

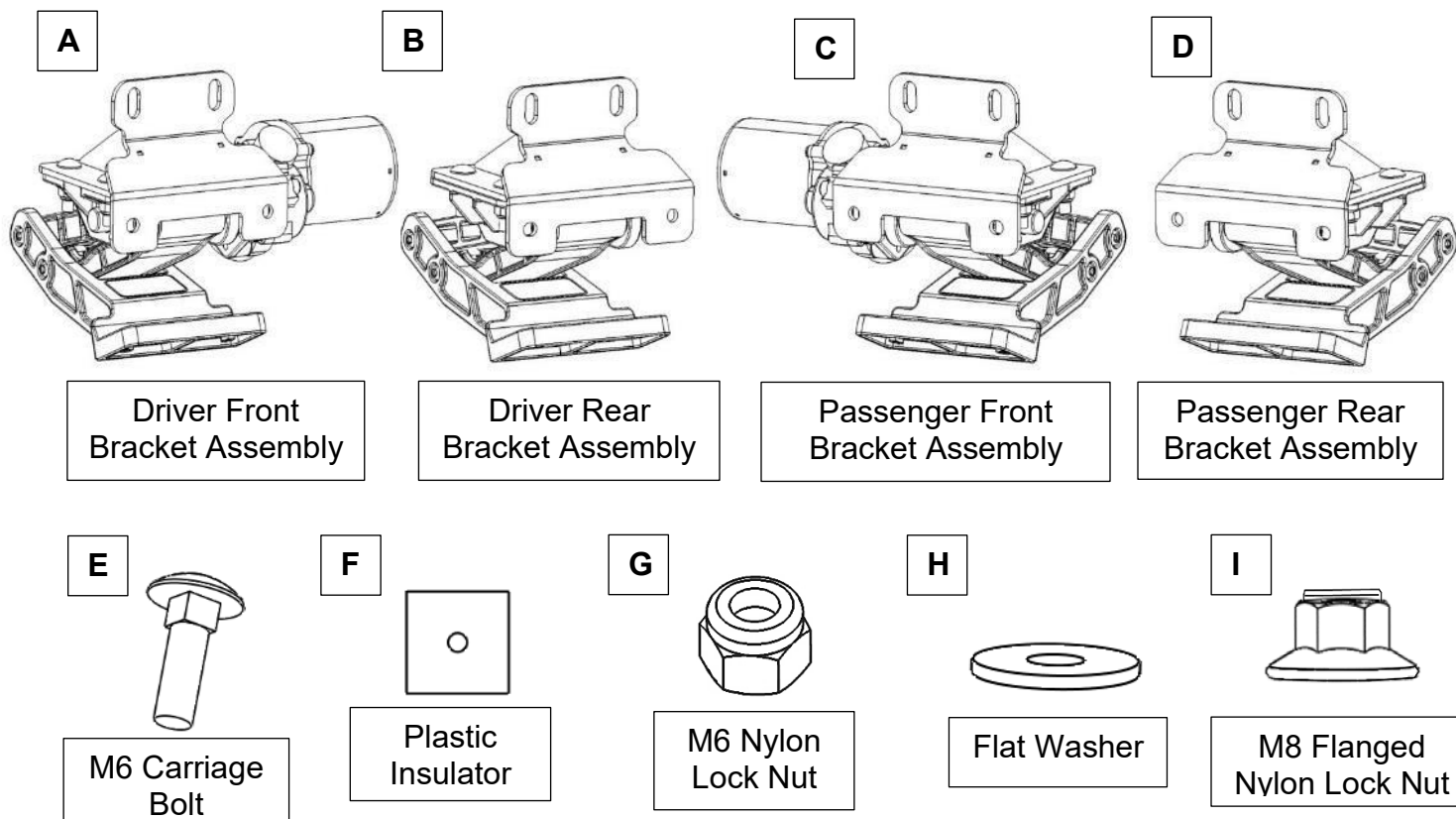
**2022-2026 F150 LIGHTNING; 2021-2026 F150 SUPERCREW CAB;
2022-2026 F250/F350/F450/F550 CREW CAB E-POWER BOARD STEPS
PART #FD-4601**

Mechanical PARTS LIST:

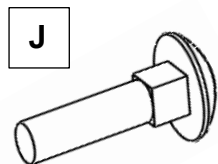
Qty	Item Description	Qty	Item Description
2	Running Boards	12	8mm x 24mm x 2mm Flat Washers
1	Driver/Left Front Linkage Assembly	16	8-1.25mm x 30mm Carriage Bolts
1	Passenger/Right Front Linkage Assembly	16	6-1.0mm x 20mm Carriage Bolts
2	Rear Linkage Assembly	16	6mm Nylon Lock Nuts
1	Electronic Materials Package	16	6mm x 16mm x 1.6mm Flat Washers
2	2mm Shim Plates	12	Plastic Insulator
4	Steel Mounting Brackets	15	Zip Ties
28	8mm Flanged Nylon Lock Nuts	5	Double Sided Adhesive Tapes

Electronic Materials Package PARTS LIST:

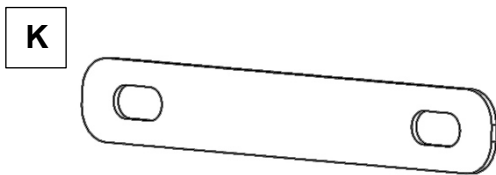
Qty	Item Description	Qty	Item Description
1	Main Harness	1	ECU
2	Wire Taps	4	LED lights
1	LED Y-Harness (280mm)	1	LED Y-Harness (1200mm)



INSTALLATION INSTRUCTIONS



M8 Carriage Bolt

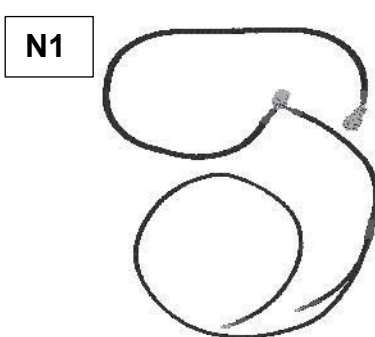


2mm Rear Bracket Shim Plate

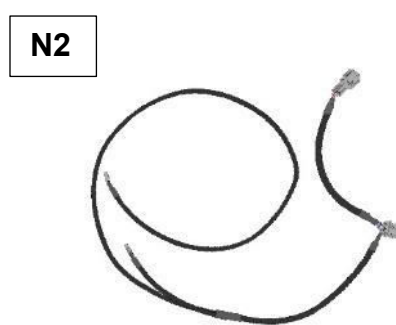
***NOTE:** Driver and Passenger Rear Bracket Assemblies are the same.



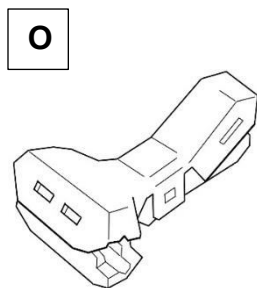
Main Harness



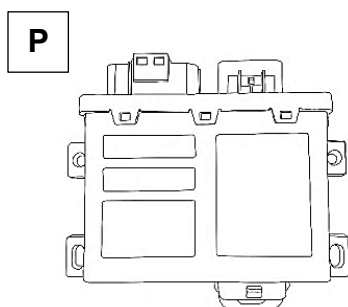
LED Y-Harness (1200mm)



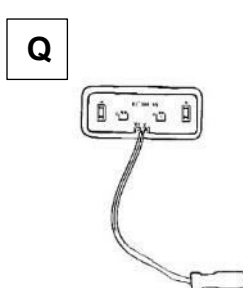
LED Y-Harness (280mm)



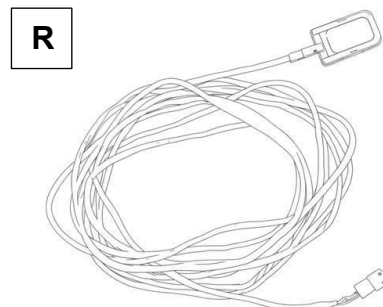
Wire Taps



ECU



LED Lights



Toggle Switch

This is an optional accessory, not included in standard kit.

TOOLS REQUIRED



Ratchet



Socket

8mm
10mm
13mm



Extensions



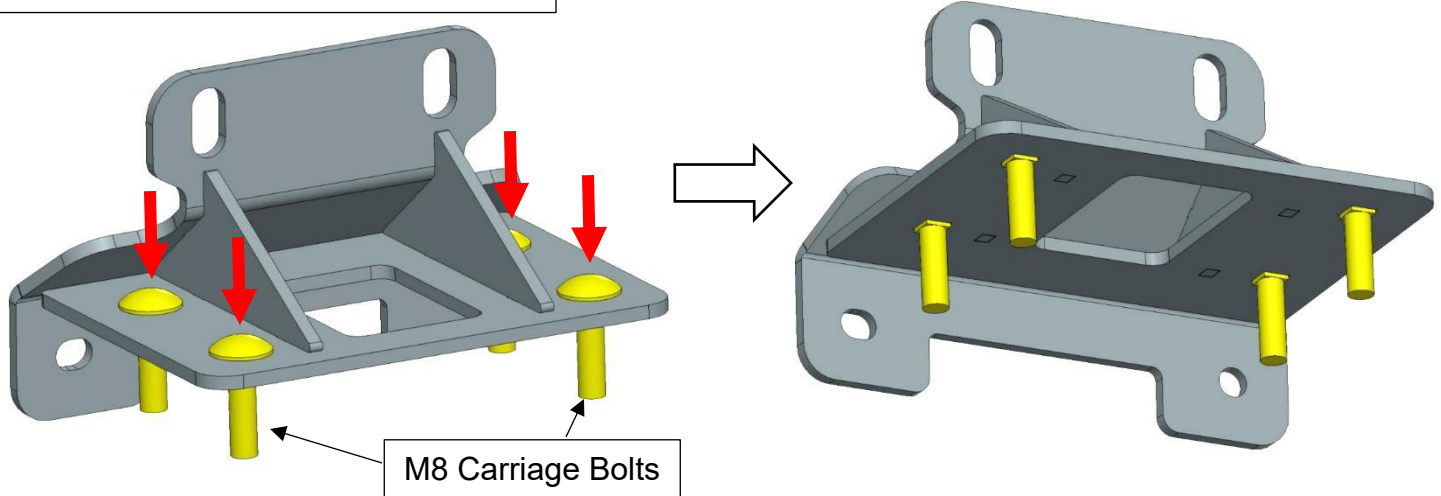
Wrench



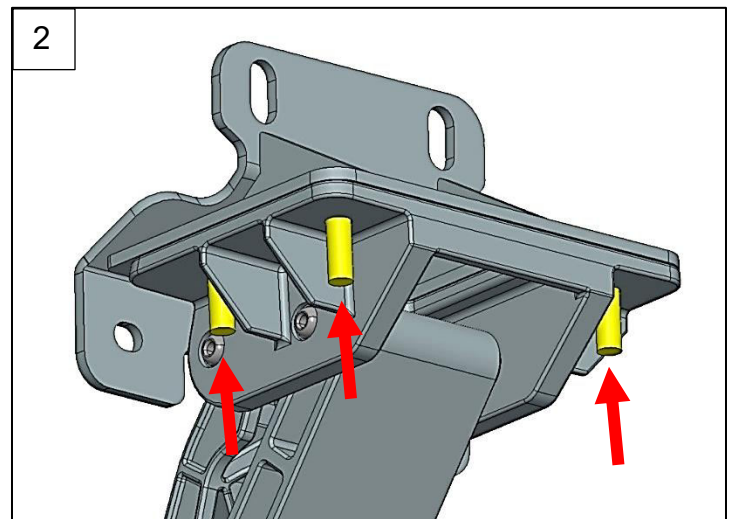
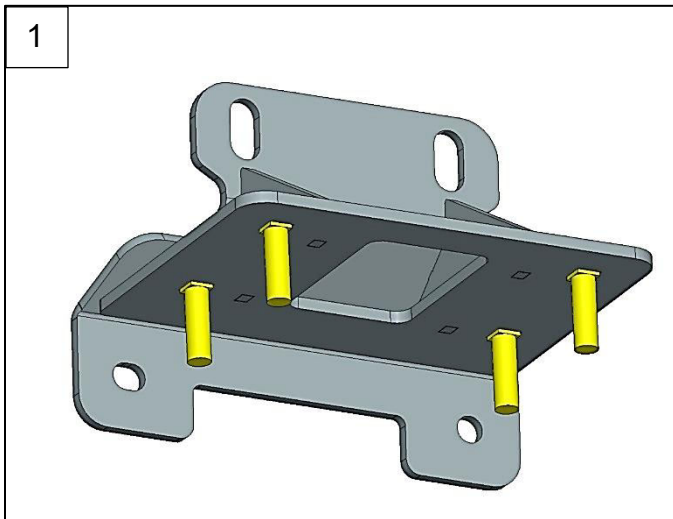
Electrical Tape

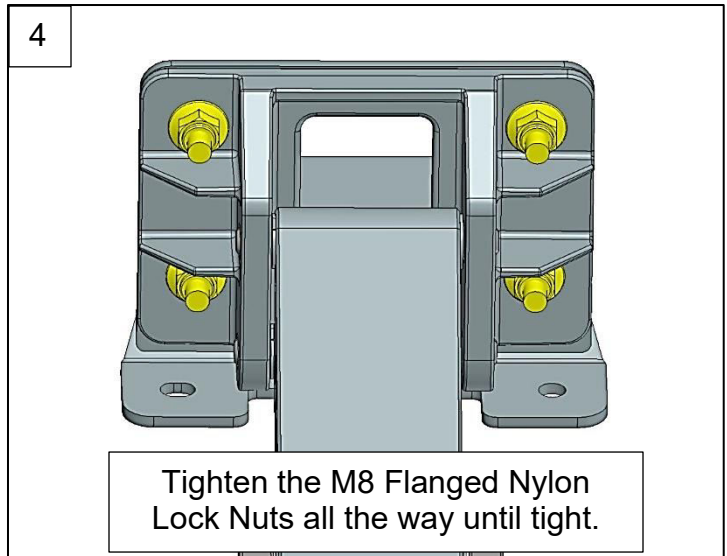
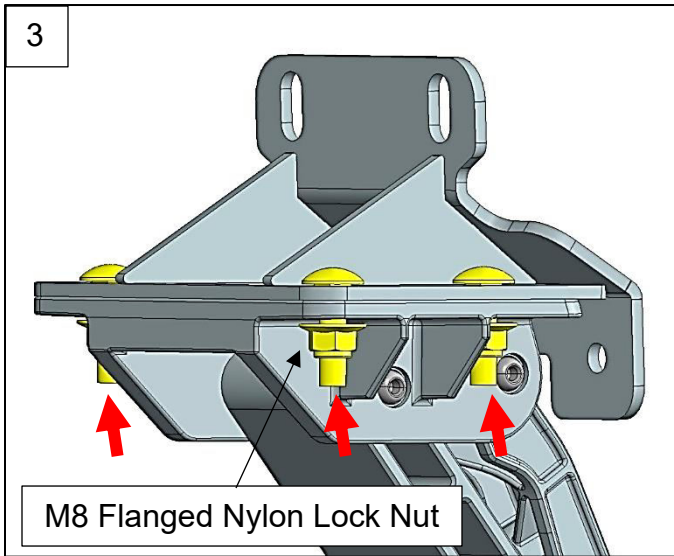
- 1 Take the mounting brackets and attach them to the linkage arms. First, insert the M8 Carriage Bolts into the square slots on the brackets so that the threads are pointing downwards.

Insert M8 Carriage Bolts downwards.



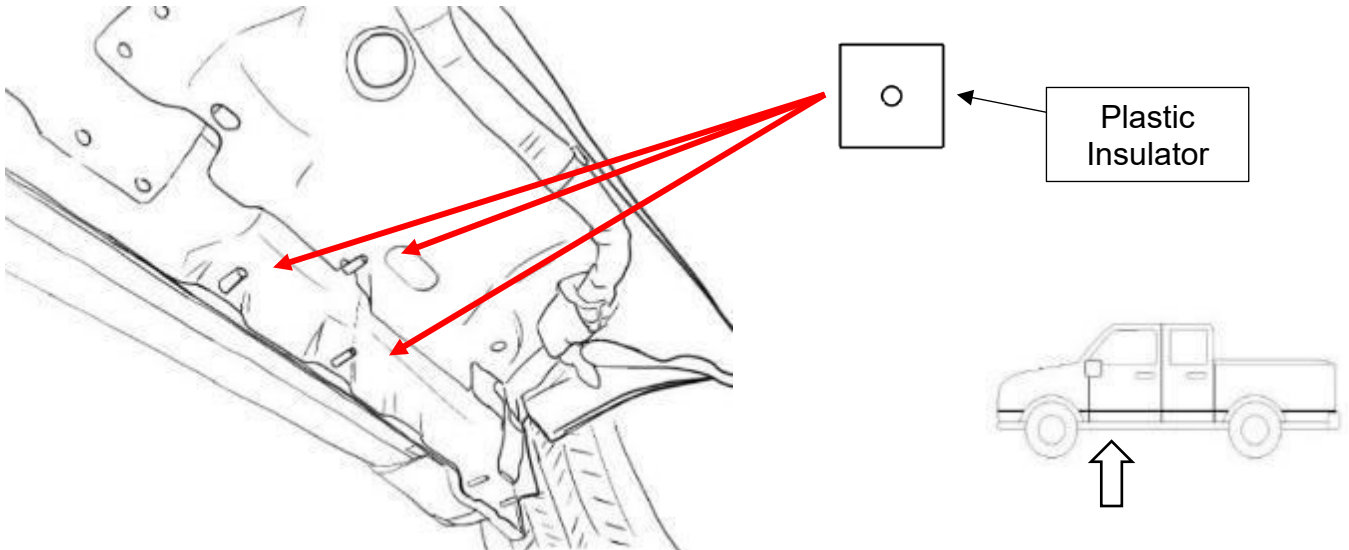
Next, use the M8 Flanged Nylon Lock Nuts to fasten the aluminum linkage arms to the brackets. There are 4 fastening points on each bracket.





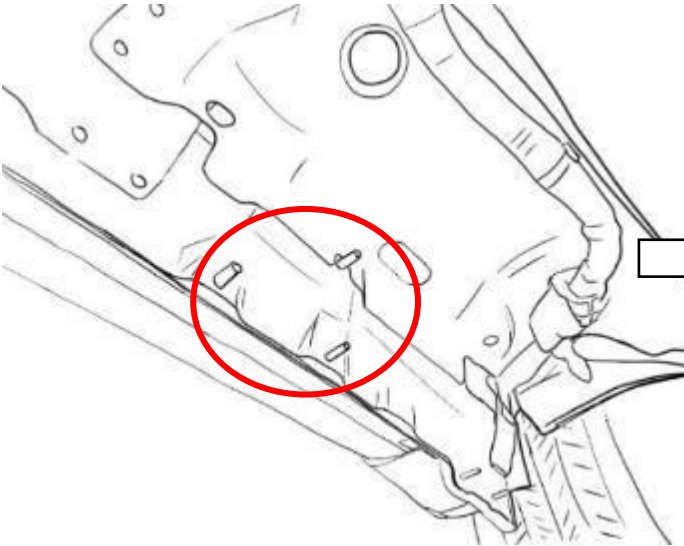
2

Locate Driver Side front mounting points on the rocker panel under the front door. Apply a plastic insulator (F) to each stud before mounting the front bracket.



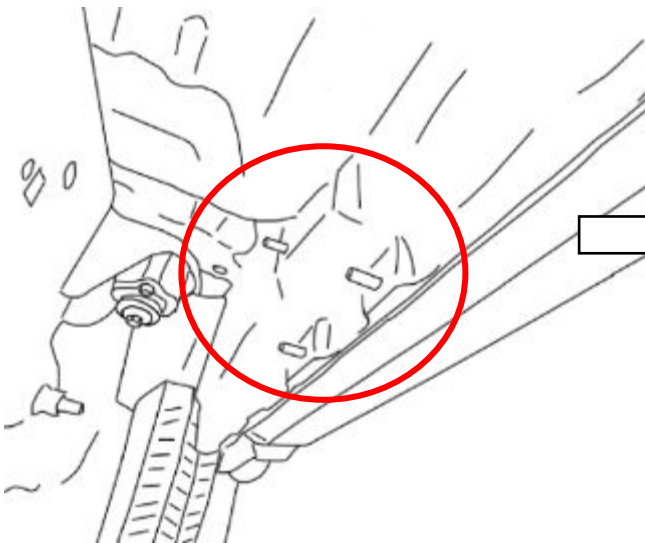
3

Next, line up front mounting bracket slots to the studs and place Driver Side/Left Front Bracket Assembly (A) onto rocker panel. Then fasten Flanged Nylon Lock Nuts (I) and Washers (H). Do not tighten all the way yet.



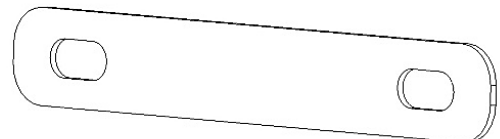
4

Locate rear mounting points. Apply a plastic insulator (F) to each stud before mounting the Driver Side Rear Bracket Assembly (B). Next, line up rear mounting bracket slots to the studs and place Driver Side/Left Rear Bracket Assembly (B) onto rocker panel.



Then fasten Nylon Lock Nuts (I) and washers (H). Do not tighten all the way yet. For Ford SuperDuty vehicles: **Before mounting the rear bracket assembly**, use 2mm Rear Bracket Shims (K) for the bottom stud for the rear bracket.

For SuperDuty, Place 2mm Shim Plate onto mounting studs before mounting the Rear Bracket Assembly.

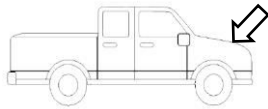


5

Repeat steps 1 – 4 for the Passenger Side.

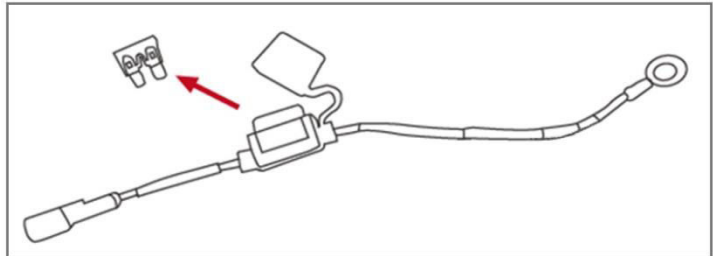
6A

Start from the engine compartment by opening the front hood of the vehicle. Remove the 25A fuse from the fuse box that comes with the main harness (M).



6A – 8A is specific to 21+ F150 and 22+ SuperDuty Sync 4 Models Only

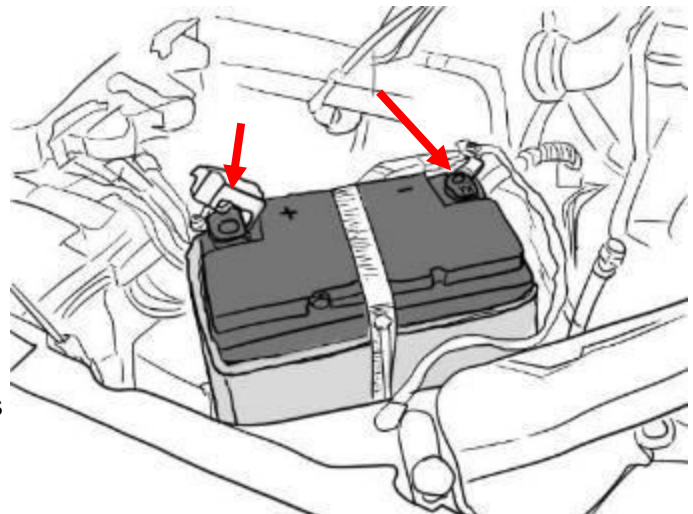
6B – 8B is specific to 22+ Lightning EV



Open fuse holder cap and remove fuse

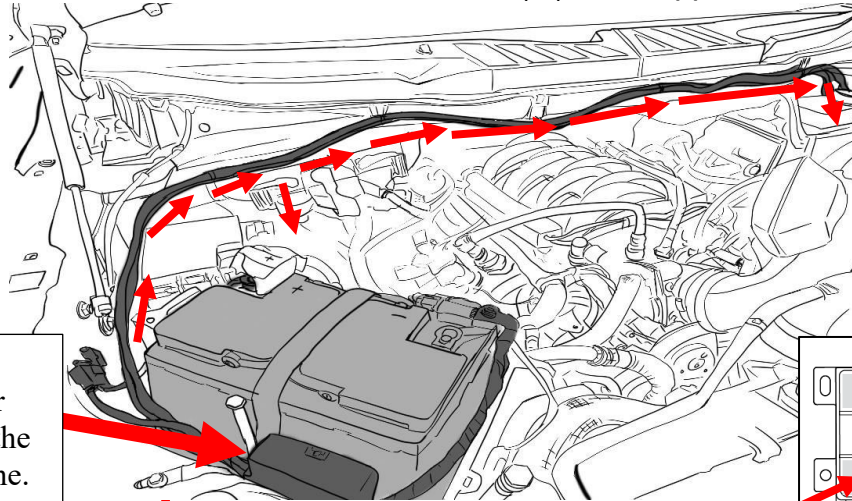
7A

Connect the power leads on the main harness (M) to the positive battery terminal, positive to positive, and negative to negative. Make sure both power leads are fully secured. Connect the ECU (P) to the main harness. Connect the Long LED Y-Harness (N1) to the Driver-side branch of the main harness. Connect the Short LED Y-Harness (N2) to the Passenger-side branch of the Main harness.



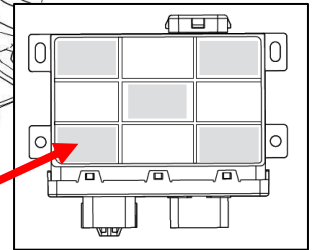
8A

Route the main harness (M) around the battery, up along the rear of the engine compartment, and down the Driver-side wheel well. Route the shorter leg of the harness down the Passenger-side wheel well. **Be sure to avoid contact with any moving or hot engine components.** Attach and secure the main harness (M) with supplied cable ties.



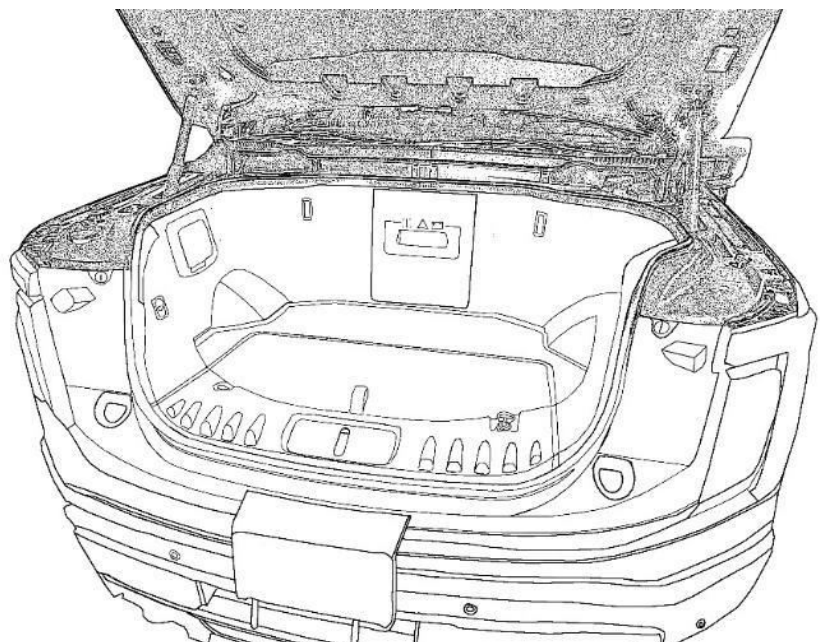
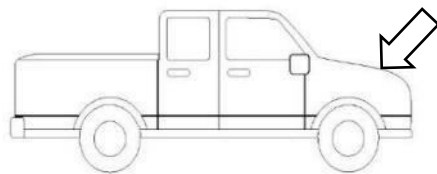
ECU (P) should be secured near battery or any space away from the direct heat of the engine.

Use the 5 included spare double-sided adhesive tapes to secure the ECU, as needed.



6B

Start from the Frunk (front trunk) compartment by opening the front hood of the vehicle. At the rear of the frunk tub, there is a large panel with a horizontal slot that serves as a handle.



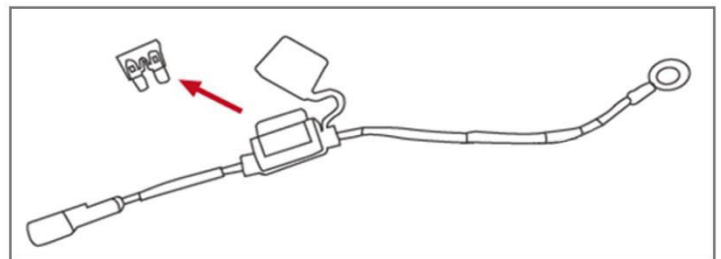
***WARNING:** Be sure Lightning EV is completely powered down before starting work on electrical systems. Adjusting electrical systems while power is on may cause system errors.

Place your hand in the handle slot and lift the panel directly upwards to remove it. Some light strength may be required to dislodge the locking tabs. Remove the panel out of the frunk area, and make sure the vehicle is turned off.



Locate the Secondary Battery and its terminals (positive/negative). Remove the 25A fuse from the fuse box that comes with the main harness (M).

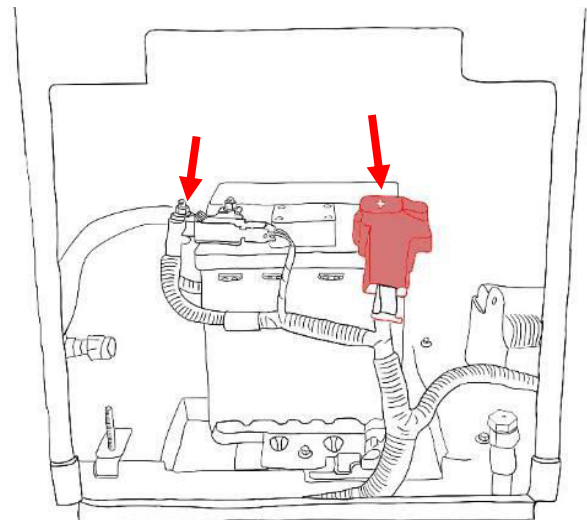
***WARNING:** Keeping the fuse connected to the fuse box may result in electrical sparks and risk of shorting when working with the battery.



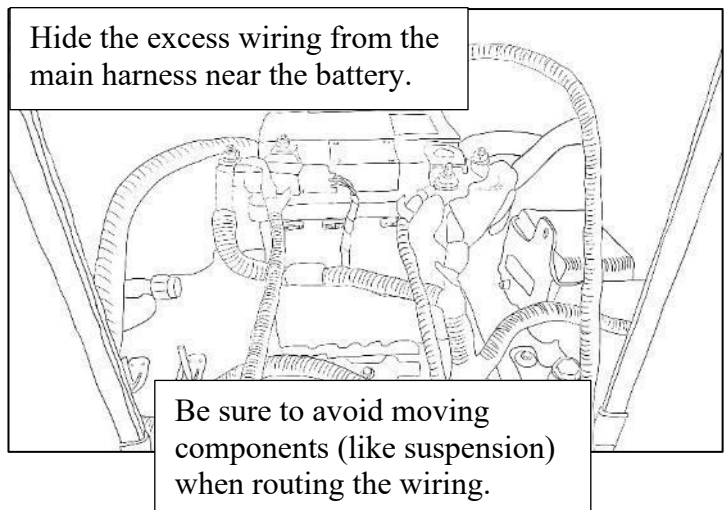
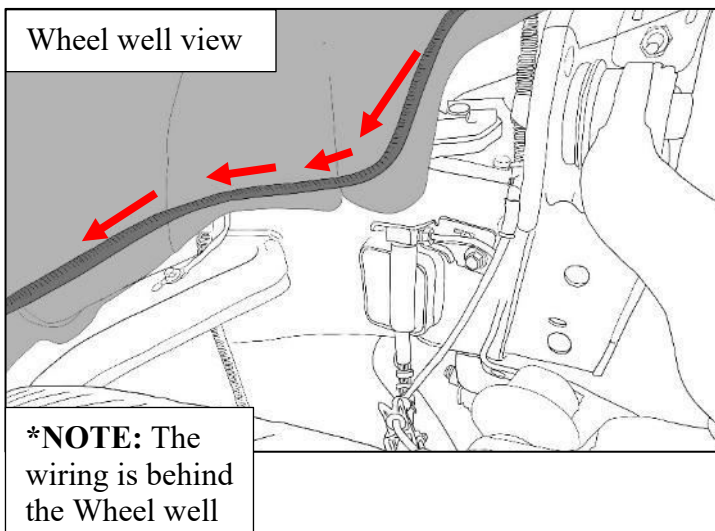
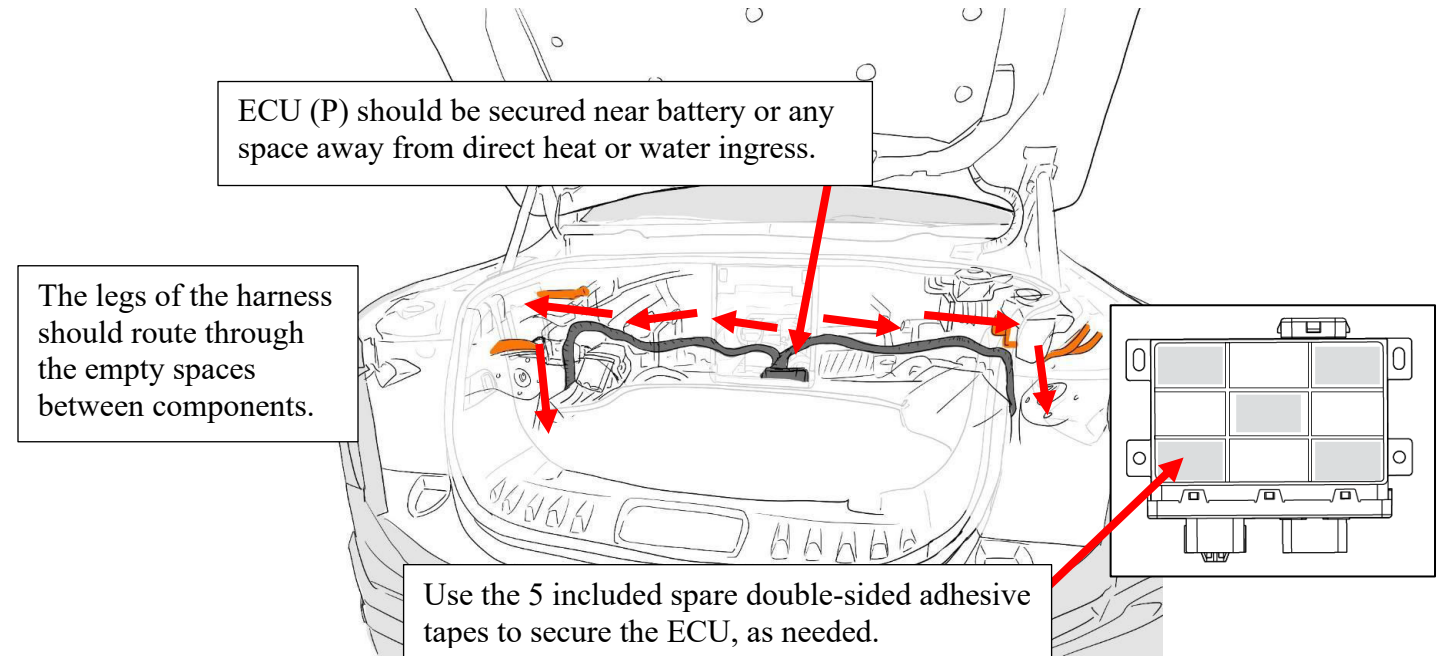
Open fuse holder cap and remove fuse

7B

Connect the positive power lead on the main harness (M) to the positive battery terminal. Connect the negative lead to the negative battery terminal. Make sure both power leads are fully secured. Connect the ECU (P) to the main harness. Connect the Long LED Y-Harness (N1) to the Driver-side branch of the main harness. Connect the Short LED Y-Harness (N2) to the Passenger-side branch of the main harness.

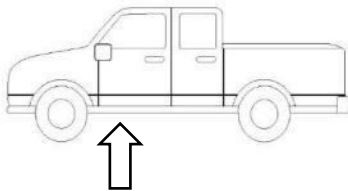


- 8B** Route the main harness (M) around the battery, up along the rear of the frunk compartment, and down the Driver-side wheel well. Route the shorter leg of the harness down the Passenger-side wheel well. **Be sure to avoid contact with any moving or hot components.** Attach and secure the main harness (M) with supplied cable ties.

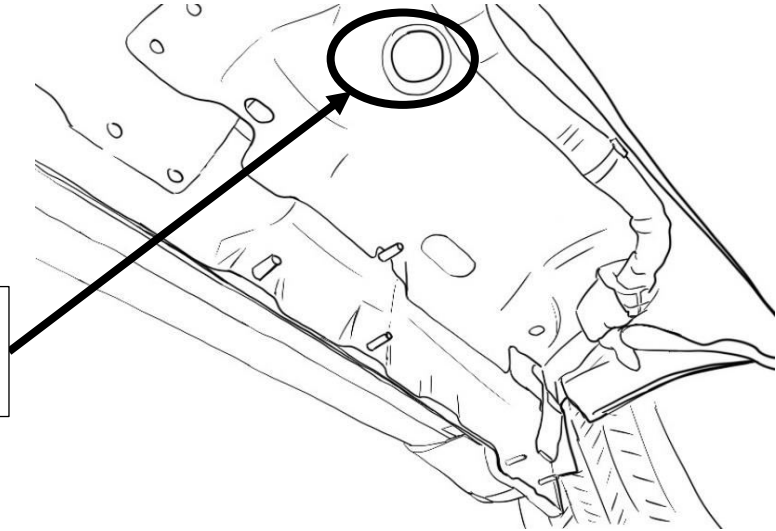


9

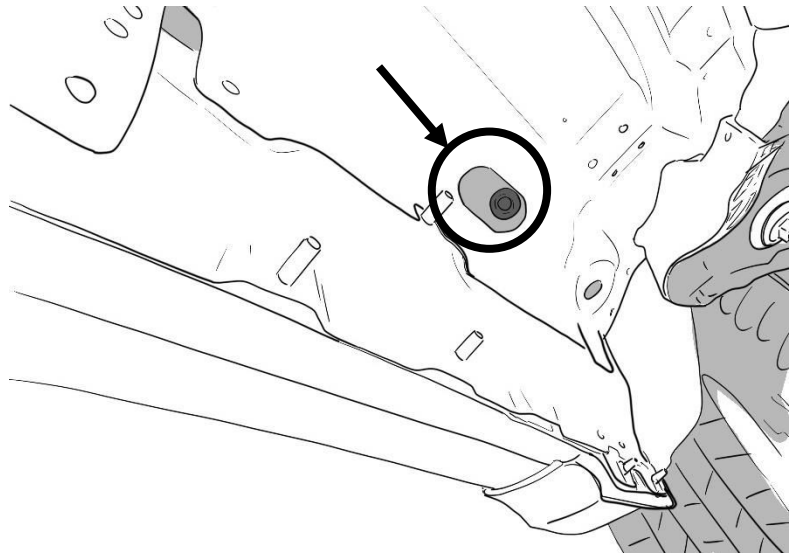
On the underside of the driver side, locate and remove the floor grommet in the floor panel behind the front wheel well. The grommet will be close to the front linkage arm. Poke a hole through the grommet and thread the two signal wires through and up into the vehicle cabin.



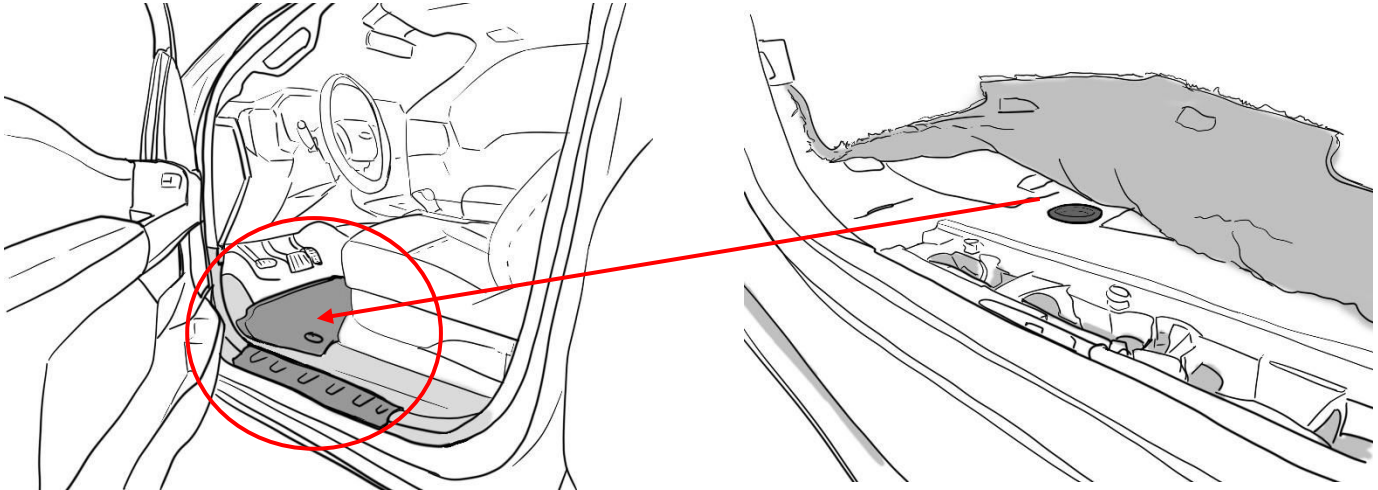
Carefully put
wiring through
rubber floor plug



On some vehicles, the floor grommet will be a smaller rubber plug that sits inside an underside cavity. Due to the greater thickness, an incision of the plastic conduit to the appropriate branch of the power step main harness (M) may be necessary to fit through the hole.



- 10** Inside the vehicle cabin, remove the driver-side front kick panel and bottom door sill plate. Peel back the carpet to access the hole where the grommet was removed. Feed the wires through.

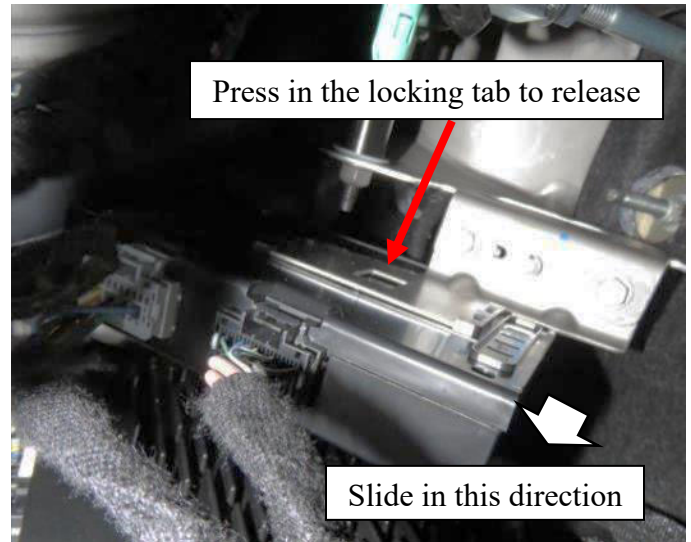
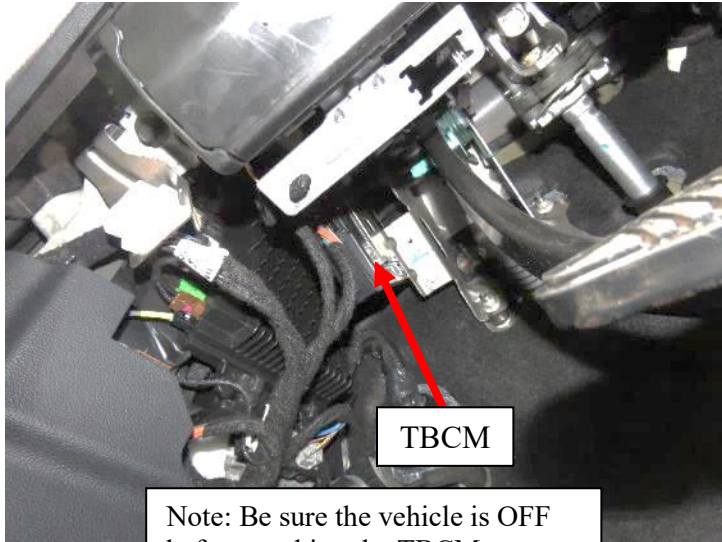


- 11** Attach the main harness (M) to one LED Y-Harness (N). Then attach the LED Y-Harness to the motor (do this for driver side first). Repeat for passenger side.

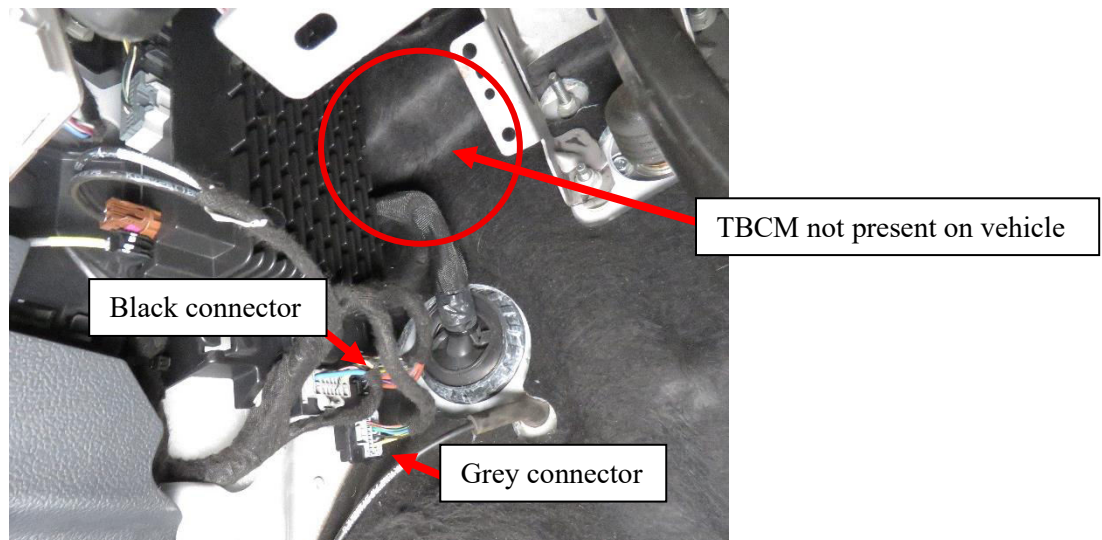
Driver side



- 12** Locate the black TBCM (Trailer Brake Control Module) under the steering wheel, behind the OBD-II Port. Slide the TBCM out of the holding bracket by pushing the locking tab in the center and pulling outwards in the direction of the rail for easier access to wires.

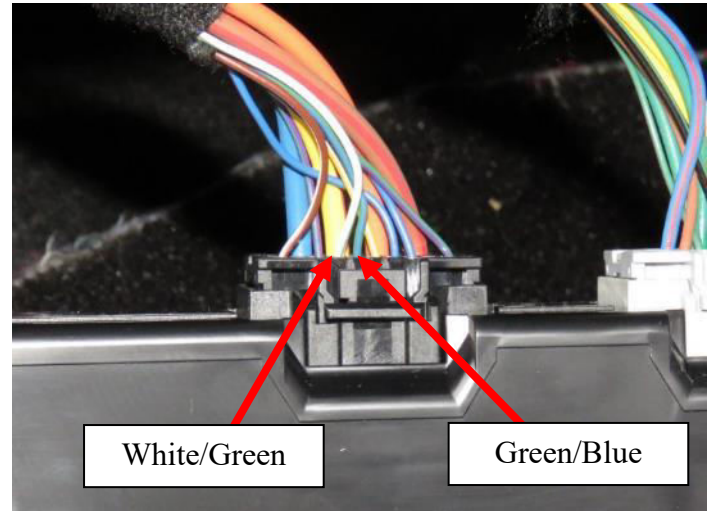


If your vehicle is not equipped with the TBCM, the two connectors will be seated into the bracket reserve slots. The wiring on the connectors is the same as vehicles equipped with the TBCM. The following wiring steps apply to both cases.

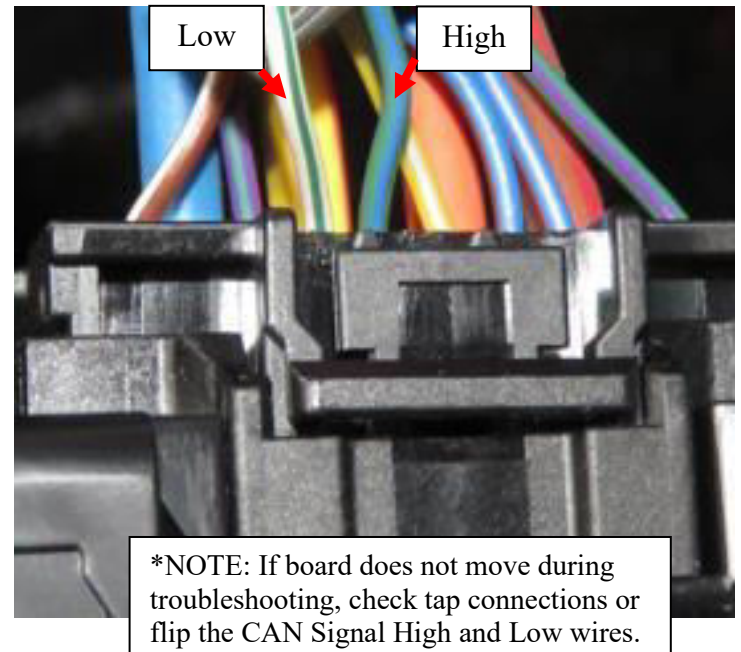
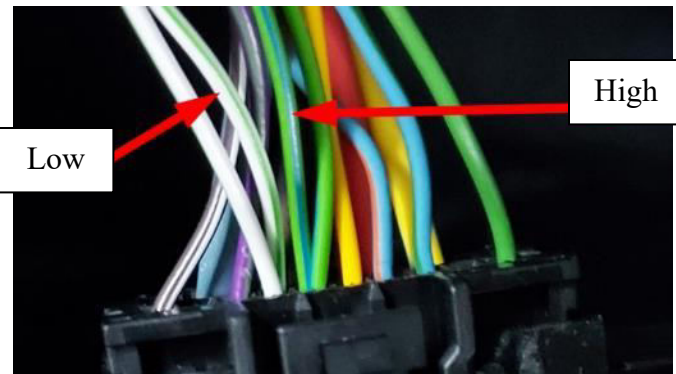


- 13** On the black plug of the TBCM, identify the green/blue stripe and white/green stripe wires. Connect the High and Low wires from the main harness (M) using the supplied wire taps (O). After successfully connecting the wires, return the TBCM back into its place and check that it is secure.

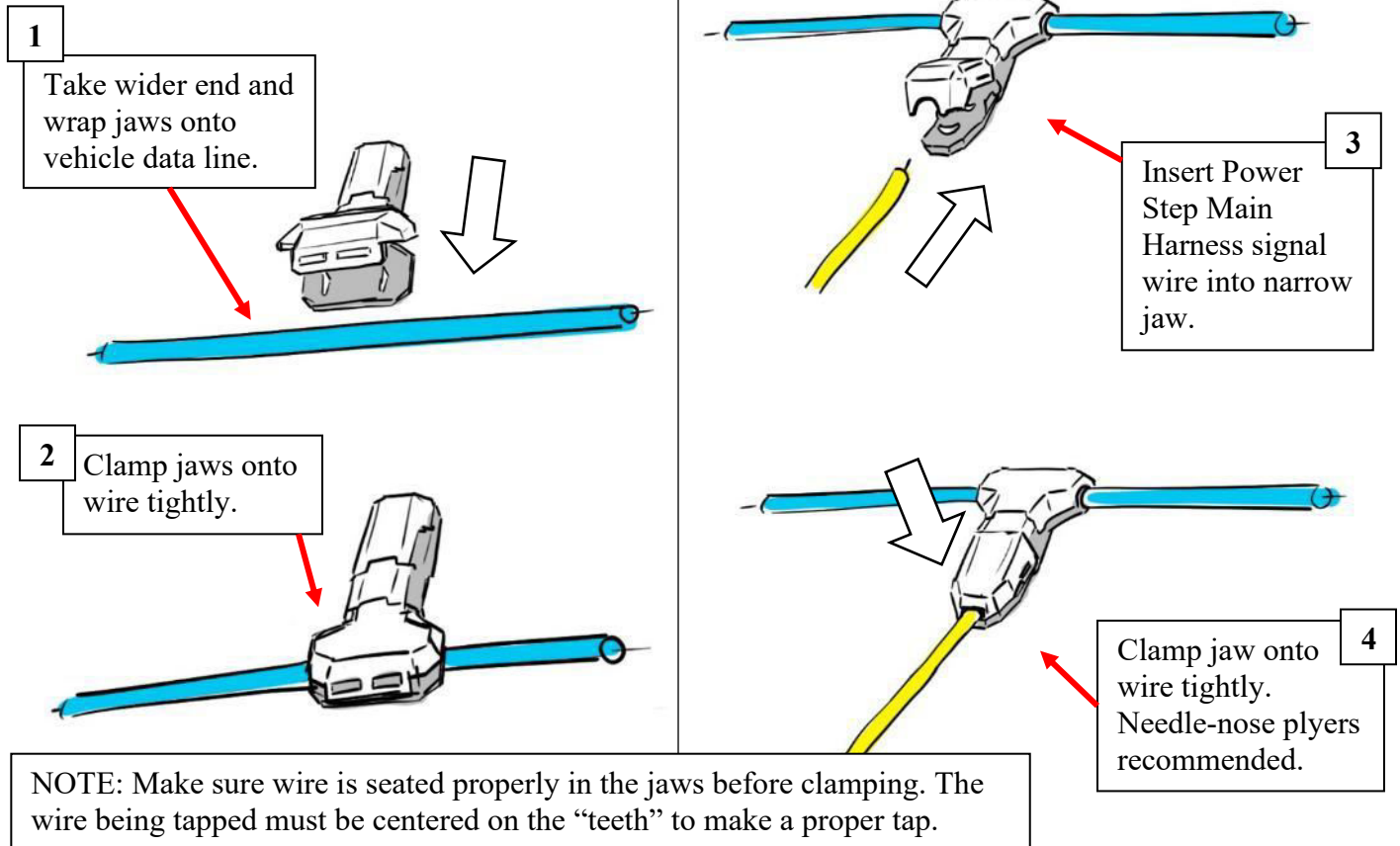
*NOTE: On newer models the color of the wires can vary slightly.



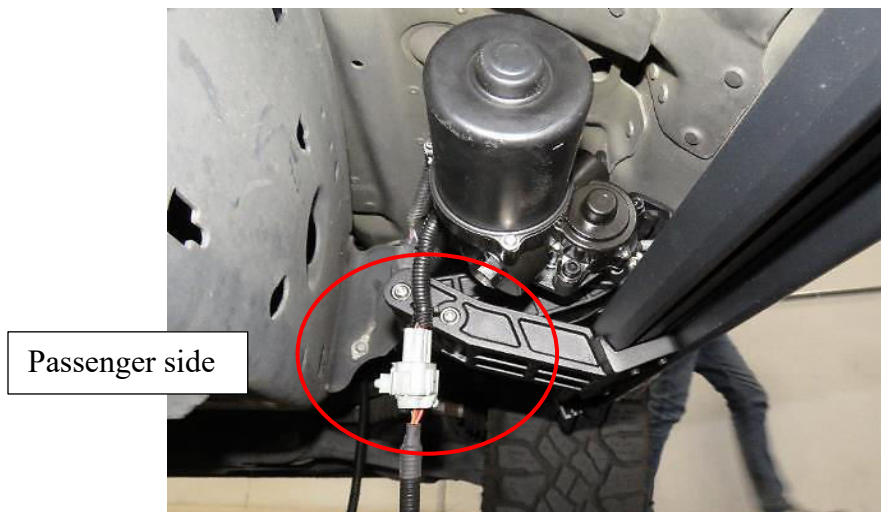
Factory CAN Wire/ Data Line	Power Step Main Harness Wire Color
Green with Blue Stripe (High)	White (CAN-H)
White with Green Stripe (Low)	Yellow (CAN-L)



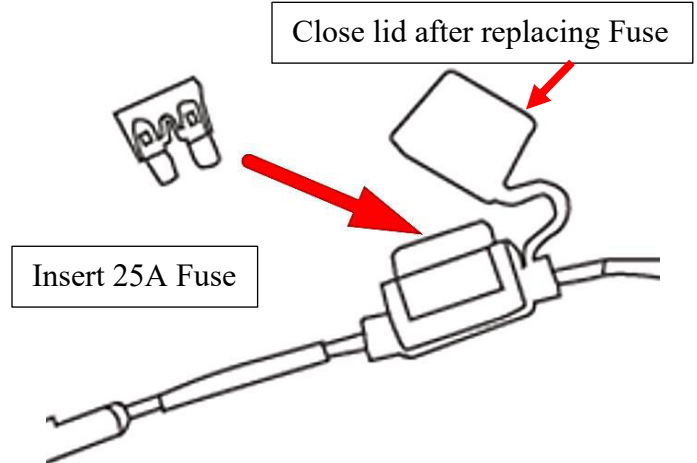
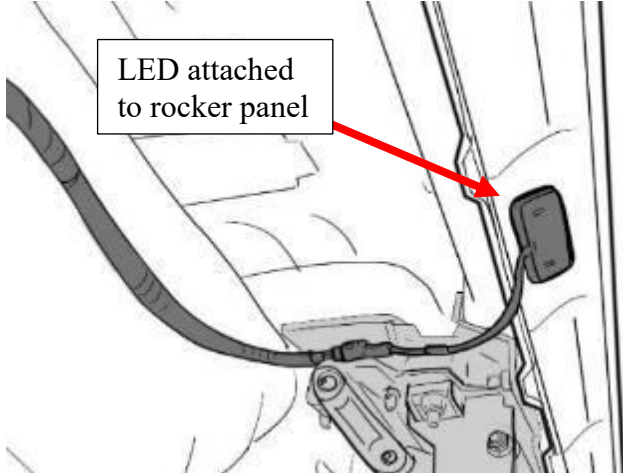
The kit comes supplied with wire taps called “shark taps”. Follow the guide below to tap the wire using the “shark tap”:



- 14** Be sure the main harness (M) is connected to the appropriate length LED Y-Harness (N). Then attach the LED Y-Harness (N) to the motor on the Driver Side. Repeat for Passenger Side.

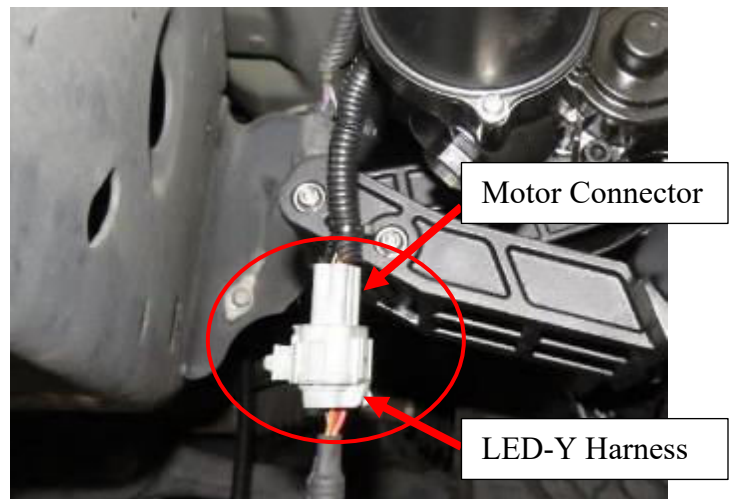


- 15** Plug in LED lights (Q) into LED Y-Harness (N) and attach them to the bottom of the rocker panel. Use provided 3M double sided adhesive tape on back of LED light (Q). Replace Fuse into Fuse Box.



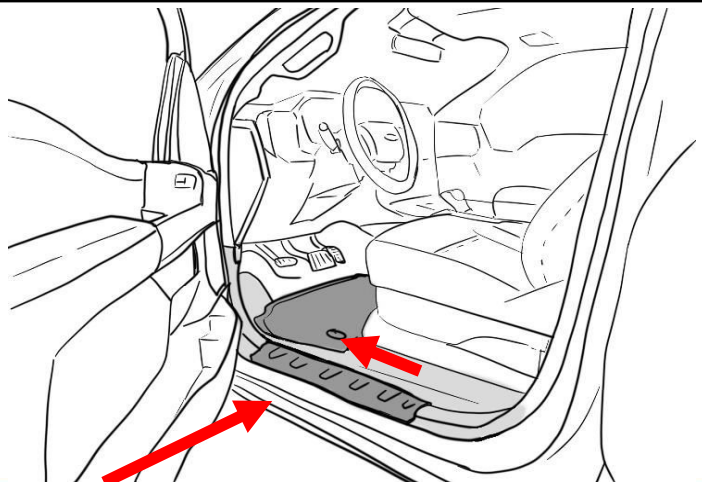
- 16** Check to make sure the harnesses on the Driver Side/Left Front Bracket Assembly (A) and Passenger Side Front Bracket Assembly (C) are connected to the main harness (M) via the LED-Y harnesses (N).

*NOTE: It is best practice to hide the plugs so that they are not directly exposed to mud, water, and debris kicked up from the front wheels.

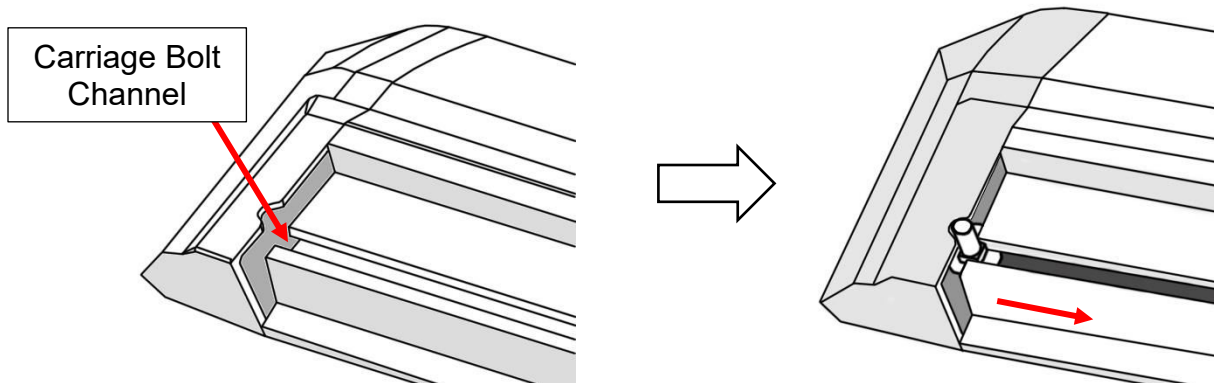


- 17** Seal the rubber boot with RTV Silicone Sealant if needed.

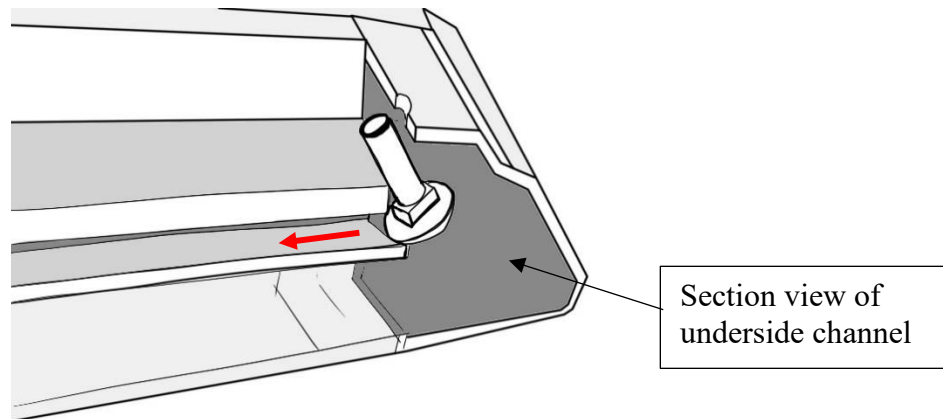
Hide wires and reattach the kick panel with the carpet fully unfurled in its original position. Reattach the door sill panels and check to make sure there are no obstructions or potential snag points around the brake pedal area.



- 18** Prepare the power step boards. Locate the end of the boards and slide the M6 Carriage Bolts (E) into the channel on the underside of the board. Insert a total of 8 carriage bolts (E).



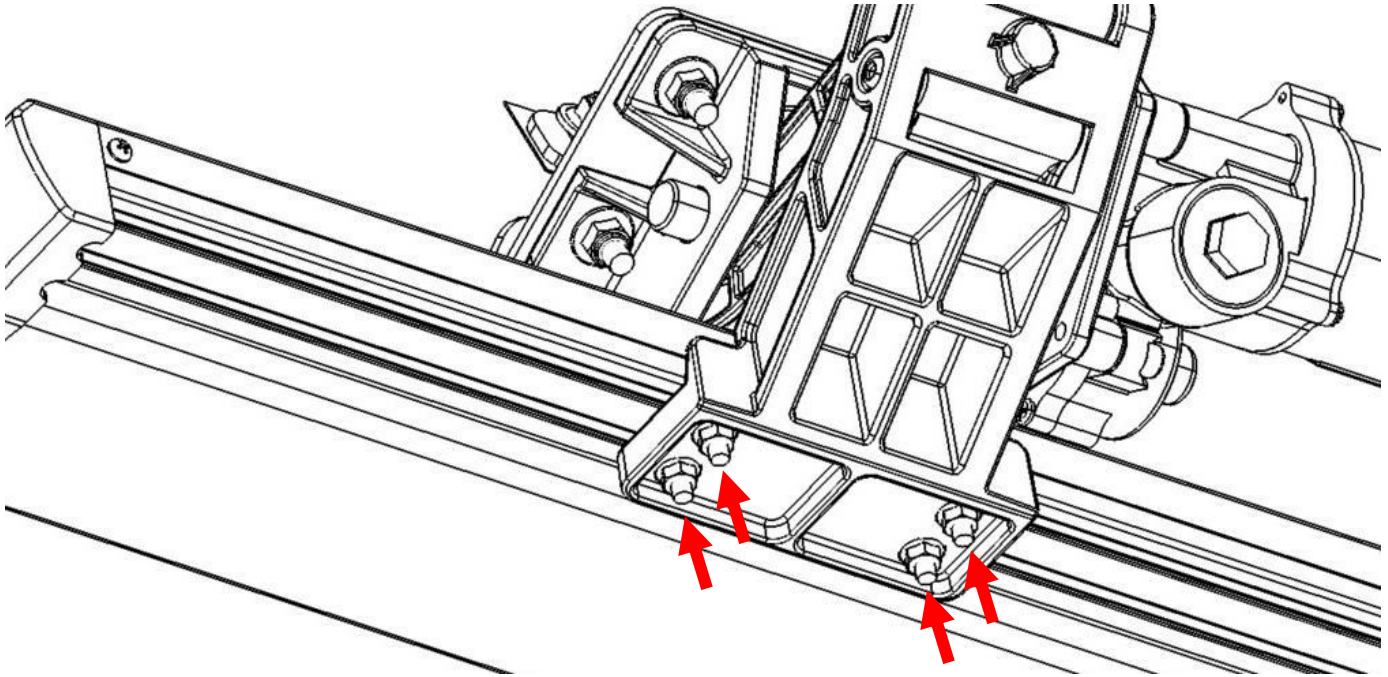
Use the notch in the board's end caps to feed the bolts into the channel.



- 19** Perform a function check by closing the driver side front door and opening it again. The front bracket assembly (A) motor should activate the linkage arm and move it into the down or "deployed" position.

After deploying linkage arms, unplug the motor connector from the LED-Y harness (to cut power to the linkage arms) while front door is open to hold the board in the deployed position for running board installation.

Line up the carriage bolts (E), under the power step boards, with the slots on the linkage arms (A & B). Insert the 8 carriage bolts (E) into the slots on front and rear linkage arms. Adjust board to desired position. Moderately hand tighten the 6mm Flat Washers + 6mm Nylon Lock Nuts (G) onto the carriage bolts.



Once the board is adjusted, plug in the motor connector to the LED-Y harness (to return power to the linkage arms), making sure that the door remains closed. Proceed to open and close doors several times to deploy and retract the steps to settle the steps into their natural alignment. After cycling the step, tighten all hardware on the board and brackets.

Adjust further for the desired step position. Repeat for passenger side.

20

Perform system check and troubleshooting. If board is making irregular movements or noise, readjust the boards as follows:

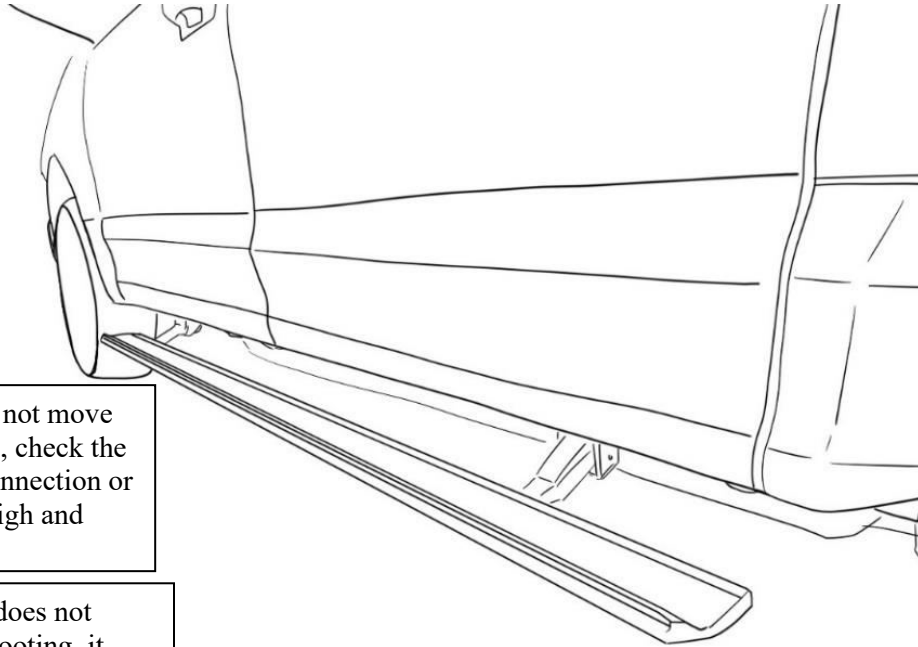
- a) With board deployed loosen 6mm nuts under board.
- b) Leave the nuts slightly less than snug.
- c) Open and close door several times for board to settle into position.
- d) With the step in the deployed position, gradually tighten the nuts while alternating between each. Do not over tighten.

If board is making abnormal noise or the motion is binding, repeat steps “a” through “d”.

Note: If the above method does not resolve the issue, the brackets mounting to the vehicle may not be aligned properly with the vehicle. In this case, remove the board and realign brackets before attempting steps “a” to “d” once again.

21

Reinstall any remaining trim panels if necessary. Check and make sure all hardware is fully tightened. Perform a final system check. Finish.



*NOTE: If board does not move during troubleshooting, check the wire taps for a solid connection or flip the CAN Signal High and Low wires.

*NOTE: If board still does not move during troubleshooting, it may also be necessary to check all other wiring connections.

Toggle Switch Optional Accessory

If you purchased the toggle switch accessory, please refer to the detailed instruction sheet included with the toggle switch kit.

FINAL REMARKS

- Ensure there are no debris or obstacles preventing the power steps from operating.
- Open and close each door on both sides to ensure that power steps are operating correctly.
- Check and ensure that all electrical connections are stable and secure.

- Check and ensure that the fuse is placed into the main harness.
- Check and ensure that the CAN tap connections are fully engaged and are seated completely.
- Recheck that all mounting hardware is tight.
- Adjust mounting brackets or running board to enable smooth operation even after having stepped on the deployed boards.

MAINTENANCE AND CARE

- Periodically clean the linkage arms and motor of any dirt or debris that may accumulate.
- Avoid spraying the motors directly with high pressure liquids.
- Avoid damaging the power steps.
- Ensure power step ECU is not exposed directly to water to prevent degradation.
- Ensure wiring is properly tucked away and concealed from mechanically moving parts and exposure to high heat or very low temperature conditions.
- Periodically recheck that all mounting hardware is tight
- Do not overload the running board.
- Readjust running board if necessary.

WARNING AND SAFETY

- Do not use boards as a rock slider or as skid protection.
- Do not use solvents, chemicals, oils, or corrosive liquids on power steps. If the power steps encounter these substances, clean the power steps as soon as possible. Mild detergent and water is recommended.
- Do not obstruct the power steps in any way during operations of deployment and retraction.
- Do not rely in any way on the components of this product to keep occupants within the vehicle or to protect against injury or death in the event of an accident.
- Do not sit/stand on the running board for long periods of time.
- Do not jump on power step board or rest heavy objects on boards or subject power steps to excessive force.
- Do not step on plastic end caps of the boards. Failure to do so may result in injury.
- Do not place bodily appendages between running board and the vehicle body. Please mind the gap between the vehicle and the board.
- Do not allow children to use power steps without adult supervision and proper operation. This is not a toy. Improper use may result in injury.
- Remove the fuse on the power lead on the main harness before doing electrical troubleshooting to avoid risk of shock or injury. Make sure the motors do not have power before working on mechanical adjustments to avoid injury.