.

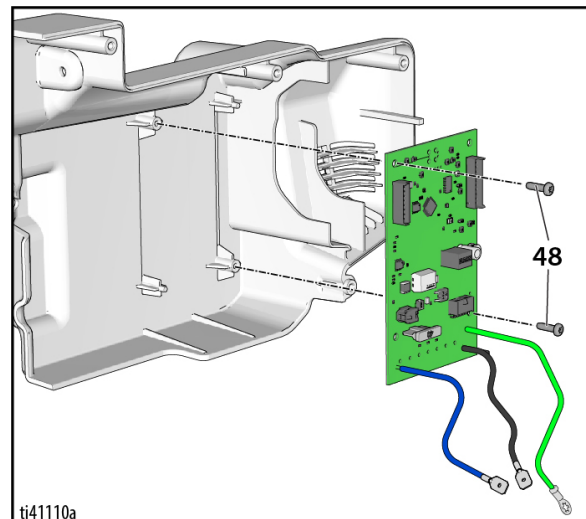
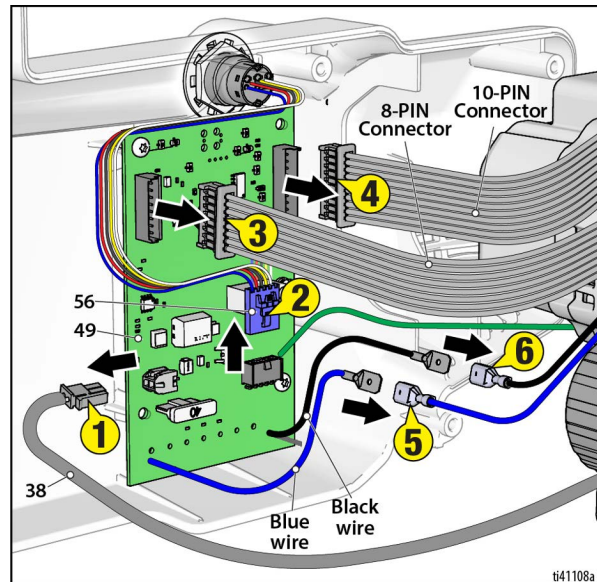


3. Press power switch three to four times to discharge motor capacitors.



4. Remove motor shroud. Disconnect board connectors and remove board (49) from shroud, see **Motor Shroud Replacement**, page 6.

**Note:** Follow the order of instructions as shown in the image in the image below.



5. Remove battery connector from frame, see **Battery Compartment Replacement**, page 10. It is not necessary to disassemble the battery compartment assembly in order to replace the motor, but to separate the assembly from frame to get access to fasteners holding the motor to the frame.



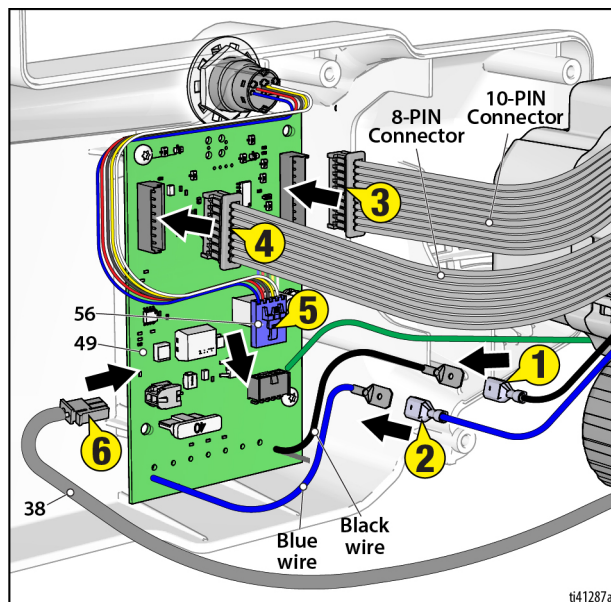
# Installation

## NOTICE

Follow the order of instructions in the image in step 2 when disconnecting and re-connecting the control board connectors. Failure to remove or install the board connectors in the proper order may result in damage to the control board, motor, or both.

1. Install battery connector into battery compartment (80), then install battery compartment into frame, see **Battery Compartment Replacement**, page 10.
2. Install control board (49) into shroud and reconnect all board connectors.

**Note:** Follow the order of instructions as shown in the image below.



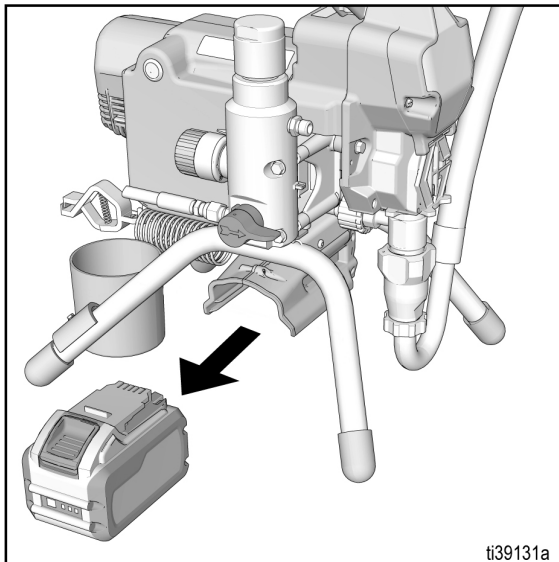
3. Install motor shroud, see **Motor Shroud Replacement**, page 6.
4. Install battery.



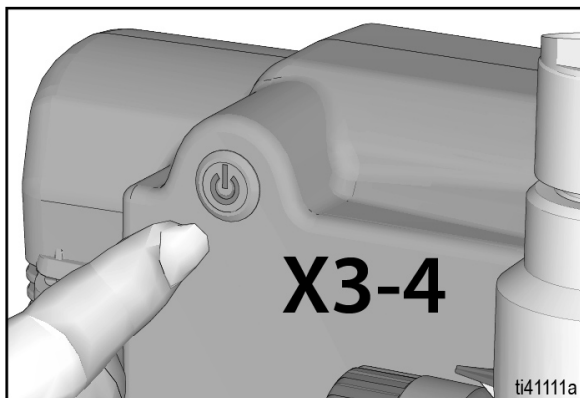
# Motor Module Replacement

## Removal

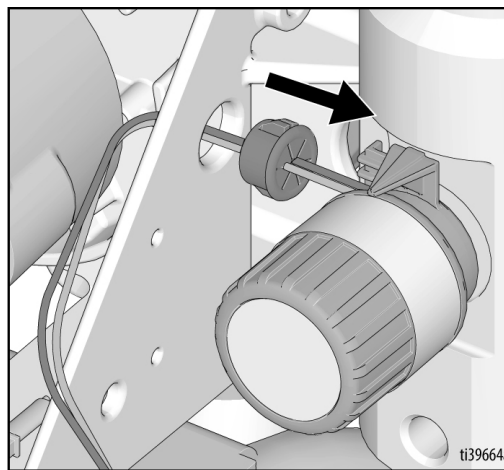
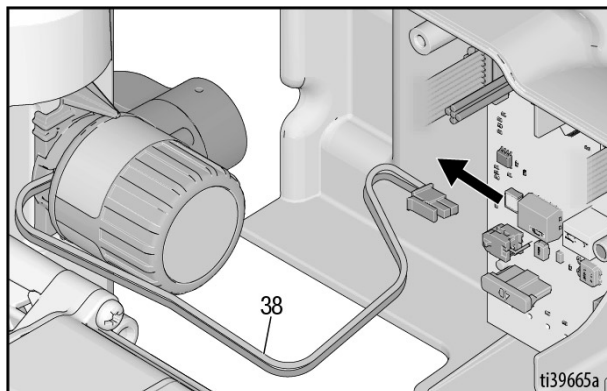
1. Perform **Pressure Relief Procedure**, page 1.
2. Remove battery.



3. Press power switch three to four times to discharge motor capacitors.

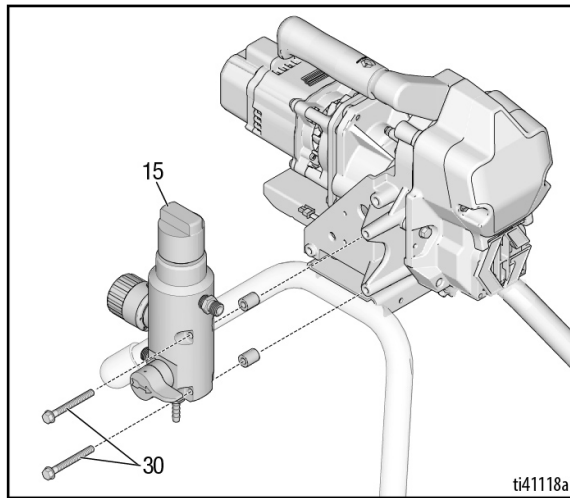


4. Remove motor shroud, see **Motor Shroud Replacement**, page 6. Disconnect PC connector from board and pull out of drive housing.

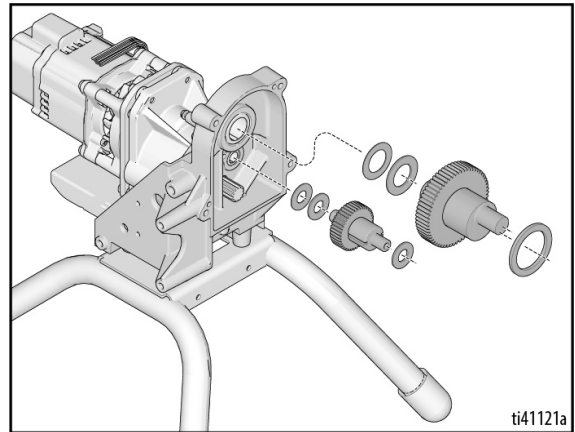


5. Remove battery compartment from frame, see **Battery Compartment Replacement**, page 10. It is not necessary to disassemble the battery compartment assembly in order to replace the motor, but need to separate the assembly from the frame to get access to fasteners holding the motor to the frame.

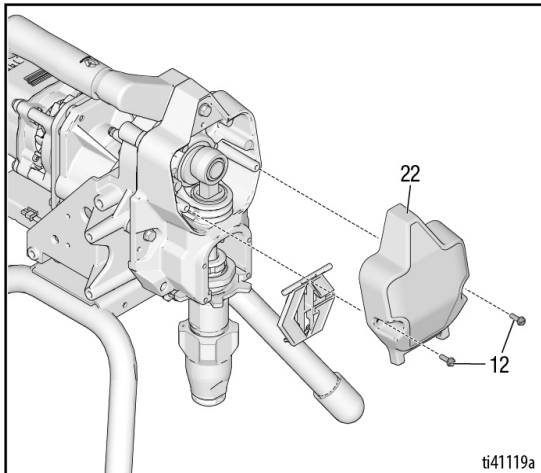
6. Remove the manifold (15) from the motor module by removing two screws (30).



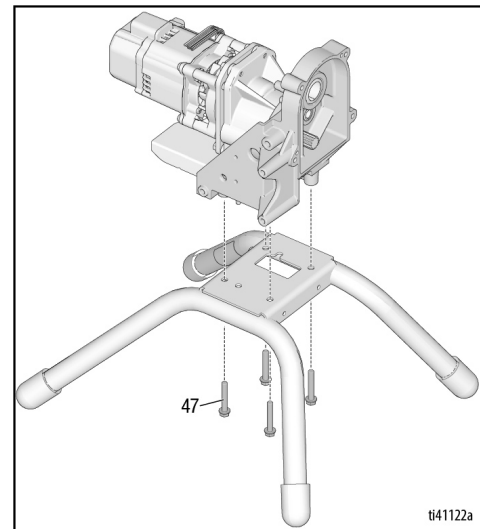
9. Remove gears and thrust washers.



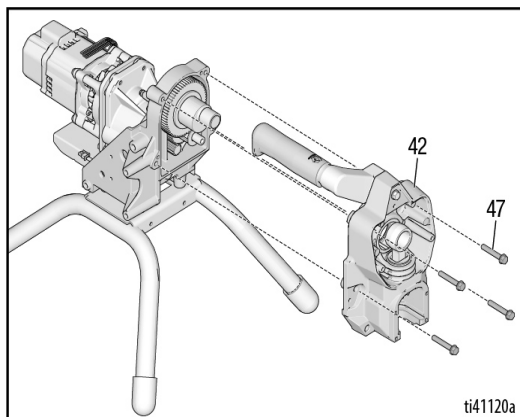
7. Remove front cover (22) by removing two screws (12).



10. Remove motor module from frame by removing four screws (47) joining the motor to the frame.

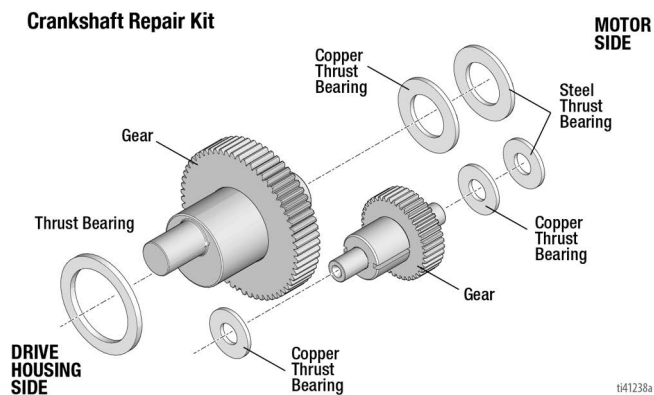


8. Remove drive housing (42) by removing four screws (47).



## Installation

1. Install motor module to frame with four screws (47).
2. Install gears and thrust washers.

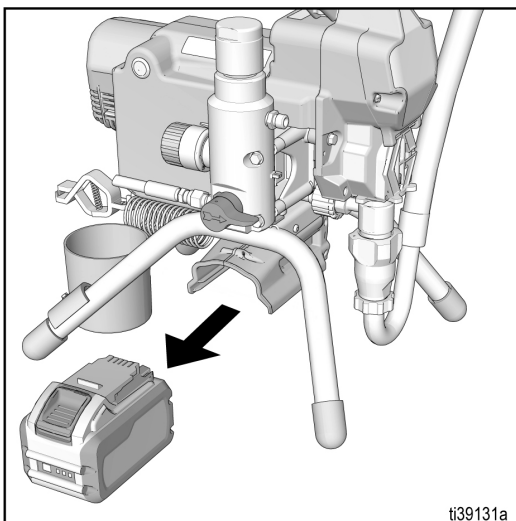


3. Re-attach drive housing (42) with four screws (47).
4. Install front cover (22) with two screws (12).
5. Install manifold (15) to the motor module with two screws (30).
6. Install battery compartment to frame, see **Battery Compartment Replacement**, page 10.
7. Install pressure control connector into the drive housing and assemble shroud, see **Control Board Replacement**, page 12 and **Motor Shroud Replacement**, page 6.
8. Install battery.

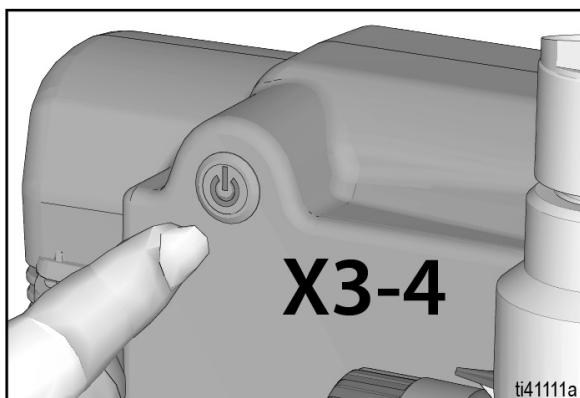
# Power Switch Replacement

## Removal

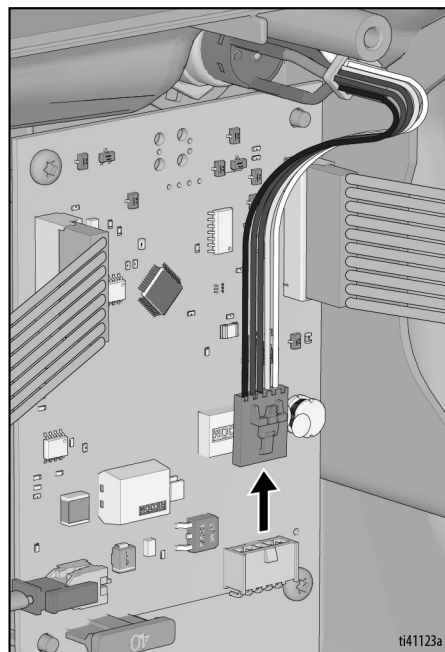
1. Perform **Pressure Relief Procedure**, page 1.
2. Remove battery.



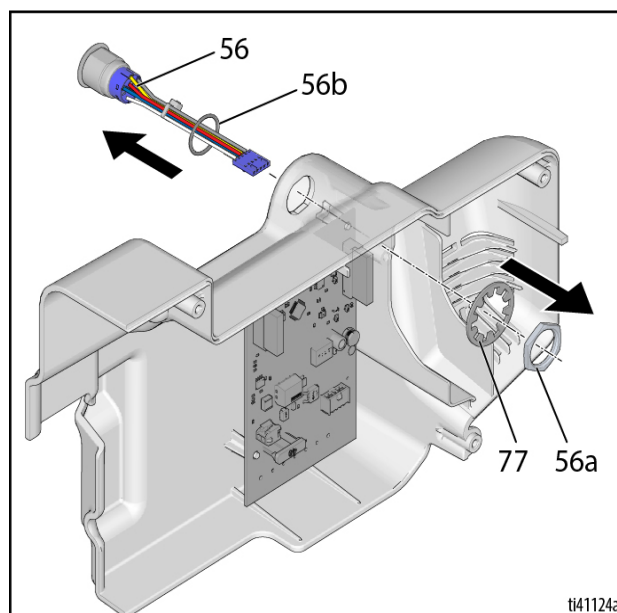
3. Press power switch three to four times to discharge motor capacitors.



4. Remove motor shroud, see **Motor Shroud Replacement**, page 6.
5. Disconnect power switch (56) from control board (49).



6. Use wrench to loosen power switch nut (56b) on inside of shroud. Remove nut and lock washer (77).



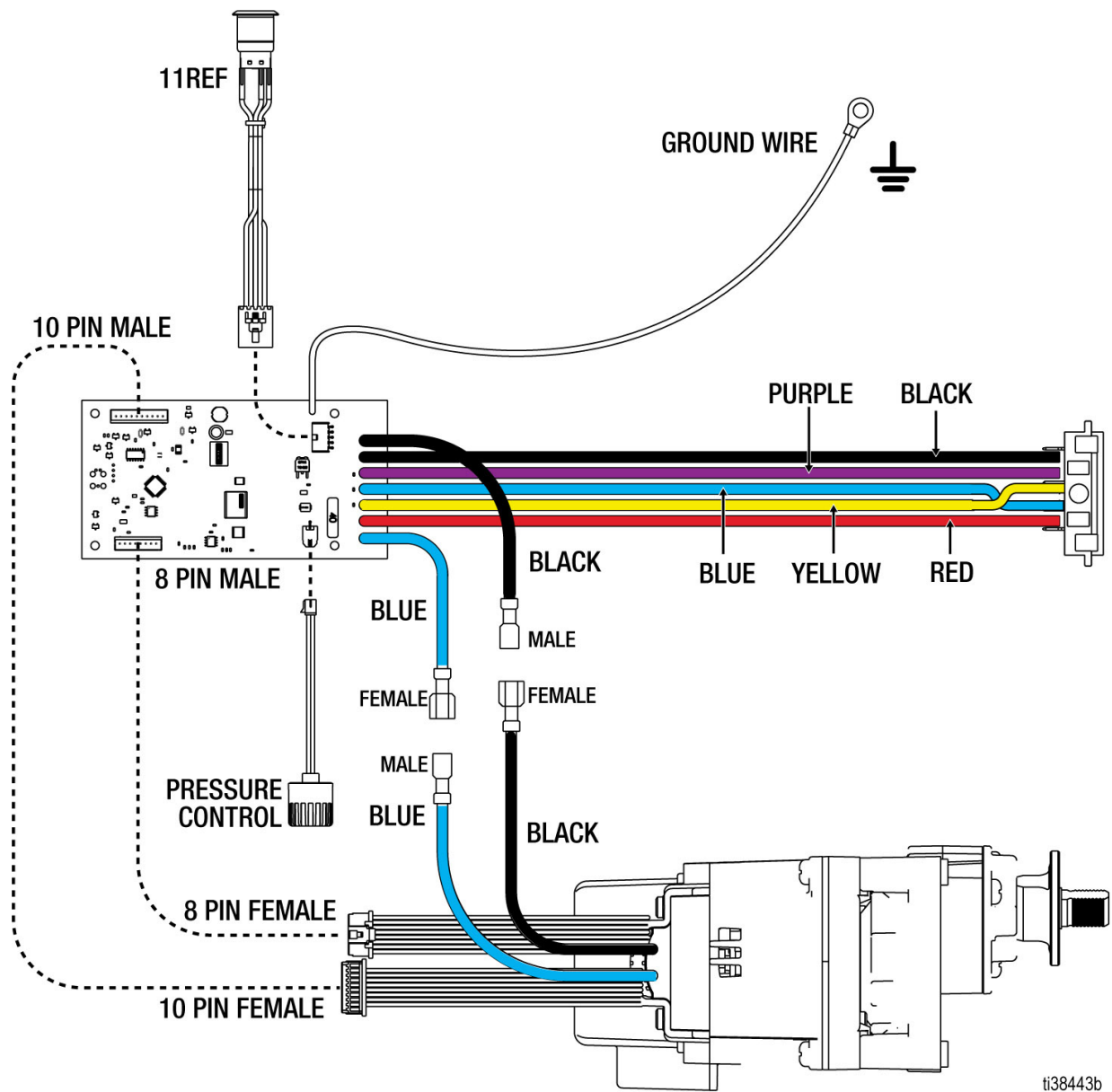
7. Remove power switch.

## Installation

1. Install power switch (56). Make sure o-ring (56a) is installed onto switch prior to installing in shroud.
2. Install lock washer (77) and lock nut (56b). Use a wrench to tighten power switch nut on inside of shroud.
3. Connect power switch to control board.
4. Install motor shroud, see **Motor Shroud Replacement**, page 6.
5. Install battery.



# Wiring Diagram



# California Proposition 65

## CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov).

## Graco Information

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

For patent information, see [www.graco.com/patents](http://www.graco.com/patents).

**TO PLACE AN ORDER**, contact your Graco distributor or call 1-800-690-2894 to identify the nearest distributor.

*All written and visual data contained in this document reflects the latest product information available at the time of publication.  
Graco reserves the right to make changes at any time without notice.*

Original instructions. This manual contains English. MM 3A8313

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