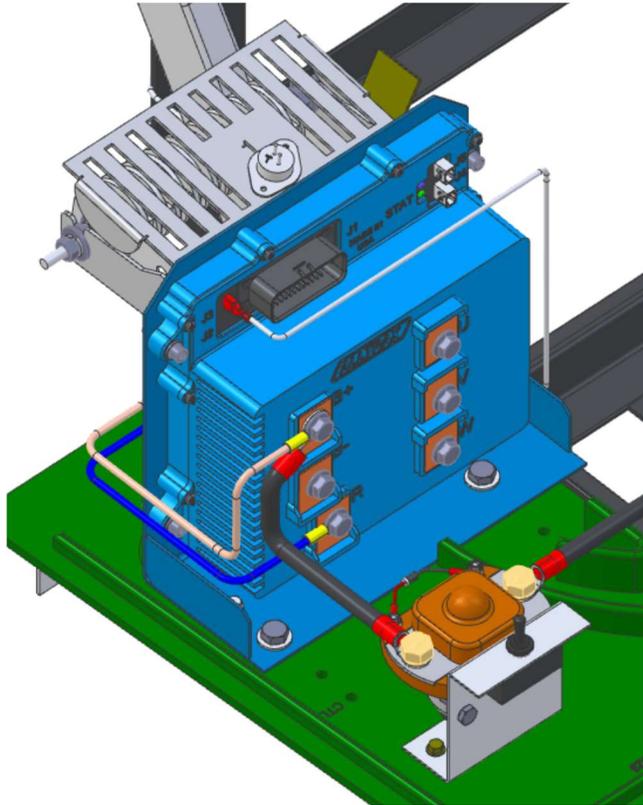
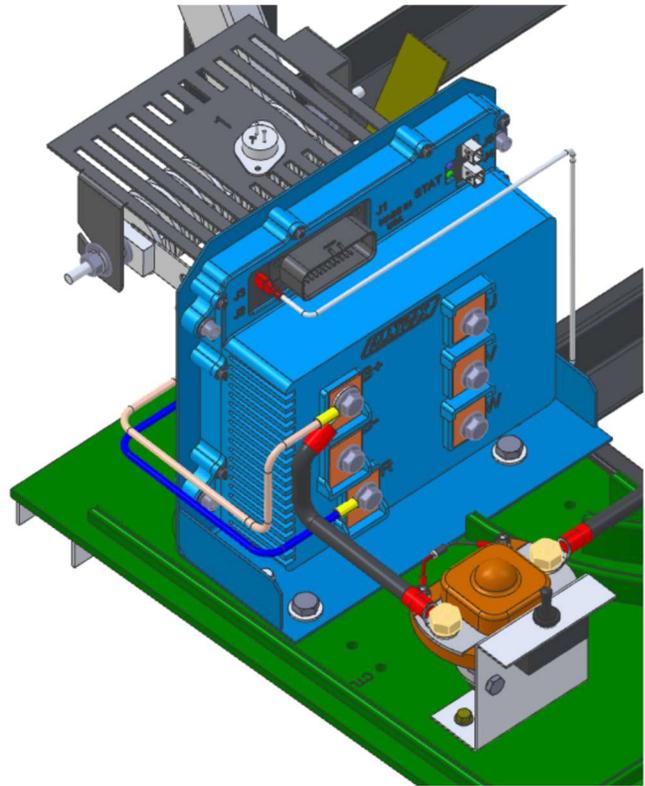
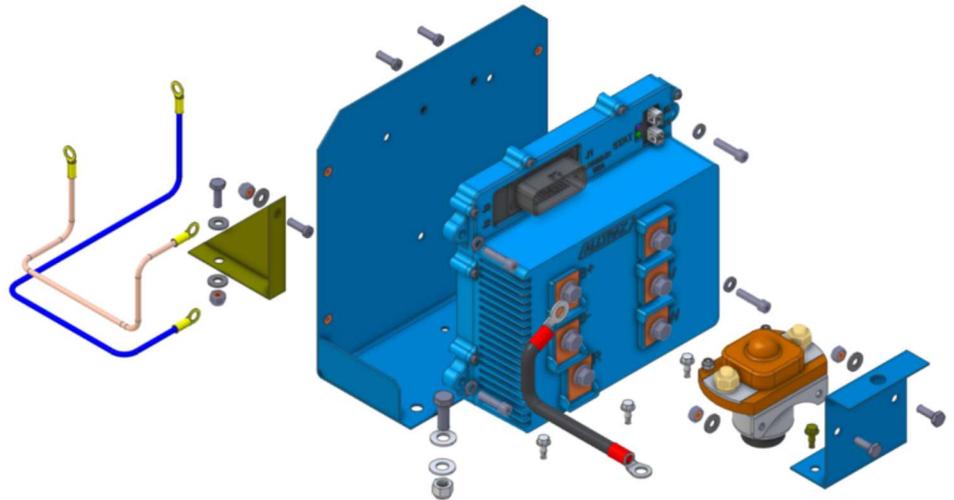


## EZGO-RXV ALLTRAX AC1 CONVERSION

**GEN-1: DANAHER 23-pin****GEN-2: CURTIS 35-pin****COMPLETE KIT:**

- >Controller AC1
- >Panel & Hardware
- >Solenoid bracket
- >Resistor Wires
- >AC Motor Ground wire
- >Rear support bracket
- >Batt cable to Solenoid  
(Solenoid not included)





# EZ-GO RXV ALLTRAX AC1 CONVERSION INSTALLATION INSTRUCTIONS

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## 1. Document Scope

**WARNING: Follow all safety and warning recommendations in the GENERAL WARNINGS SECTION in the AC1 Operators Manual.**

**It is the installers responsibility to utilize proper safety glasses and other PPE safety gear using tools, equipment, or working on or around batteries and energy sources.**

## 2. Document History

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- 8/07/2023, REV A, Initial release AC1 for both DANAHER and CURTIS, EC-8072023
- 8/24/2023, REV B, Added resistor assembly wire colors PG 16 EC-08272023

## 3. Tools Required:

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A suggested list of tools to install this kit. Not all tools may be listed.

- Socket set 3/8" drive (Metric and SAE)
- Socket set 1/4" drive with 4" extension
- SAE Allen wrench set
- T45 STAR BIT socket in 3/8" drive
- Box wrench set
- Phillips screwdriver
- Flat blade screw driver
- Power Drill
- Magnetic 5/ 16" hex bit (for self-tapping screws)
- Dremel® with plywood bit (or plastic cutting bit) See section 6
- Baking Soda or acid neutralizing cleaner, cleaning supplies
- Safety glasses and PPE working on and around lead acid batteries, drilling, etc.

### 3.1. Parts Required (not supplied)

The conversion requires other components to complete the project, the items are not supplied but required:

- NEW SOLENOID – See AC1 Operators manual CONTACTORS (SOLENOIDS) Section for ratings and type.
- BATTERY FUSE, see AC1 operators manual FUSE section for ratings
- BATTERY CABLES, see AC1 operators manual WIRING section for gauge and type

## 4. RXV Generations & Models:

The RXV evolved over the years since 2008. The Gen 1 Danaher and Gen 2 Curtis. This ALLTRAX AC1 RXV conversion covers all generations.

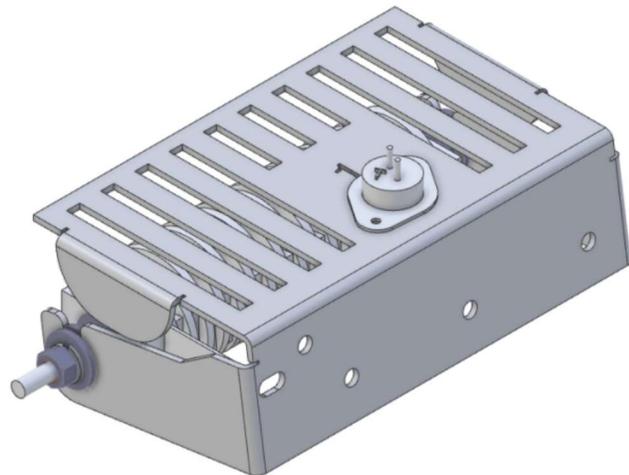
The difference between them is the RESISTOR MOUNT, two-hole patterns are included on the ALLTRAX AC1 panel mount to accommodate either resistor assembly panel.

- The DANAHER 23-pin Controller and aluminum resistor panel, 2008 - 2011.
- The CURTIS 35-pin Controller and Steel resistor panel, 2012+.

### 4.1. DANAHER© (2008-2011):

Aluminum heat shroud panel with load Resistor and thermal safety switch.

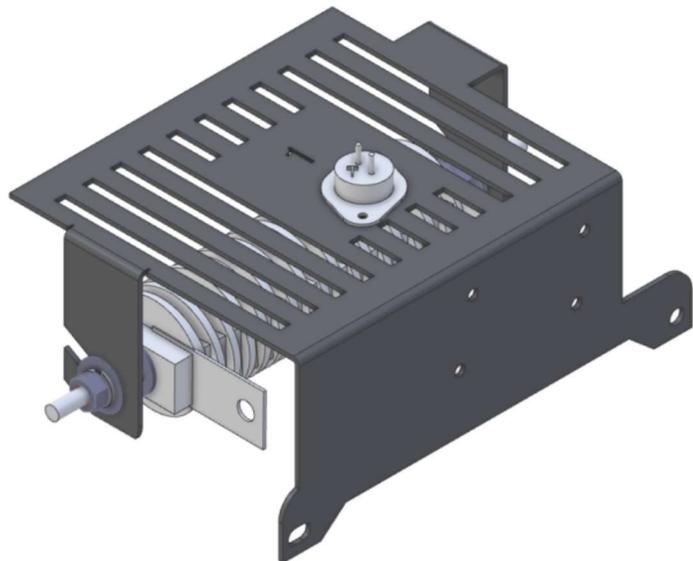
Danaher is copyright of the Danaher Corporation



### 4.2. CURTIS© (2012+):

Powder Coated black steel heat shroud with load Resistor and thermal safety switch.

Curtis is a copywrite of the Curtis Instruments Corporation



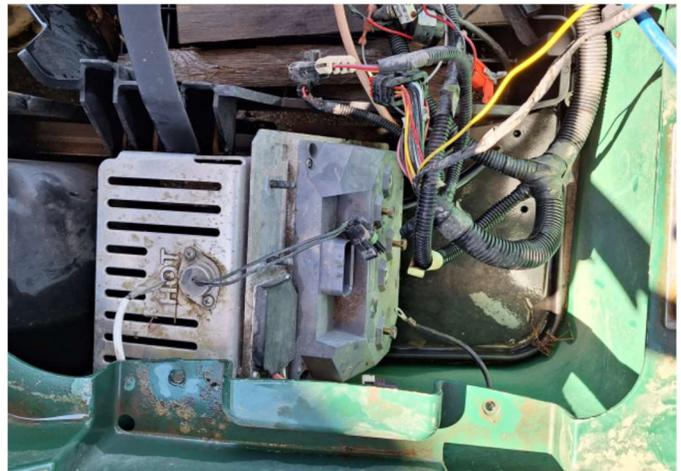
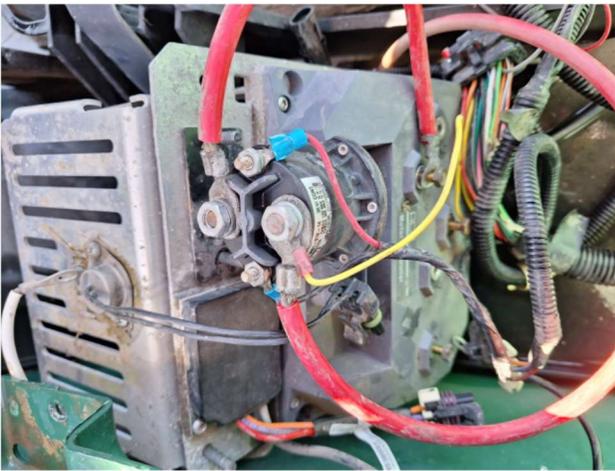
## 5. Conversion Procedures:

The conversion is shown in two sections, Danaher and Curtis. Identify your resistor panel and follow those procedures.

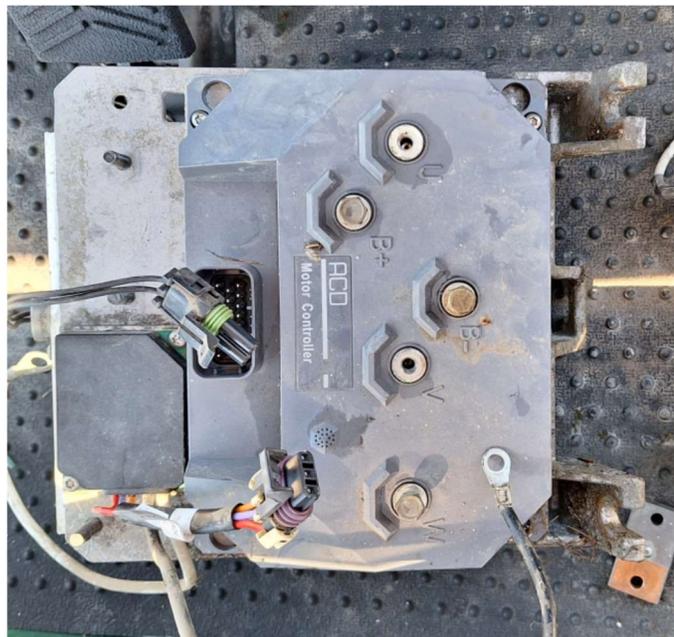
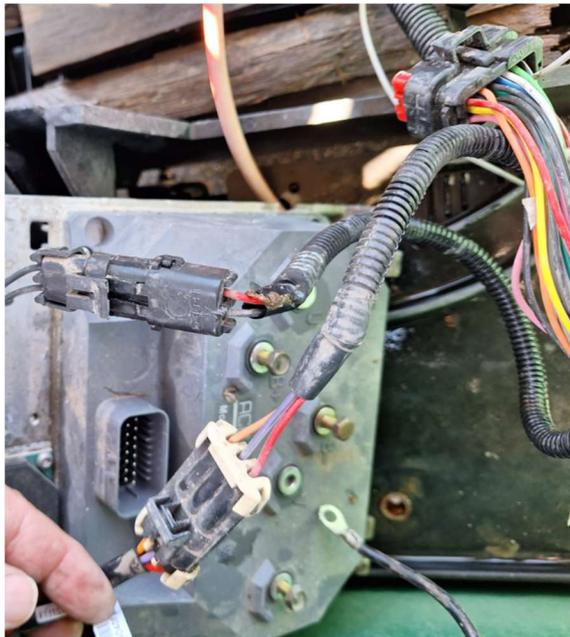
### 5.1. DANAHER 23-PIN 2008-2011 With Aluminum Resistor panel:

The Danaher shown below, this entire controller heat shroud resistor panel will be removed.

- 1. SET KEY-SWITCH AND TOW/RUN SWITCH TO OFF AND DISCONNECT THE BATTERY CABLE**
2. Remove Solenoid and wires from assembly



3. Remove wires and unplug wire harness, then remove the lower TWO T45 STAR bit bolts holding the heatsink assembly. Remove from car:

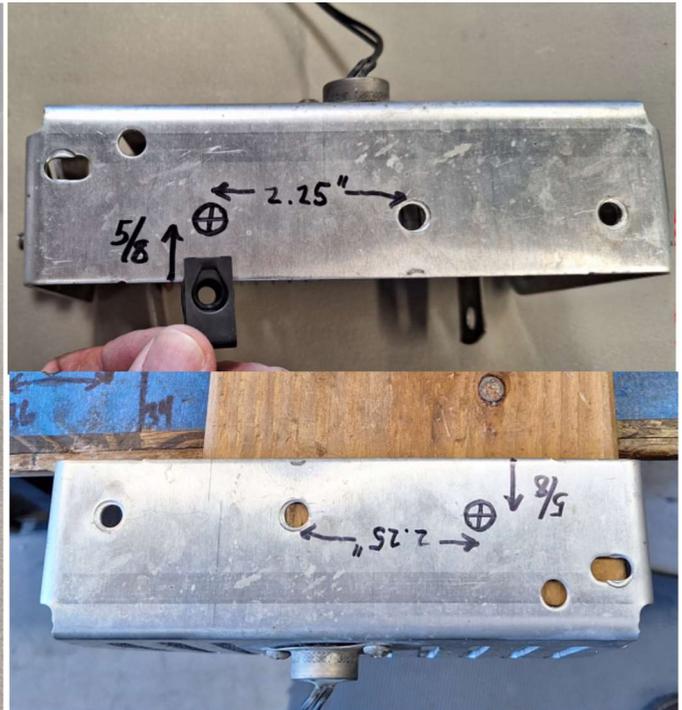


**DANAHER CONTINUED:**

4. Remove ALL the wires from the resistor to the DANAHER control module. (One side is White & grey wires, one side just white wire). Unplug the thermal safety switch connector.

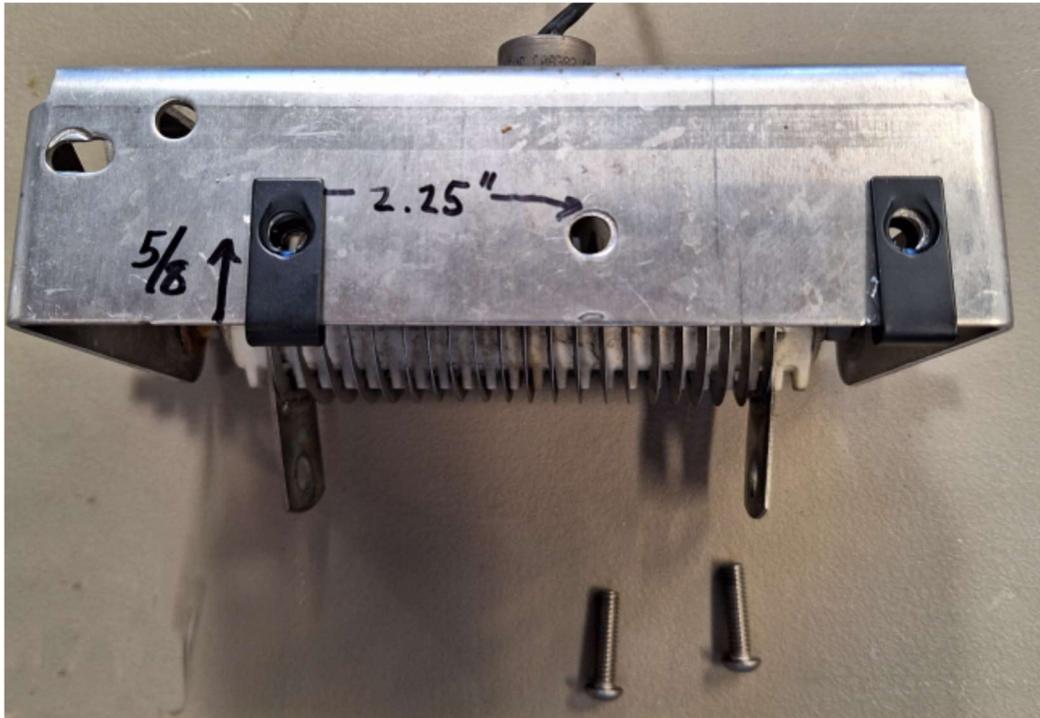


5. Prepare the resistor assembly for mounting on the new Alltrax AC1 Power Panel: The aluminum resistor assembly has two holes, we need to DRILL ONE HOLE to accommodate the 1/4-20 U-Spring Clip. Mark and drill 2.5" left of center and 5/8" up from bottom edge. Use a 19/64" or 5/16" drill bit.

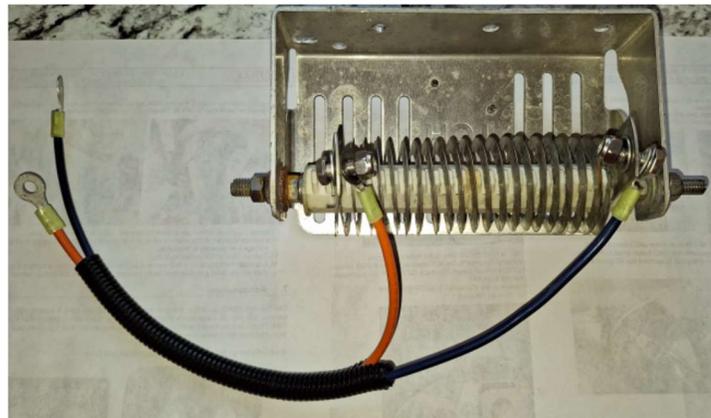
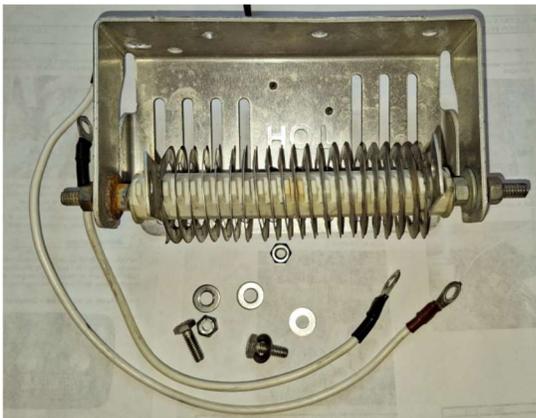


DANAHER CONTINUED:

6. Install the two supplied 1/4-20 U-CLIPS to the outside two holes.



7. Remove the two wires from the resistor assembly. Replace with the supplied ORANGE and BLUE wires. They **MUST BE MOUNTED AS SHOWN** or the length will be wrong. (ORANGE on Left and BLUE on Right). The 5/16" Ring to the resistor, the 1/4" Ring to the Controller.



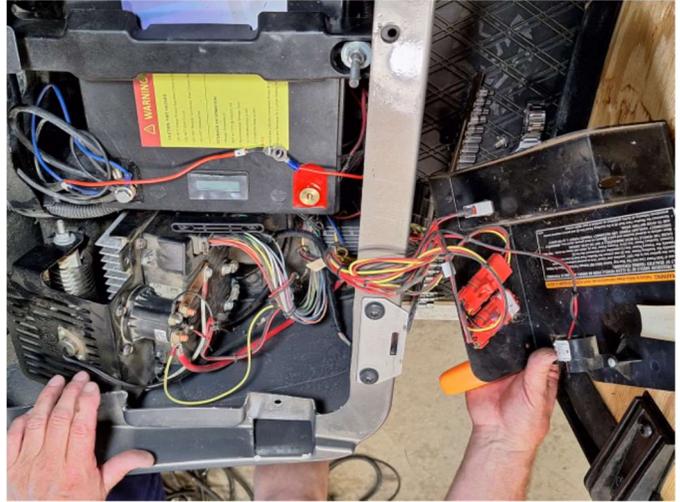
**PROCEED TO NEXT SECTION 6 – AC1 PANEL INSTALLATION:**

**5.2. CURTIS 35-PIN 2012+**

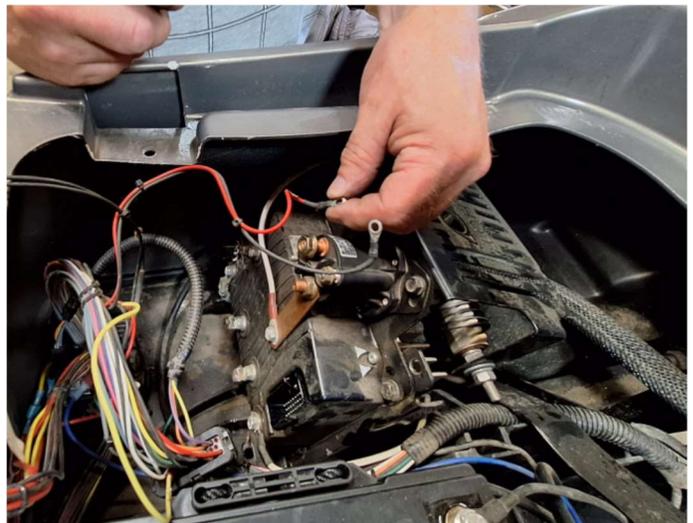
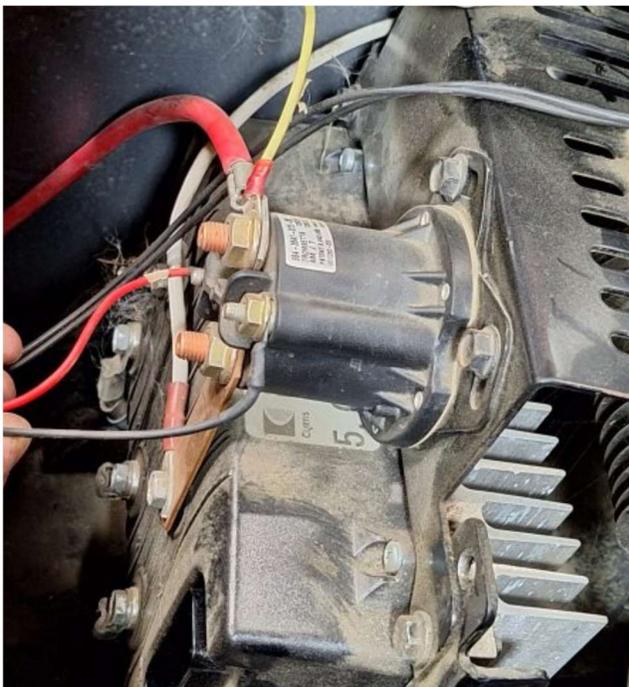
The resistor panel is mounted with a solenoid to the assembly and a thermal safety switch.

**8. SET KEY-SWITCH AND TOW/RUN SWITCH TO OFF AND DISCONNECT THE BATTERY CABLE**

9. Remove the two plastic cover retainers and set cover aside out of the way:



10. Remove controller 23 pin or 35 pin connector depending on controller, AC and DC cables from controller and solenoid. **\*\*\* Notice \*\*\* the YELLOW wire goes to the incoming BATTERY POSITIVE cable on the solenoid. This will be connected to the new solenoid mounted on the floor.**

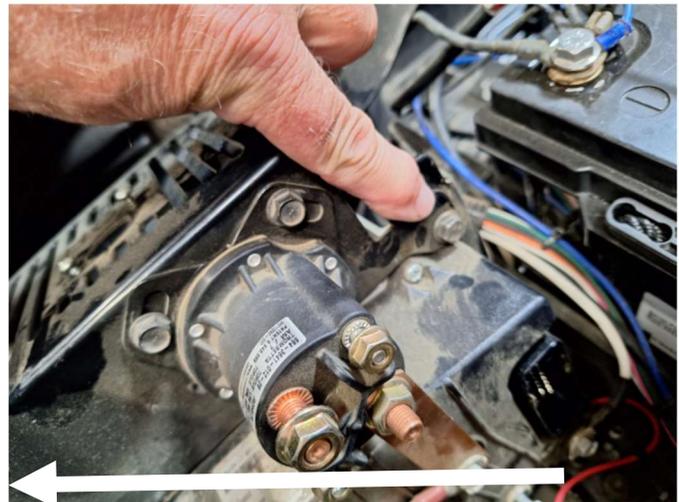
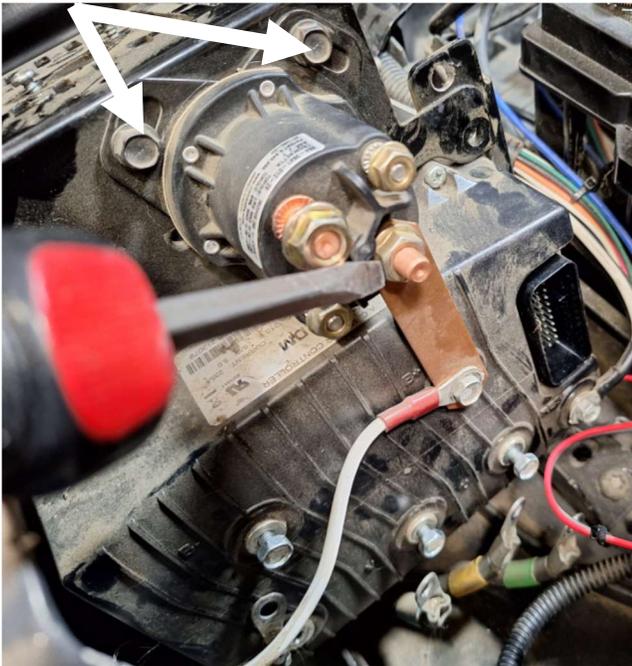


CURTIS CONTINUED:

11. Remove Thermal safety switch from resistor assembly panel, put the screws back into the resistor shield for installation later:



12. Remove solenoid output copper bus bar: Then remove solenoid and the two-resistor panel mounting screws to remove the resistor assembly out of the car.



CURTIS CONTINUED:

13. Remove the TWO T-45 STAR bolts holding the heatsink assembly to the floor and rotate 90° to remove the old controller assembly:



14. Remove the two wires from the resistor assembly. Replace with the supplied ORANGE and BLUE wires. They MUST BE MOUNTED AS SHOWN or the length will be wrong. (ORANGE on Left and BLUE on Right). The 5/16" Ring to the resistor, the 1/4" Ring to the Controller.



**PROCEED TO NEXT SECTION 6 – AC1 PANEL INSTALLATION:**

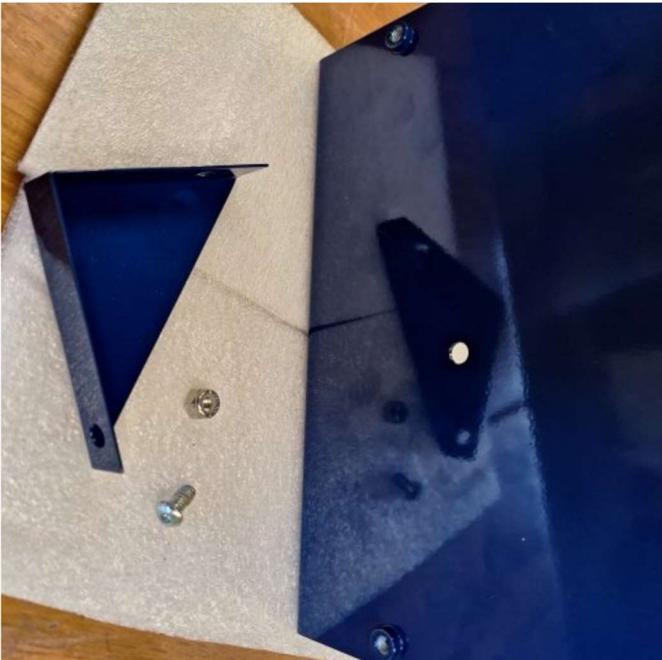
## 6. AC1 Panel Installation:

The AC1 Panel Installation is basically the same for both DANAHER and CURTIS, except for the resistor assembly mounting screw locations.

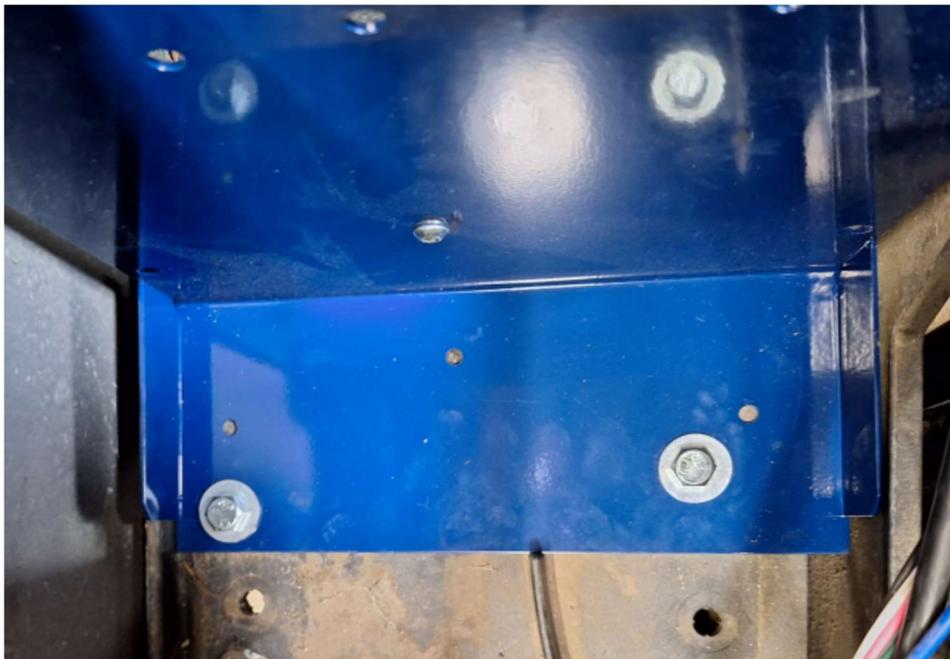
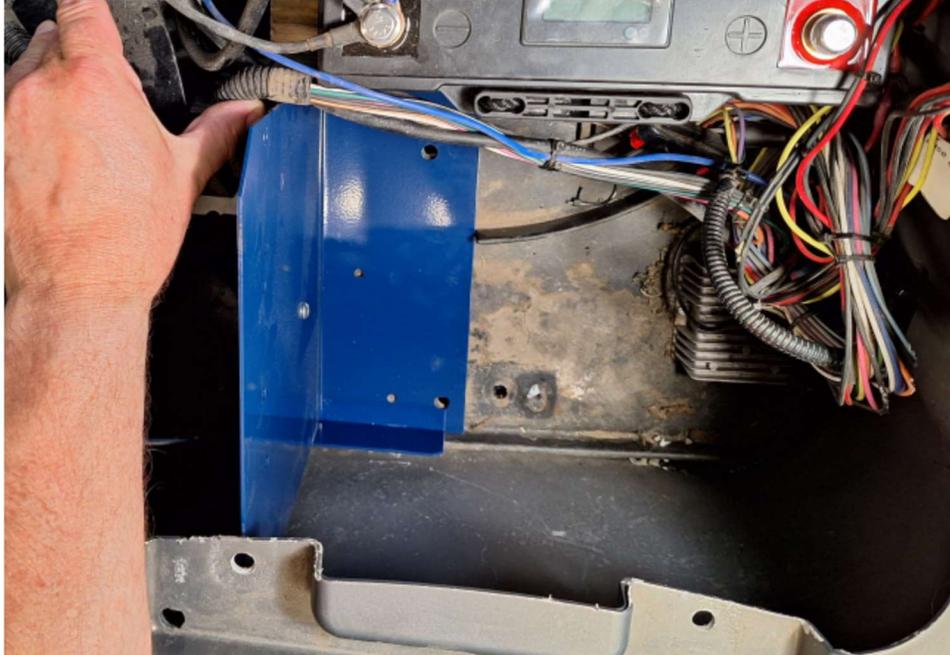
1. Remove debris from floor and neutralize any battery acid in the compartment with baking soda.
2. Carefully wipe and clean the 3-PHASE cables to observe phase lettering.



3. Install the REAR SUPPORT BRACKET:
  1. Locate the rear support 45° bracket, 1/4'-20x3/4" low profile BUTTON HEAD CAP SCREW, Washer, and 1/4-20 LOCKNUT. This LOW-PROFILE screw will fit behind the recess of the AC1 motor controller ribs. DO NOT USE A HEX HEAD!
  2. Use a 3/16" Allen head & 7/16" socket to tighten the screw to the panel.



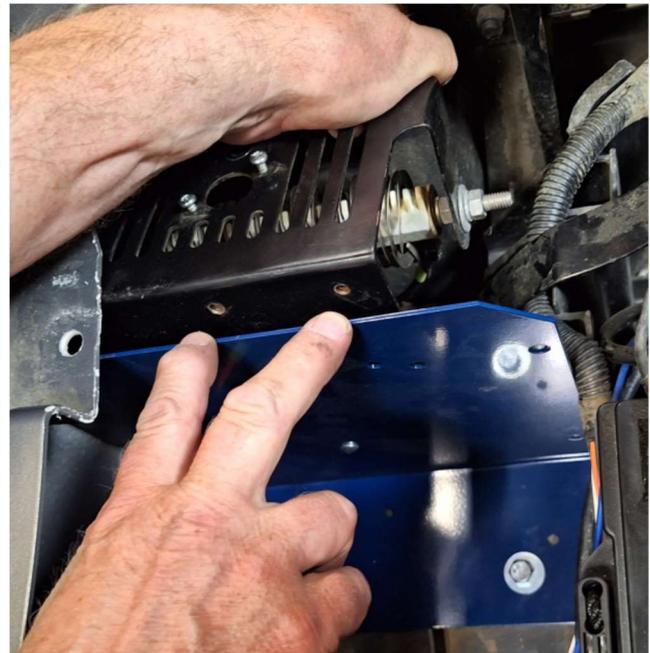
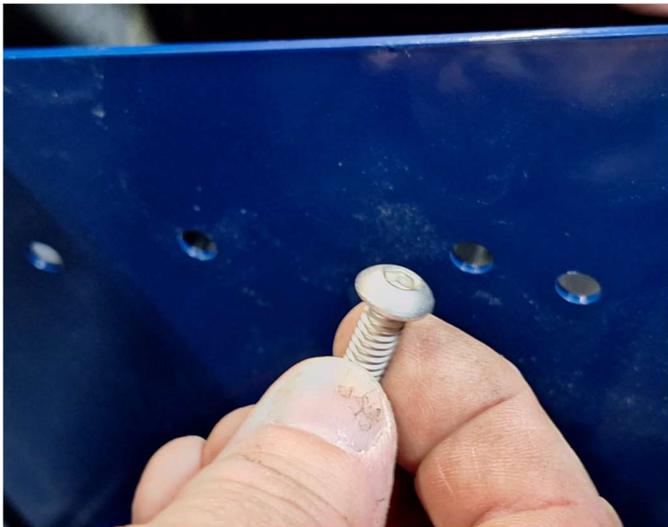
4. Install panel sideways and carefully rotate with support bracket facing REAR.  
NOTE: It WILL BE A TIGHT FIT. You may have to push the wires and cables out of the way. The panel sits flush on the floor over the FOUR SLOTTED HOLES. The panel will just touch the outside floor rib and inside channel rib.
1. Install the 3/8" Bolts, flat washers and lock nuts as shown. It may require a person to hold the top wrench and another below with deep well 9/16" socket.



5. Install (1x) #12x1" Self-Tapping screw into the rear support bracket drilling into the floor.
6. Install (3x) #12x1" Self-Tapping screws into the bottom flange of the panel to add more support.



7. Locate the TWO 1/4-20x1" BUTTON HEAD CAP SCREWS to mount the resistor assembly. The DANAHER assembly will use the outside wider holes, the CURTIS assembly will use the inside smaller holes. Tighten with a 3/16" Allen wrench. Route the resistor wires between the car body and AC1 panel with Split loom protecting the wires.

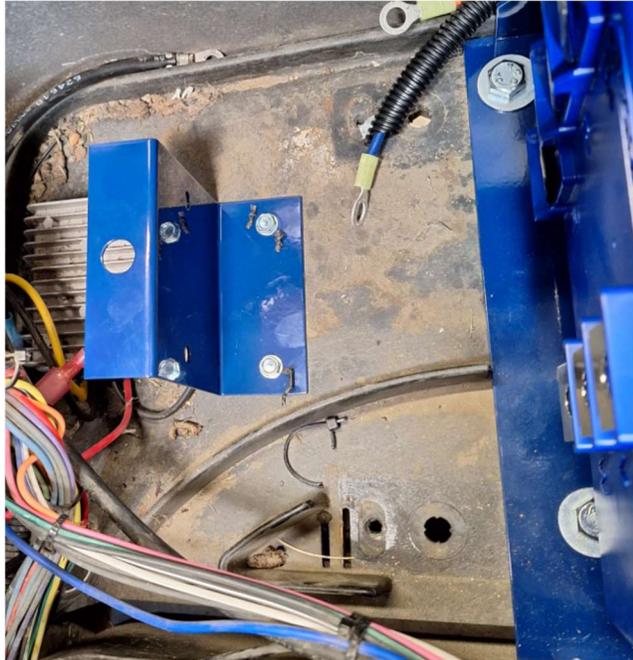


8. Carefully install the AC1 Motor controller with connector facing up. Use (4x) Socket Head Cap Screw and (4x) **small diameter 6mm washers**. Using a ¼" drive or ¼" ratchet with HEX BIT on an extension is the easiest method to start the bolts and tighten them. It is a tight fit location. Start with the top two bolts.

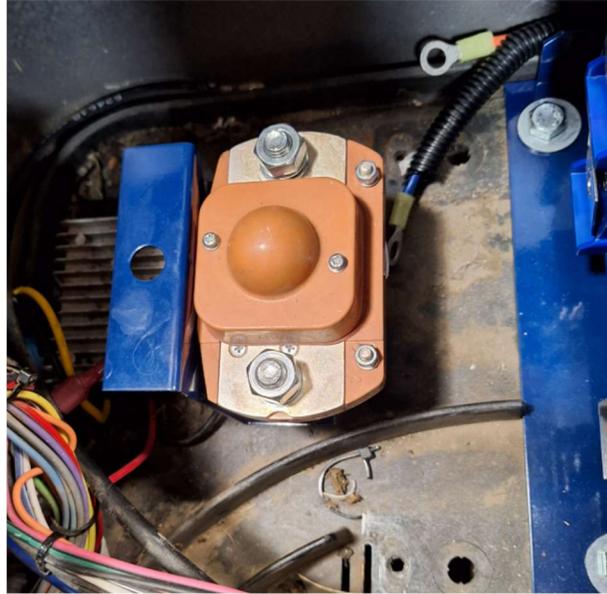
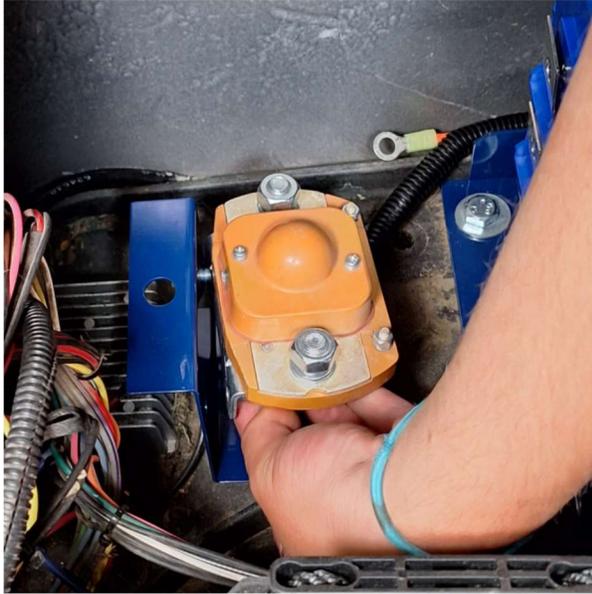


Note: The DANAHER is 23 PIN  
The CURTIS is 35 PIN (shown)

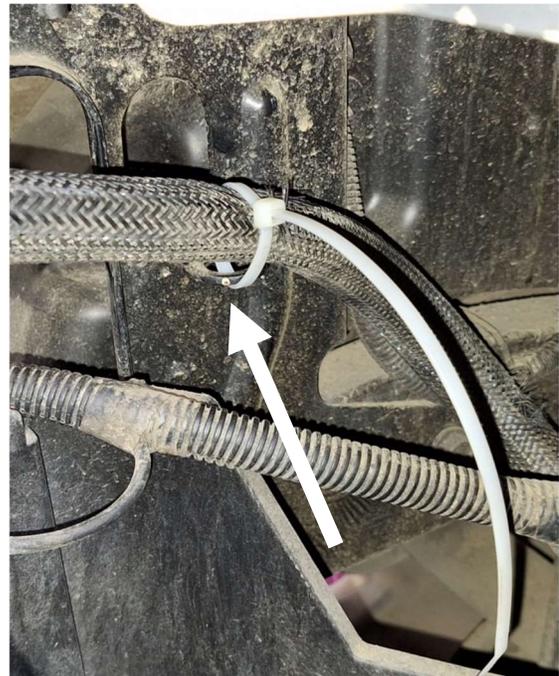
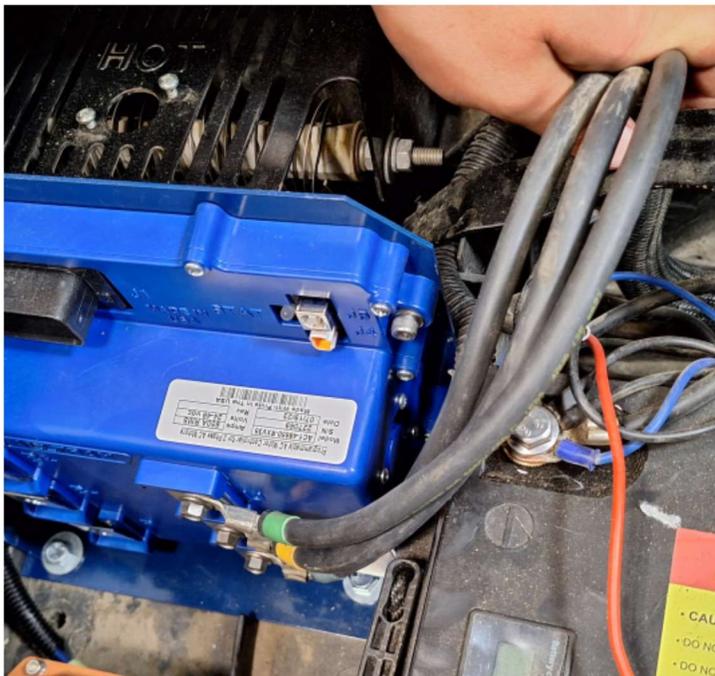
9. Install the floor mounted solenoid bracket using (2x) #12x1" Self-Tapping screws into the floor as shown. The top hole NOT used for RXV (for TOW/RUN in TXT only).



10. Install the Solenoid (not included), as shown the MZJ-400AMP is preferred for the 650amp controller. The provided hardware with (2x) 1/4-20x3/4" bolts, flat washers and locknuts.



11. Install and connect the 3-phase motor wires as shown with U, V, W going to the correct terminals. U=GRN-TOP / V=YEL-CENTER / W=BLU-BOTTOM. Ensure none of the wires are touching. Torque bolts to specs on AC1 Manual **SPECIFICATIONS SECTION**. ZIP Tie the cable assembly using the OEM ring support shown behind the controller above the motor.



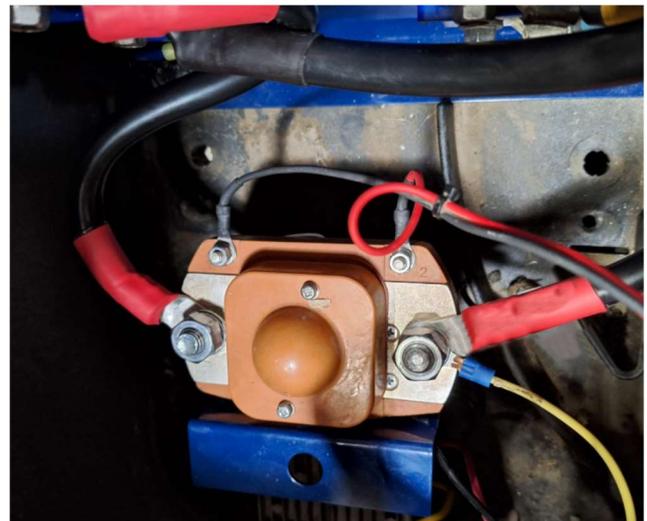
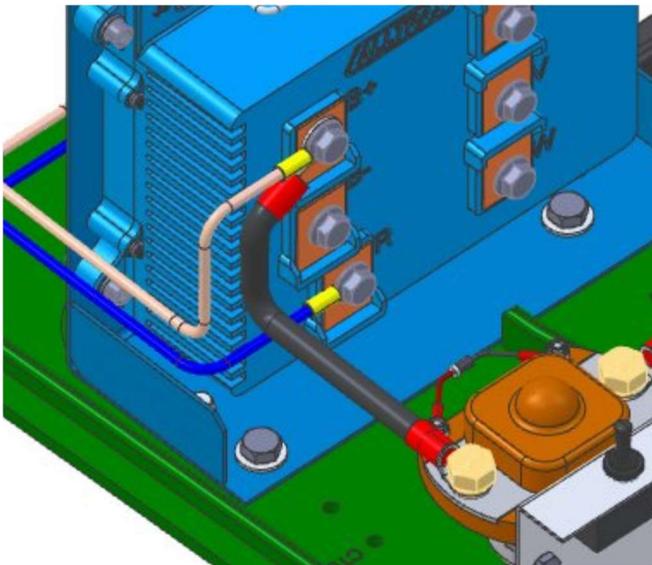
## 6.1. Battery and Solenoid Cables:

1. A battery fuse is required (Not supplied) an example fuse holder shown below for reference installed in a suitable location. (See AC1 controller operators manual FUSE SECTION for fuse size ratings). Connect BATTERY POSITIVE to the fuse holder.

**CAUTION: DO NOT INSTALL THE FUSE YET!**

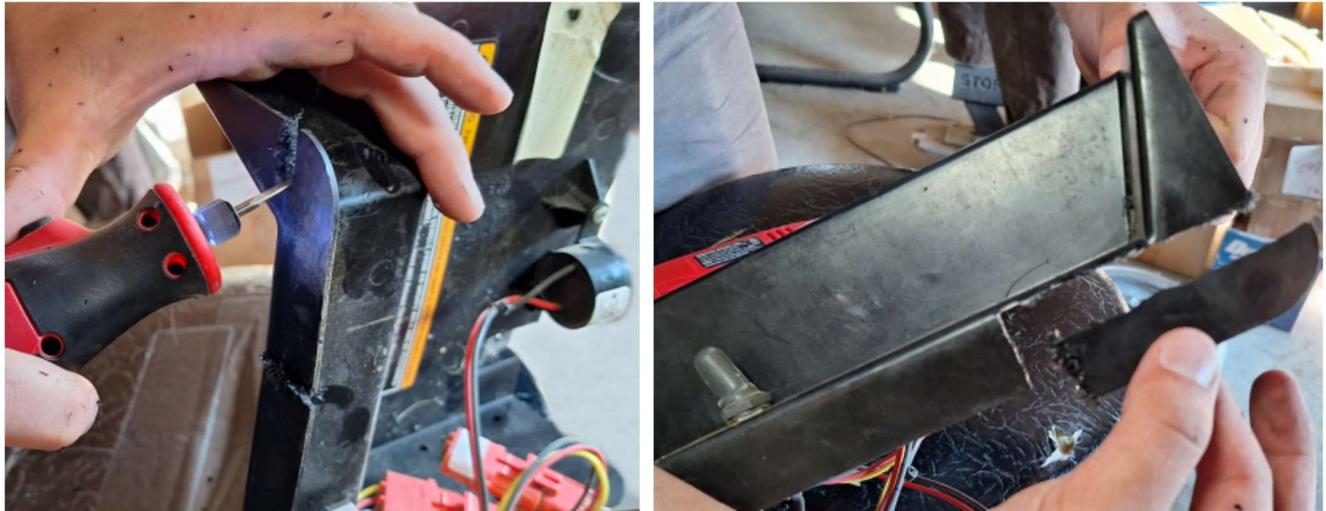


2. Connect cable 5/16" ring to the fuse, the 3/8" ring to the 400amp solenoid.
3. Connect the 3/8" ring to 400amp Solenoid to the AC1 motor controller **B-POS** terminal combined with the resistor assembly ORANGE 10AWG.
4. Connect the resistor assembly BLUE 10AWG wire to the 'R' terminal of the controller.
5. Connect the SOLENOID COIL wires as shown. If using a CSD-3AMP coil suppression diode observe polarity. (red-red & blk-blk)
6. The **YELLOW** wire feeds power to the Key switch is on the **BATTERY INPUT** side of the solenoid. (Live all the time)





11. The AC1 controller is larger than the OEM, the cover corner may require trimming with a Dremel® or cutoff tool. CAUTION: Do not cut wires or other components.



12. Install the proper ANN Fuse into the fuse holder. (See AC1 operators manual)  
13. Measure voltages at the solenoid positive and controller B-NEG and **verify the correct voltage and polarity is available.**  
14. Turn on TOW / RUN switch to RUN.  
15. It is recommended to do a first test on a jack to determine direction is correct. Do not over-rev the axle, just enough to verify Forward and Reverse direction is correct.

## 7. Accessories:

The FN-KEY (on left) included in your kit (with optional dash mount FN-DM-KEY shown on right) provides 3 personality functions: Golf Mode (10-14MPH), Street Mode (14-20MPH) or Go-Fast Mode (depending on safe operation and tire size, do not exceed manufacturers RPM limits or braking function). **See the included FN manual for more information.**

Free software on our web site – Download, Adjust, and Drive.



***"Thank You Nikola Tesla for a better motor"***

It was really all he asked for in his lab journal. He said what he designed was for the future, and he hoped we would remember him and his contribution.

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