



3rd Gen Revel - Balmar 250A Alternator Swap

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 **TOOLS:**

- Belt Tensioner Release Tool (1)
- Socket Wrench 3/8" Drive (1)
- 13mm Deep Socket (1)
- 15mm Deep Socket (1)
- 10mm Deep Socket (1)
- Ball Peen Hammer (1)
- Wire Crimpers (1)
- Wire Strippers (1)
- Wire Cutters (1)
- Heat Gun or Torch (1)

Step 1 — Battery Shut Down



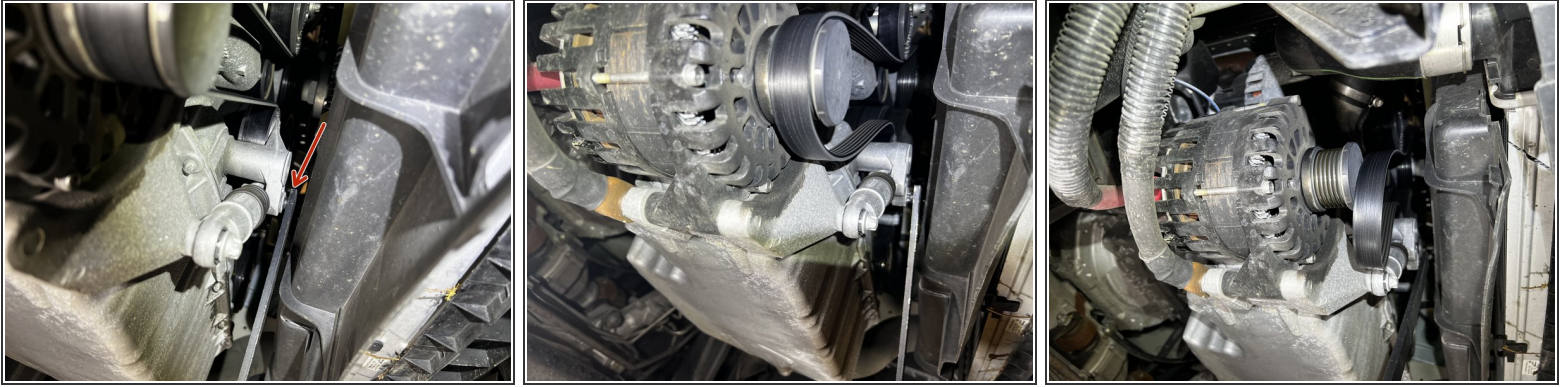
- Remove the battery compartment cover to expose the battery.
 - Press and hold the ON/OFF button with the blue LED ring on the battery for 5 seconds to turn the battery off.
 - Ensure the battery is OFF. If the blue LED is illuminated in ANY WAY the battery is not off. Press and hold the button down again for a longer period of time to turn the battery off.
- ⚠ Ensure the van is not connected to shore power.
- ⚠ If you have more than one battery, you **MUST** turn off each battery individually!

Step 2 — Solar Disconnection



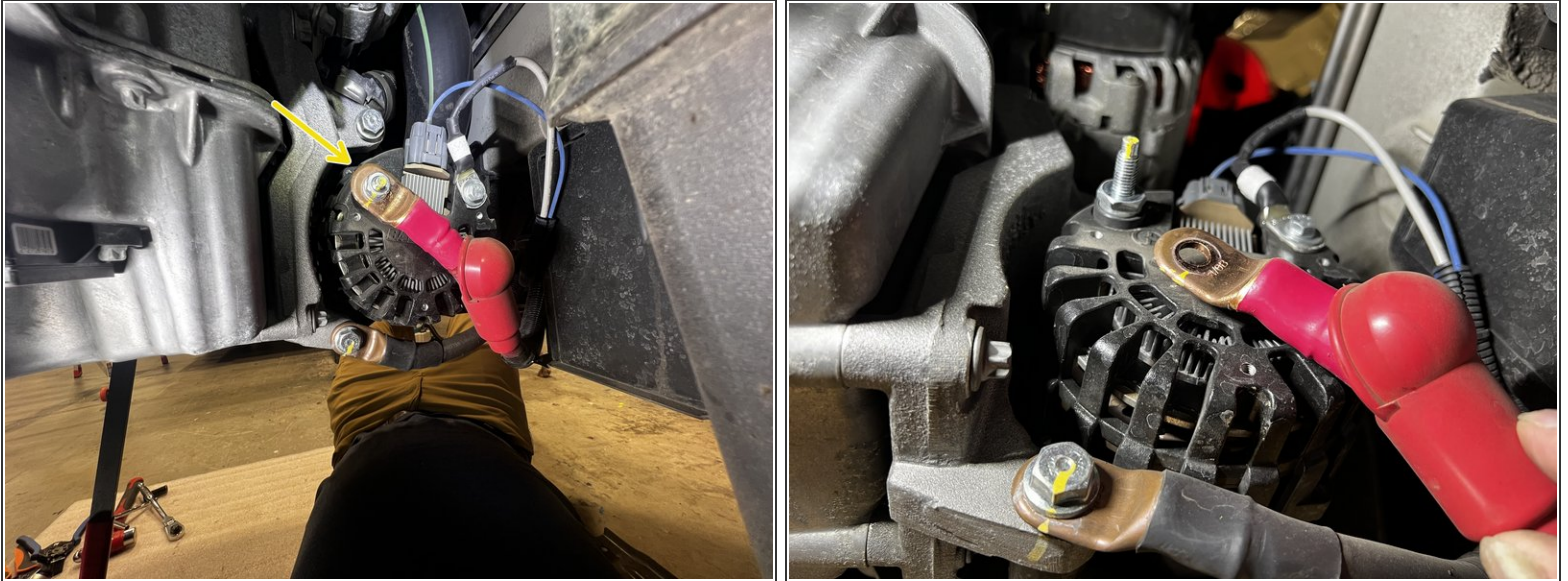
- Turn the solar disconnect knob to the "OFF" position on the control panel in the van.

Step 3 — Belt Removal



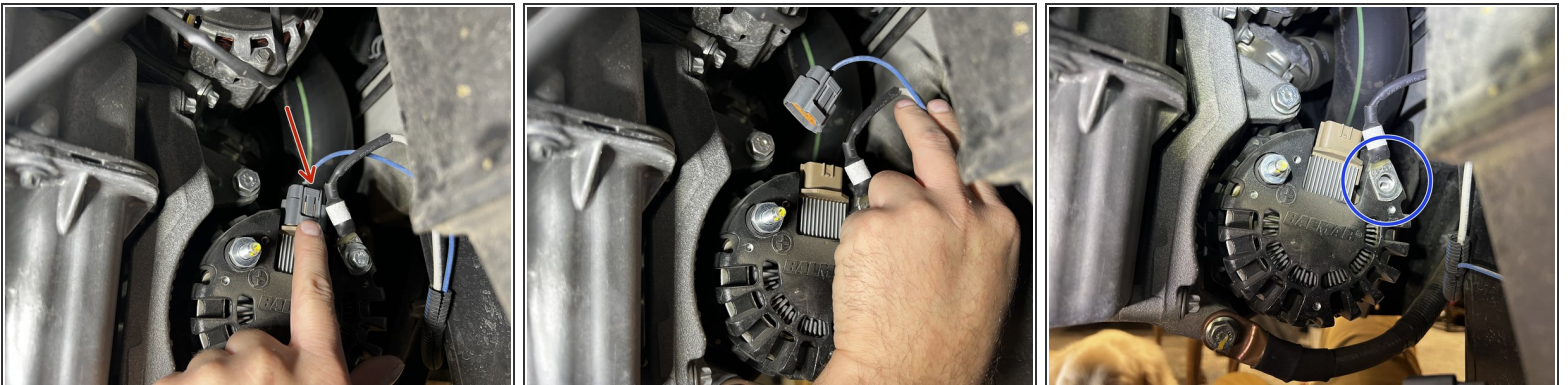
- Insert the tensioner tool into the tensioner. Pull the tool towards the passenger side of the vehicle to compress the tensioner.
- Slip the belt off the alternator pulley and then SLOWLY release the tensioner tool until the tensioner is relaxed.
- ⓘ The front crash bar/support is removed from this van for illustration purposes. You do not need to remove this to perform the alternator swap, but it can make it easier to remove and install the belt.
- ⓘ We suggest you remove any aftermarket skid plates to aid in the alternator removal/install process.

Step 4 — Positive Cable Removal



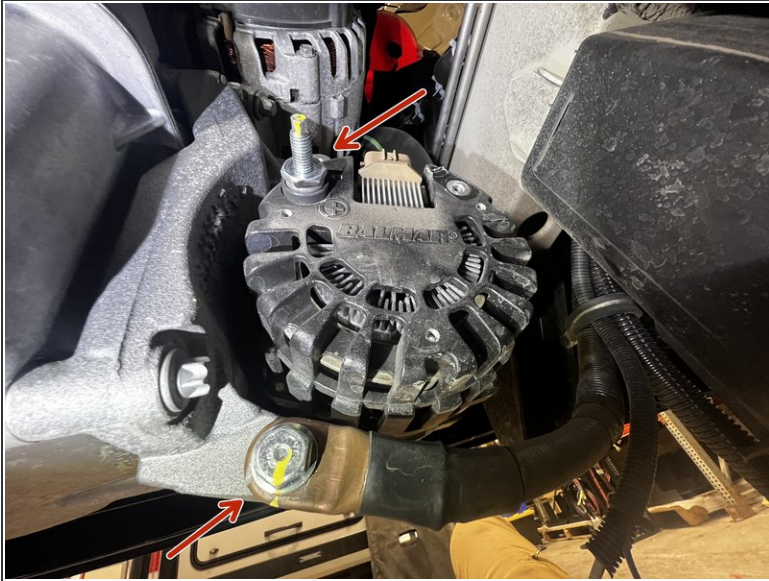
- Using a 13mm socket and wrench remove the positive cable from the back of the alternator.

Step 5 — Field Connector and Temp. Sensor Removal



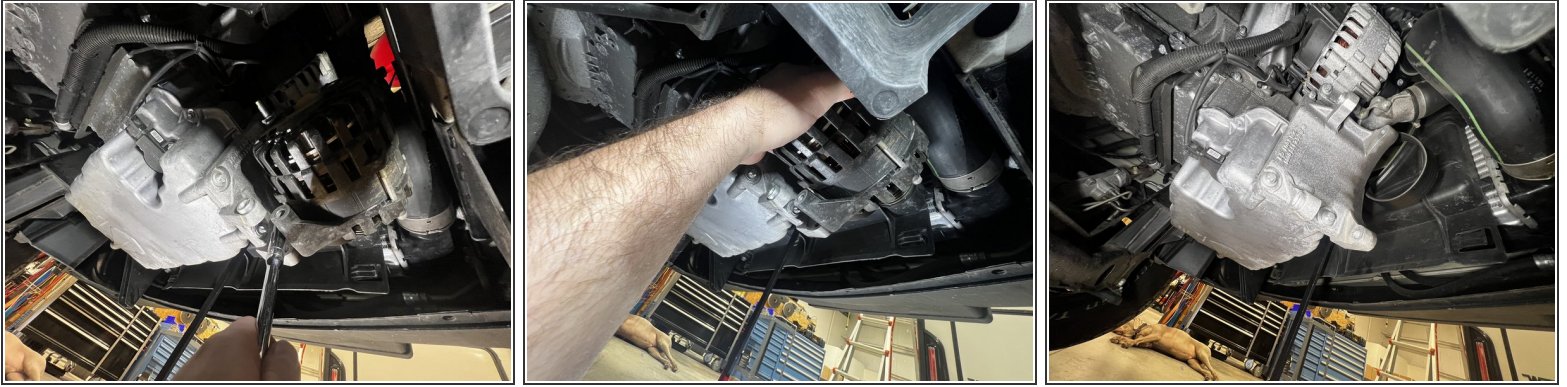
- Unplug the field wire connector from the alternator. Depress the locking tab on the connector, and pull the connector out and off the alternator.
- Use a 10mm socket to remove the bolt securing the temp. sensor to the alternator and remove the sensor from the alternator case.

Step 6 — Alternator Bolt Removal



- Use a 15mm socket and wrench to remove the two bolts securing the alternator to the mounting bracket.
 - Set the bolts aside as they will be reused.
- ⚠ Take care when removing the bolts the alternator does not fall out and onto you. The alternator should be pinned by the bushing sleeves, but care should still be taken.

Step 7 — Alternator Removal



- With the bolts removed, use a tool to help "pry" the lower mounting flange from the bracket.
- Grasp the alternator with both hands and pull the alternator out from the bracket. You may need to wiggle/work the alternator back and forth to get it free from the upper mount.

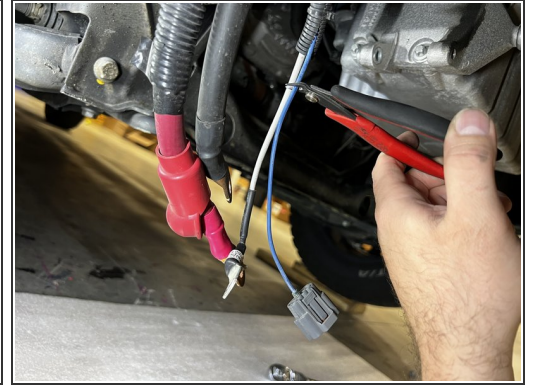
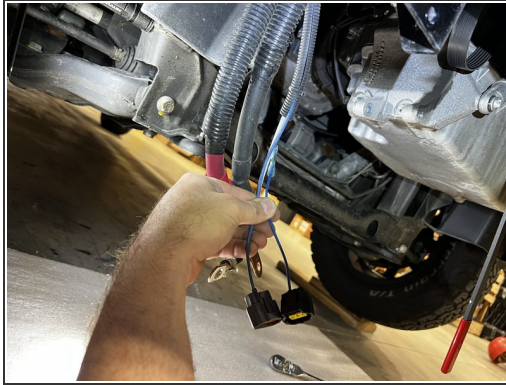
⚠ Make sure you hold the alternator securely so it does not fall onto you!!

Step 8 — Alternator Install Prep - Mounting Bracket



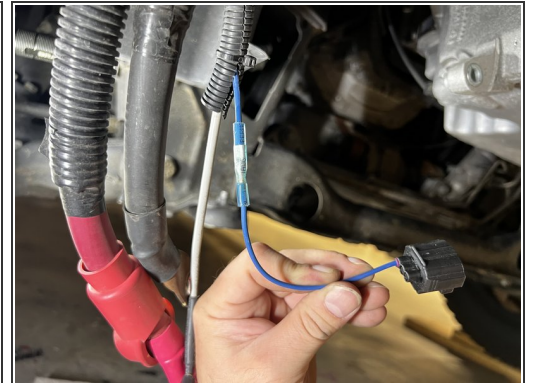
- Using a ball peen hammer tap the bushing sleeves in the bracket towards the rear of the vehicle. This will aid in reinstallation of the new alternator.
- ⚠ Use care when striking with the hammer to not use excessive force and damage the alternator mounting bracket!!
- Drive the bushing sleeve until it is flush with the bracket as shown in the image. Do this for both the upper and lower bushing sleeves.

Step 9 — Field Wire Connector Install - Removal of Original Connector



- Locate the new pigtail that was included.
- Hold it next to the old connector to find the position where to cut the wire.
- Cut the original connector off the wire harness.
- ⓘ We are only cutting the BLUE wire

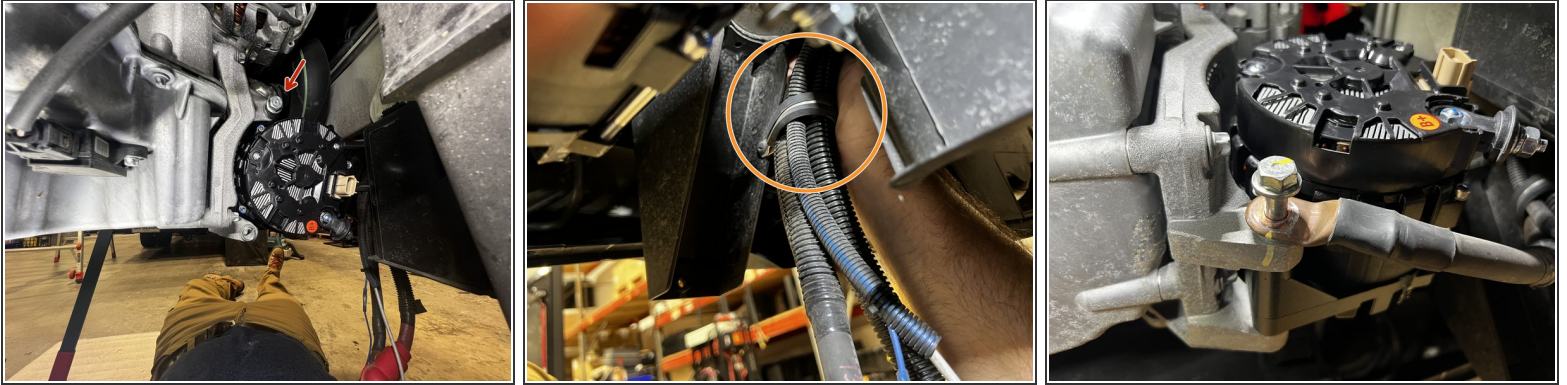
Step 10 — Field Wire Connector Install



- Strip approx. 3/8" of insulation off the wire.
- Install the new pigtail onto the wire. Crimp the butt connector securely. Give the wire a tug to ensure it is securely crimped.
- Use a torch or heat gun to shrink the heat shrink connector so it is sealed.

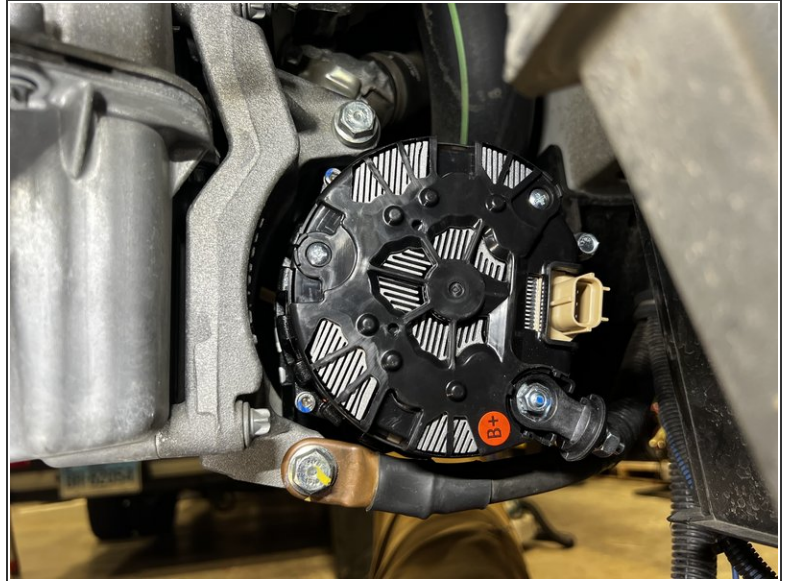
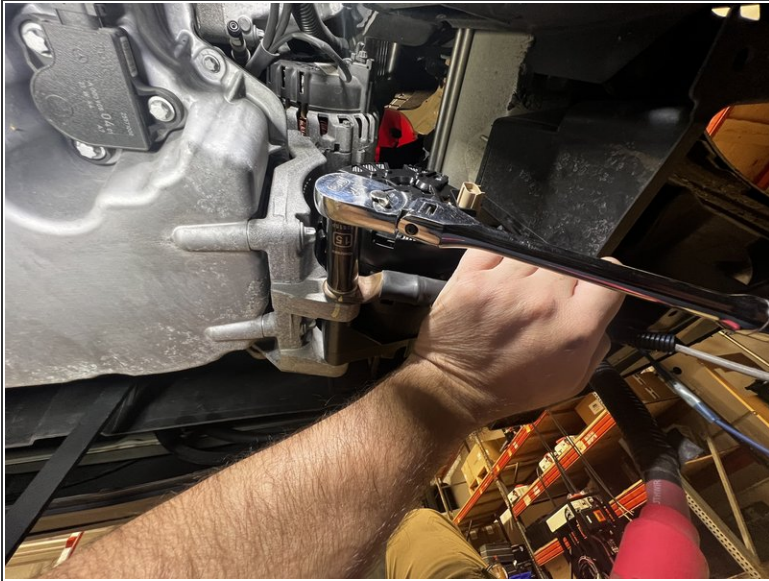
⚠ Ensure this crimp is secure. A poor quality crimp can lead to alternator charging issues.

Step 11 — Alternator Installation



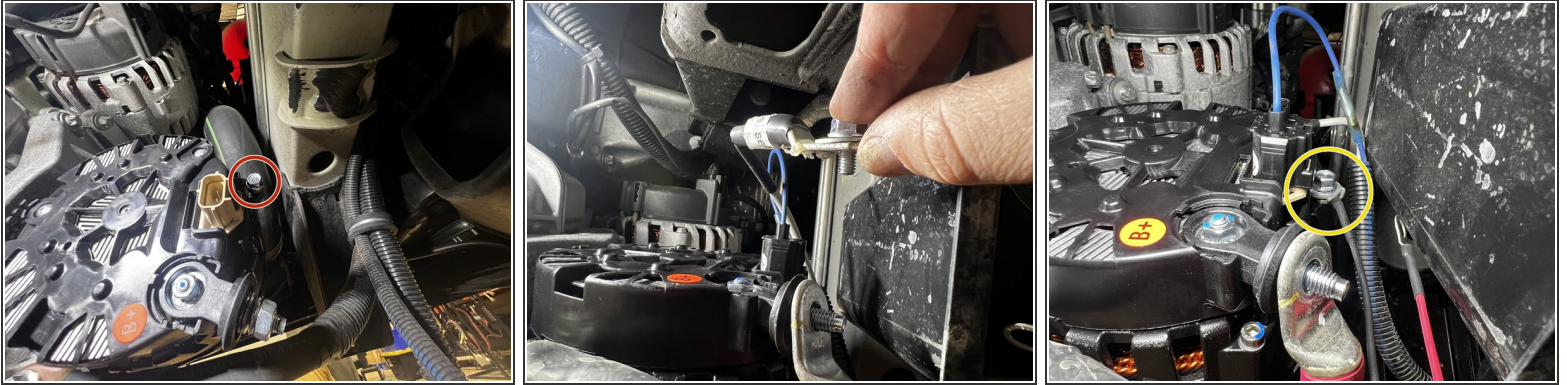
- Lift the alternator into the bracket. Place the upper bolt through the mounting bracket and alternator to secure the alternator to the bracket. Start the bolt by hand for now.
- If the ground (black) cable is tight against the alternator case, you can tweak the insulated clamp that secures the cables to get a little slack to make install easier. Just use your palm to push the clamp towards the drivers's side.
- Place the lower bolt through the ground cable lug, and install the bolt into the bracket.

Step 12 — Alternator Installation



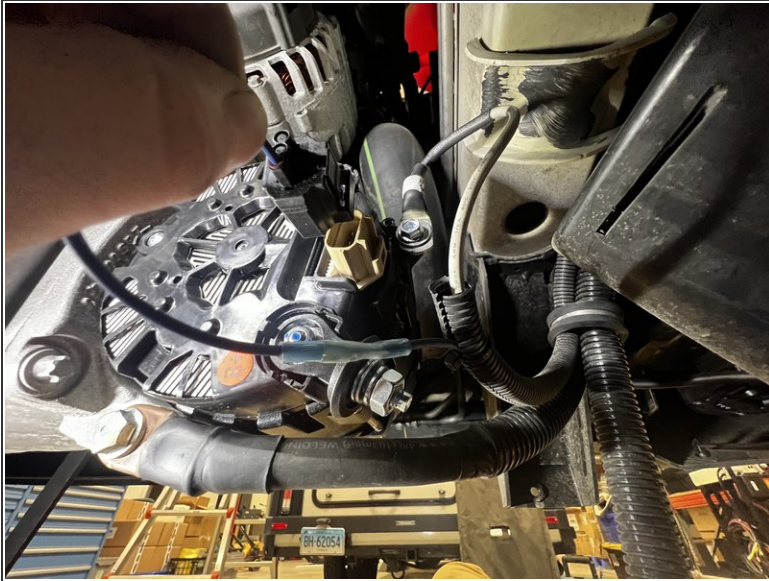
- Tighten the upper and lower alternator mounting bolts. As you tighten the bolts the bushing sleeves will compress to position the alternator.
- ⓘ Ensure the bolts are tight, but take care as to not over tighten them. The bracket is aluminium, and the threads can be damaged by over tightening.
- Do not worry about lining up the old paint pen marker on the bolts. (if present).
- ⓘ When tightening the lower mounting bolt, ensure you are not twisting the cable. This can put added stress on the lug crimp and damage the strands in the cable. In the image we are holding the cable straight while tightening the bolt to prevent the cable from twisting/being strained.

Step 13 — Temp. Sensor Connection/APM Install



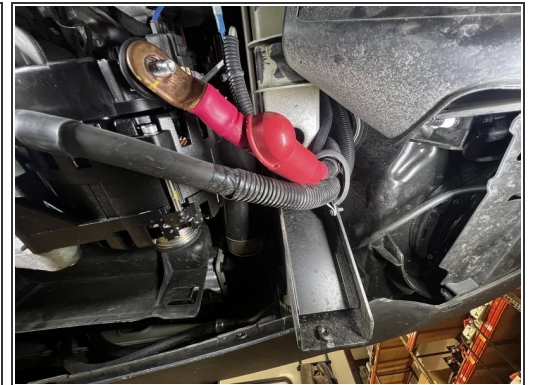
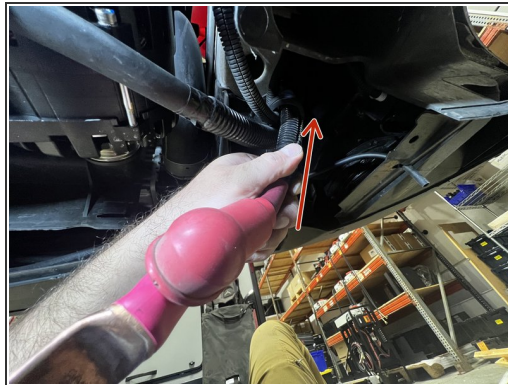
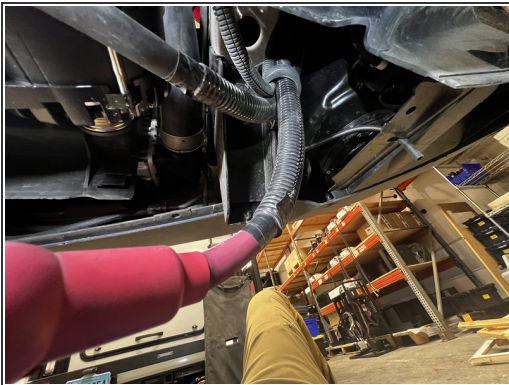
- Locate the temp. sensor mounting point on the new alternator and remove the bolt.
- ⓘ Reuse the large flat washer from the hardware that was securing the temp. sensor to the original alternator.
- Place the bolt and the washer that was removed through the negative (black wire) terminal of the APM. Next place the temperature sensor onto the wire as shown.
- ⓘ On some temperature sensors (2023+ Revel) the hole diameter of the sensor terminal is larger. Make sure to use the large washer that was originally used on the temperature sensor or a suitable replacement. If a washer is not used the temp sensor will not be properly secured.
- Place the bolt with the washer, APM ring terminal, and the temperature sensor onto the mounting location on the body of the alternator and tighten the bolt snug with a 10mm socket.
- ⚠ It is very important the temperature sensor has direct contact with the case on the alternator. Ensure the order on the bolt is as follows: Bolt, washer, APM terminal, temperature sensor.

Step 14 — Field Wire Connection



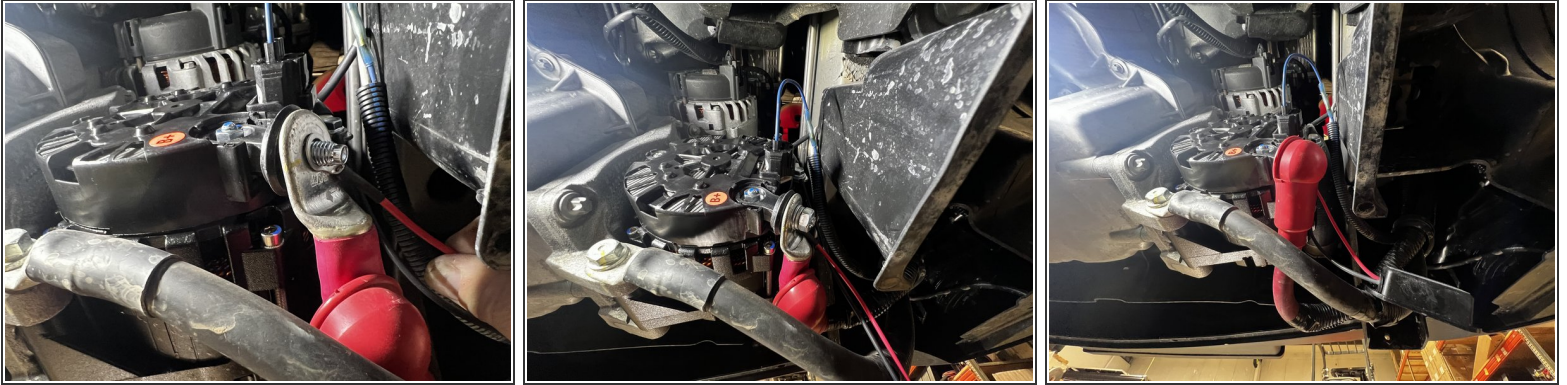
- Insert the field wire connector into the alternator. Ensure the connector is fully seated into the alternator.

Step 15 — Positive Cable Connection



- Since the location of the positive terminal is different on the alternators, you need to push some of the excess wire up to avoid stressing the cable.
- Push the positive cable up through the mounting clamp, and place the cable lug end onto the stud on the alternator.

Step 16 — Positive Cable Connection/APM Positive Wire Connection



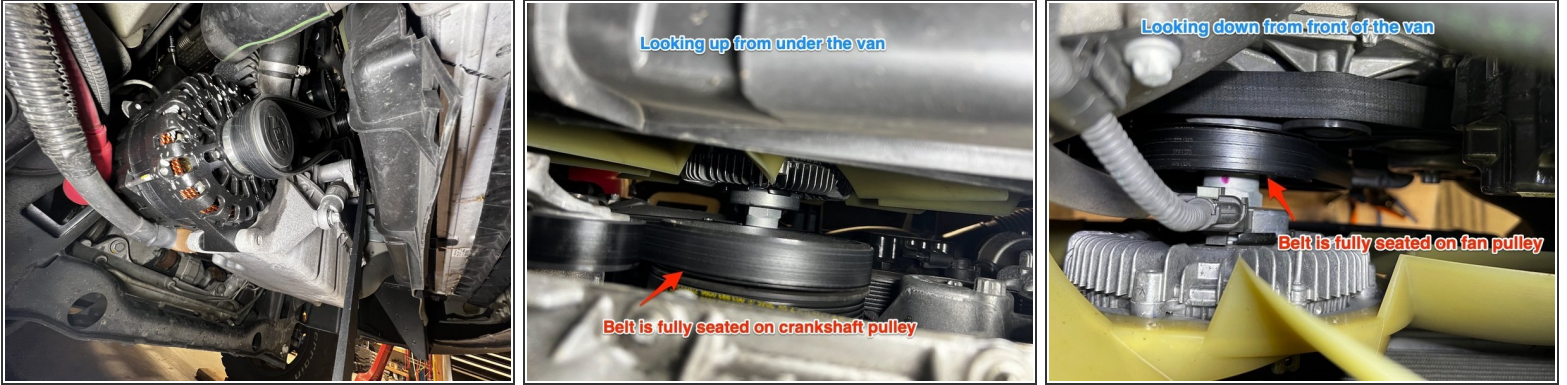
- Place the cable lug onto the stud on the alternator. Then place the positive lead from the APM (red wire) onto the stud.
 - Install the flat washer, lock washer, and the nut in that order.
 - Tighten the nut using a 13mm socket until snug. Take care not to over tighten and damage the stud on the alternator.
 - Slide the protective boot over the mounting stud.
- ⚠ The large positive cable **MUST** be placed first onto the output stud on the alternator, then followed by any auxiliary connections (like the APM used in this guide) to ensure proper connection.

Step 17 — Securing APM



- Using three zip ties secure the APM to either the positive or ground wire as shown. Two zip ties are placed through the mounting slots, and a third zip tie goes over the body of the APM. Cut the tails of the zip tie flush.

Step 18 — Belt Reinstallation



- Compress the tensioner, and place the belt back onto the alternator pulley. This may be a tight fit, but take your time and work the belt onto the pulley.
- ⚠ It is very important you check to make sure the belt is properly installed onto all the pulleys. Check the crankshaft pulley and the upper fan pulley to ensure the belt is fully and properly seated and did not jump any grooves when it was being removed or installed.
- Reinstall the crash/support bar if removed, and any skid plates if removed.

Step 19 — Battery Power On



- Press the power "ON/OFF" button to turn the battery on. The blue LED ring should illuminate.
- ⓘ If you have more than one battery, you will need to turn on each battery individually.
- Reinstall the battery compartment cover.

Step 20 — Solar Reconnection



- Turn the solar disconnect knob to the ON position on the control panel in the van.

