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GW-V-DC-DC-KIT

Wiring Install Kit for Renogy DC-DC Charger, RBC30D1S
1980-1991 Vanagon

This kit is intended to make your auxiliary battery install as seamless as possible using a Renogy DC-DC charger. We highly recommend purchasing one of our [LiFePo batteries](#) to use with this kit, as they are more powerful and more efficient than a lead acid battery. After the installation of this kit, your auxiliary battery will be charged by the alternator when the van is running, and you will have the option of charging it with a solar array at any time (up to 350W). When the van is not running you will be able to use your radio, 12-volt outlet, interior lights, and the sink in camper models without discharging your starter battery. The factory Dometic refrigerator wiring in camper models remains stock and is still only powered when the vehicle is running.

***Important Note:** This kit has been designed for easy installation. However, it does involve cutting and splicing into factory wiring. Installation of this kit is not within everyone's ability. Read through these instructions carefully and decide if installing it is for you. If not, please take your van to an automotive electrician. Wiring errors can be troublesome and hazardous. A battery can produce 1200 amps of current—enough to turn a 12ga wire red hot in a few seconds. Throughout installation, be VERY careful not to short the battery. Cross out any sections that do not apply to the year of your Westy and check off each step as you complete it.*

Tools Required	Hardware
<ul style="list-style-type: none">• Phillips Head Screwdriver• 10mm Wrench/Socket• 13mm Wrench/Socket• Tape• Drill• 11/16th Bit (step bit highly recommended)• Phillips Bit• Marker/Sharpie• Lithium Grease• Wire Cutters• Wire Crimpers	<ul style="list-style-type: none">(1) Main Power Wire*(1) AUX Power Wire*(1) Accessory Power Wire *(1) Main Ground Wire*(1) AUX Ground Wire**See Chart at end for detailed identification*(3') Wire Sheathing(1) Wire Grommet(4) Wire Clips(1) Mini Bus(5) Sheet Metal Screws(1) Ring Terminal

Prepare for Installation

1. **Begin by disconnecting the negative terminal of the primary battery**, then remove the primary battery from the vehicle. Also disconnect any auxiliary batteries that are installed.
2. Use one of the following instruction sets to install your auxiliary battery—there are instructions for swivel and non-swivel seats as well as LiFePo4 and SLA batteries.



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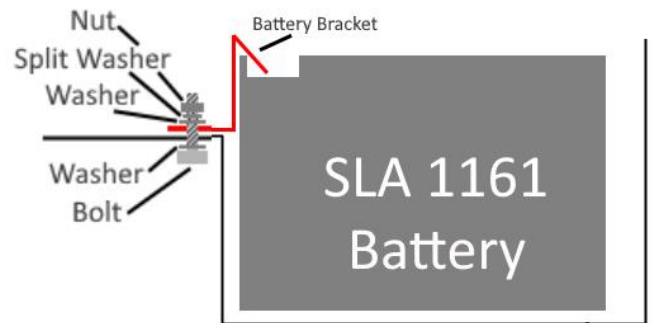
Installation Locations

If you choose to install multiple batteries, some ideal locations are beneath the rear bench and in the cabinet of your camper. If you choose to install your batteries in this way, you will be responsible for securing and procuring any additional wiring that may be needed. If you install two batteries, make sure to connect them in parallel to maintain proper voltage in your camper. The instructions below detail the installation of a single battery under the driver's seat.

Secure the Battery: Non-Swivel Driver's Seat

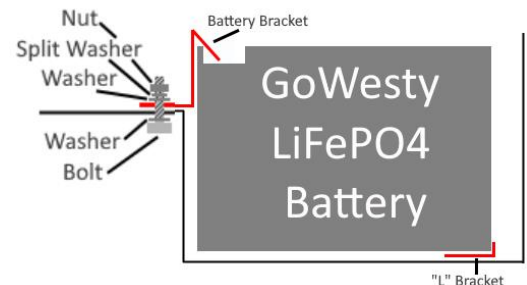
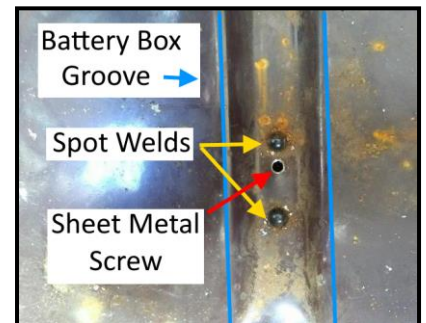
FOR 1161 SLA BATTERIES:

1. Slide the driver's seat all the way forward and tape the box lid open.
2. Place the battery into the box on its side with the terminals on top and facing the front of the van.
3. Poke out the backing sticker for the bolt hole.
4. From under the van, insert the included M8 bolt with washer through the hole, then set the bracket on, followed by a washer, split washer, and finally the included M8 nut.
5. Tighten everything down, give the battery a shake, and tighten everything one last time.



FOR LIFEPO4 BATTERIES:

1. Slide the driver's seat all the way forward and tape the box lid open
2. Use the included sheet metal screw to attach the "L" bracket into the groove at the bottom of the battery box. Locate the sheet metal screw between the two spot welds as shown. **Make sure the underside is clear before drilling.**
3. Place the battery into the box on its side with the terminals on top and facing the front of the van. Make sure the "L" bracket is snug on the battery. Adjust if necessary.
4. Poke out the backing sticker for the bolt hole.
5. From under the van insert the included M8 bolt with washer through the hole, then set the bracket on, followed by a washer, lock washer, and finally the included M8 nut.
6. Tighten everything down, give the battery a shake, and tighten one last time.





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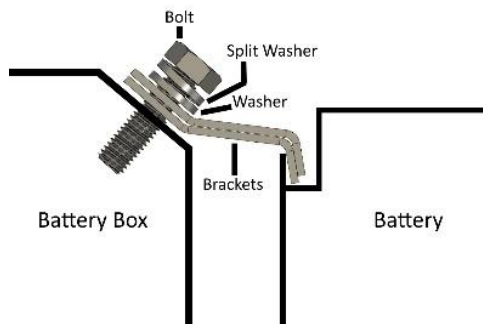
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Secure the Battery: Swivel Driver's Seat

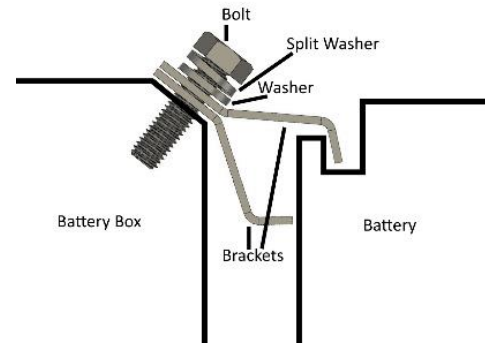
1. If you want to install the battery under your swiveling driver's seat, first remove the (4) 8mm nuts from the seat pedestal and set the seat aside.
2. Remove the wire clip at the back of the battery box. This wire loom can simply rest on top of the battery when the installation is finished.
3. Insert the battery on its side with the terminals at the top of the battery box facing the front of the van.
4.
 - a. For LiFePO4 Batteries: Install the brackets as shown below in the right diagram.
 - b. For SLA 1161 Battiers: Install the brackets stacked on top of each other as show in the left diagram below.
5. Install the split washer and the flat washer onto the bolt and use it to tighten both brackets.
6. Make your wiring connections, re-install the swivel seat, and you are good to go!

SLA 1161 Battery



LiFePO4 Battery

Alternate





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Mounting and Drilling

1. With the battery in place, install the DC-DC charger where you want. This kit has been designed to mount the DC-DC charger under the driver's seat (non-swivel only) or on the side of the sink cabinet behind the driver's seat. Use the four included self-drilling screws to mount the DC-DC charger at either location.
2. Drill an 11/16" hole (we recommend using a step bit) in the bottom of the storage compartment under the driver's seat. We recommend locating it in the inboard side of the compartment as shown to the right. **Make sure the underside of the van is clear before drilling!**



Running the Wiring

1. **Main Power Wire**
 - a. Take the main power wire (see wire chart at the end of the instructions) and insert the long end of the wire into the factory rubber grommet at the bottom of the battery box as pictured. Feed the wire through until you are stopped by the fuse. It can be helpful to spray some lithium grease into the grommet for an easier install.
 - b. From underneath the van, install the wire sheathing onto the wire starting from the passenger side. Then route the wire across to the driver's side of the vehicle, making sure there is nothing in between the wire and the body of the van.
 - c. Mark the wire where it goes through the floor of the van and cut the sheathing at that location. Remove the excess sheathing and install the included grommet onto the wire where you drilled a hole earlier. Again, some lithium grease can be helpful here.
 - d. Install the included wire management clips under the van to keep the main power wire in place. Simply install the wire with sheathing into the large side and press the other side of the clip onto the frame as shown to the right.
Run the main power wire up through the hole in the driver's battery box floor and route it to the "ALT +" connection point on your Renogy unit as you want it installed.



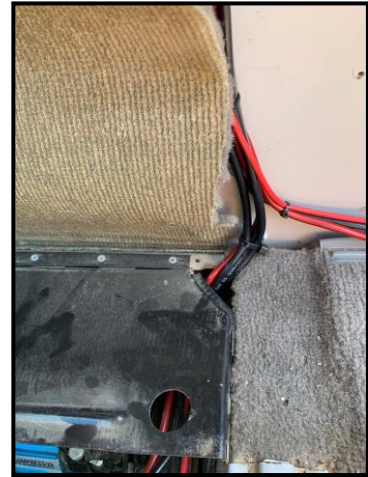


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3. Auxiliary Battery Power

- a. Run the auxiliary battery power wire (2) from the "OUT +" connection on the Renogy unit to the "+" side of the auxiliary battery, **BUT DO NOT CONNECT IT**. If your auxiliary battery is mounted under your sink, we recommend routing this wire through the battery door opening as shown in the photo on the right. *Note: the terminal with the larger hole goes on to the DC-DC charger and the small hole goes on the auxiliary battery post.*



4. Aux Ground Wire

- a. Run the aux ground wire (3) next to the auxiliary power wire from the "NEG -" connection on the Renogy unit to the negative terminal on the auxiliary battery, **BUT DO NOT CONNECT IT**. *Note: The terminal with the larger hole goes to the DC-DC charger and the smaller terminal goes to the auxiliary battery terminal.*

5. Main Ground Wire

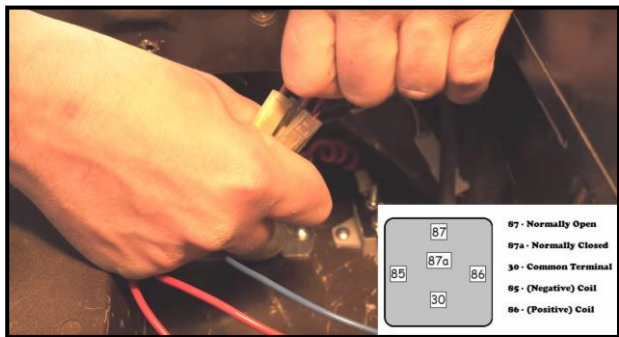
Find an open space near your auxiliary battery and sand away the paint to bare metal for a solid ground connection. Use the included sheet metal screw to attach the ground wire terminal to the body. Run the other side of the wire to your auxiliary battery, but do not connect it yet.

Model Specific Wiring for Accessories

The following instructions are broken down by model. Select the correct date range for your van, and if it is a full camper be sure to follow the instructions to power your sink from the auxiliary battery.

All Campers

1. All campers between 1983 and 1991 came with an auxiliary power relay to power the camper portion of the vehicle. We eliminate this relay and move the power for the sink onto the auxiliary battery circuit. **NOTE: After the removal of this relay, the stock fridge will no longer be powered. If you wish to use the stock fridge in its default configuration, skip this page.**
2. Unscrew the relay from under the driver's seat (in some early vans this relay was in the sink cabinet). Remove the #87a center pin wire from the relay. This is the power wire for the sink pump. Cut the stock connector and crimp the included ring terminal onto this wire. This ring can either be installed on the (+) side of your auxiliary battery.
3. **Optional:** If you would like to reuse the wiring to the fuse panel instead of running a new wire (this will replace the accessory power wire 4.), follow these steps:
 - a. Unplug the wire from pin #87. Cut off and splice in the fuse from the provided auxiliary power wire. For all years this large red wire will share a sheath with a blue





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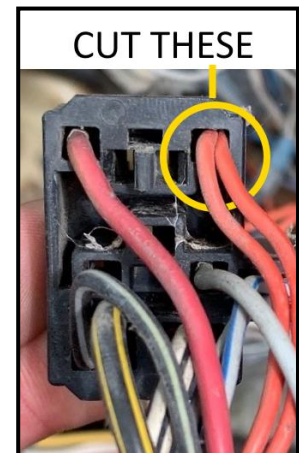
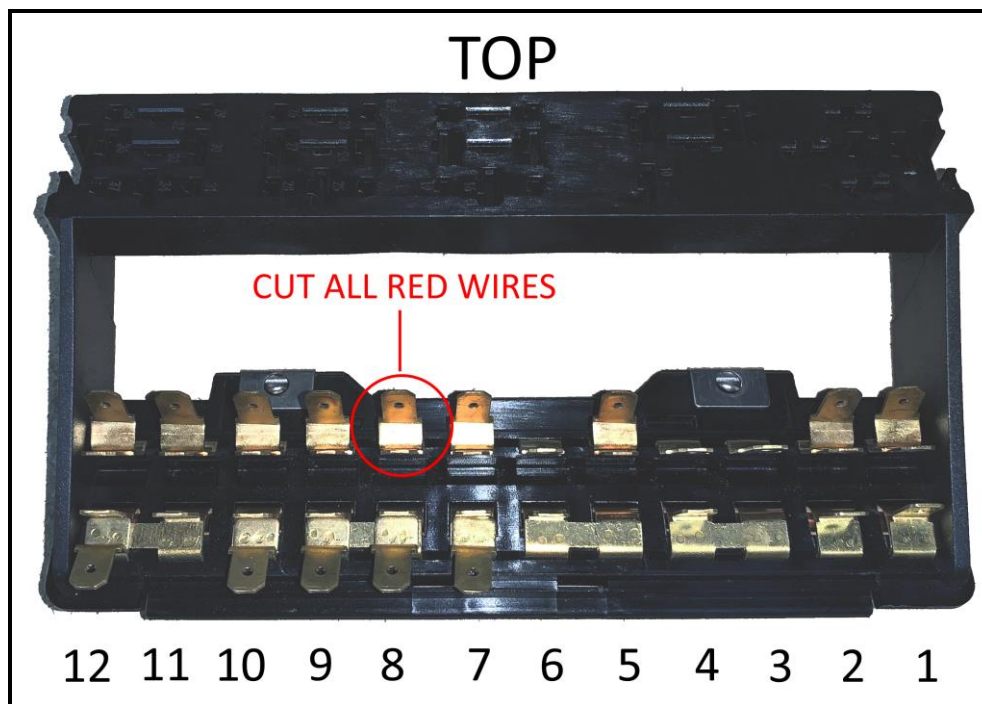
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- wire and a red/black wire. The sheath runs under the carpet from the driver's seat to the throttle pedal area, then up behind the dash.
- 1980-1985:** At the bottom (furthest from the relays) of fuse 7 there should be a large red wire. Confirm that it is the original relay wire with a continuity check.
1985-1991: Drop the fuse panel to gain access to the 'P' terminal. Isolate each wire on the 'P' terminal and check it for continuity with the wire you unplugged from the camper relay pin #87.
 - Once you have determined which wire runs back to the relay, cut the fuse panel side off and install it in the mini bus connector (see *How to Use the Mini Bus* section below).
 - Connect the other end to the positive post of the auxiliary battery.

All Vans 1980-1985

- Remove the fuse box cover and detach the fuse box mount from the body.
- Pull the fuse box down by unscrewing three phillips screws. The side of the fuse panel with relays will be the "Top" of the fuse panel.

First, we will be powering your interior lights and 12-volt outlet with the auxiliary battery. Find the connections at the back of fuse 8 (see fuse box diagram below). Cut ALL the RED wires on the TOP side of the fuse (NOT the red and yellow wire) about an inch away from the fuse panel. Discard the connector on the wires that were cut and connect the wire ends into the mini bus (see *Mini Bus* section below).



- Next, we will be adding the radio onto the auxiliary battery circuit. On the back of the headlight switch there are two PIN 30s. Depending on the year, there will be either one large red or large red/yellow wire at one PIN 30 and one or two small red wires at the other PIN 30. Cut only the



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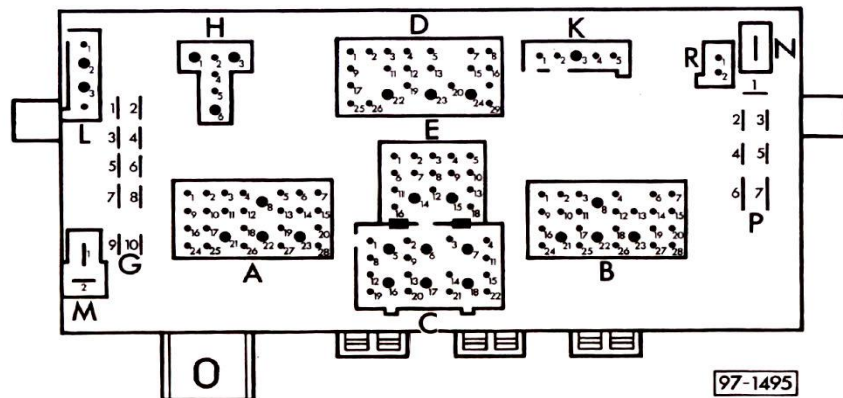
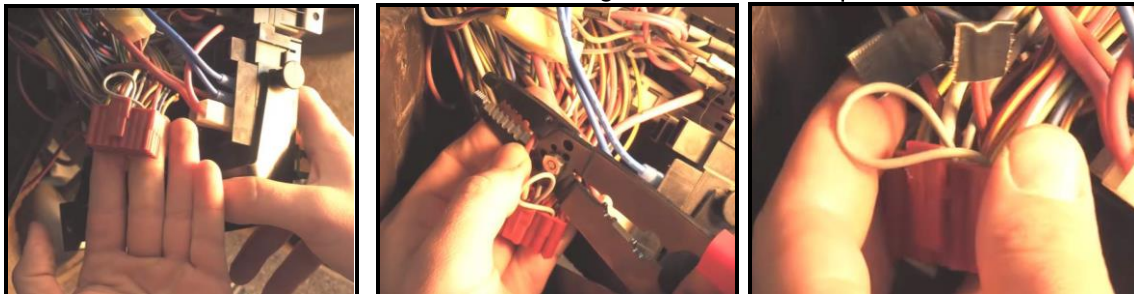
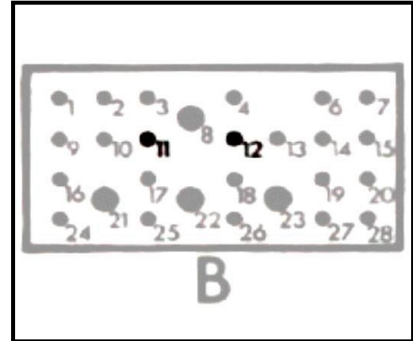
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small red wires, tape the ends attached to the switch, and run the other ends of the wires down to the mini bus terminal. *Note: on some vehicles there are not any small wires. If this occurs, continue on to the next step.*

4. Connect the vehicle accessory power wire to the mini bus (see *Mini Bus* section below).
5. Reinstall the fuse box and cover making sure no wires are pinched/tugged in the process.

All Vans 1986-1991

1. First, we will move your interior lights, radio, and 12V dash outlet onto the auxiliary battery circuit. Remove the fuse panel and remove wiring block 'B' (see diagram below). Cut all the wires at locations B11 and B12 about 1" away from the fuse panel and cover the ends with electrical tape to prevent shorts, as shown below.
2. Reconnect wiring block 'B.'
3. Connect the other side of the wires you cut from block B to the mini bus bar (see *Mini Bus* section below).
4. Connect the accessory power wire to the mini bus bar.
5. Reinstall the fuse box and fuse box cover, making sure there are no pinched/stretched wires.



Fuse panel rear view (1986-1991)



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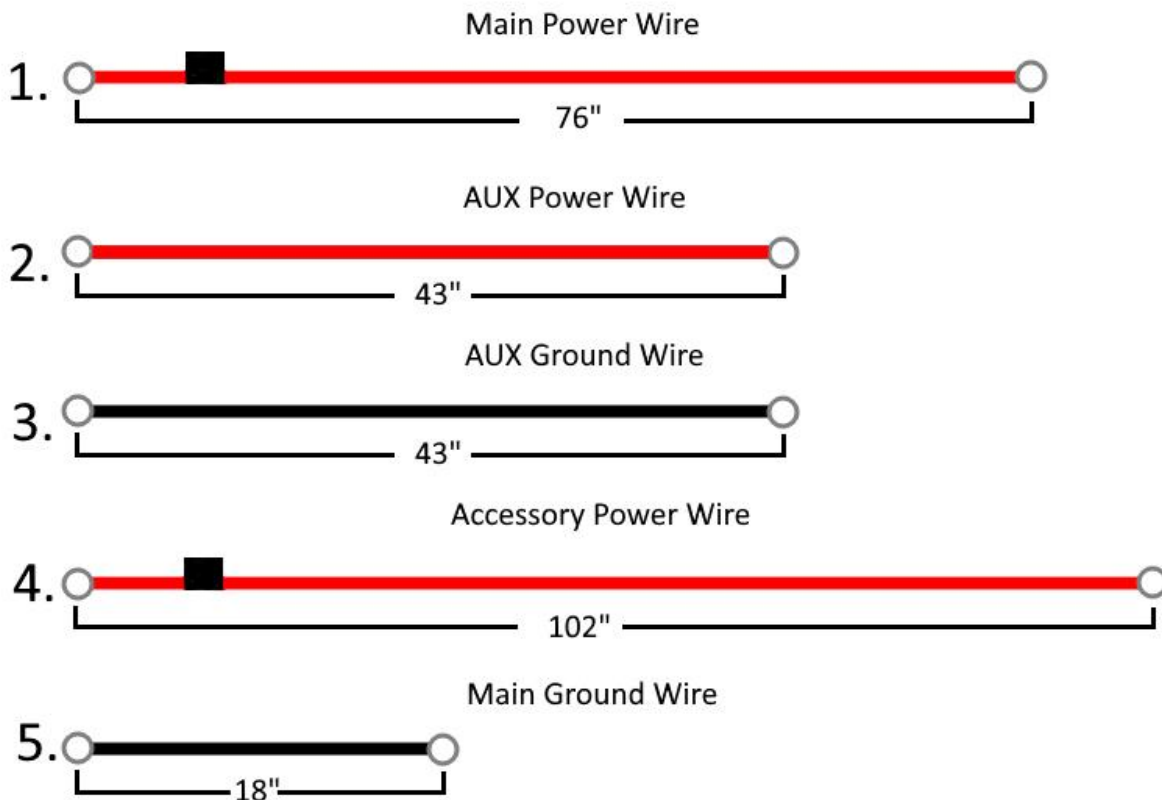
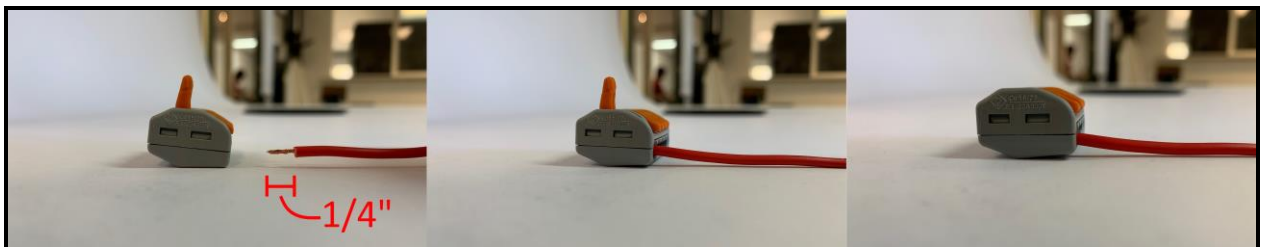
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Final Touches

1. Make sure that all connections have been made and are secure.
2. Install all positive connections to the auxiliary battery and the DC-DC charger.
3. Install the starter battery and connect the main power wire to the "+" terminal. Connect the negative terminal of the starter battery.
4. Connect the negative terminals to the DC-DC charger and the auxiliary battery.

How to Use the Mini-Bus

1. Open the orange lever all the way (note: these can be stiff, but they do open to a full 90°).
2. Strip the wire approximately 1/4" from the end and insert it into any empty hole on the mini-bus.
3. Firmly press the lever down and that's it!





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