

ROUGH COUNTRY

ESR621510

Toyota 4Runner 2WD/4WD (10-24) Power Board Box Kit

Thank you for choosing Rough Country for all your vehicle needs.

Please read instructions before beginning installation. Check the kit hardware against the kit contents shown below. Be sure you have all needed parts and know where they go. If question exist, please call us @1-800-222-7023. We will be happy to answer any questions concerning this product. Check all fasteners for proper torque. Check to ensure for adequate clearance between all components. Periodically check all hardware for tightness..



Torque Specs:

Size	Grade 5	Grade 8	Size	Class 8.8	Class 10.9
5/16"	15 ft/lbs	20ft/lbs	6MM	5ft/lbs	9ft/lbs
3/8"	30 ft/lbs	35ft/lbs	8MM	18ft/lbs	23ft/lbs
7/16"	45 ft/lbs	60ft/lbs	10MM	32ft/lbs	45ft/lbs
1/2"	65 ft/lbs	90ft/lbs	12MM	55ft/lbs	75ft/lbs
9/16"	95 ft/lbs	130ft/lbs	14MM	85ft/lbs	120ft/lbs
5/8"	135ft/lbs	175ft/lbs	16MM	130ft/lbs	165ft/lbs
3/4"	185ft/lbs	280ft/lbs	18MM	170ft/lbs	240ft/lbs

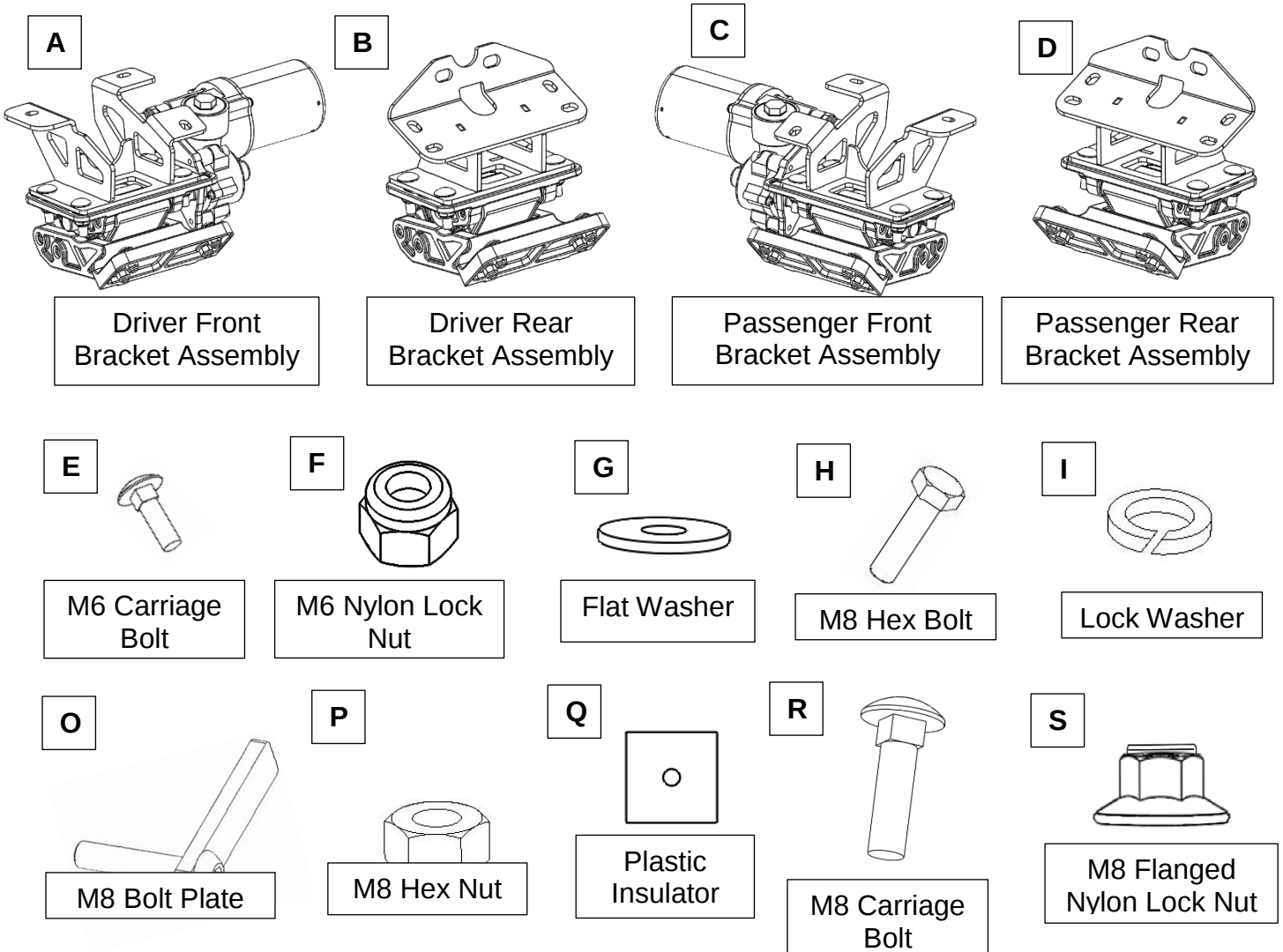


INSTALLATION INSTRUCTIONS**Mechanical PARTS LIST:**

Qty	Item Description	Qty	Item Description
2	Running boards (63in)	4	8mm Hex Nuts
1	Driver/Left Front Motor Linkage Assembly	4	8-1.25x40mm Bolt Plates
1	Passenger/Right Front Motor Linkage Assembly	12	8x24x2mm Large Flat Washers
2	Rear Linkage Assemblies	12	8mm Lock Washers
1	Driver Front Steel Mounting Bracket	16	6-1.00mm x 20mm Carriage Bolts
1	Passenger Front Steel Mounting Bracket	16	6x16x1.6mm Flat Washers
2	Rear Steel Mounting Brackets	16	6mm Nylon Lock Nuts
16	8-1.25x30mm Carriage Bolts	4	Plastic Retainers
16	8mm Flange Nylon Lock Nuts		
8	8-1.25x30mm Hex Bolts		

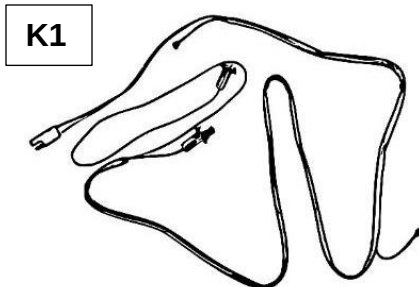
Electronic Materials Package PARTS LIST:

Qty	Item Description	Qty	Item Description
4	LED Lights	1	LED Y-Harness (280mm)
1	ECU 2.0	4	Magnetic Switches
1	Main Wiring Harness	15	Zip Ties
1	LED Y-Harness (1200mm)	4	Magnets and Adhesive Prep Kit





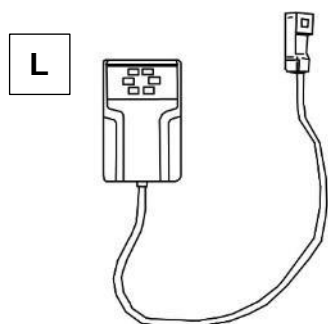
Main Harness



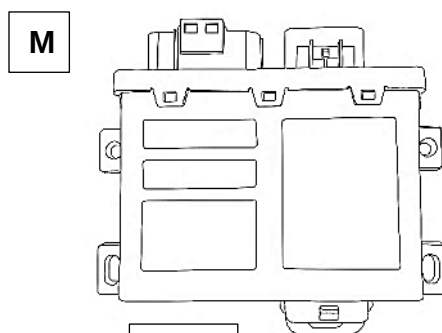
LED Y-Harness (1200mm)



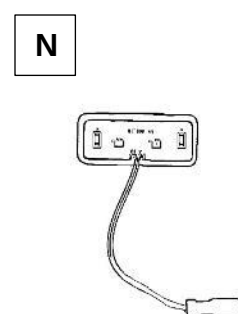
LED Y-Harness (280mm)



Magnetic Switches



ECU



LED Lights

TOOLS REQUIRED



Ratchet



8mm
10mm
13mm
Socket



Extensions



Wrench



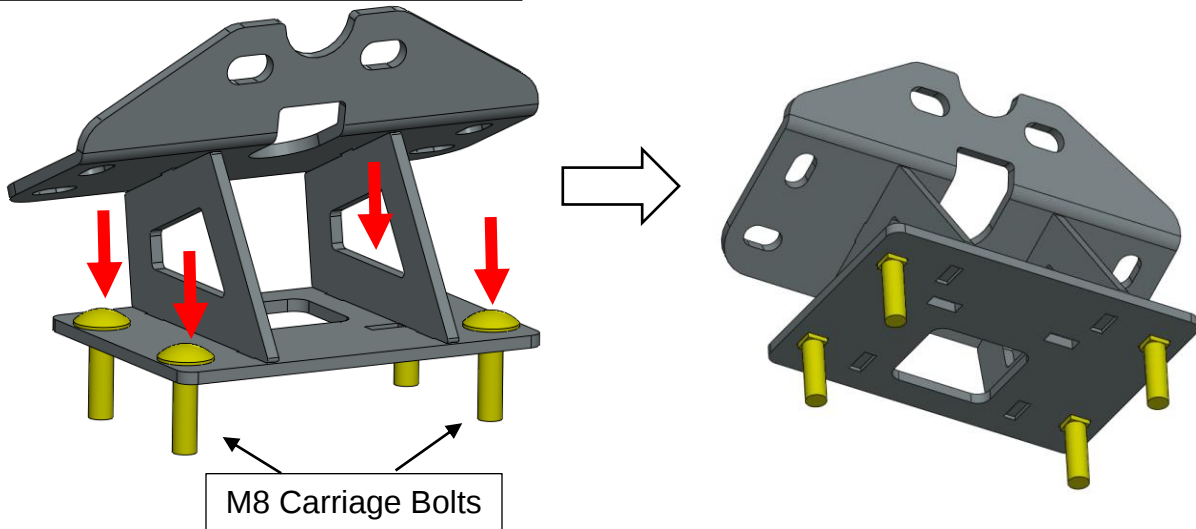
Electrical Tape

1

10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

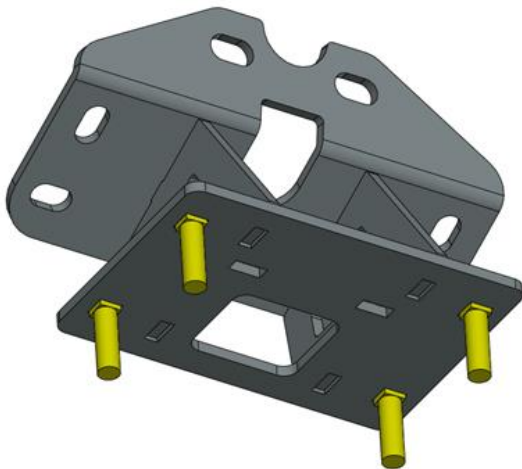
Take the mounting brackets and attach them to the linkage arms. First, insert the M8 Carriage Bolts into the square slots on the brackets so that the threads are pointing downwards.

Insert M8 Carriage Bolts downwards.

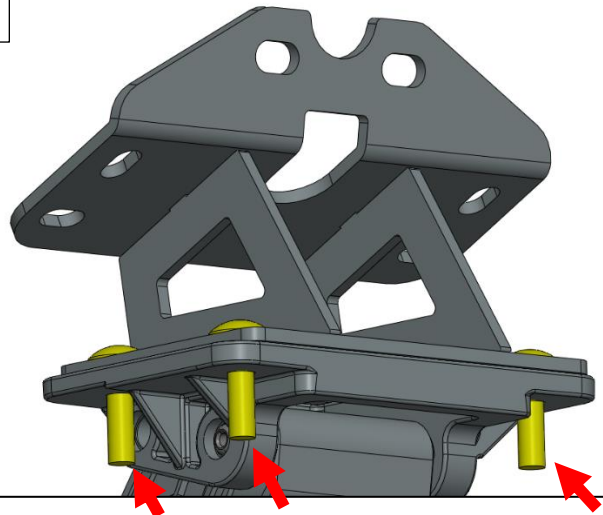


Next, use the M8 Flanged Nylon Lock Nuts to fasten the aluminum linkage arms to the brackets. There are 4 fastening points on each bracket.

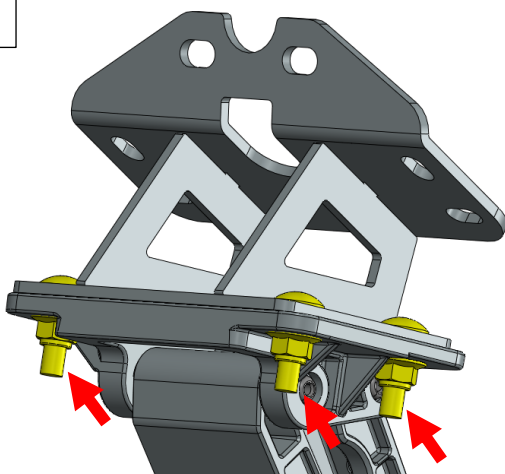
1



2

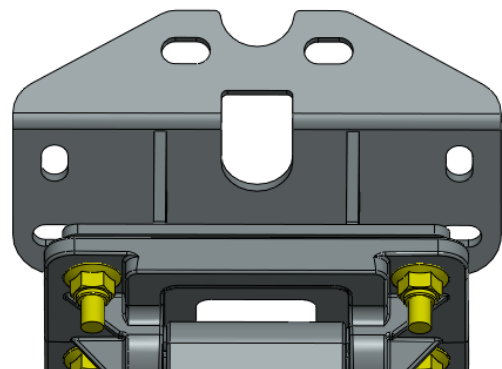


3



M8 Flanged Nylon Lock Nut

4

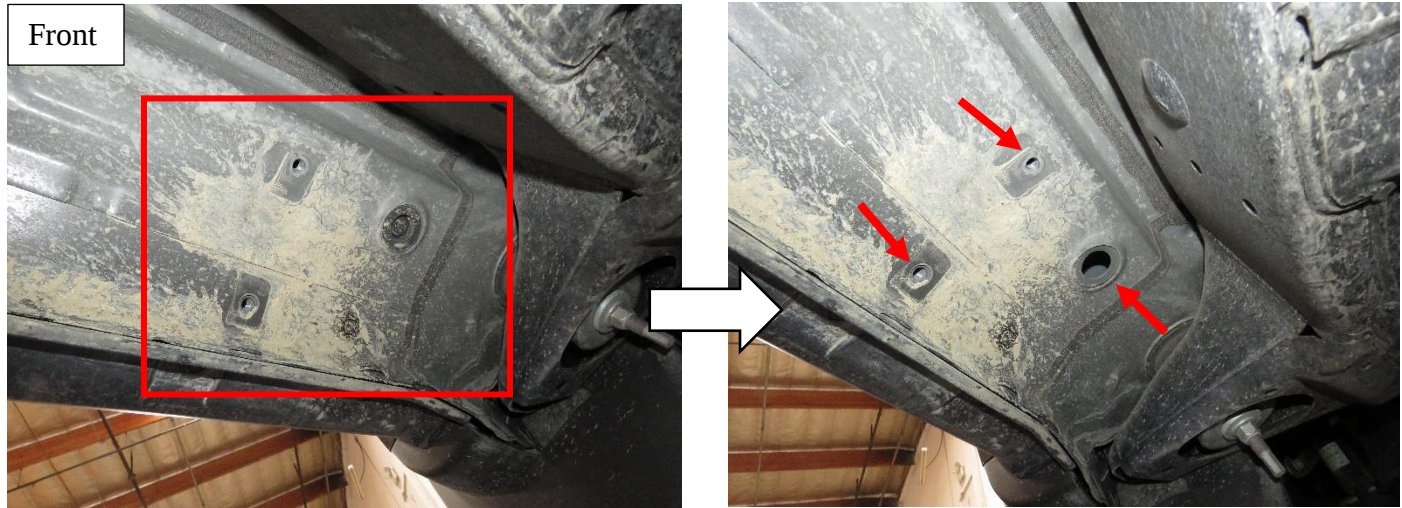


Tighten the M8 Flanged Nylon Lock Nuts all the way until tight.

2

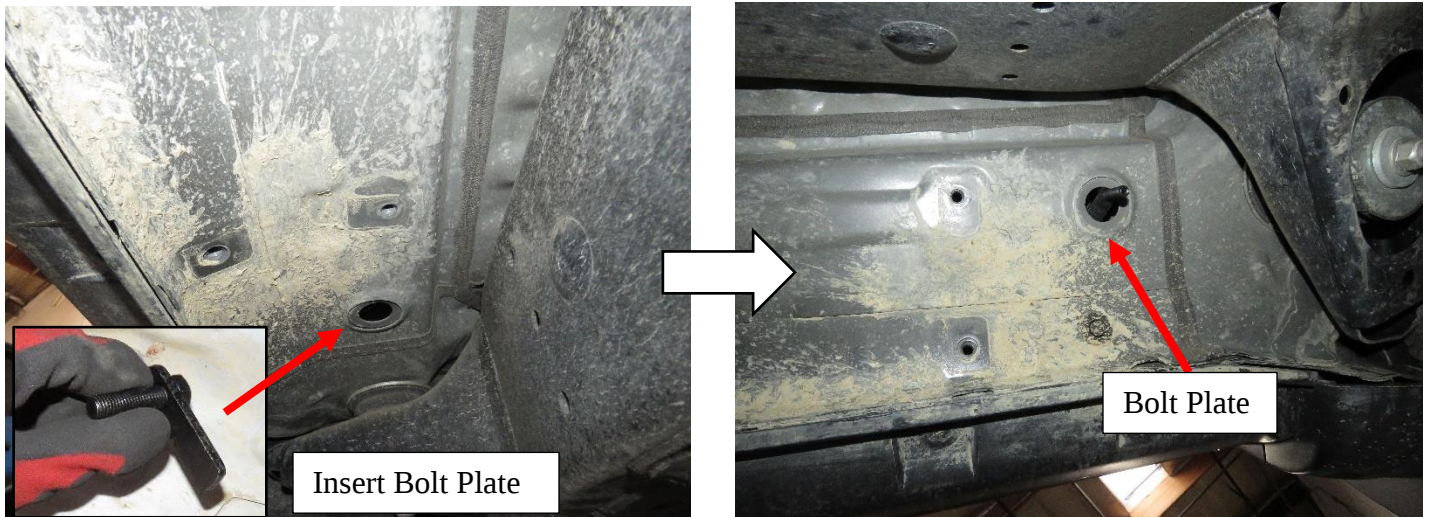
10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

Locate Driver Side front mounting points on the rocker panel under the front door. Remove the OE bolts and appropriate rubber plugs before mounting the front bracket.



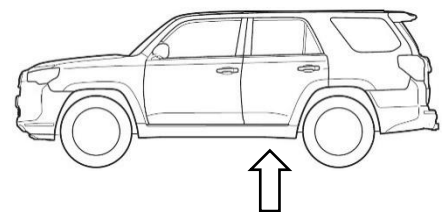
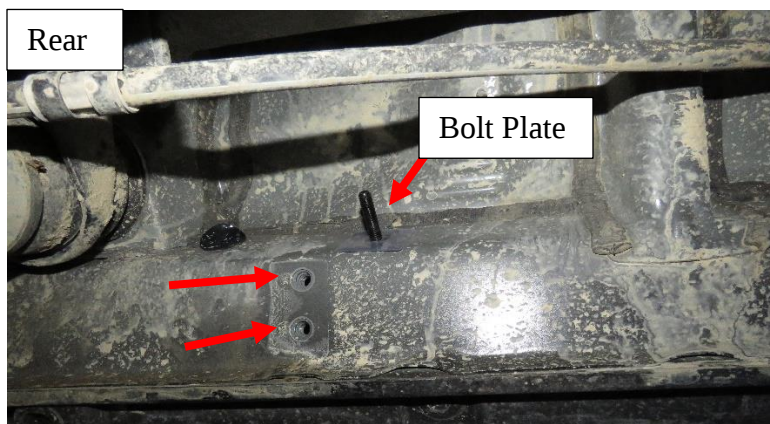
3

Next, take a Bolt Plate (O) and insert it into the large hole where the rubber plug was. Once the bolt plate sits in the hole with the threaded end stick out, use a Plastic Retainer (Q) to help the Bolt Plate (O) stay in place.



4

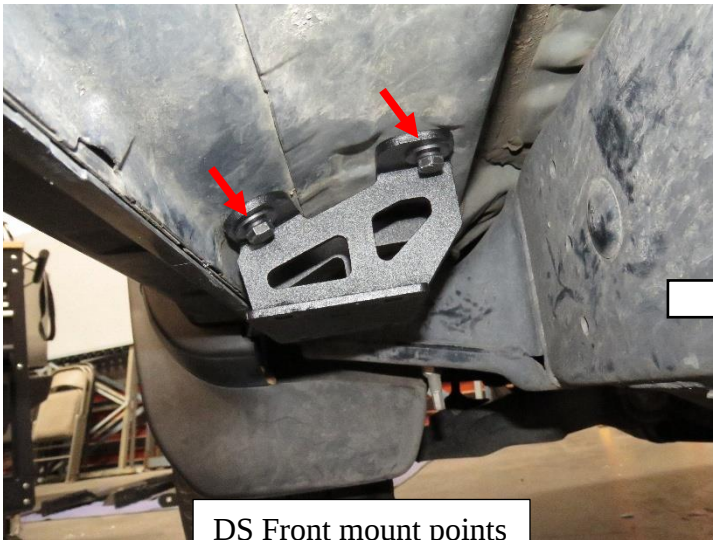
Locate Driver Side rear mounting points on the rocker panel. Remove the OE bolts and appropriate black sticker before inserting the bolt plate (O).



5

10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

Next, line up front mounting bracket slots to the threaded inserts and place Driver Side/Left Front Bracket Assembly (A) onto rocker panel. Then fasten Hex Bolts (H), Lock Washers (I), Hex Nut (P), and Flat washers (G). Do not tighten all the way yet. Use the smaller Flat Washers only as indicated below.



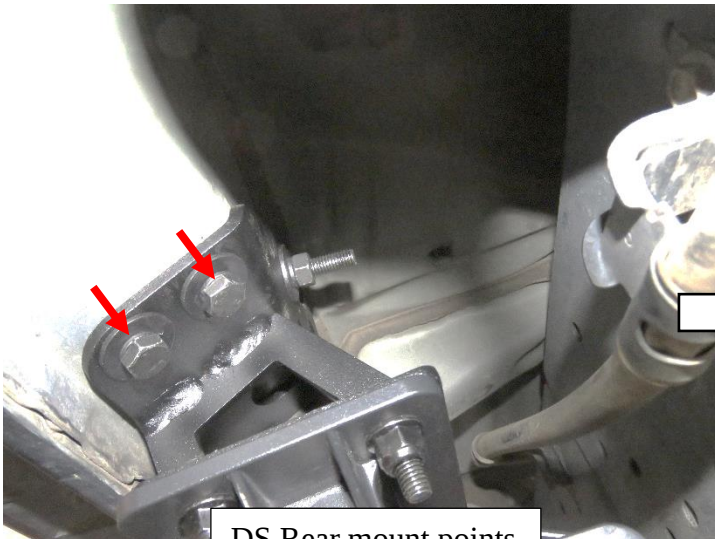
DS Front mount points



Fasten hardware on bolt plate.

6

Locate rear mounting points. Next, line up rear mounting bracket slots to the threaded inserts and place Driver Side/Left Rear Bracket Assembly (B) onto rocker panel. Then fasten Hex Bolts (H), Lock Washers (I), Hex Nut (P), and Flat washers (G). Do not tighten all the way yet.



DS Rear mount points



Fasten hardware on bolt plate

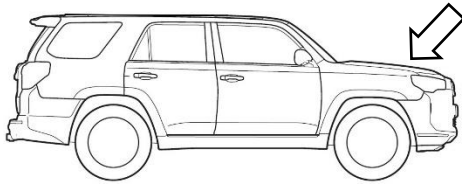
7

Repeat steps 2 – 6 for the Passenger Side.

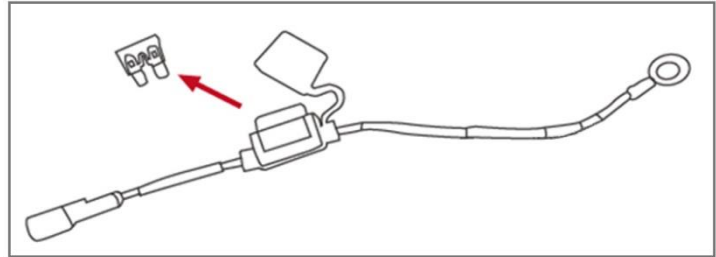
8

10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

Start from the engine compartment by opening the front hood of the vehicle. Locate the Battery and its terminals (positive/negative). Remove the 25A fuse from the fuse box that comes with the main harness (J).



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



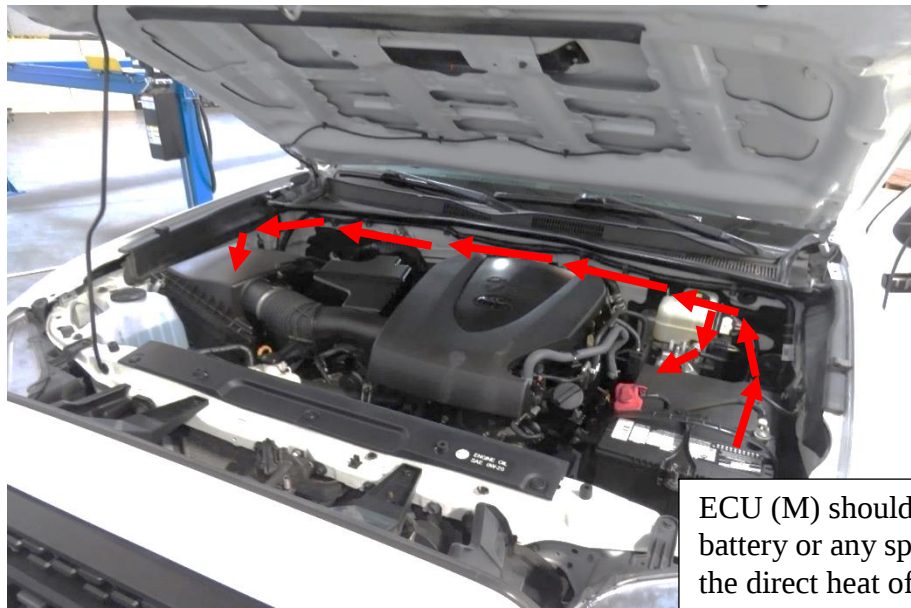
Open fuse holder cap and remove fuse

9

Connect the positive power lead on the main harness (J) 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 (M) to the main harness. Connect the Long LED Y-Harness (K1) to the Driver-side branch of the main harness. Connect the Short LED Y-Harness (K2) to the Passenger-side branch of the main harness.

10

Route the main harness (J) around the battery, up along the rear of the engine compartment. The longer Driver-side branch of the main harness must route down the backside, against the fire wall, and down past the steering column towards the vehicle frame. **Be sure to avoid contact with the steering column.**

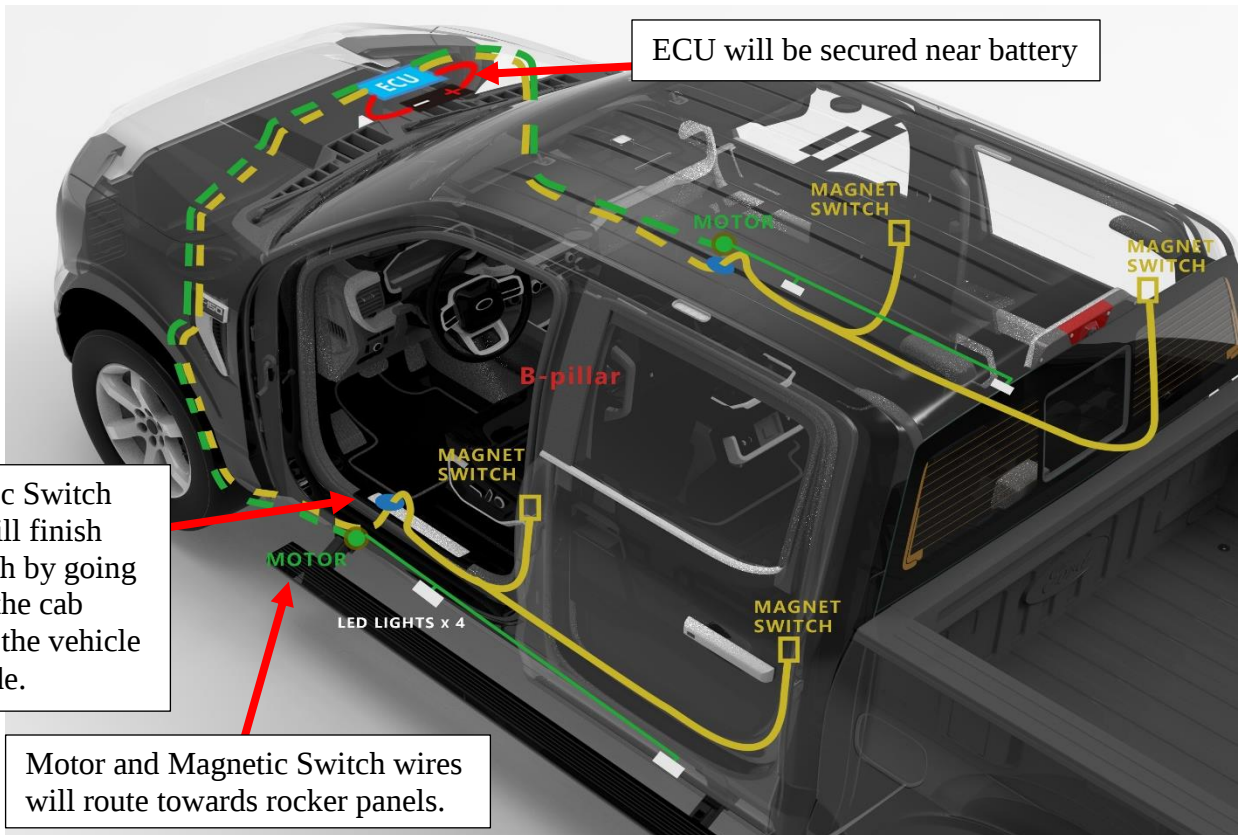


ECU (M) should be secured near battery or any space away from the direct heat of the engine.

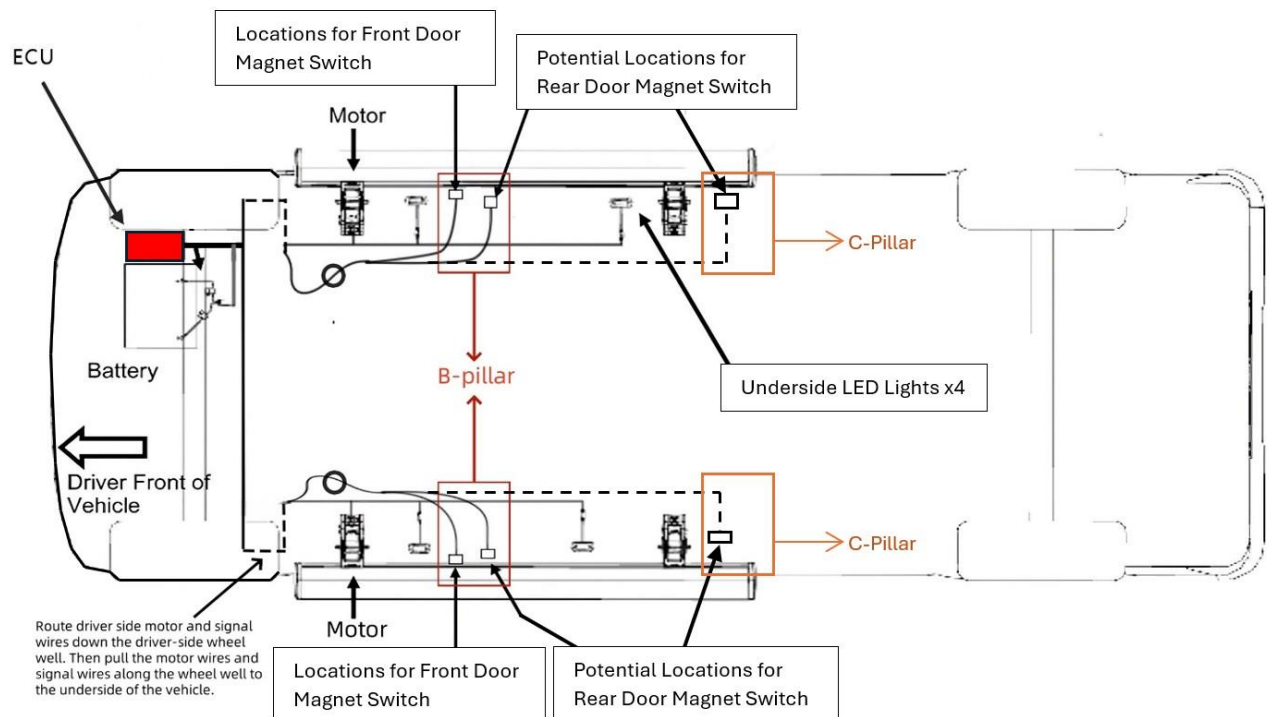
Route the shorter (marked "Passenger-side") leg of the harness down the Passenger-side wheel well. **Be sure to avoid contact with any moving or hot engine components.** Attach and secure the main harness (J) with supplied cable ties.

10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

In general, the routing of the wires will follow the basis of the graphic below. The legs of the Main Harness labeled "Passenger Side" will route towards the Passenger Side of the vehicle, and the legs labeled "Driver Side" will route towards the Driver Side of the vehicle.

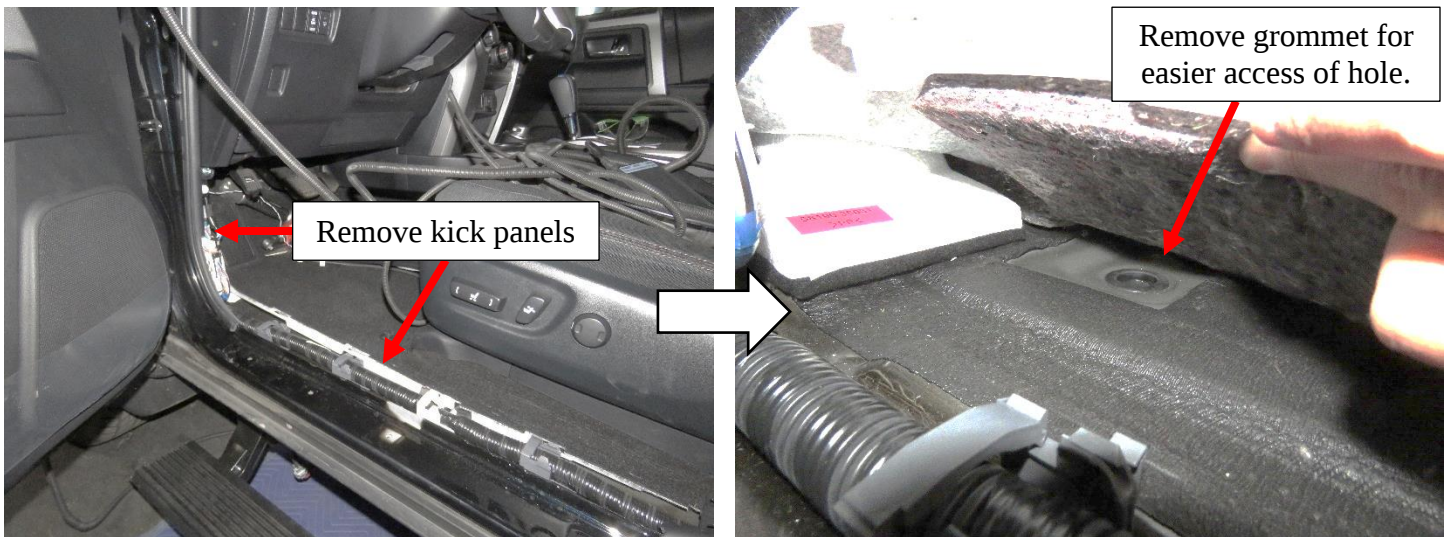


The main idea is to route the wires from the battery to the appropriate side, and from there, to route the signal wires for the magnetic switches up through the floor of the vehicle and into the cab. Use the general diagram below as reference while routing the wires:

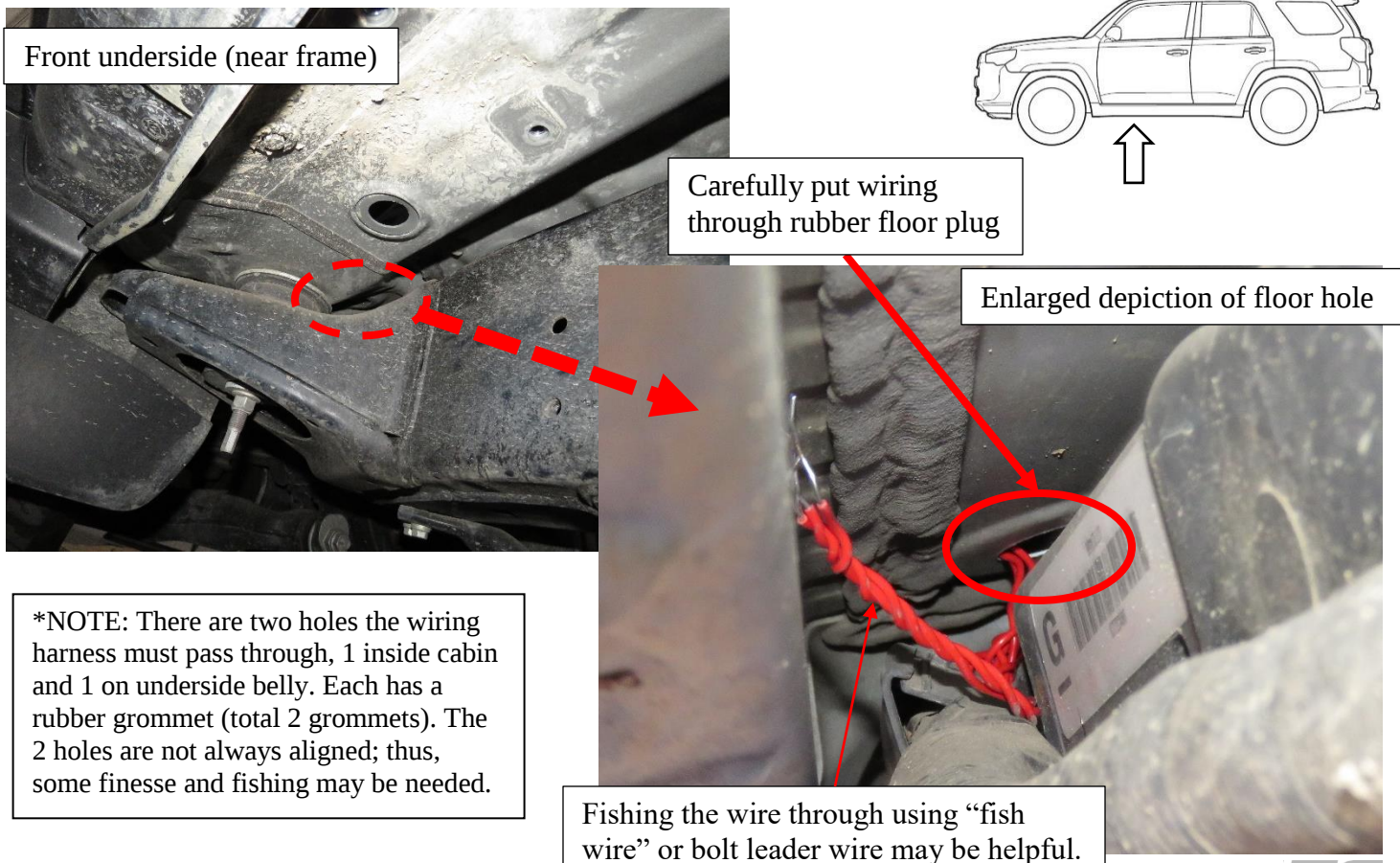


Be sure the harness avoids contact with the suspension and steering column.

Inside the vehicle cabin, remove the bottom door sill panel and then the driver-side front kick panel. Peel back the carpet to access the hole with a removeable grommet. This is the hole where the signal wires from the Main Harness (J) will need to feed through.



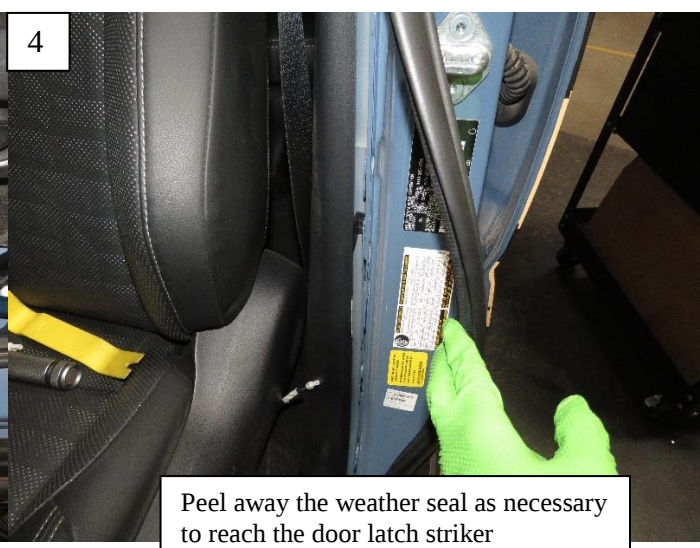
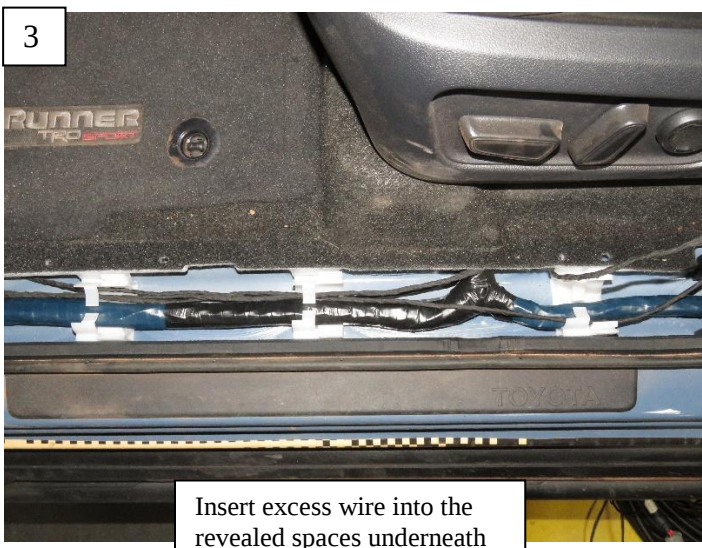
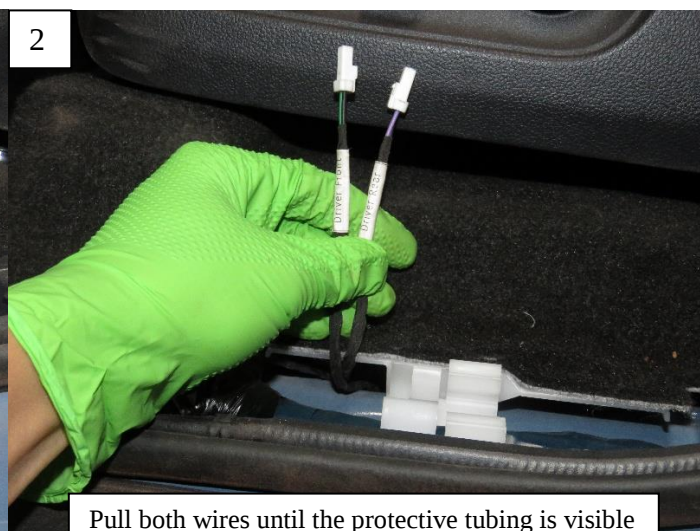
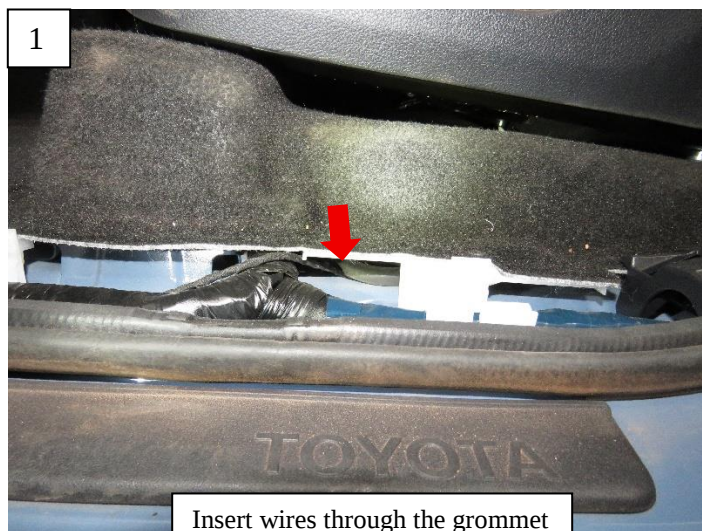
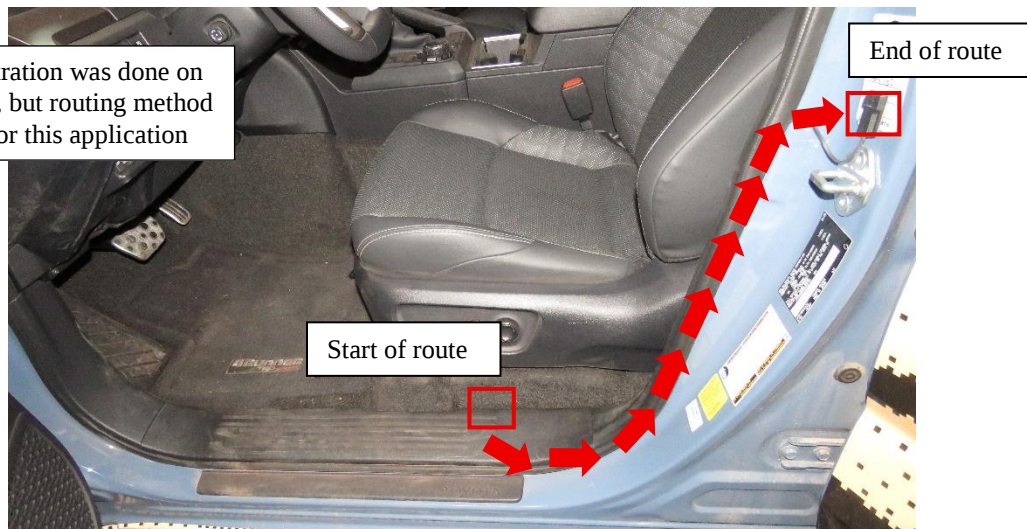
On the underside of the driver side, locate and remove the floor grommet in the floor panel above the frame. The grommet will be in a tight space above the frame and OE conduit. Poke a hole through the grommet and thread the two signal wires through and up into the vehicle cabin.



10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

Starting on the front door, take the shorter switch wire and route it up through the underplating and weather seal of the panels up to where the door latch striker is.

*NOTE: Demonstration was done on next gen 4Runner, but routing method will be the same for this application

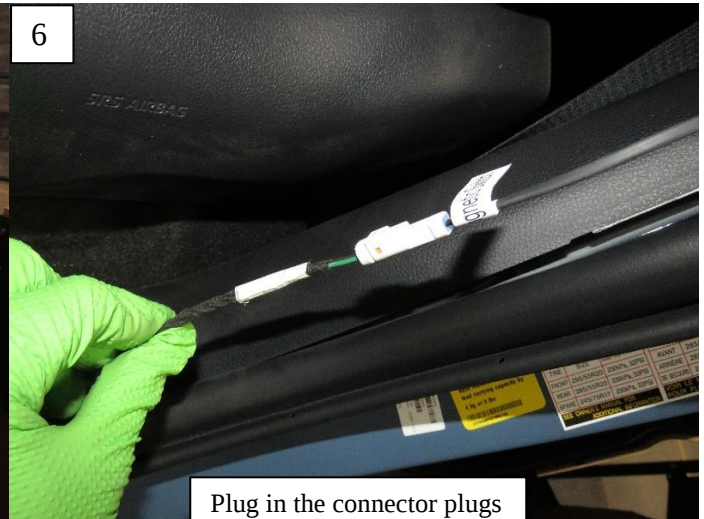


10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

After routing the signal wire near the striker, attach the magnetic switch to the B-pillar just above or below the striker. Be sure to clean the area using alcohol wipes and a clean cloth to ensure maximum adhesion to the surface. Then connect the signal wire plug to the magnetic switch plug.



Prep area and stick on the magnetic switch



Plug in the connector plugs



Place wires behind the plastic B-pillar cover

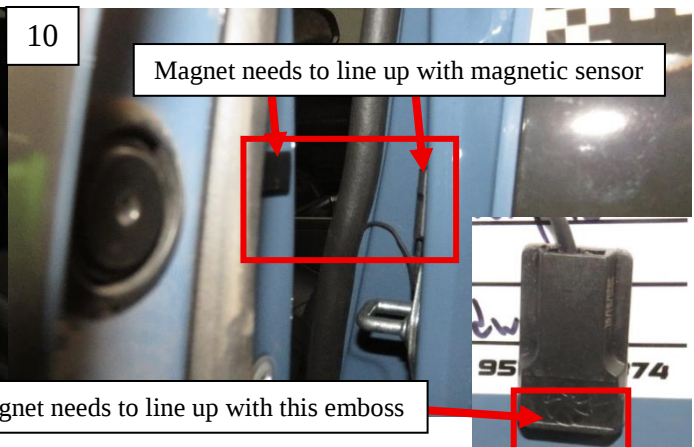


Place the weather seal back on over the wire

Then, take a magnet and place a provided 3M adhesive patch on one side. Take the newly prepped magnet and line it up with the magnetic switch on the door side. When closing the door, the magnet needs to align with the rectangular emboss of the magnetic switch to properly activate. Attach this magnet to the corresponding position.



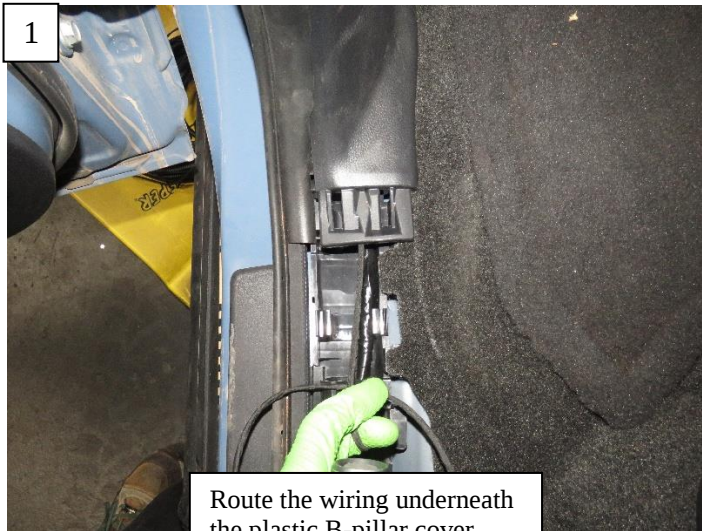
Attach magnet near latch slot



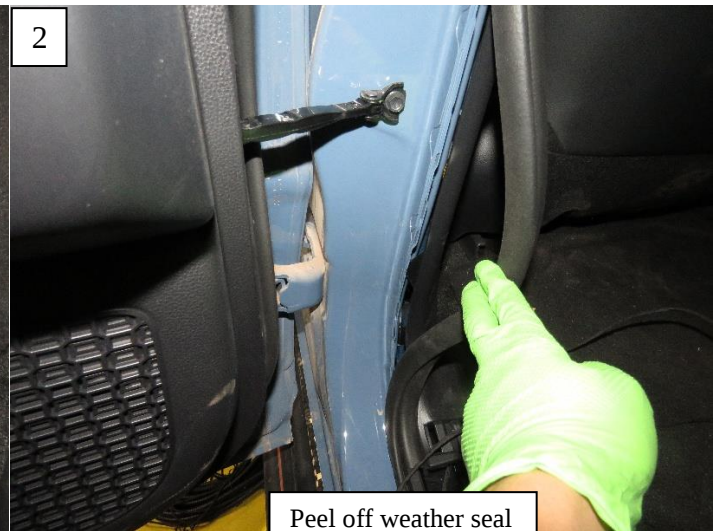
Magnet needs to line up with magnetic sensor

Magnet needs to line up with this emboss

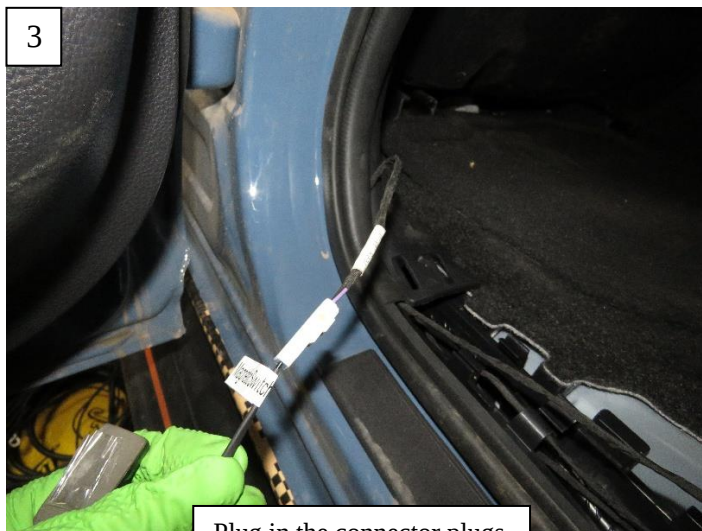
Ending on the rear door, take the longer switch wire and route it up through the underplating and weather seal of the panels up to where the door hinge is located.



Route the wiring underneath the plastic B-pillar cover



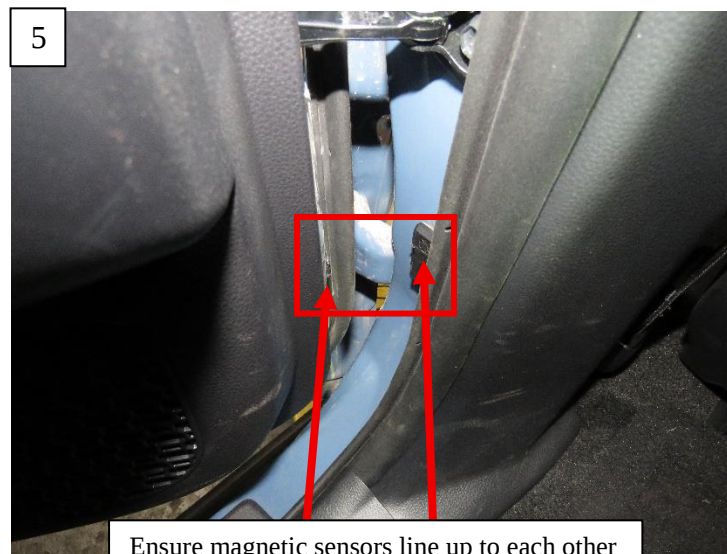
Peel off weather seal



Plug in the connector plugs



Prep area and stick on the magnetic switch, place weather seal back



Ensure magnetic sensors line up to each other

10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

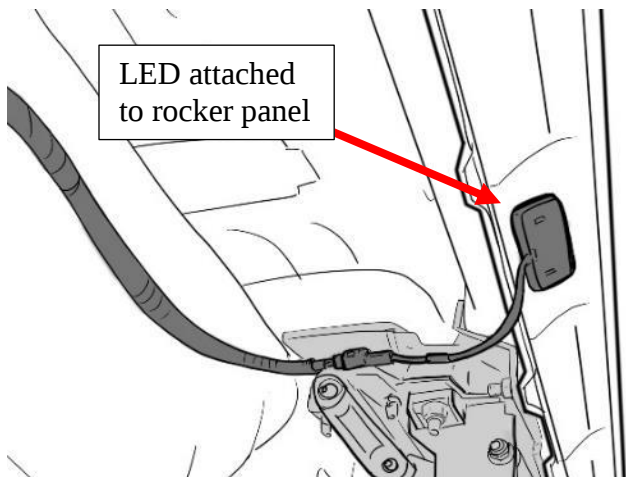
Attach the main harness (J) to the LED Y-Harness (K). Then attach the LED Y-Harness (K) to the motor on the Driver Side. Repeat for Passenger Side. The shorter LED Y-Harness should connect to the motor that is on the same side as the ECU.

Driver side



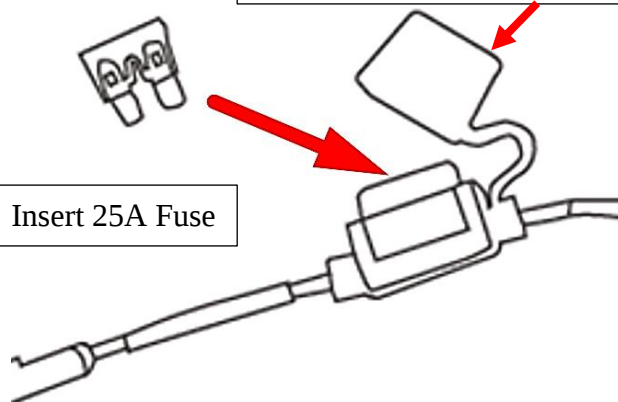
Plug in LED lights (N) into LED Y-Harness (K) and attach them to the bottom of the rocker panel. Use provided 3M double sided adhesive tape on back of LED light (N). Replace Fuse into Fuse Box.

LED attached to rocker panel



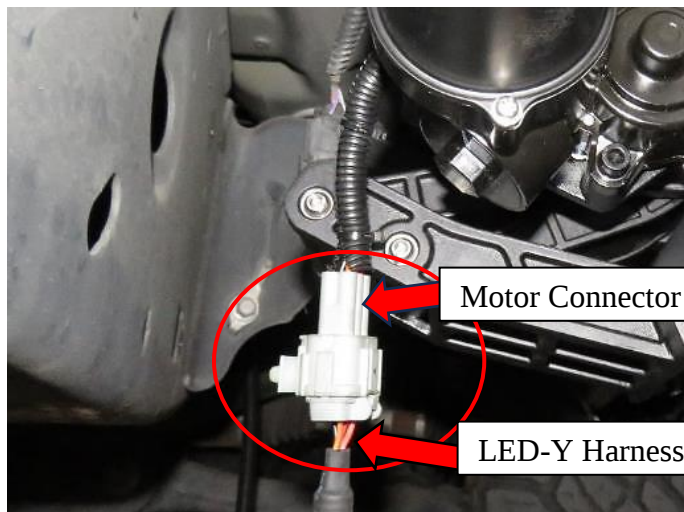
Close lid after replacing Fuse

Insert 25A Fuse



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 (J) via the LED-Y harnesses (K).

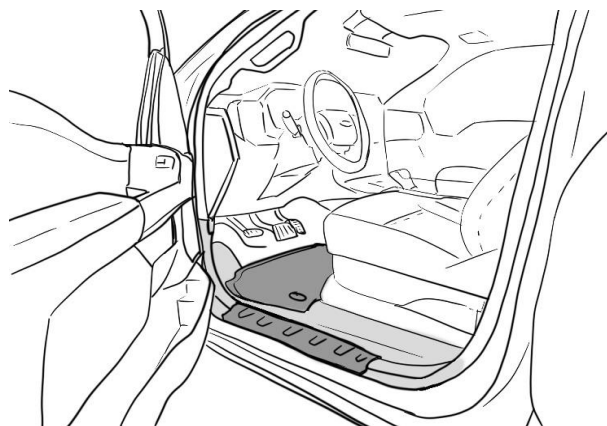
*NOTE: The linkage arms on the front bracket assemblies will not move unless both motors are connected.



Seal the rubber boot with RTV Silicone Sealant if needed.

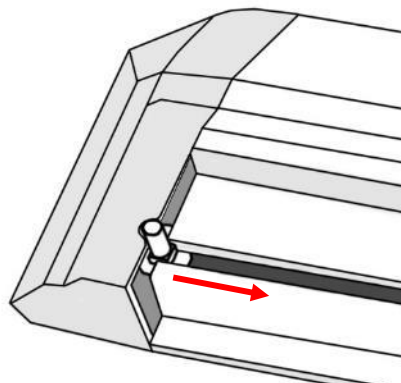
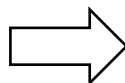
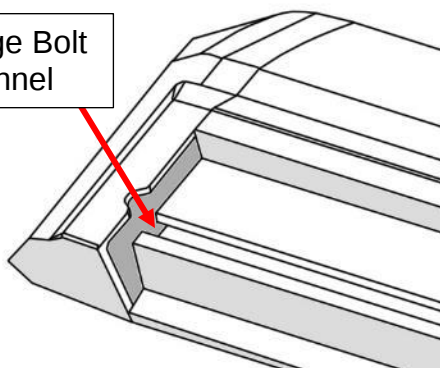
Hide wires and reattach the kick panel with the carpet fully unfurled in its original position. Reattach the door sill panels and check to make sure there are no obstructions or potential snag points around the brake pedal area.

Be sure to reattach plastic kick panel nut.

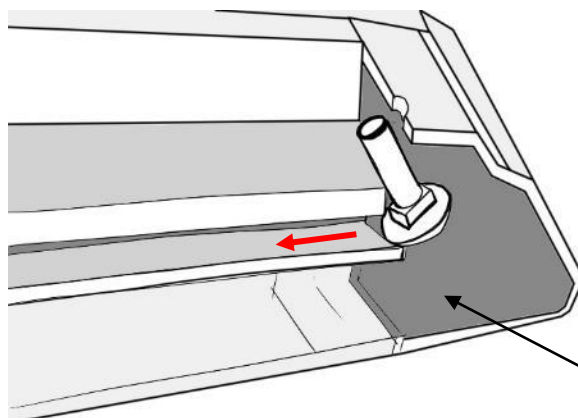


Prepare the power step boards. Locate the end of the boards and slide the M6 Carriage Bolts (E) into the channel on the underside of the board. Insert a total of 8 carriage bolts (E) for each board.

Carriage Bolt Channel



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

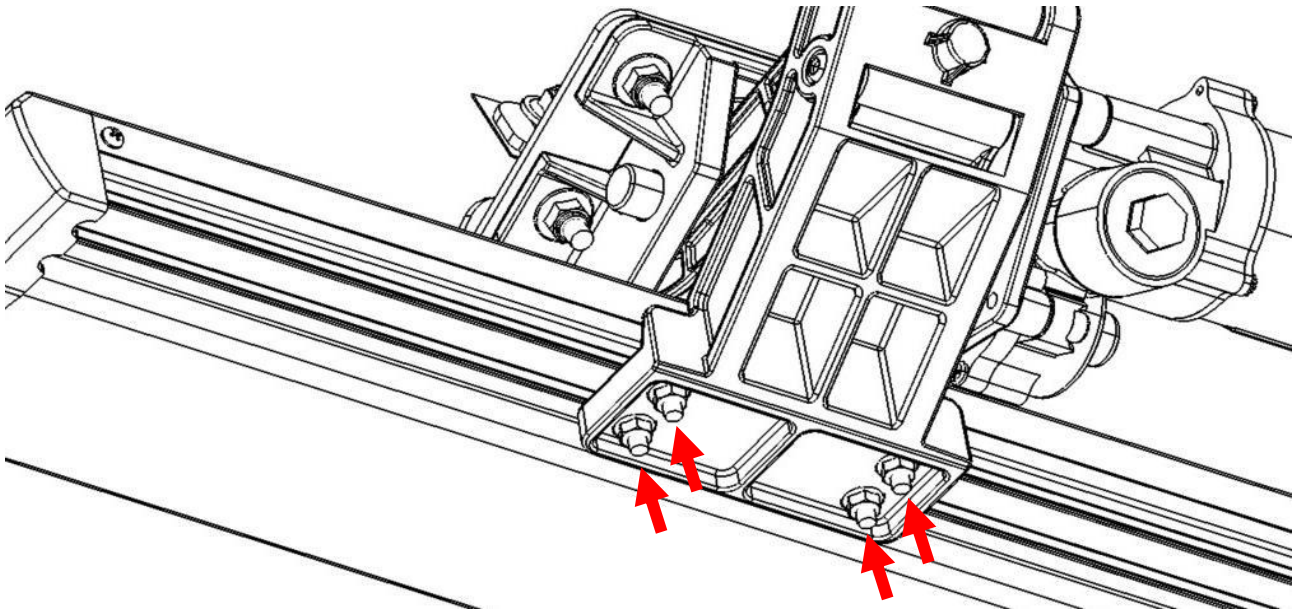


Section view of underside channel

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 open. Proceed to open and close doors several times to deploy and retract the steps to settle them into their natural alignment. After cycling the step, tighten all hardware on the board and brackets.

Some further adjustment may be required for desired step position. Repeat for passenger side.

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.

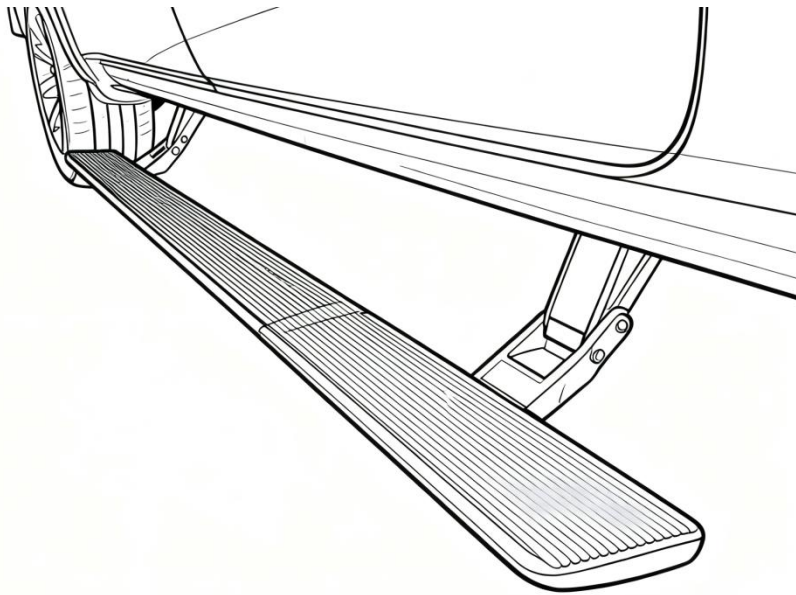
10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

- d) With the step in the deployed position, gradually tighten 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.

- 23** 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 magnetic switches and wiring connections

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 properly connected.
- Check and ensure that the magnetic switches are lined up correctly and that they directly face each other when the door is closed.
- Check and ensure that the magnetic switches fully adhere to a clean surface.
- Conceal the magnetic switch wiring as best as possible underneath the door sill and along the weather seal.
- 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.

10-24 4RUNNER (Excl. 10-24 Limited & 19-22 Nightshade Edition or models with Lower Rocker Panel Extensions)

- 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.

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