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INSTALLATION INSTRUCTION

EZGO RXV with HPEVS Lithium Battery Pack Motor Controller Upgrade Installation Notes

REVISION: A

Date: 10-09-20

IMPORTANT DISCLAIMER: **IF THE VEHICLE IS GOING TO BE STORED FOR A LONG PERIOD OF TIME, THE VEHICLE NEEDS TO BE PLUGGED IN TO CHARGING POWER AT ALL. FAILURE TO FOLLOW THIS PROCEDURE WILL DRAIN THE LITHIUM BATTERIES DOWN TO A POINT WHERE THE BATTERIES WILL BE DAMAGED. IF THE BATTERIES ARE DAMAGED FOR NOT FOLLOWING THIS PROCEDURE, THIS WILL VOID ANY IMPLIED WARRANTY.**

CAUTION: DO NOT HANDLE THE ELECTRICAL CONNECTORS WHEN THE SYSTEM IS ENERGIZED. DOUBLE CHECK THE VOLTAGE POTENTIAL WITH A VOLTAGE METER PRIOR TO HANDLING MAKING SURE VOLTAGE IS AT 0V. FAILURE TO DO SO WILL RESULT IN INJURY OR DEATH!

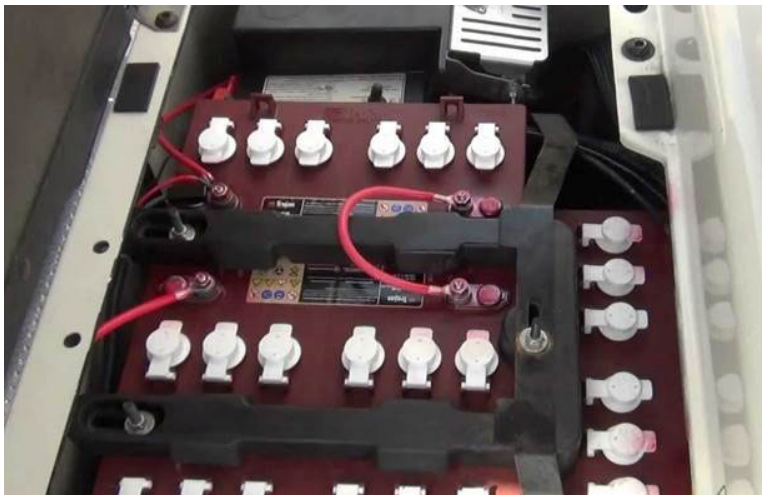
SCOPE: This instruction set is given as a detailed guide to installing a HPEVS complete lithium battery pack and a Curtis Controller into an EZGO RXV golf car.

Items included in the kit:

1. HPEVS Lithium Battery Pack
2. Curtis Instruments AC Motor Controller
3. Controller Mounting Plate
4. Resistor Regen Controller
5. Wiring Harnesses
6. Fuse Holder/Fuse
7. ” Z” Buss Bar
8. Curtis Instruments 3140 LCD Display
10. Golf/Street Switch
11. Battery, Pack Negative and Pack Positive #4 Cables (Optional for lead acid)
12. Menu Button
13. Start Button
14. Start Button Relay
15. Associated Hardware

STOCK BATTERY AND CHARGER RECEPTACLE REMOVAL

1. Remove the three pins that hold the controller splash shield in place that way there is access to the controller below.
2. Disconnect all battery cables as described in the removal procedures in the manual for the golf car.

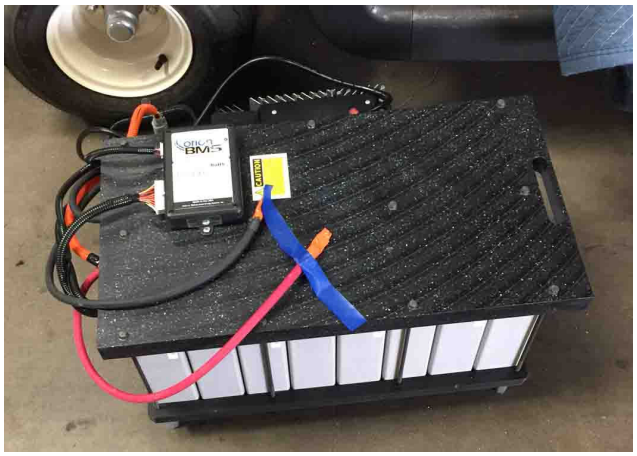


3. Remove and discard battery cables, including the cable from pack negative battery post to the B- post on the motor controller and the cable from pack positive battery post to the solenoid.
4. Disconnect the charging wires from charger receptacle to the battery pack.
5. Disconnect the light blue wire (charge interlock Delta Connector) wire from the blue wire on the charger receptacle. The light blue wire will be relocated and reused.
6. Remove the charge receptacle from the golf car.
7. Remove all lead acid batteries from the cart.
8. In preparation for installing the HPEVS lithium battery pack with the HPEVS controller upgrade, the new Curtis controller kit needs to be installed first prior to the battery pack. On our website, locate the document “HPEVS EZGO Controller Conversion Installation” to install the new Curtis controller.

HPEVS Lithium Battery Pack Installation:

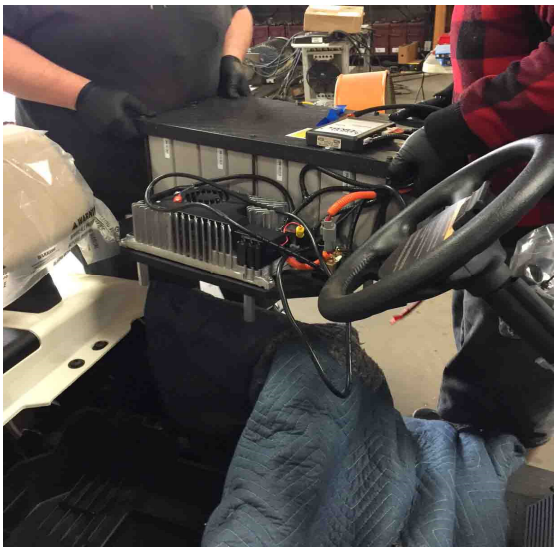
SAFETY NOTE: The HPEVS battery pack contains the lithium batteries, a battery charger, and a BMS and as a whole unit; the unit is heavy. The following procedures will take two people to complete.

1. Prior to loading the lithium battery pack into the battery tray of the golf car, tape all electrical connections such that they will not get pinched or damaged in any way. Also, make sure that any stock OEM wiring is located out of the battery tray.

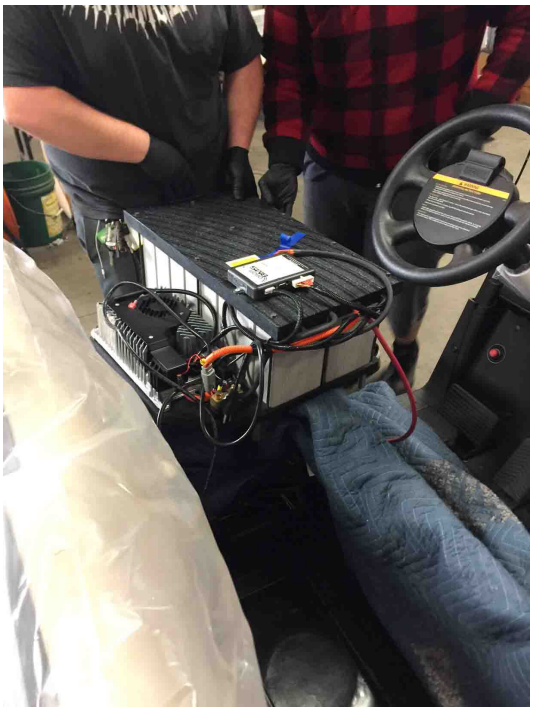


2. Locate a protective cover/blanket to lay across the front edge of the battery tray tub area to protect the golf car's body from any damage.

3. With two people pick up and carry the lithium battery pack over to the golf car. Make sure that the Delta-Q battery charger is located towards the back of the car.

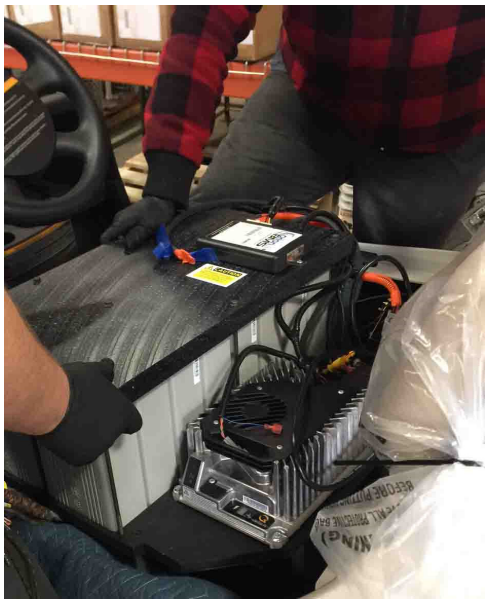


4. Rest the charger on the protective cover located on the golf car and have one person continue to hold and steady the lithium battery pack.

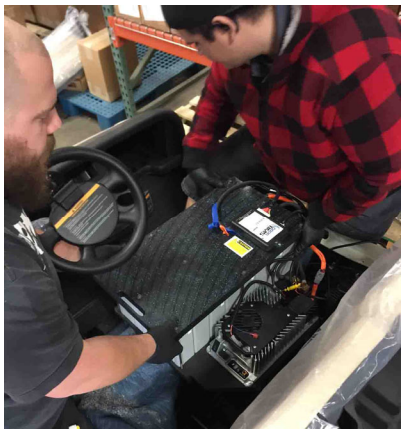
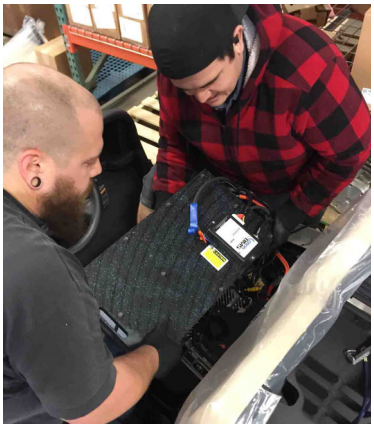
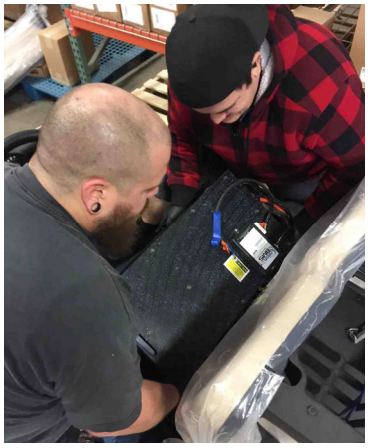


5. While the one person is steadying the battery pack, the other will need to step into the golf car: one foot in the battery compartment and the other in the floorboard of the golf car.

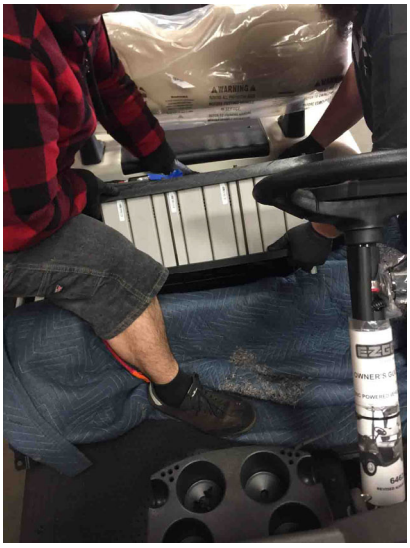
6. Slowly maneuver the lithium battery pack such that it is aligned center with the battery compartment.



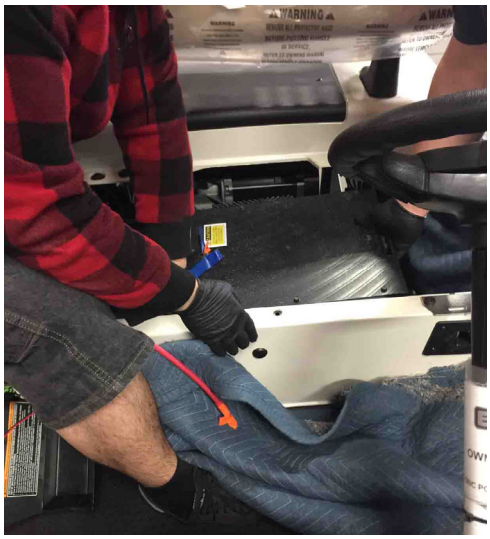
7. While lifting the battery pack together, the back end of the battery pack (Delta-Q charger side) will need to be tilted down so that the Delta-Q charger can squeeze under the golf cars body and slide the lithium battery pack into the battery tray compartment.

8. Make sure that the standoff studs that are located on the bottom of the battery pack clear the lip of the body.



9. Lower the battery pack all the way into the battery tray in the golf car. After the battery pack is fully in and seated in the golf cars battery tray, remove the blanket.



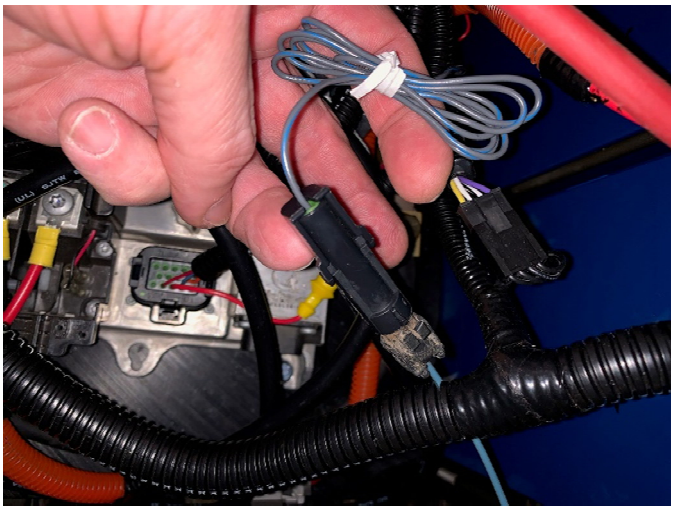
10. Secure the battery pack to the cars stock battery tray. This is accomplished by going through the holes located in the bottom of the cars stock battery tray and using the supplied hardware to screw into the battery pack's standoffs. There might be a point where the standoffs need to be maneuvered so that they align with the holes in the cars stock battery tray so that the mounting bolts can be installed. Using a small screwdriver can be used to maneuver the threaded standoff to the correct position to install the bolt. After the six bolts are threaded into the standoffs, tighten them to secure the battery pack to the battery tray.

Battery Charger Interlock

1. The light blue wire with the Delphi connector that was removed from the charging port needs to be connected to the other Delphi connector provided in the HPEVS wiring harness. This will connect the charger from the HPEVS system to the controller. Using the stock connector, the wire that leads to the stock charging port will have to rerouted back to the controller area.

Delphi OEM stock connector

HPEVS supplied connector in wiring harness



Electrical Connections

Removal, modifications, and additions will need to be made to the wiring system to accommodate the lithium battery pack. The following instructions depict the changes. Prior to installing the lithium battery pack there are certain modifications needed.

Ground wires

1. Locate the two ground wires that were removed from the battery pack negative connection. (Fig. 10)

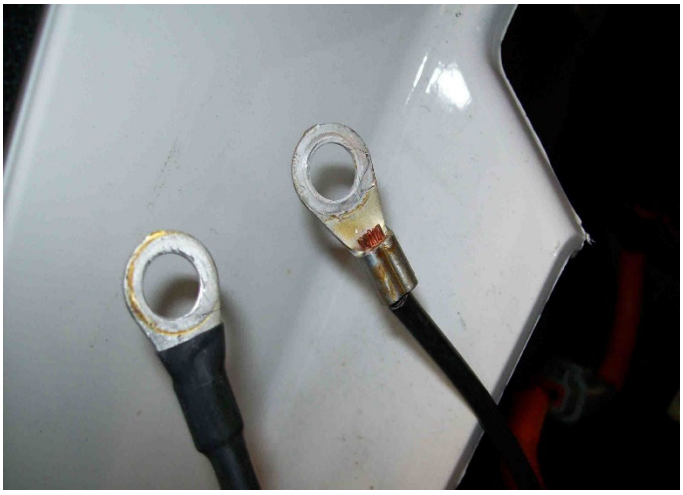
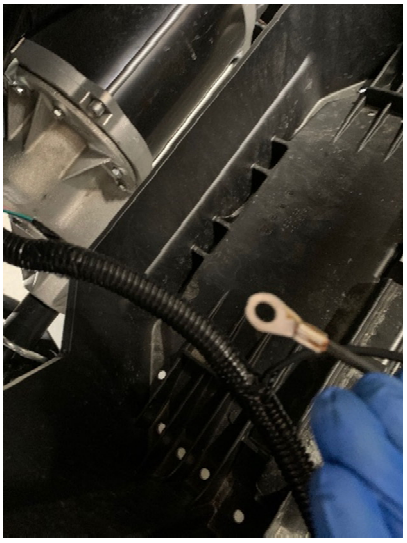


Fig. 10

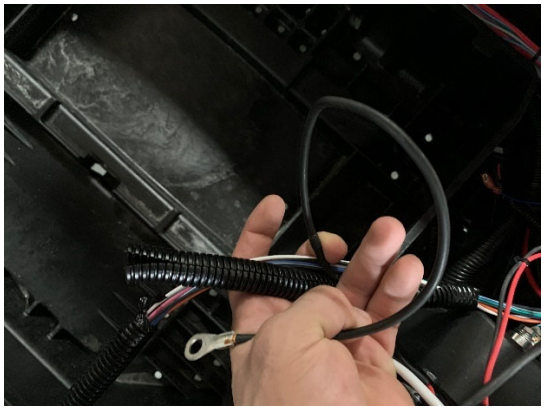
2. Replace these to 5/16” rings connectors with the supplied 3/8” ring connectors. (Fig.11)

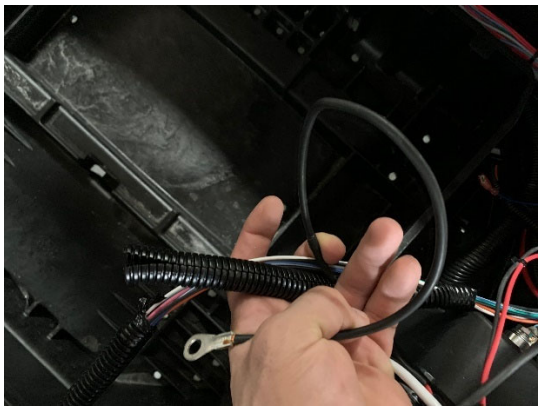
Fig. 11

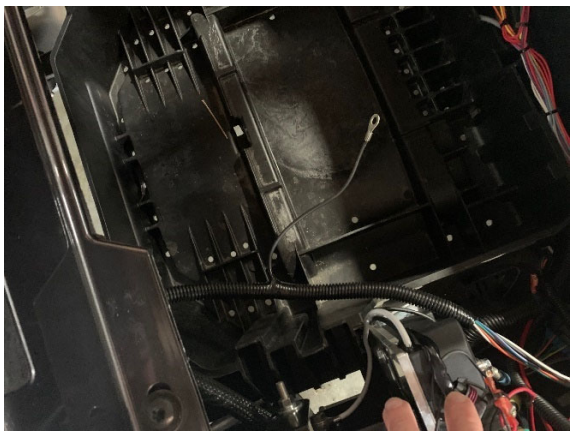
3. Locate the black wire in the main OEM wire loom with the 5/16” hoop terminal.



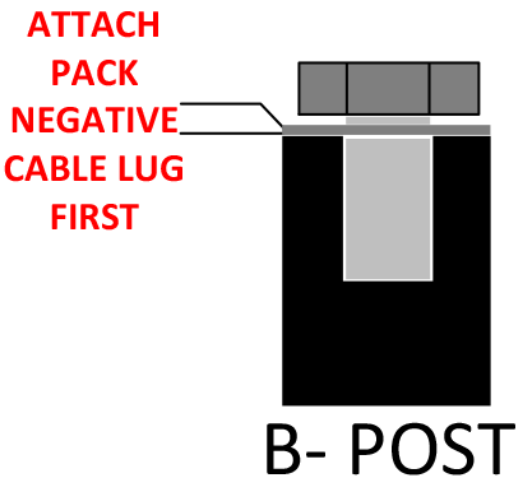
4. Expose this wire back in the wire loom so that the hoop terminal can reach the B- post of the motor controller; approximately 1 foot.

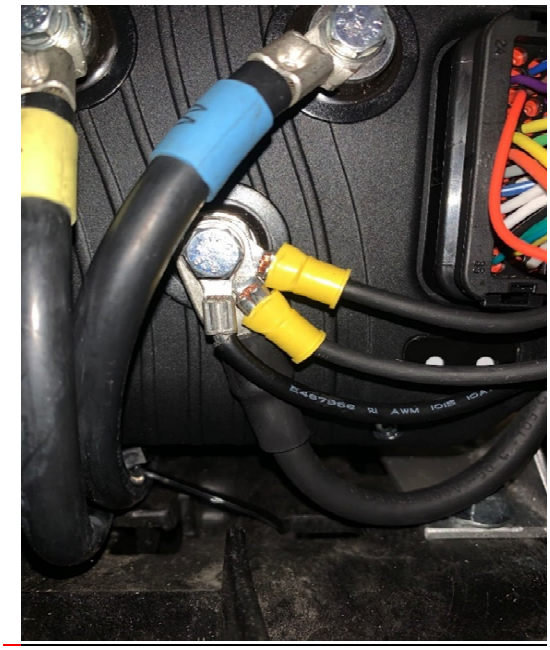




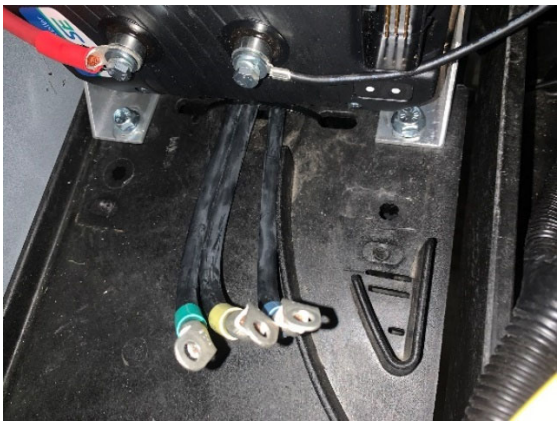


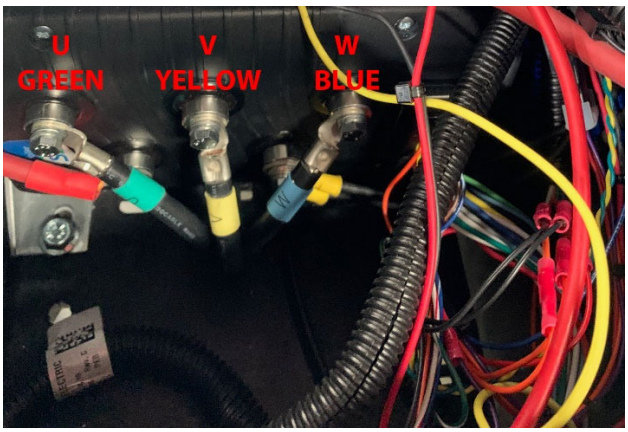
5. Connect battery pack negative and all ground cables to the B- post of the motor controller. **(IT IS IMPORTANT THAT THE PACK NEGATIVE CABLE RESTS AGAINST THE B- POST. ALL OTHER CONNECTORS CAN BE LOCATED ON TOP OF THE B - CABLE IN THE STACK)**



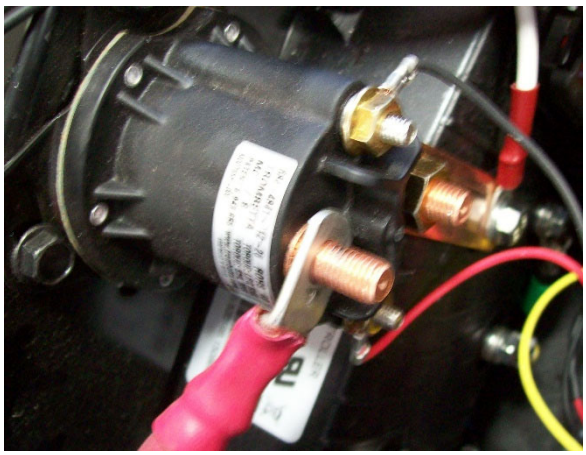


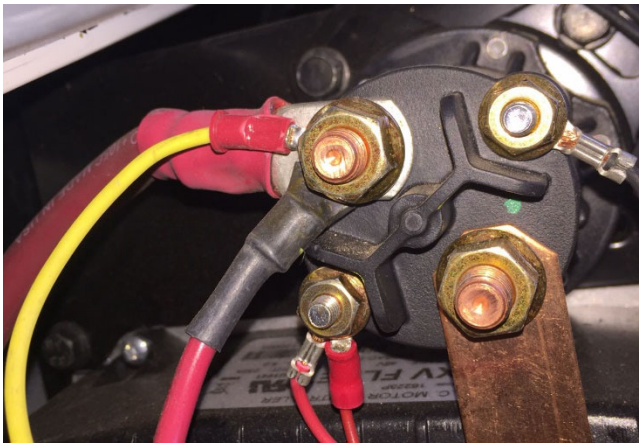
6. Connect the motor lead cables (U,V,W) from the motor to the motor controller (Green band to U terminal, yellow band to V terminal, and Blue band to W terminal).





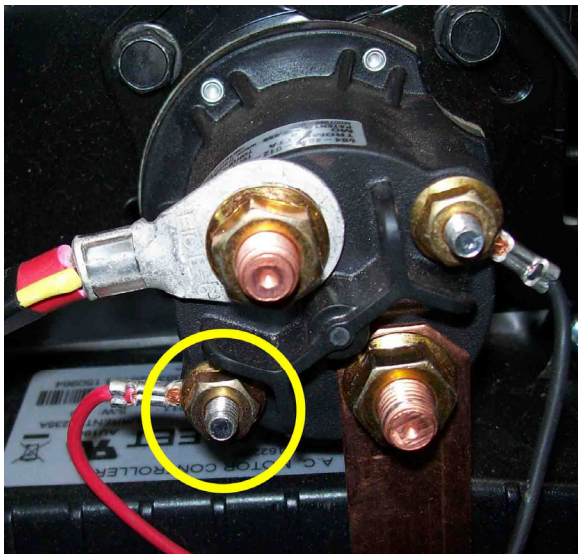
7. Connect the battery black negative cable coming from the lithium battery pack to the B- post on the Curtis controller.
8. Connect the red B+ battery cable and the dc-dc red power cable (if applicable) to the hot side of the contactor as shown; keep in mind the orientation of the lug on the lithium battery pack positive cable. First, place the pack positive cable on first onto the contactor post hot side of the coil, then the dc-dc cable and finally the yellow wire that was modified earlier in this document.

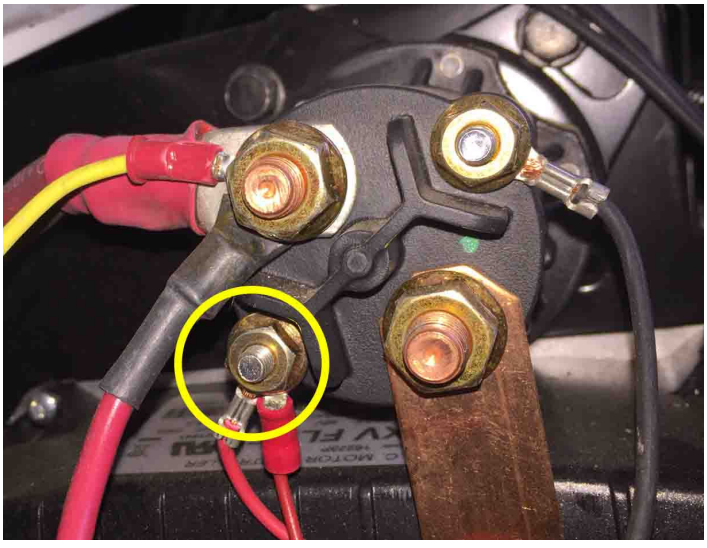




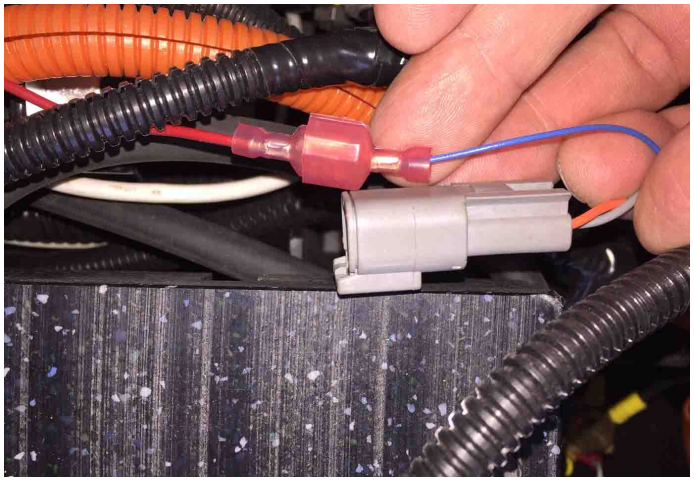
Powering BMS with Keyswitch ON

1. Using the supplied wire that has the ring terminal on one side and the quick connector on the other, connect the ring terminal to the hot side of the coil as depicted below.



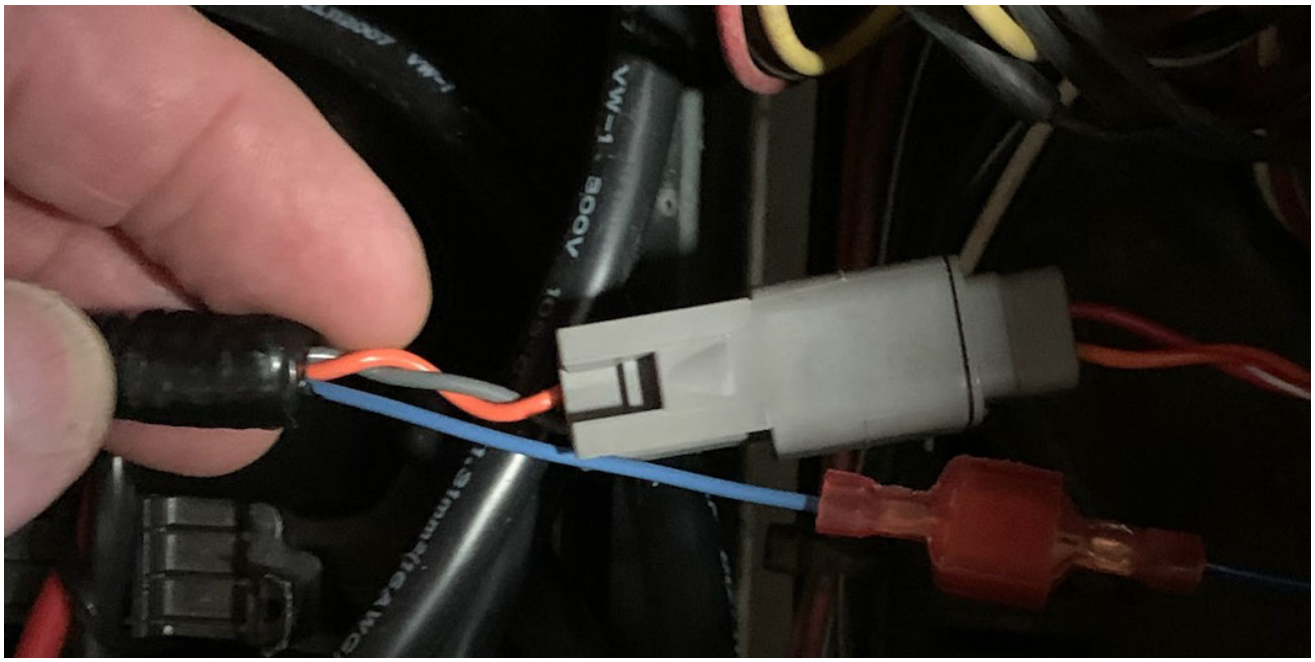


2. Plug in the quick connector on this red wire to the blue wire that is in the same wire loom as the CANBUS dongle.



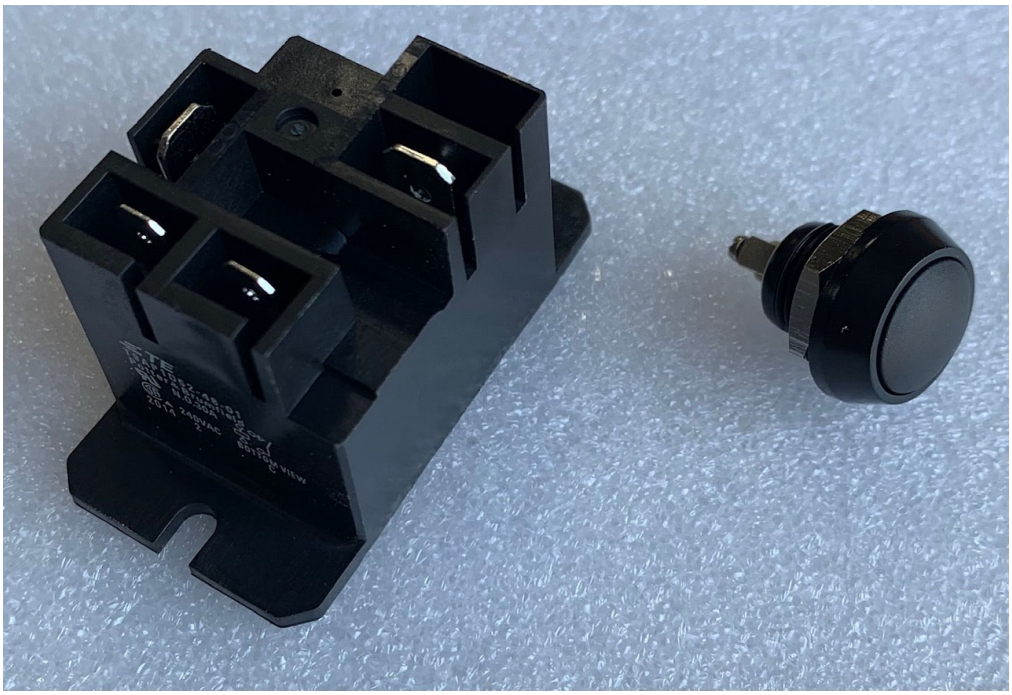
CANBUS Connection

1. Connect the CANBUS Deutsch connector from the battery pack to the Deutsch connector coming from the motor controller main connector.



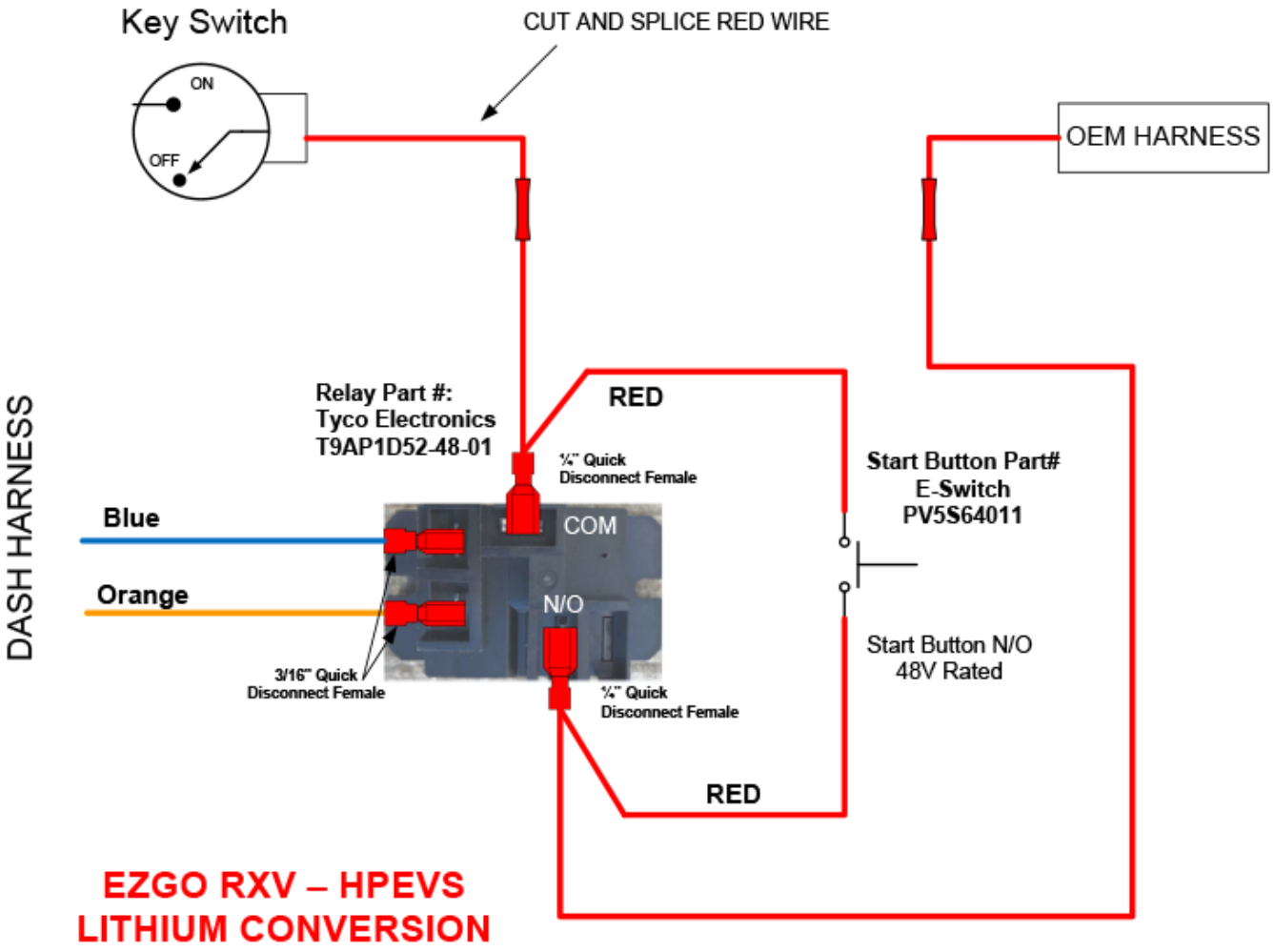
Motor Start Relay

1. In the kit, locate the motor start relay and button start.



2. Install these items in the golf car; with the relay behind the dash and the start button in the dash.

3. Connect the electrical wiring for the motor start relay based on the schematic below.



REVISIONS:

Rev Number	Description	Date	Approved
A	INITIAL RELEASE	9/20/20	SCF