



# BAT-3101 (100A) and BAT-3102 (160A)

E-Z-GO TXT 48V, 1994+

Lithium Battery Pack Installation Kit  
(1) 52V LiFePo4 Battery for a 48V System

## INSTALLATION INSTRUCTIONS



BAT-3101



BAT-3102

**Caution:** Please read through the instructions carefully. Before starting this project, remove the system's positive (+) and negative (-) connections from the battery pack. Look behind each drill location BEFORE YOU DRILL. (i.e. drilling into a wiring harness, battery etc.). Installer is responsible for damage if instructions are not followed properly.

**Batteries:** This kit is designed to replace (6) 8V lead acid batteries in the E-Z-GO TXT. This kit will not fit a 36V cart, unless it has been upgraded to a 48V system.

**Charger Warning:** **\*\*DO NOT USE LEAD ACID GOLF CAR CHARGERS\*\***. Only use the approved charger(s) recommended in the battery manufacturer's Operator's Manual. Affix the supplied Caution Label just above the charger port to ensure only approved LiFePo4 lithium chargers can be used.

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## Tools Needed for Installation

- Deep Well Socket: 1/2"
- Magnetic Socket: 5/16"
- Sockets and Wrenches: 8mm, 10mm, 17mm
- Drill and Drill Bits (3/8" and a smaller pilot bit for a #12 screw)
- Ratchet Wrench
- Torque Wrench
- Cut off tool with drywall bit or die grinder with cut off wheel.
- Wire Cutters
- Wire Strippers
- Wire Crimpers
- Screwdriver (Jeweler's Flat Head)
- Small Pick
- Lifting Aid for Batteries
- Safety Glasses
- Gloves Rated to Protect Against Battery Acid Exposure
- Foaming Engine Cleaner or Similar for Neutralizing and Cleaning Battery Acid
- High Quality Engine Enamel
- Marking Devices Suitable for Dark Plastic and Uncoated Metal
- Digital Voltage Meter



## Contents of Kit for BAT-3101 (52V, 100Ah)

| BATTERY CABLES (2 AWG) |        |                  |                                |     |                    |                                |     |
|------------------------|--------|------------------|--------------------------------|-----|--------------------|--------------------------------|-----|
| Qty.                   | Length | From             | Terminal and Heat Shrink Color |     | To                 | Terminal and Heat Shrink Color |     |
| 1                      | 9"     | Solenoid (+) OUT | 5/16" Ring                     | RED | Controller POS (+) | 5/16" Ring                     | RED |
| 1                      | 12"    | SOC Shunt (P-)   | 3/8" Ring                      | BLK | Controller NEG (-) | 5/16" Ring                     | BLK |
| 1                      | 17"    | -48V on Battery  | 5/16" Ring                     | BLK | SOC Shunt (B-)     | 3/8" Ring                      | BLK |
| 1                      | 17"    | Fuse Block       | 5/16" Ring                     | RED | Solenoid (+) IN    | 5/16" Ring                     | RED |
| 1                      | 29"    | +48V on Battery  | 5/16" Ring                     | RED | Fuse Block         | 5/16" Ring                     | RED |

| STATE OF CHARGE (SOC) METER TO TOW / RUN SWITCH |   |                         |                              |                                |                        |
|---|---|-------------------------|------------------------------|--------------------------------|------------------------|
| Qty.  | Item                                    | From                    | Notes                        | To                             | Notes                  |
| 1   | 34", 20 AWG Wire, PINK                  | SOC Shunt               | Strip End 1/4" (~5mm)        | OEM RED/GRAY Wire on TOW / RUN | Strip End 1/4" (~5mm)  |
| 1   | End Splice Connector, Female, 14-16 AWG | TOW/RUN (RED/GRAY Wire) |                              | 34", 20 AWG Wire, PINK         | Shipped Loose          |
| 1   | 26", 10 AWG Wire, RED                   | Charger Port POS (+)    | Yellow Butt Splice Connector | Fuse OUT                       | 5/16" Ring             |
| 1   | 24", 3/8" Split Loom                    |                         |                              |                                | For Charger Port Wires |
| 1   | 3/8" YEL Ring Terminal, 10 AWG          |                         |                              | Charger Port NEG (-)           | SOC Shunt (P-)         |
| 1   | Red Butt Splice Connector               |                         |                              | Charger Port                   | Blue Wire on TOW/RUN   |

| ADDITIONAL COMPONENTS |   |          |
|-----------------------|---|----------|
| Qty.                  | Description   | Part #   |
| 1                     | Fuse Holder (ANL/ANN)   |          |
| 1                     | Fuse, 200A, 72V, for BAT-48100 Battery                            |          |
| 2                     | #8 x 1" Self Tapping Screws, Flat Head                            |          |
| 1                     | Heavy Duty Solenoid, 200A, 48V JCC-200                            | SOL-1021 |
| 1                     | Coil Suppression Diode, 3A  | CON-004  |
| 1                     | State of Charge (SOC) Meter, 350A, 80V                            |          |
| 1                     | SOC Meter Shunt, 350A, 80V, 10mm Terminal                         |          |
| 2                     | #12 x 1" Self Tapping Screws, Hex Head                            |          |
| 2                     | Battery Brackets, 12"L x 1"D x 5"W; 1/8" (0.125") Thick Steel     |          |
| 8                     | 3/8"-16 x 1" Hex Head Bolts                                       |          |
| 8                     | 3/8"-16 Nylock Nuts   |          |
| 16                    | 3/8" Flat Washers   |          |
| 6                     | Zip Ties, 8" Long, Black  |          |
| 1                     | Printed Instructions  |          |
| 1                     | Controller Settings Chart for BAT-48100 Battery (Amp Volt Limits) |          |



## Contents of Kit for BAT-3102 (52V, 160Ah)

| BATTERY CABLES (2 AWG) |        |                  |                                |     |                    |                                |     |
|------------------------|--------|------------------|--------------------------------|-----|--------------------|--------------------------------|-----|
| Qty.                   | Length | From             | Terminal and Heat Shrink Color |     | To                 | Terminal and Heat Shrink Color |     |
| 1                      | 9"     | Solenoid (+) OUT | 3/8" Ring                      | RED | Controller POS (+) | 5/16" Ring                     | RED |
| 1                      | 12"    | SOC Shunt (P-)   | 3/8" Ring                      | BLK | Controller NEG (-) | 5/16" Ring                     | BLK |
| 1                      | 17"    | -48V on Battery  | 5/16" Ring                     | BLK | SOC Shunt (B-)     | 3/8" Ring                      | BLK |
| 1                      | 17"    | Fuse Block       | 5/16" Ring                     | RED | Solenoid (+) IN    | 3/8" Ring                      | RED |
| 1                      | 29"    | +48V on Battery  | 5/16" Ring                     | RED | Fuse Block         | 5/16" Ring                     | RED |

| STATE OF CHARGE (SOC) METER TO TOW / RUN SWITCH |   |                         |                              |                                |                        |
|---|---|-------------------------|------------------------------|--------------------------------|------------------------|
| Qty.  | Item                                    | From                    | Notes                        | To                             | Notes                  |
| 1   | 34", 20 AWG Wire, PINK                  | SOC Shunt               | Strip End 1/4" (~5mm)        | OEM RED/GRAY Wire on TOW / RUN | Strip End 1/4" (~5mm)  |
| 1   | End Splice Connector, Female, 14-16 AWG | TOW/RUN (RED/GRAY Wire) |                              | 34", 20 AWG Wire, PINK         | Shipped Loose          |
| 1   | 26", 10 AWG Wire, RED                   | Charger Port POS (+)    | Yellow Butt Splice Connector | Fuse OUT                       | 5/16" Ring             |
| 1   | 24", 3/8" Split Loom                    |                         |                              |                                | For Charger Port Wires |
| 1   | 3/8" YEL Ring Terminal, 10 AWG          |                         |                              | Charger Port NEG (-)           | SOC Shunt (P-)         |
| 1   | Red Butt Splice Connector               |                         |                              | Charger Port                   | Blue Wire on TOW/RUN   |

| ADDITIONAL COMPONENTS |  |          |
|-----------------------|--|----------|
| Qty.                  | Description  | Part #   |
| 1                     | Fuse Holder (ANL/ANN)  |          |
| 1                     | Fuse, 300A, 72V, for BAT-48160 Battery                                       |          |
| 2                     | #8 x 1" Self Tapping Screws, Flat Head                                       |          |
| 1                     | Heavy Duty Solenoid, 400A, 48V MZJ-400                                       | SOL-1022 |
| 1                     | Coil Suppression Diode, 3A   | CON-004  |
| 1                     | State of Charge (SOC) Meter, 350A, 80V                                       |          |
| 1                     | SOC Meter Shunt, 350A, 80V, 10mm Terminal                                    |          |
| 2                     | #12 x 1" Self Tapping Screws, Hex Head                                       |          |
| 1                     | Battery Bracket, Passenger Side, 12"L x 1"D x 5"W; 1/8" (0.125") Thick Steel |          |
| 2                     | Battery Brackets, Driver Side, 8"L x 6"D x 3"W; 3/16" (0.1875") Thick Steel  |          |
| 10                    | 3/8"-16 x 1" Hex Head Bolts  |          |
| 10                    | 3/8"-16 Nylock Nuts  |          |
| 18                    | 3/8" Flat Washers  |          |
| 6                     | Zip Ties, 8" Long, Black   |          |
| 1                     | Printed Instructions   |          |
| 1                     | Controller Settings Chart for BAT-48100 Battery (Amp Volt Limits)            |          |



## Prepare Battery Compartment

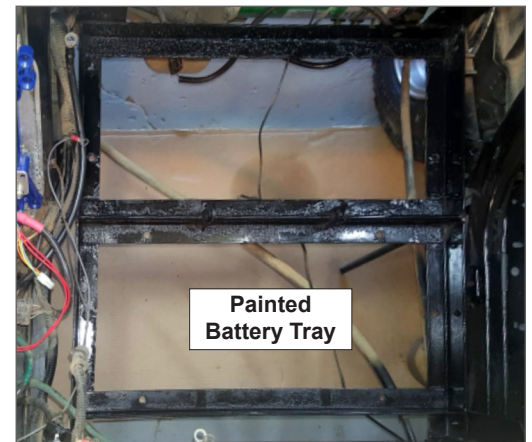
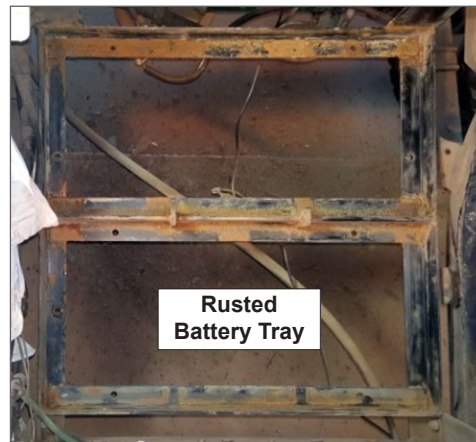
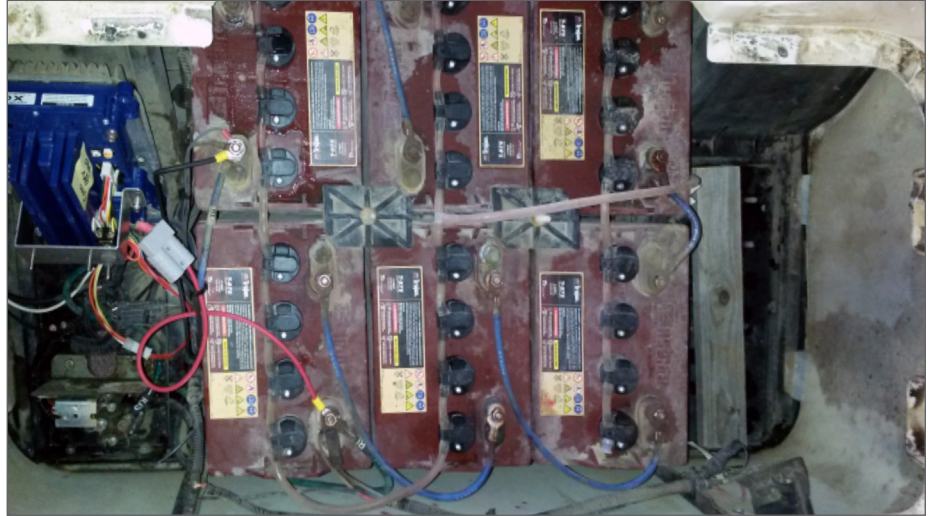
1. Turn Key OFF.
2. Engage parking brake.
3. Place Tow/Run Switch in Tow.
4. Remove the system's positive (+) and negative (-) connections from the battery pack.
5. Remove the main battery pack's fuse.
6. Remove the battery hold down brackets using a 1/2" deep well socket. Retain brackets, hold down rods and hardware for reuse.

**NOTE:** Clean or replace any corroded rods.

7. Carefully and safely remove the batteries and cables and discard.
8. Clean and remove any debris from the battery tray. A foaming engine cleaner can be used to neutralize the battery acid and clean the compartment.

**NOTE:** The example above shows 8V batteries with an aftermarket controller. Each configuration may vary.

9. If the battery tray is rusted, clean, repair and paint it or replace it.

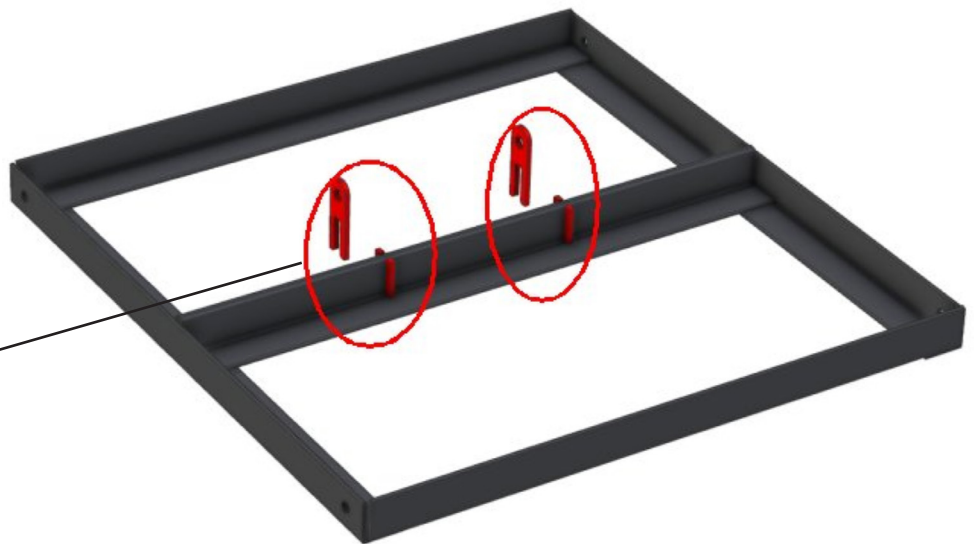


10. Use a die grinder with a cut-off wheel or other cut off tool to remove the (2) center lugs in the battery tray so no metal protrudes above the top of the cross bar.

**NOTE:** The new battery will rest above the tray on brackets so this surface must be flush.

11. Smooth any high spots and paint the exposed metal with a high quality engine enamel.

**CAUTION:** High spots WILL deform the bottom of the new battery and void any warranty.

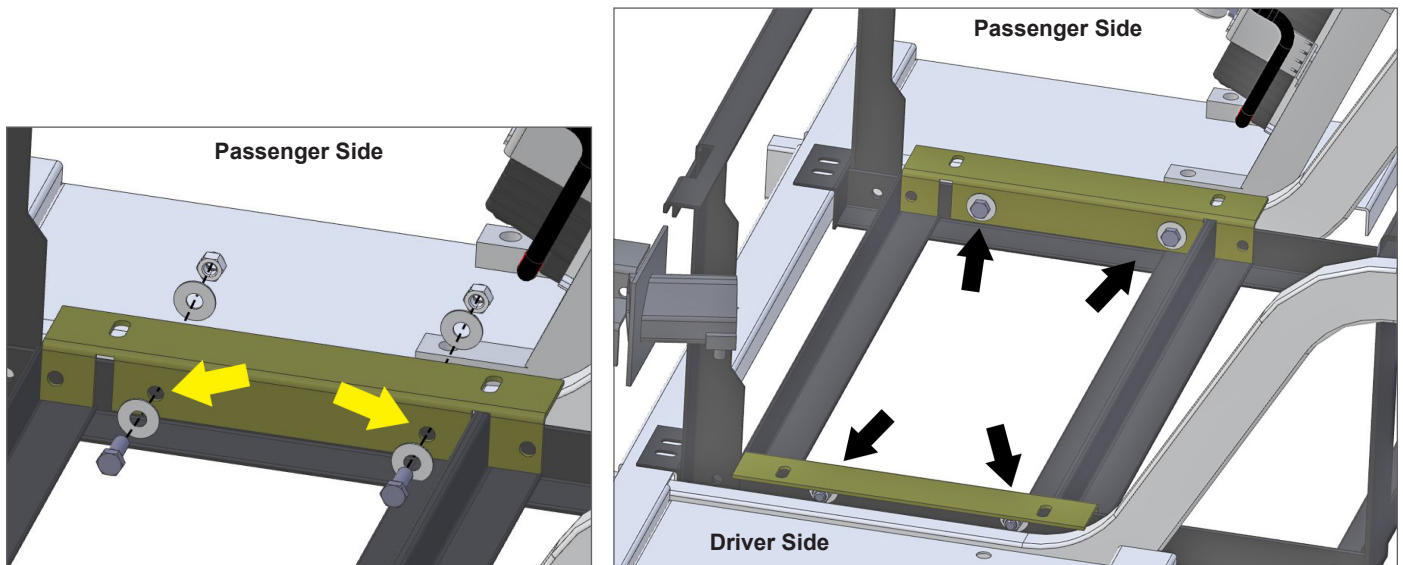
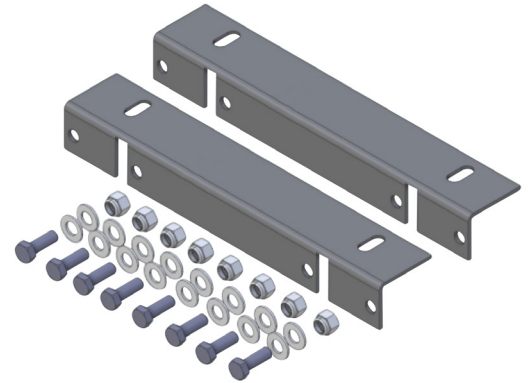


## BAT-3101: Install New Battery Brackets for BAT-48100 Battery

**CAUTION:** This section will explain how to mount the battery brackets. It will require drilling the frame. Look on all sides of the drilling area before you drill to make sure you are not drilling through wires, cables or brake lines.

1. Locate the (2) battery brackets and mounting hardware included with the kit.
2. Place the brackets on the frame with the slot over the center cross bar.
3. Using a marking device, mark the (2) inside hole locations on each bracket. Remove the brackets.
4. Using a 3/8" drill bit, drill the (4) marked hole locations and paint the exposed metal with a high quality engine enamel.
5. Install the (2) brackets to the frame using (4) 3/8"-16 x 1" Hex Head Bolts, (8) Flat Washers and (4) Nylock Nuts. Torque to 15-17 ft lbs.

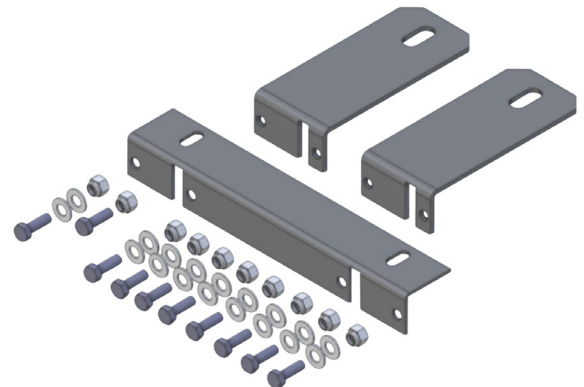
**NOTE:** Only (2) bolts are needed per bracket to pass vehicle impact ratings at 25mph.



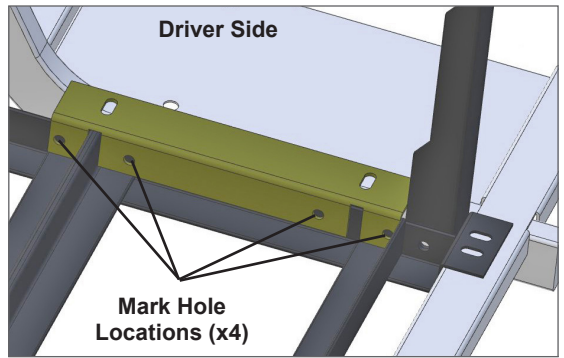
## BAT-3102: Install New Battery Brackets for BAT-48160 Battery

**CAUTION:** This section will explain how to mount the battery brackets. It will require drilling the frame. Look on all sides of the drilling area before you drill to make sure you are not drilling through wires, cables or brake lines.

1. Locate the (3) battery brackets and mounting hardware included with the kit.

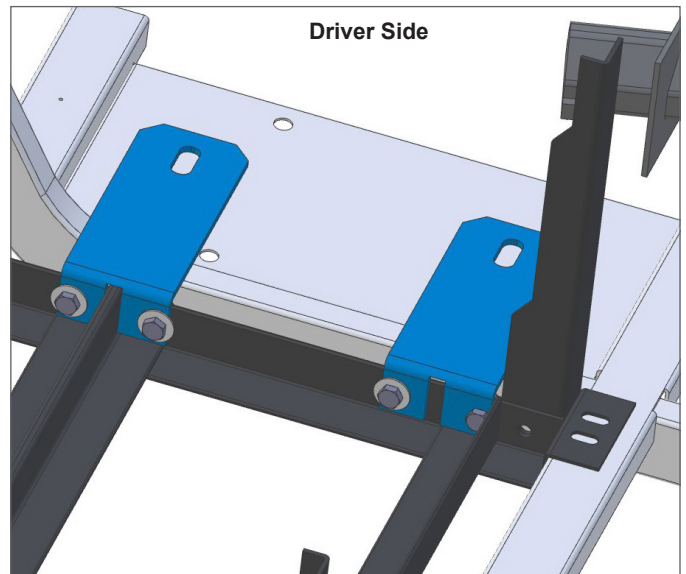
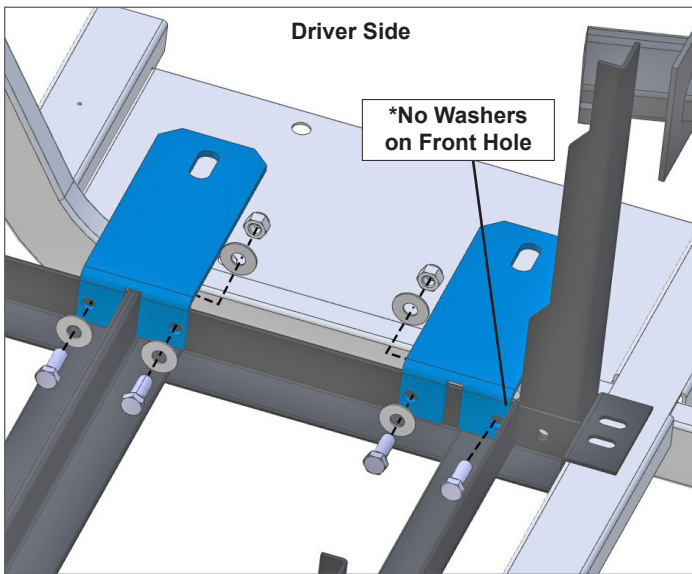


- Place the longer 12" bracket on the drivers side frame with the slot over the center cross bar. This bracket will be used as a template for the (2) smaller brackets.
- Using a marking device, mark the (4) hole locations onto the driver side frame.
- Remove the bracket and place it on the passenger side frame with the slot over the center cross bar, and mark the holes as shown on page 6, in the BAT-3101 section.
- Using a 3/8" drill bit, drill the (6) marked hole locations and paint the exposed metal with a high quality engine enamel.
- Install the long bracket to the passenger side frame using (2) 3/8"-16 x 1" Hex Head Bolts, (4) Flat Washers and (2) Nylock Nuts as shown on Page 6, Step 5. Torque to 15-17 ft lbs.



**NOTE:** Only (2) bolts are needed per bracket to pass vehicle impact ratings at 25mph.

- Install the (2) shorter brackets to the driver side frame using (4) 3/8"-16 x 1" Hex Head Bolts, (6\*) Flat Washers and (4) Nylock Nuts. Torque to 15-17 ft lbs.



**Install CGR-130 Charge Receptacle (BAT-3102 with PowerWise Charge Receptacle ONLY)**

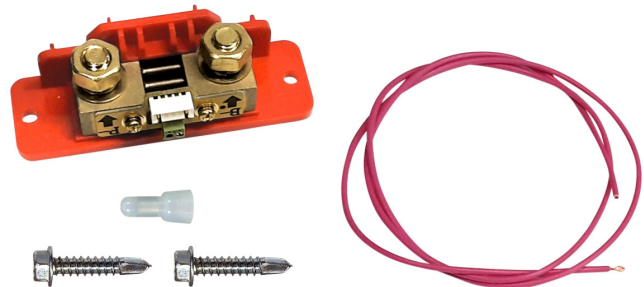
- Remove the OE PowerWise charge receptacle. It will not fit with the 160A battery.
- Install a CGR-130 charge receptacle in its place. Use a drill to relocate any mounting holes if necessary.

**CAUTION:** Look on all sides of the drilling area before you drill to make sure you are not drilling through wires, cables or other items.



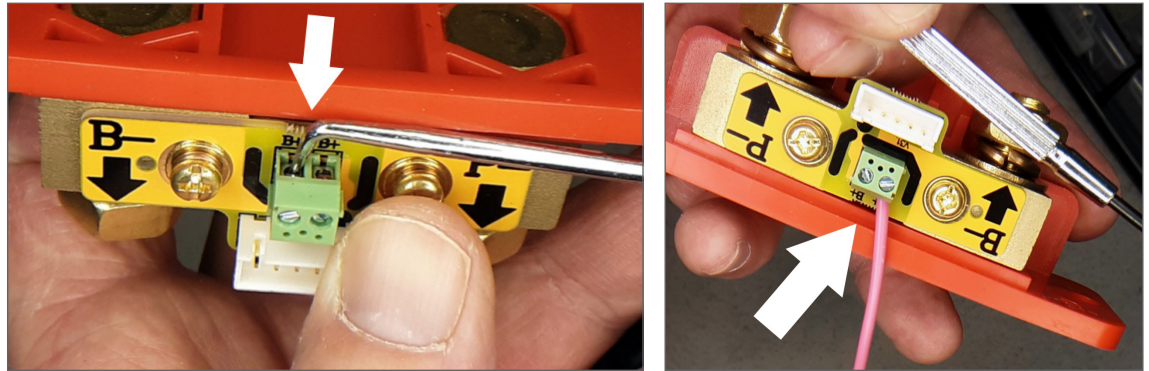
**Install State of Charge (SOC) Shunt**

- Identify the SOC Shunt, (2) #12 x 1" Self Tapping Screws, (1) 34" .20 AWG Pink Wire and (1) End Splice Connector.



- Carefully loosen (1) screw on either of the (B+) terminals on the SOC Shunt using a jeweler's screwdriver. Use a pick to open the hole by sliding the tab out of the way, as shown.
- Insert (1) stripped end of the 34" 20AWG Pink Wire into the (B+) terminal that was opened in Step 2 and tighten the screw.

**NOTE:** Please review the manufacturer's SOC Instruction Manual for details.

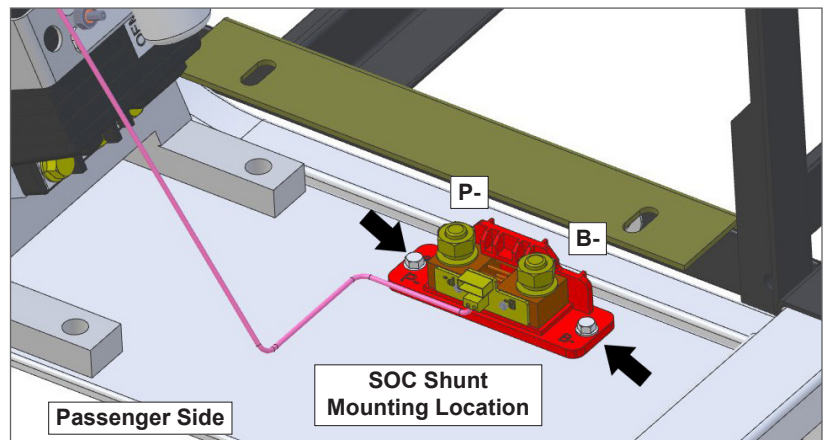


- Place the SOC shunt on the passenger side floor of the battery compartment, in front of the controller.

**NOTE:** When orientated correctly, the "P-" terminal on the SOC shunt will face the rear of the cart and the "B-" terminal will face the front.

- Once the SOC shunt is in the desired location, use a marking device to mark the mounting hole locations.
- Use a drill with a magnetic 5/16" socket and (2) #12 Self Tapping Screws, to start the (2) holes. Hand tighten.

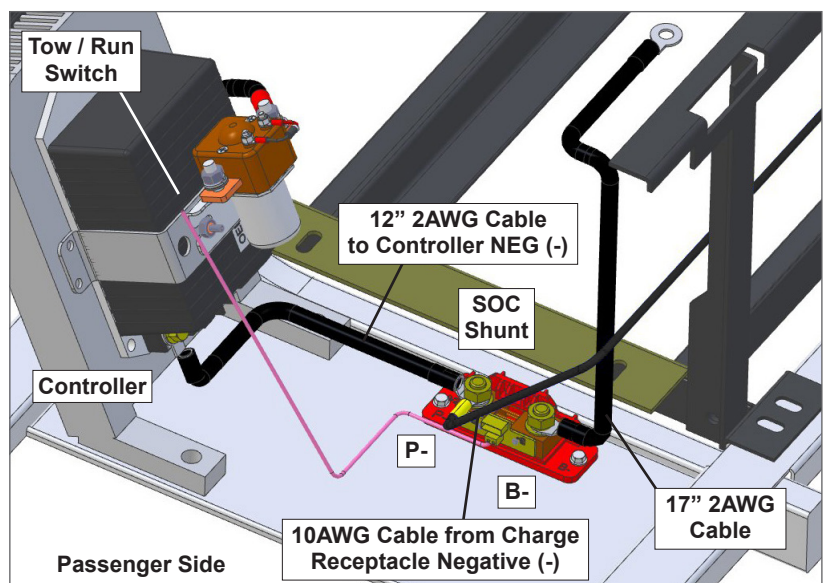
**CAUTION:** Look on all sides of the drilling area before you drill to make sure you are not drilling through wires, cables or brake lines.



- Locate (1) 17" 2AWG Battery Cable with Black Heat Shrink included in the kit. Install the 3/8" ring terminal to "B-" on the SOC shunt.
- Following the diagram and the steps below, connect the remaining wires to the "P-" terminal on the SOC shunt.

**NOTE:** Multiple wires may be attached to the "P-" terminal.

- Locate (1) 12" 2AWG Battery Cable included in the kit. Install the 3/8" ring terminal to "P-" on the SOC shunt. Connect the 5/16" ring terminal (smaller of the two ring terminals) to the negative (-) terminal on the controller.
- Locate the 10AWG OEM wire that goes to the charger receptacle's negative (-) port. Cut off the 5/16" ring terminal. Strip the end of the wire and replace the terminal with the included 3/8" Yellow Ring Terminal. Run this end to the "P-" terminal on the SOC shunt.

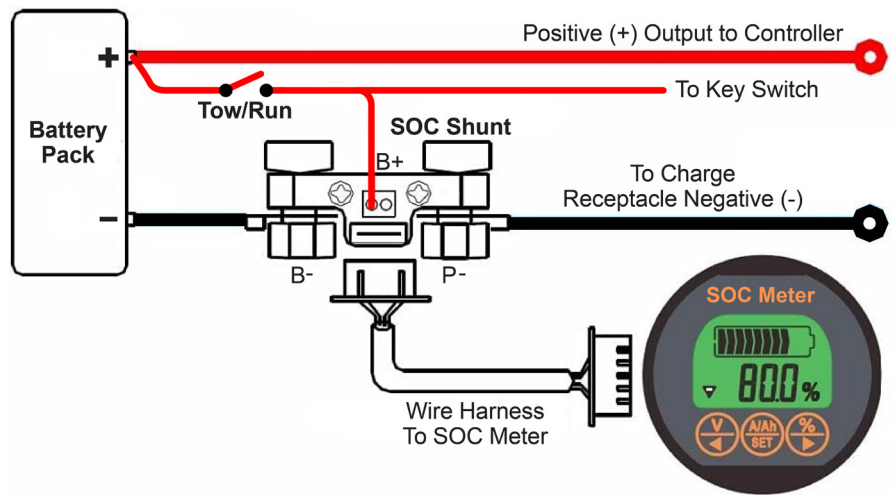


Solenoid mounting location may vary. The one shown above uses an aftermarket bracket and is not in the OE mounting location.



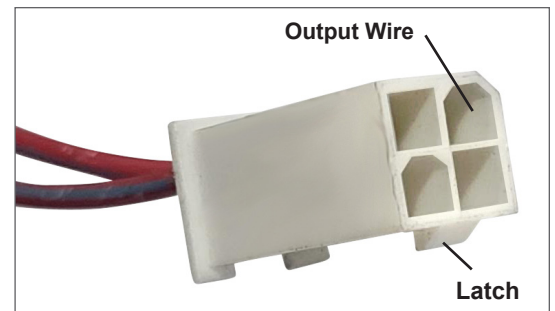


- If installing a voltage reducer, connect the negative (-) wire from the reducer to the "P-" terminal on the SOC shunt.
- Using a socket wrench, carefully tighten the 17mm nuts on the SOC shunt.



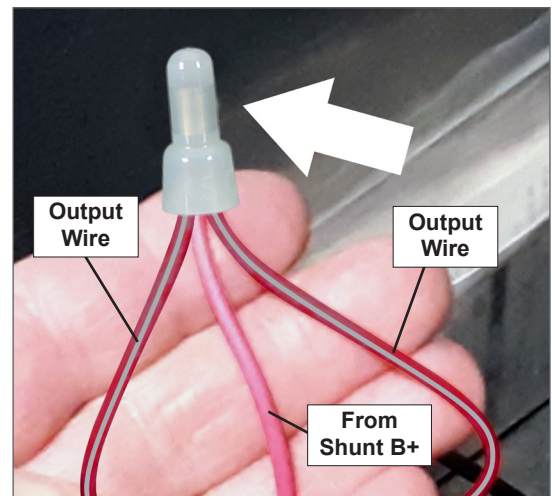
- Locate the Tow/Run switch near the controller and verify it is set to TOW.
- Locate the output wire from the Tow/Run switch. This wire would be OFF when the Tow/Run Switch is in Tow. In an OE configuration, it goes to the key switch.

To locate the output wire, disconnect the 4-pin connector at the Tow/Run switch. Look at the female end of the connector that was disconnected. There should be (2) wires coming out of the opposite side. In an OE configuration, the output wire will be in the upper right position when the latch is on the bottom of the connector.



- Cut the output wire a couple inches away from the 4-pin connector and strip both ends. Splice the pink wire from the "B+" terminal on the SOC shunt with the (2) wires that were just stripped using a wire crimper and an End Splice Connector included in the kit. Connect the 4-pin connector back to the Tow/Run switch and leave the switch in Tow.

**NOTE:** The SOC shunt meter is powered all of the time with the Tow/Run switch ON. It consumes very little power, but must be installed before the key-switch in order to store energy charge and discharge data to memory.



### Install ANL Fuse Holder

- Locate the ANL fuse holder and remove the fuse if pre-installed.

**NOTE:** The fuse holder may look different than what is shown.

**CAUTION:** Do NOT install the fuse until instructed to do so.



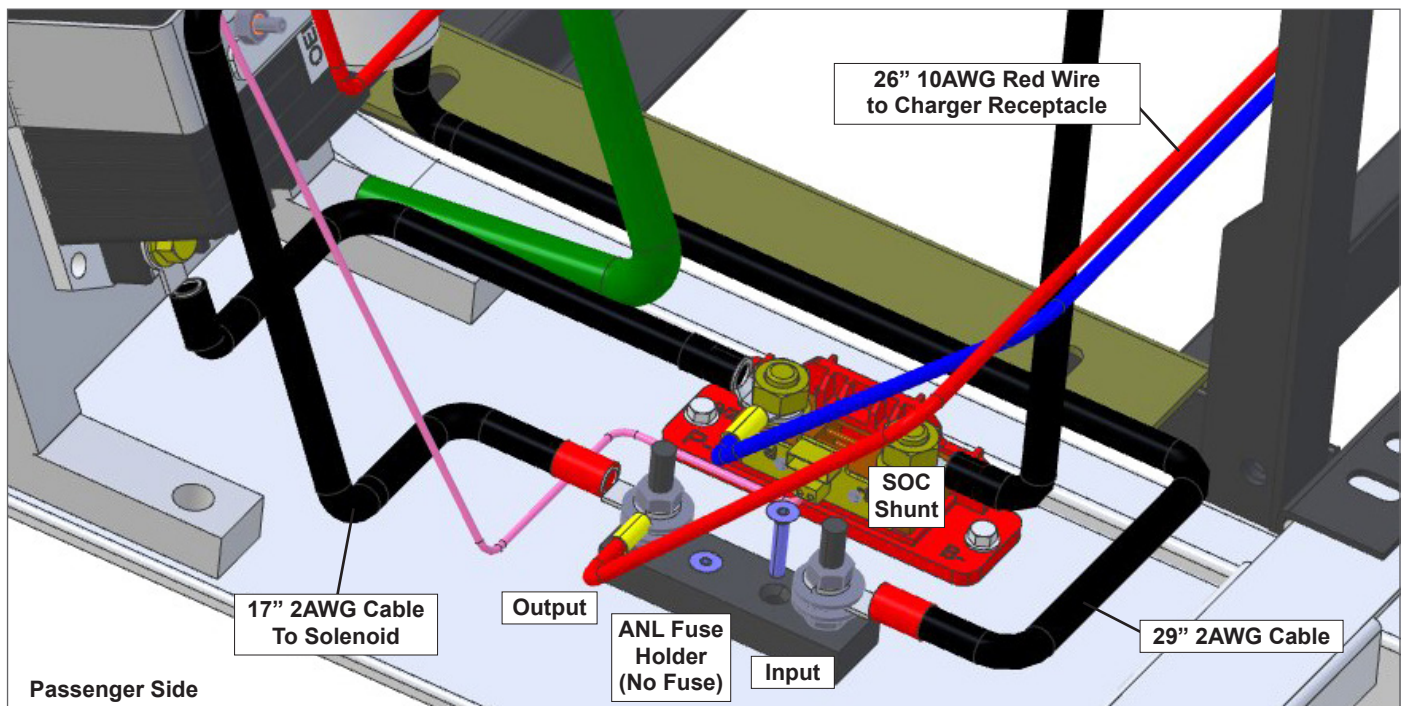
- Place the ANL fuse holder on the passenger side floor of the battery compartment, about 2"-3" away from the SOC shunt as shown. If oriented correctly, the output will face the rear of the cart and the input will face the front. Install the fuse holder using (2) #8 x1" Self Tapping Screws.

**CAUTION:** Look behind the mounting location to ensure it is free of other components (i.e. brake lines, electrical wiring or other critical components). Installer is responsible for damage. Do NOT install the fuse until instructed to do so.

- Locate (1) 29" 2AWG Battery Cable included in the kit. Install one side of the cable to the ANL fuse holder on the input side. Orient the cable so it faces the front of the cart.
- Locate (1) 17" 2AWG Battery Cable with Red Heat Shrink included in the kit. Install the end with the 5/16" ring terminal to the ANL fuse holder on the output side. Run the opposite end of the cable to the back of the cart, towards the solenoid.

**NOTE:** If installing the 17" cable in BAT-3102, one ring terminal is 5/16" and the other is 3/8". If installing BAT-3101, both are 5/16".

- Locate (1) 26" 10AWG Red Wire included in the kit. Install the end with the ring terminal to the ANL fuse holder on the output side, along with the 17" 2AWG cable. Run the opposite end towards the charger receptacle and crimp it to the red OE 10AWG wire coming off of the charger receptacle's positive (+) terminal. Use the 24" loom included in the kit to protect both wires going to the charger receptacle.

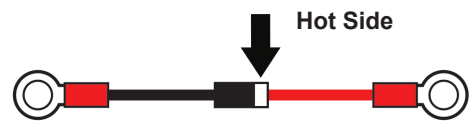


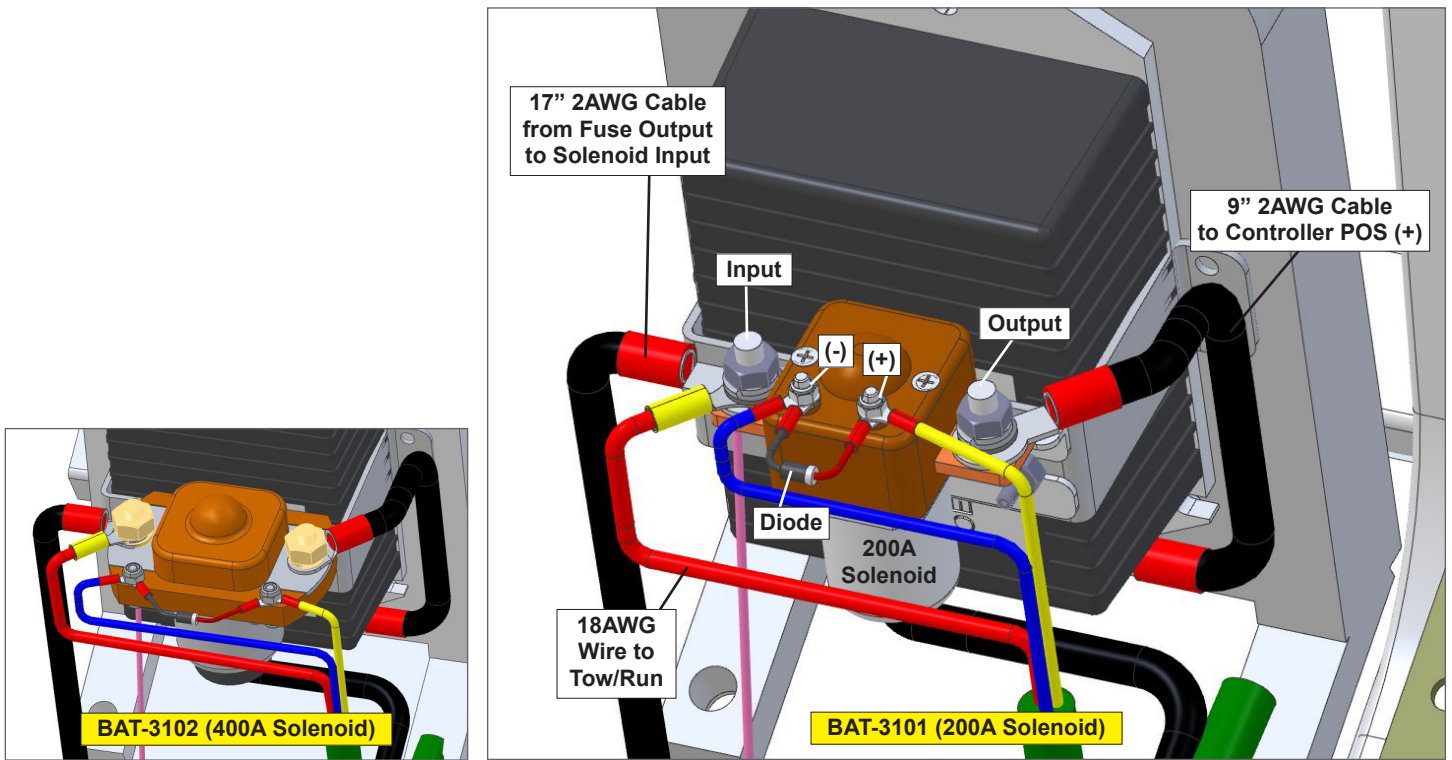
The solenoid mounting bracket shown above on the controller is an aftermarket bracket and is not in the OE mounting location.

### Install Solenoid

- Install the new solenoid where the original was removed. Mounting locations may vary. The ones shown on Page 11 use an aftermarket mounting bracket and are not in the OE mounting location.
- NOTE:** BAT-3101 (100A battery) includes a 200A solenoid. BAT-3102 (160V battery) includes a 400A solenoid. Installation is the same.
- Locate (1) 9" 2AWG Battery Cable. Connect one end to the solenoid output terminal and the other to the POS (+) terminal on the controller as shown on Page 11.
  - Connect the 17" 2AWG Battery Cable from the ANL fuse holder to the solenoid input terminal along with the red 18AWG wire feeding the Tow/Run switch as shown on Page 11.

- Install new diode to small terminals on the solenoid with the hot side being closer to the larger output terminal as shown. Connect the yellow factory wire to the positive (+) side and the blue factory wire to the negative (-) side as shown on Page 11.

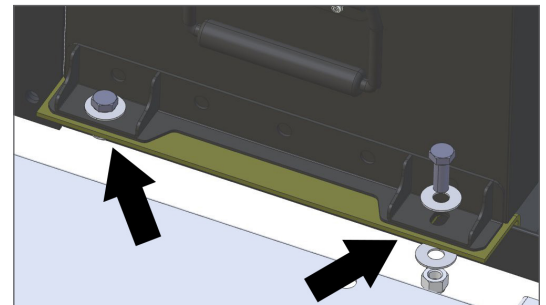




### BAT-3101: Install Battery

**CAUTION:** The battery pack is HEAVY. A lift or multiple people are required in order to install the battery safely. Do not attempt to install it alone without a lifting aid. Solenoid mounting location may vary. The mounting location shown below is not in an OE configuration.

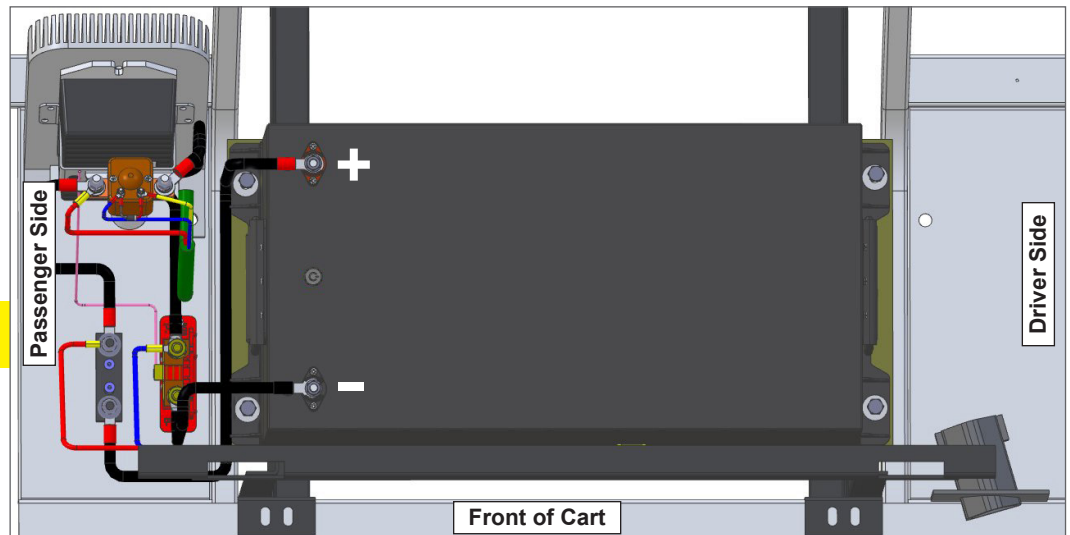
1. Verify all wires and cables are free and clear of the space the battery will take up, so nothing gets pinched or damaged.
2. Using a lift or multiple people, place the battery inside the battery compartment and align it with the holes on the mounting brackets. When oriented correctly, the positive (+) and negative (-) terminals will be on the passenger side.
3. Install the battery to the battery compartment floor and battery brackets using (4)  $\frac{3}{8}$ "-16 x 1" Hex Head Bolts, (8)  $\frac{3}{8}$ " Flat Washers, and (4)  $\frac{3}{8}$ "-16 Nylock Nuts. Torque to 15-17 FT LBS.



4. Connect the 17" 2AWG Battery Cable from the "B-" terminal on the SOC shunt to the negative (-) terminal on the battery.
5. Connect the 29" 2AWG Battery Cable from the input side of the ANL fuse holder to the positive (+) terminal on the battery.

**CAUTION:** Do NOT install the fuse until instructed to do so.

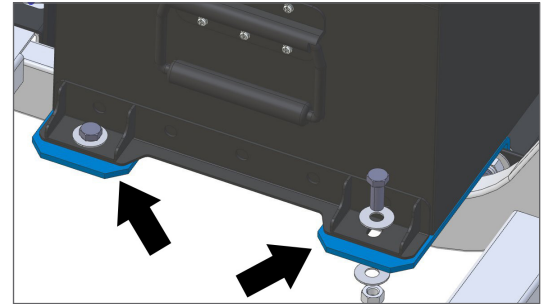
6. Tighten all battery cables using the torque requirements in the battery's Operator Manual. Do NOT over tighten.



## BAT-3102: Install Battery

**CAUTION:** The battery pack is HEAVY. A lift or multiple people are required in order to install the battery safely. Do not attempt to install it alone without a lifting aid. Solenoid mounting location may vary. The mounting location shown below is not in an OE configuration.

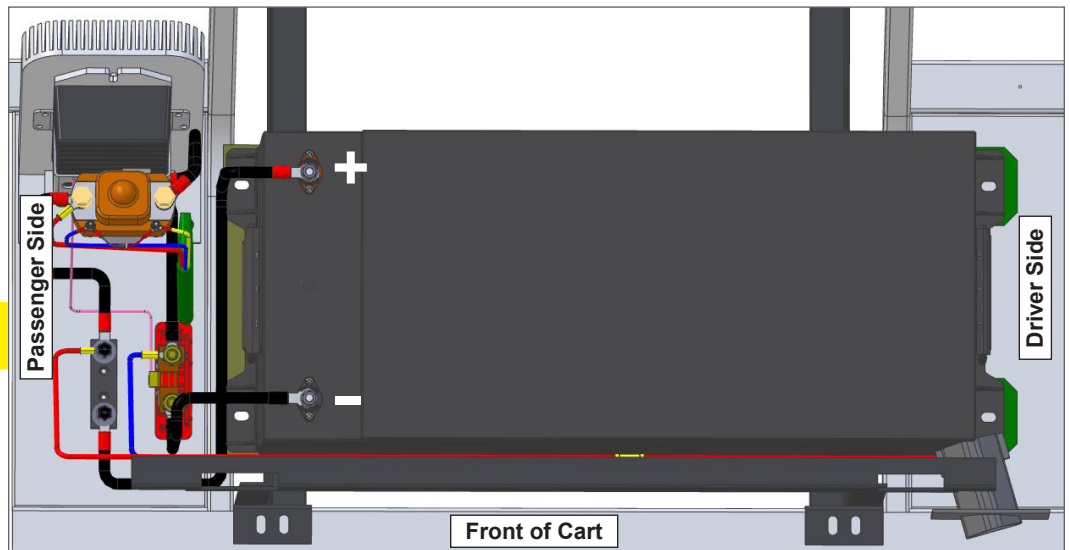
1. Verify all wires and cables are free and clear of the space the battery will take up, so nothing gets pinched or damaged.
2. Using a lift or multiple people, place the battery inside the battery compartment and align it with the holes on the mounting brackets. When oriented correctly, the positive (+) and negative (-) terminals will be on the passenger side.
3. Install the battery to the battery compartment floor and battery brackets using (4)  $\frac{3}{8}$ "-16 x 1" Hex Head Bolts, (8)  $\frac{3}{8}$ " Flat Washers, and (4)  $\frac{3}{8}$ "-16 Nylock Nuts. Torque to 15-17 FT LBS.



4. Connect the 17" 2AWG Battery Cable from the "B-" terminal on the SOC shunt to the negative (-) terminal on the battery.
5. Connect the 29" 2AWG Battery Cable from the input side of the ANL fuse holder to the positive (+) terminal on the battery.

**CAUTION:** Do NOT install the fuse until instructed to do so.

6. Tighten all battery cables using the torque requirements in the battery's Operator Manual. Do NOT over tighten.

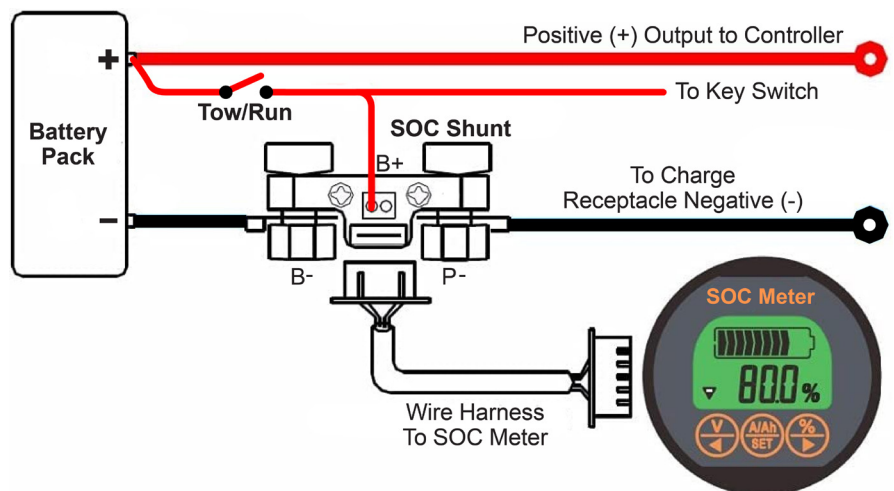


## Install State of Charge (SOC) Meter, Dash Mount

1. Find a location on the dash to mount the SOC meter.
2. Mount the meter and connect the wire harness to the meter per the instructions included with the SOC meter.
3. Run the opposite end of the wiring harness under the cart and towards the SOC shunt within the battery compartment. Use cable ties to secure the harness to the frame or other structures so it is out of the way of pinch points or areas where it could get damaged or pulled.

**CAUTION:** Do not zip-tie any SOC wires to any high power cables. High power noise can cause SOC reading errors.

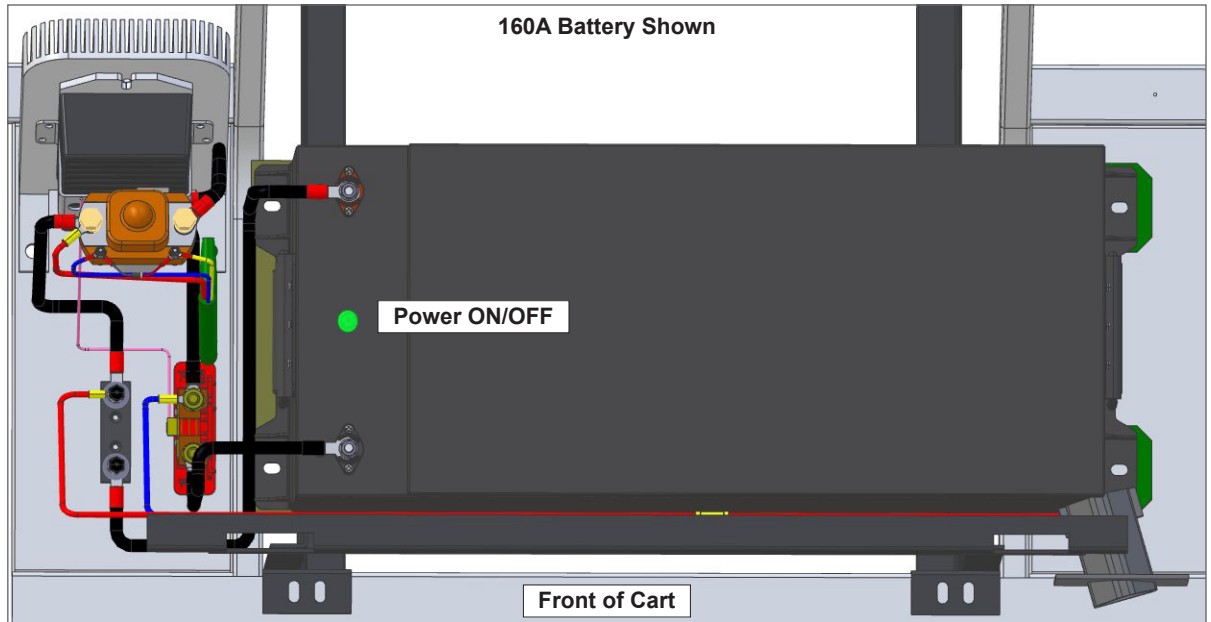
4. Connect the wire harness to the SOC shunt as shown in the diagram. Secure any loose wires with wire ties.



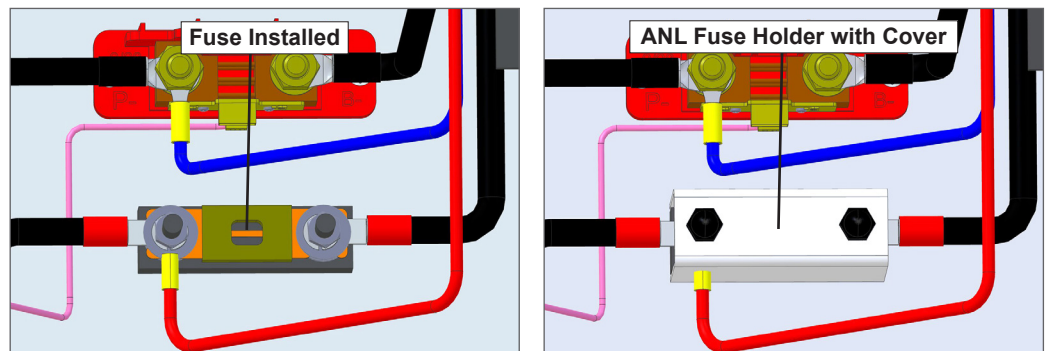
## Complete Assembly

1. Verify all components and connections are correct and hardware is tightened according to instructions.

**NOTE:** Solenoid mounting location may vary. The mounting location shown below is not in an OE configuration.



2. Install the ANL fuse in the ANL fuse holder per the instructions or diagram included with the fuse holder, using the Included Hardware. Leave the pre-installed cables sticking out of the ends of the fuse holder so the cover can be placed on top of it.
3. Tighten the nuts on the ANL fuse holder according to the manufacturer's torque specifications. Do NOT over tighten.
4. Snap the ANL fuse holder's cover over the fuse and cables.



5. Press the power button on the battery to ON as shown above.
6. Use a digital voltmeter to verify all connections and the total voltage of the pack.
7. Check the charger receptacle's voltages and the battery pack's main negative (-) to the positive (+) 48V terminals for the correct polarity and voltage. The reading should be above +48V. Lithium batteries will generally read +52V static and not fully charged.
8. Place Tow/Run Switch in RUN.
9. Turn the Key-Switch ON to verify the motor and controller work, but do NOT drive it until the battery pack is fully charged.
10. Turn the Key-Switch OFF.
11. Connect the charger for the first time and allow it to fully charge before driving the cart.

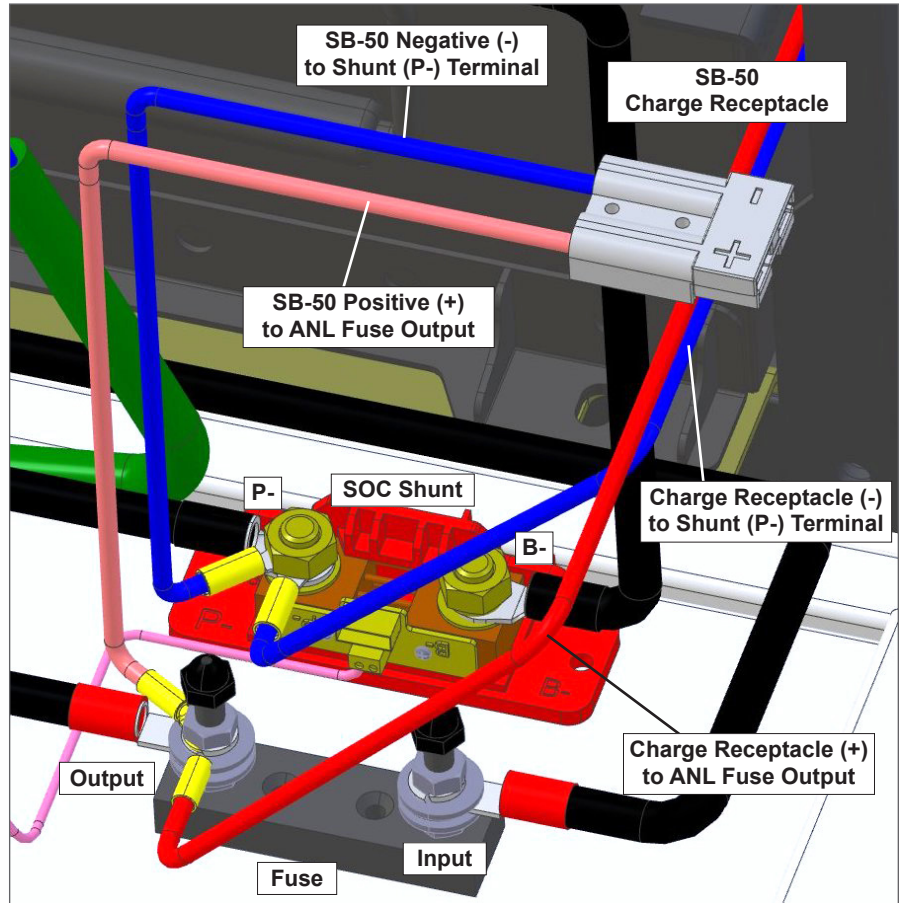
**NOTE:** The SOC may not read correct on the first charge cycle. Once driven, the SOC will learn the discharge to charge curve.

12. When the pack is fully charged, see the SOC Manual for instructions on how to "Reset to Full".

### Optional: Install SB-50 Charger Plug (Sold Separately)

1. Connect the positive (+) wire from the SB-50 charger plug to the output terminal on the ANL fuse, along with the 17" 2AWG cable going to the solenoid.
2. Connect the negative (-) wire from the SB-50 charger plug to the SOC shunt's (P-) terminal.

**NOTE:** Drawing shows both charger receptacle wires and SB-50 wires.



### Optional: Install Voltage Reducer (Sold Separately)

**CAUTION:** A voltage reducer (sold separately) is required if installing additional accessories that are not rated for any voltage over the maximum battery pack's voltage. Operating these accessories at a voltage higher than specified will result in damage. Refer to the battery manufacturer's manual and the accessory manufacturer's manual for details and specifications.

**CAUTION:** All voltage reducers installed must have an in-line 15A fuse. It is also recommended accessories have separate in-line fuses.

1. Connect the positive (+) input wire from the voltage reducer to the positive (+) input terminal on the solenoid (larger terminal).
2. Connect the key-switch activation wire (if applicable) to the smaller positive (+) coil terminal on the solenoid.
3. Connect the negative (-) wire from the voltage reducer to the SOC shunt's (P-) terminal.

