



# High Power Wall Connector Fuse Upgrade

<b>Classification</b>	Repair Bulletin	<b>Section/Group</b>	50 - External Charging Connectors	<b>Country/Region</b>	North America
<b>Year</b>	All	<b>Model</b>	Model S	<b>Version</b>	All

**Bulletin Classification:** This repair bulletin provides instructions and guidelines for a noted condition or a customer concern. The information provided can address a broad range of known or perceived issues with the operation of Tesla vehicles. This bulletin might not be VIN-specific. These instructions assume knowledge of motor vehicle and high voltage electricity repairs, and should only be executed by trained professionals. Tesla Motors assumes no liability for injury or property damage due to a failure to properly follow these instructions or repairs attempted by unqualified individuals.

This Service Bulletin supersedes SB-13-50-004 R2, dated 3-Jan-14. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

## Condition

Transient current spikes can cause the high power wall connector (HPWC) fuses to blow. If the fuses are blown, the diagnostic lights (red or green) do not display on the front of the HPWC and electrical power is no longer available past the fuse. Vehicle logs might indicate no pilot signal and no charge when the user attempts to charge using the HPWC.

**NOTE:** This procedure only applies to HPWCs that require an upgrade from 100A fuses to 200A fuses (Figure 1). For information on replacing 200A fuses (Figure 2), refer to Service Manual Procedure 50020102.



Figure 1 (HPWC with 100A fuses)



Figure 2 (HPWC with 200A fuses)

## Correction

Replace both fuses with upgraded components for customers that charge at 80A (customers that use a 100A circuit), or

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**Affected Part(s)** 1011912-00-B ASY,200A FUSE L2,HPC  
1011914-00-B ASY,200A FUSE L1,HPC  
1026161-00-A INSUL,80A,HPC

Shop Supplies:

Tesa 51026 PET cloth wire harness tape (or equivalent high temperature adhesive tape)

### Warranty/DMS Coding:

Description	Complaint	Cause	Correction	Time
Inspection Only; Fuse Upgrade Not Required	A091	B053	S011350004	0.3
Upgrade Both HPWC Fuses upon customer complaint.	A091	B053	S021350004	0.5

## Procedure

**⚠ WARNING:** Only Service Technicians that have received and completed high voltage training are authorized to perform this service.

1. Turn off the electricity to the HPWC at the circuit breaker. Verify that the breaker was not already tripped (which would also explain the HPWC not functioning).

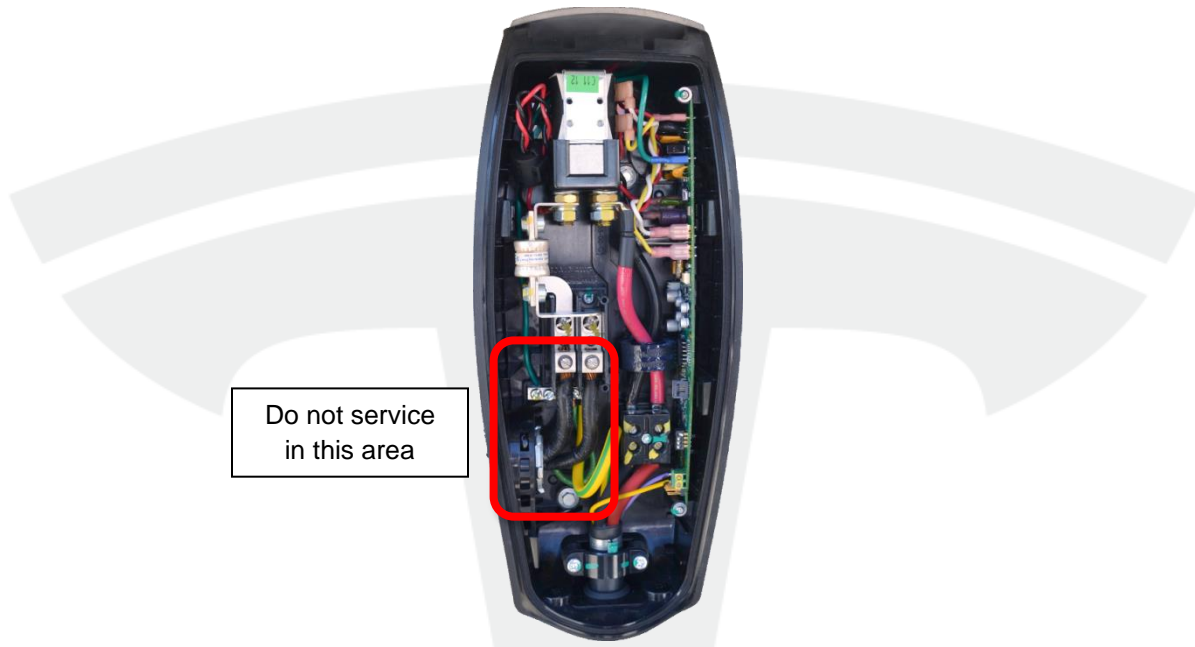
**⚠ WARNING:** Electricity must be turned off at the circuit breaker before continuing this procedure. Failure to follow this requirement might result in serious injury or death due to high voltage exposure.

2. Use a T20 Torx driver to remove the security screws on the bottom of the HPWC.

3. Release the front cover by pulling it forward far enough to disconnect the ribbon cable from the cover. Disconnect the ribbon cable from inside the main enclosure to fully remove the front cover.

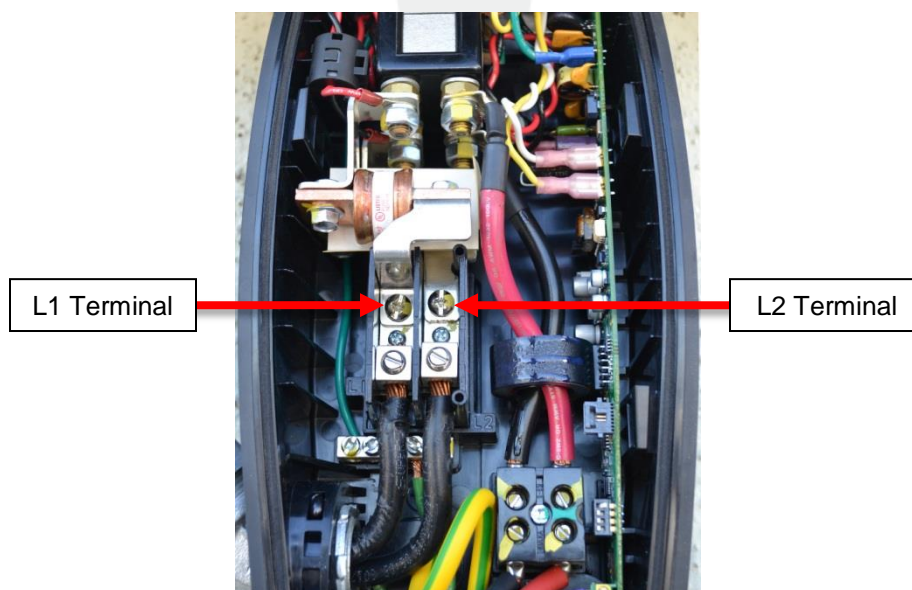
**⚠ CAUTION:** When removing the front cover, do not damage the ribbon cable. Disconnect the ribbon cable before fully releasing the front cover.

**⚠ CAUTION:** Do not service the area from the utility input to the left terminal blocks (Figure 3). This wiring is considered house wiring, and must be connected and serviced by a certified electrician.



**Figure 3**

4. Use a properly rated high-voltage voltmeter or multimeter to check for AC voltage between terminals L1 and L2 (Figure 4). Additionally, check each line to ground. Ensure that the correct power breaker has been turned off to de-energize the HPWC.



**Figure 4 (200A fuse shown)**

5. Inspect the wiring near the fuses for evidence of heat damage, abrasion, or corrosion.

**⚠ CAUTION:** If the wiring is damaged, the entire HPWC must be replaced; close the unit and call a certified electrician to remove the unit.

6. Remove the screws that connect the lower bus bars to terminals L1 and L2 (Figure 5).



Figure 5

7. Use a 13 mm socket wrench to remove the nuts that fasten the top of the upper bus bars (Figure 6).

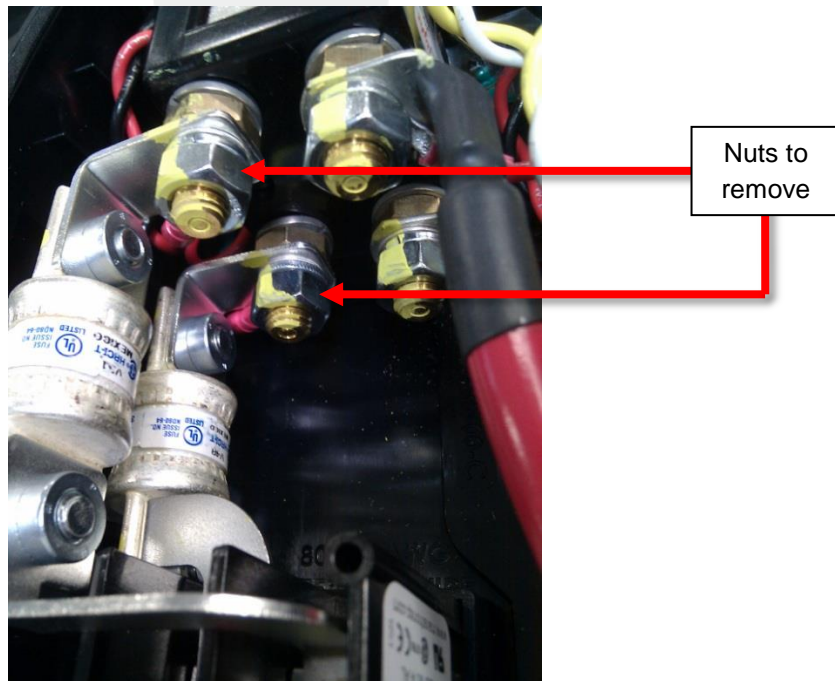
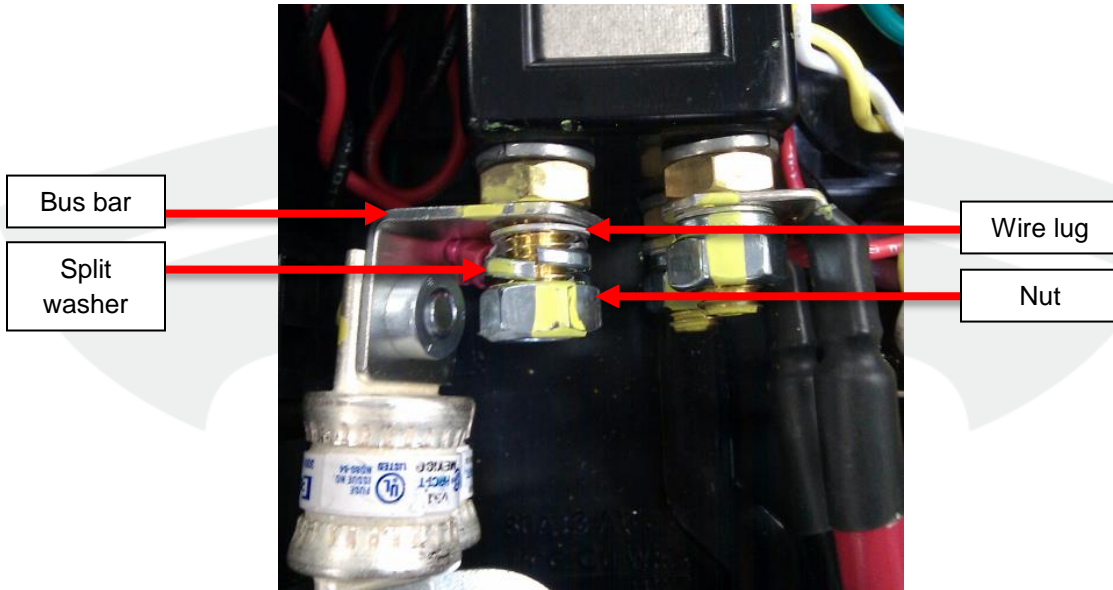


Figure 6

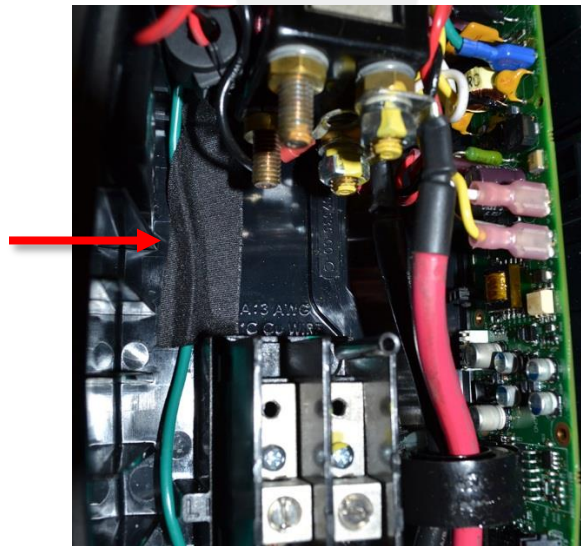
- Before removing the fuse/bus bar assemblies completely, note the order of the components from bottom to top: nut, split washer, wire lug, bus bar (Figure 7).

**⚠ CAUTION:** The locations of the red and black wires on the left-hand side of the contactor might differ, depending on the age of the HPWC. Note the color configuration of the wiring to the contactor before removal. Ensure that all wiring is installed to the same location.



**Figure 7**

- Use wire harness tape or other high temperature tape to attach the green ground wire to the back wall of the HPWC housing (Figure 8). This prevents it from touching the fuses or bus bars when they are installed.



**Figure 8**

- Clean the contact surfaces of the new upper and lower bus bars with alcohol wipes.

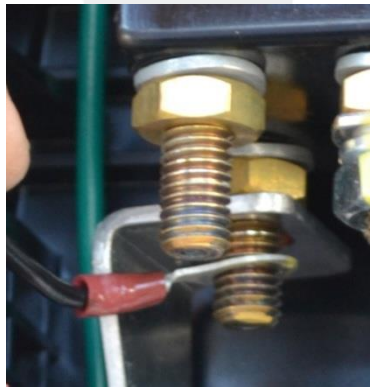
11. Position the new inner fuse. Install the screw at the L2 terminal (torque 3 Nm) (Figure 9).



**Figure 9**

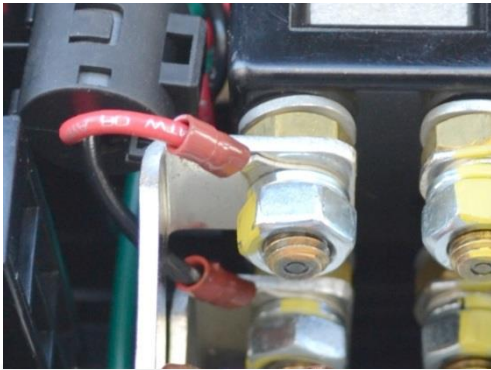
**NOTE:** The lower bus bar on the updated inner fuse connects to the right (L2) terminal. The original inner fuse was connected to the left (L1) terminal.

12. Install the inner wire's ring lug on the inner contactor stud. Position the ring lug so that the wire points toward the front of the unit at an approximate 45-degree angle (Figure 10).

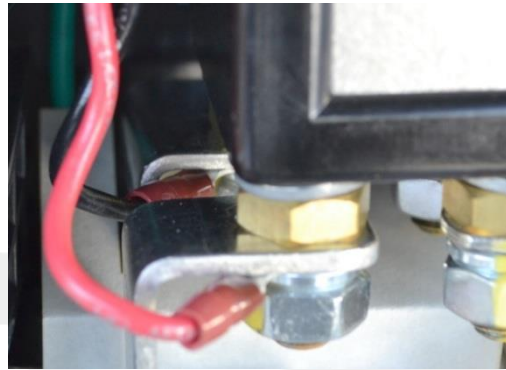


**Figure 10**

**⚠ CAUTION:** Clock both ring lugs so that the wires point toward the front of the unit at an approximate 45-degree angle, allowing a gap between the inner wire and the outer bus bar (Figures 11 and 12). The wires must not touch the bus bars directly.

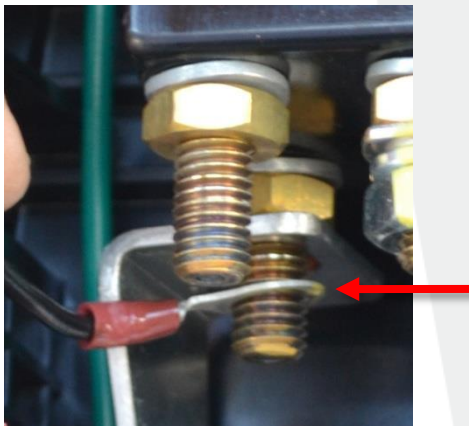


**Figure 11 (View from below, shown with both fuses installed)**

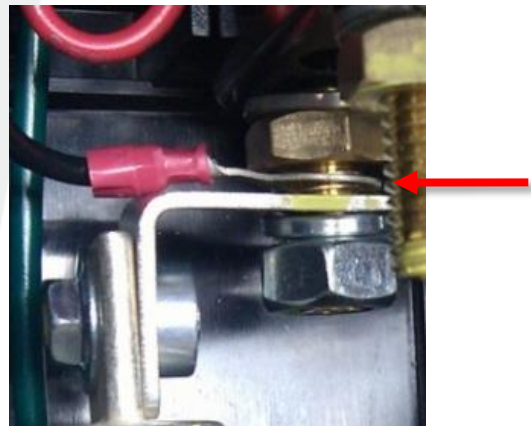


**Figure 12 (View from above, shown with both fuses installed)**

**⚠ CAUTION:** Always install the bus bar first and the ring lug second. Installing the ring lug first can result in excessive resistance and overheating (Figures 13 and 14).



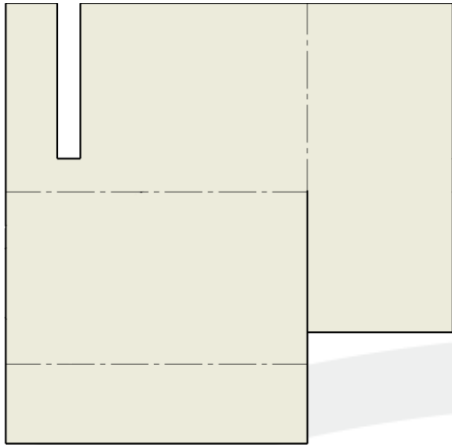
**✓ Figure 13 (Correct)**



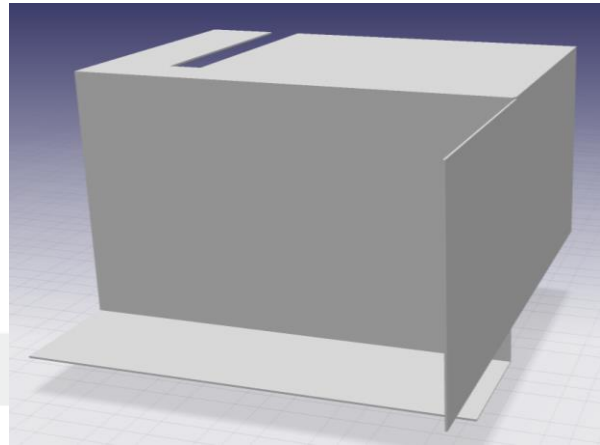
**✗ Figure 14 (Incorrect)**

13. Hold the inner wire in position while tightening the nut (torque 5 Nm).
14. Use a paint or ink pen to mark the torque position after reassembly, using a different color than manufacturing (manufacturing usually uses yellow). Use one continuous motion to mark the bolt, washer, nut, and bus bar (Figure 6).

15. Fold the insulator sheet as shown (Figures 15 and 16).

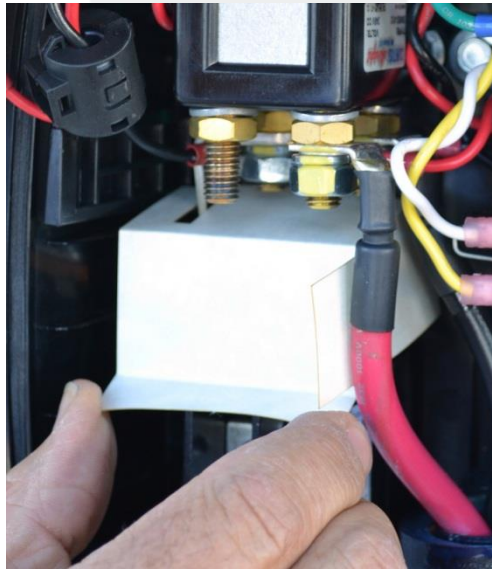


**Figure 15 (Fold insulator sheet 90 degrees at dashed lines)**



**Figure 16 (Folded insulator)**

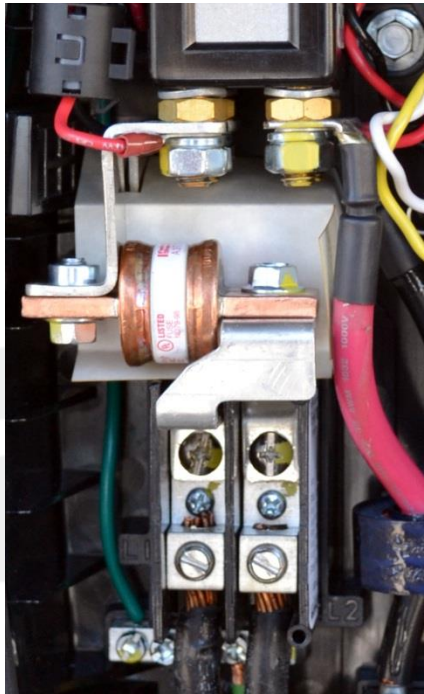
16. Place the folded insulator over the inner fuse (Figure 17).



**Figure 17**



17. Repeat steps 11-14 for the outer fuse (Figure 18).



**Figure 18**

Ensure that the ring lugs are correctly reinstalled to the same location they were before beginning this procedure. The wires must not rest on the bus bars (Figure 19).



**✘ Figure 19 (Incorrect: resting on bus bar)**

18. Use a multimeter to check the resistance between terminals L1 and L2 (Figure 20). The resistance should be at least 100 KOhm. If the resistance is less than 100 KOhm, check for an electrical short due to improper installation or defective insulation.

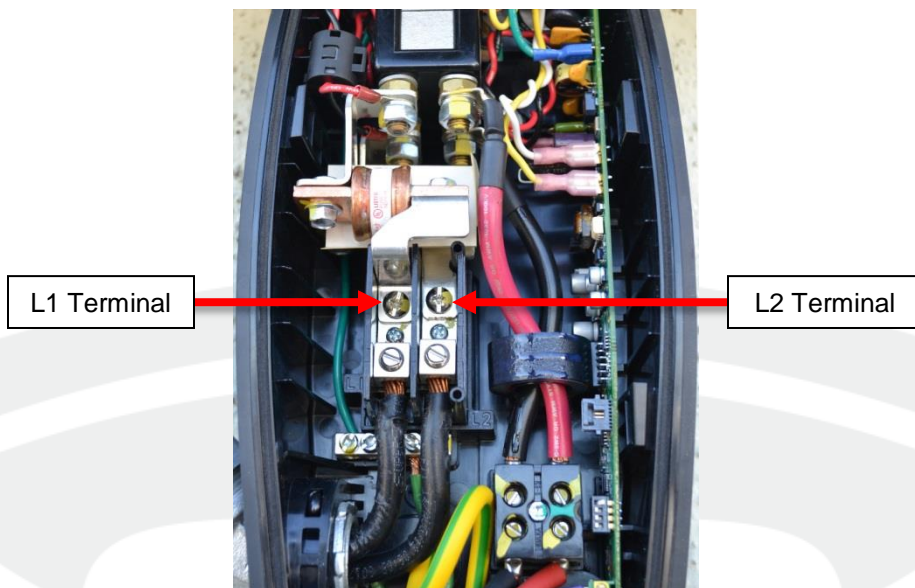


Figure 20

19. Use a paint pen to mark a small dot on the inside lower right corner (Figure 21). If there is already a dot, add another dot adjacent to it.



Figure 21

20. Compare the dip switch settings to the circuit breaker rating. If the settings are incorrect, use a pointed non-conductive object such as a plastic pen to adjust the switches as necessary (Figure 22).

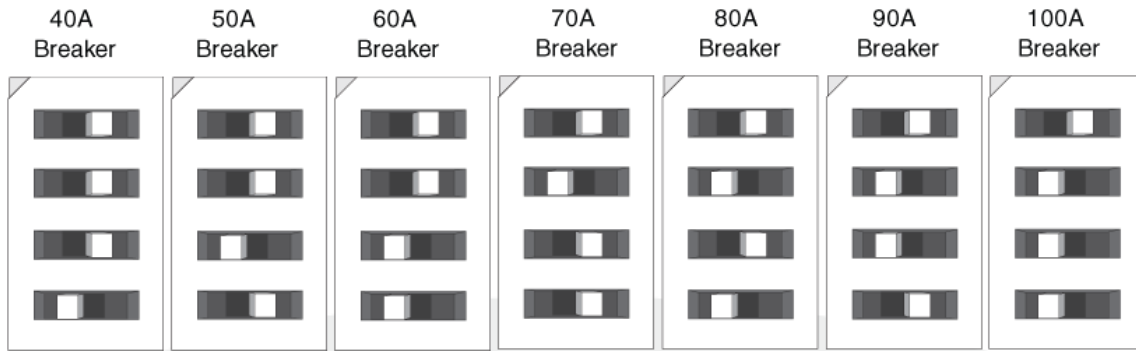


Figure 22

21. Reinstall the cover and security screws.

**⚠ CAUTION:** Ensure that all components that were removed are outside of the HPWC before reinstalling the cover and security screws.

22. Turn on the circuit breaker.

23. Check the front diagnostic lights on the HPWC cover. When it is not plugged into the vehicle, the topmost green LED is steady (not flashing).

24. Charge the vehicle with the HPWC for 2-3 minutes to verify the repair.

25. On the vehicle touchscreen, increase the charge current to the highest setting. This value can vary by location because the HPWC communicates with the vehicle to limit the maximum charge current.

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