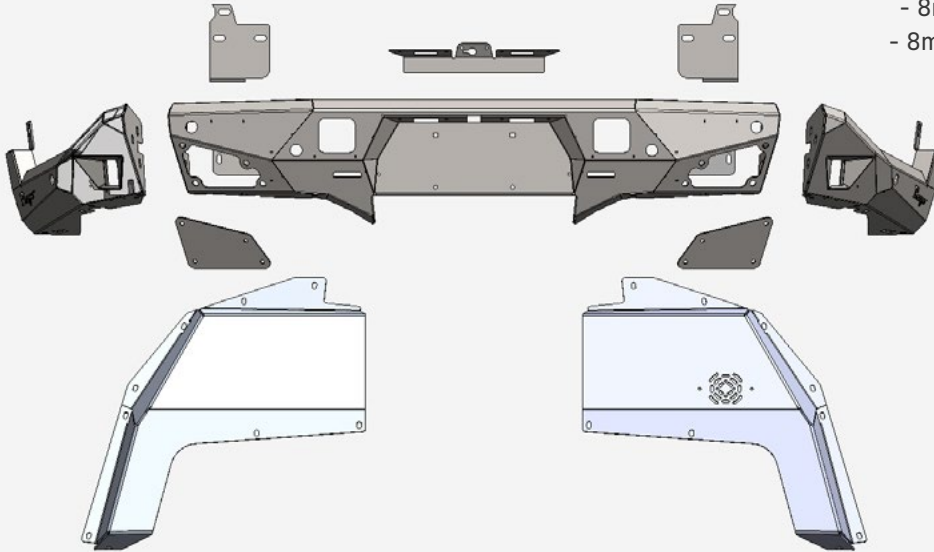


RAGO REAR BUMPER

2022-UP/RIVIAN R1T

R9402312801NA



TOOLS REQUIRED

- 8mm, 10mm, 15mm, 17mm, 3/8, 7/16, 9/16 sockets
- 8mm, 10mm, 15mm, 17mm, 3/8, 7/16, 9/16 wrenches
- 3/32, 5/32, 7/32 Allen
- T20, T27 Torx
- Heat Gun
- Panel Trim Tool
- Pry Tool (Fastener removal tool)
- Razor Blade
- Epoxy



TIME REQUIRED

- Approximately 8 Hours (This installation guide covers the installation of the product only. It does not include instructions and time for wiring)



SKILL LEVEL



SKILLED

⚠ WARNINGS/CAUTIONS BEFORE STARTING INSTALLATION ⚠

-BEFORE YOU INSTALL THIS KIT-

Read and understand all instructions, warnings, cautions, & notes contained in this installation instruction guide. Consult your vehicle owner's manual for proper disconnection of electrical and lifting of vehicle if required for installation of this product.

This install may require some technical skills and knowledge of basic mechanical work. If you do not feel that you are capable of performing this install please take this product to a trained professional.

After reading this guide please contact us with any questions or concerns before installing product.

Customer Service: 830-896-7571

Rago Fabrication is **not** responsible for any bodily injury or harm to you or your vehicle as a result of an improper install.

Proper installation of this kit required knowledge of the factory recommended procedures for removal and installation of original equipment components.

We recommend that the factory shop manual and any special tools needed to service your vehicle be on hand during the installation. Installation of this kit without proper knowledge of the factory recommended procedures may affect the

performance of these components and the safety of the vehicle.

Inspect all contents of this package to make sure product is not damaged and all installation hardware has been included. If parts are missing from kit, please be prepared to provide the following information:

1. Name of purchase location
2. Bar Code on side of box
3. Date above bar code
4. Date inside box cover

***ALWAYS WEAR EYE PROTECTION
WHEN OPERATING POWER TOOLS***

HARDWARE

A.



#8-32 X 5/8 BUTTON HEAD BOLT

QTY: 2

A1.



#8 FLAT WASHER

QTY: 2

A2.



#8-32 NYLON LOCK NUT

QTY: 2

B.



#10-24 X 3/4" BUTTON HEAD BOLT

QTY: 6

B1.



#10-24 NYLON LOCK NUT

QTY: 6

C.



M6-1.0 X 50MM" BUTTON HEAD BOLT

QTY: 4

C1.



M6 FLAT WASHER

QTY: 20

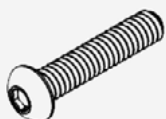
D.



1/4-20 X 1/2" BUTTON HEAD BOLT

QTY: 4

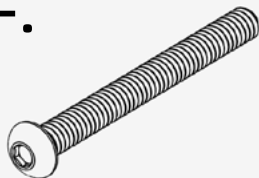
E.



1/4-20 X 1" BUTTON HEAD BOLT

QTY: 2

F.



1/4-20 X 3" BUTTON HEAD BOLT

QTY: 2

F1.



1/4-20" NYLON LOCK JAM NUT

QTY: 8

F2.



1/4" FLAT WASHER

QTY: 6

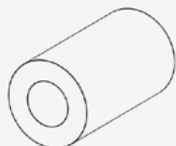
F3.



1/4" SELF RETAINING WASHER

QTY: 4

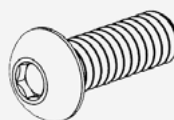
G.



1/4 X 1/2" SPACER

QTY: 4

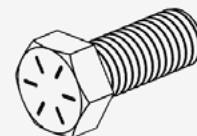
H.



3/8-16 X 1" BUTTON HEAD BOLT

QTY: 22

I.



3/8-16 X 1 1/4" HEX HEAD BOLT

QTY: 12



HARDWARE

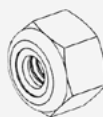
I1.



3/8" FLAT WASHER

QTY: 18

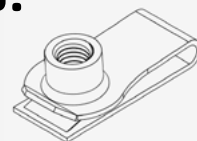
I2.



3/8-16" NYLON LOCK NUT

QTY: 6

I3.



3/8-16" U-NUT

QTY: 28

J.



1/4" PLASTIC SNAP IN NUTS

QTY: 2

J1.



#12-11 X 3/4 SCREW

QTY: 2



PARTS

K.



SPL0783

QTY: 2

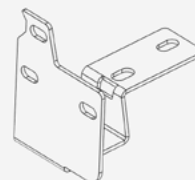
L.



SPL0899

QTY: 1

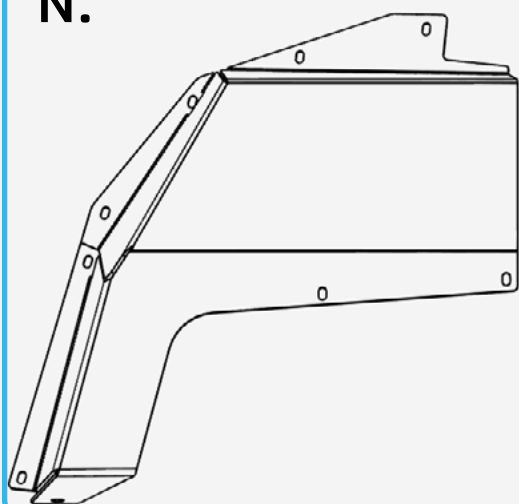
M.



SPL0788, SPL0788-M

QTY: 1

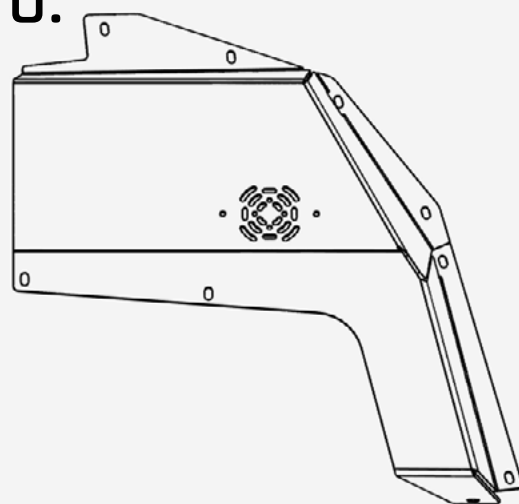
N.



APL0569

QTY: 1

O.



APL0570

QTY: 1

□ STEP 1

Locate the factory hitch cover and unthread the (2) flathead screws indicated below to release the panel.



□ STEP 2

Using a (T27 Torx), locate and remove the (2) screws indicated below.



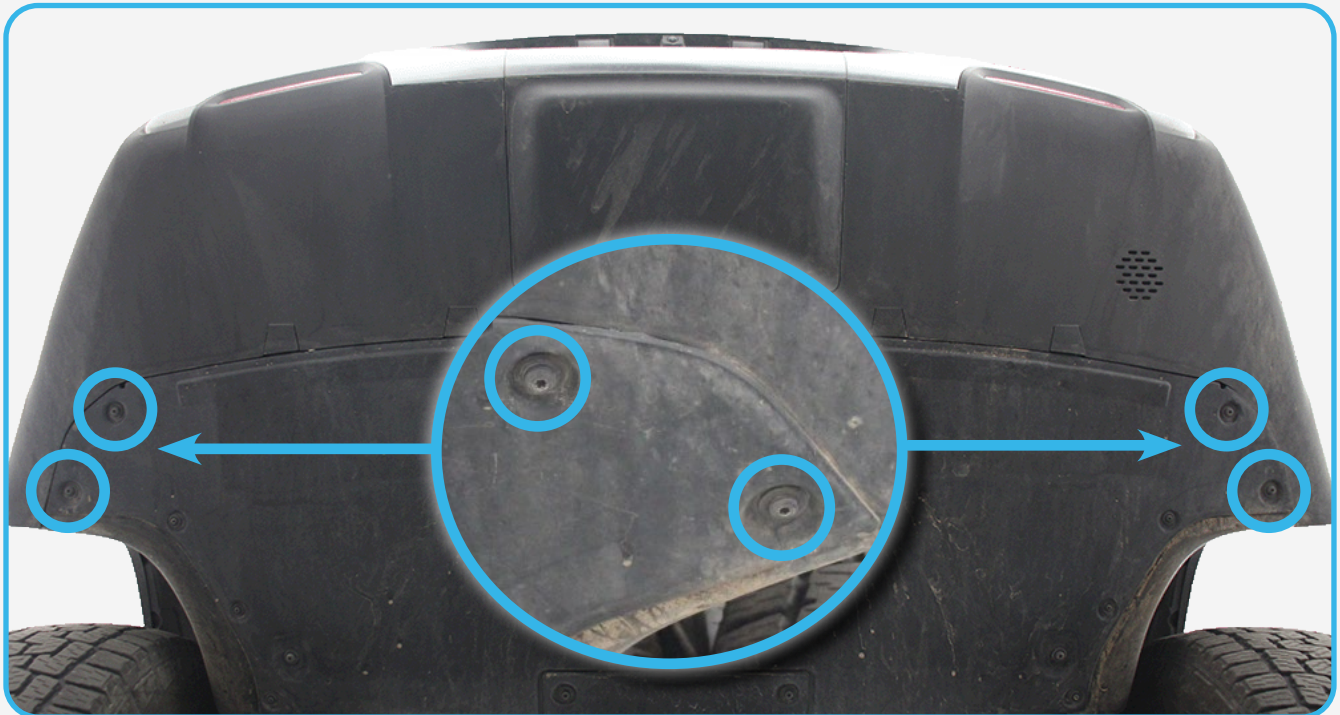
□ STEP 3

Using a pry tool and a (T27 Torx), hinge open the (5) covers indicated below and remove the (5) concealed screws.



□ STEP 4

Using a (T27 Torx), locate and remove the (4) screws indicated below.



□ STEP 5

Starting from the bottom rear corner of the fender trim, locate each consecutive retainer and pull firmly to release the trim.

(Work slowly and avoid using excessive force to minimize the risk of breaking retainers. If retainers remain in the fender, use a panel clip removal tool to pull them and reinstall into the fender trim)



☐ STEP 6

With the fender trim removed, locate the (1 per side) bolt indicated below and use a (10mm socket) to remove.

(Repeat steps for other side)



□ STEP 7

Starting from the fender well working towards the rear, locate each consecutive retension point and pull firmly to release the rear bumper cover from the fender.

(Repeat for other side. Work slowly and avoid using excessive force to minimize the risk of breaking retainers)



□ STEP 8

Using a (panel trim tool) and working from one side to the other, locate each retention point under the tailgate and pry/pull firmly to release.

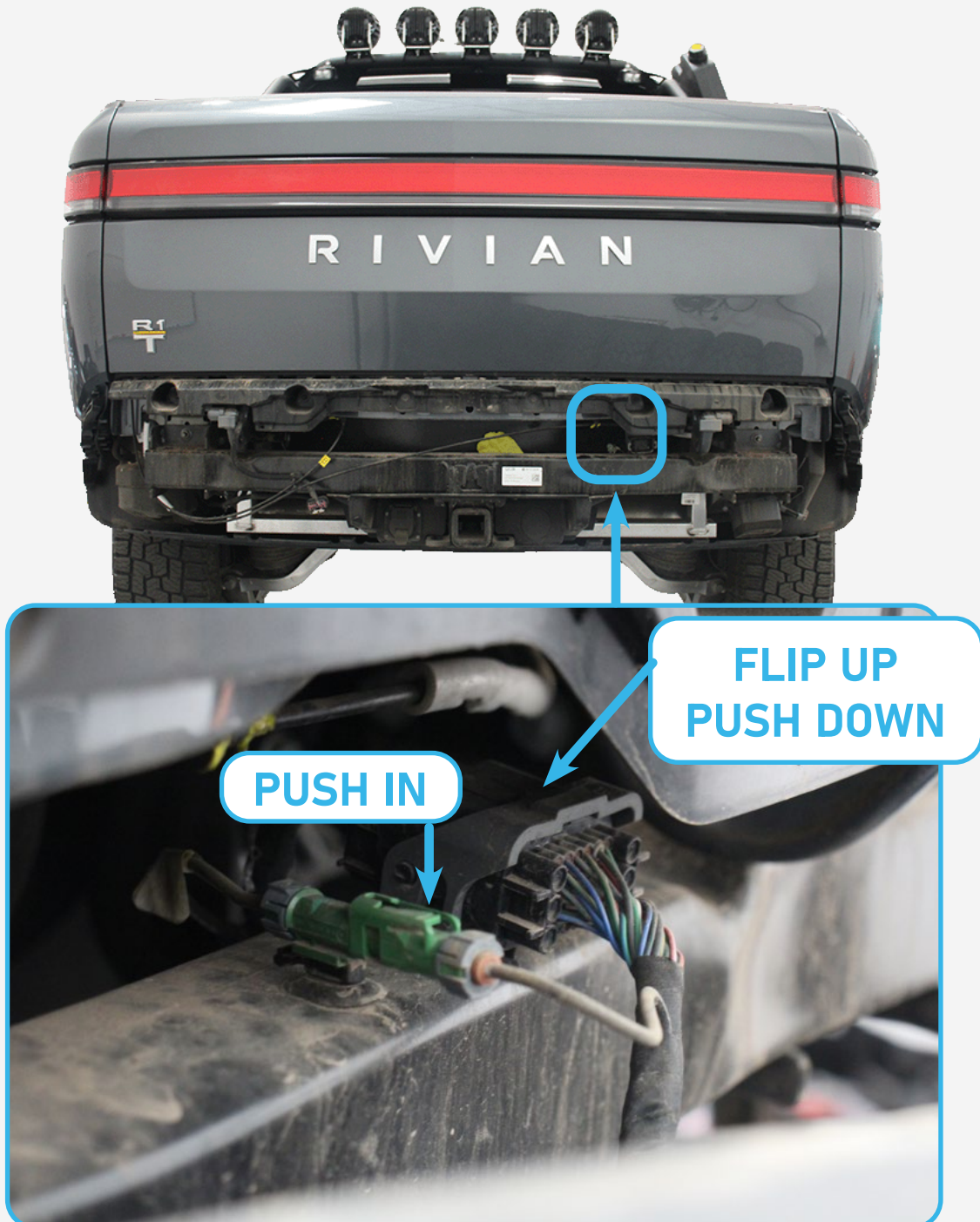
(Work slowly and avoid using excessive force to minimize the risk of breaking retainers)



□ STEP 9

With the bumper cover loose, locate the main bumper harness plug and backup camera plug indicated below. Depress the tabs and pull to disconnect.

(Do NOT pull from the wires)



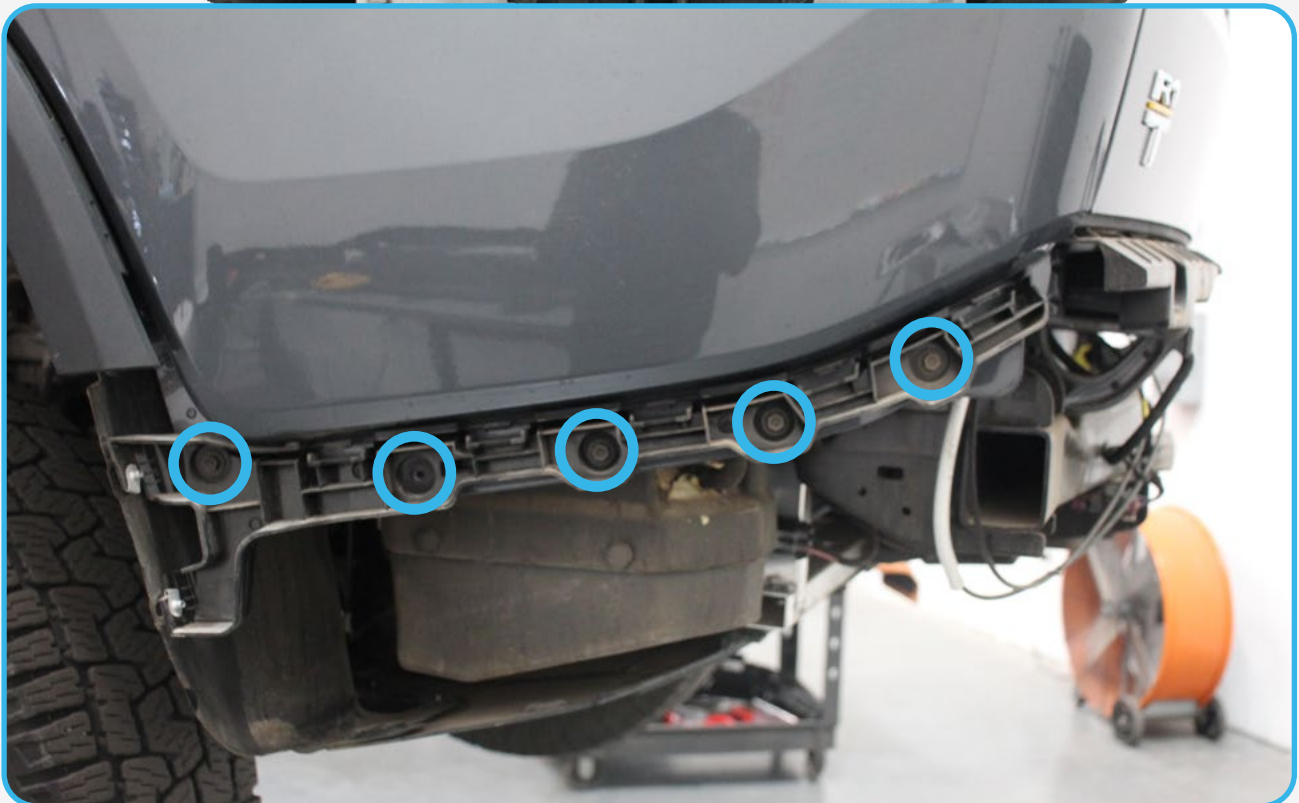
□ STEP 10

Using a (T27 Torx), locate and remove the (2 per side) bolts indicated below.
(Repeat for other side)



□ STEP 11

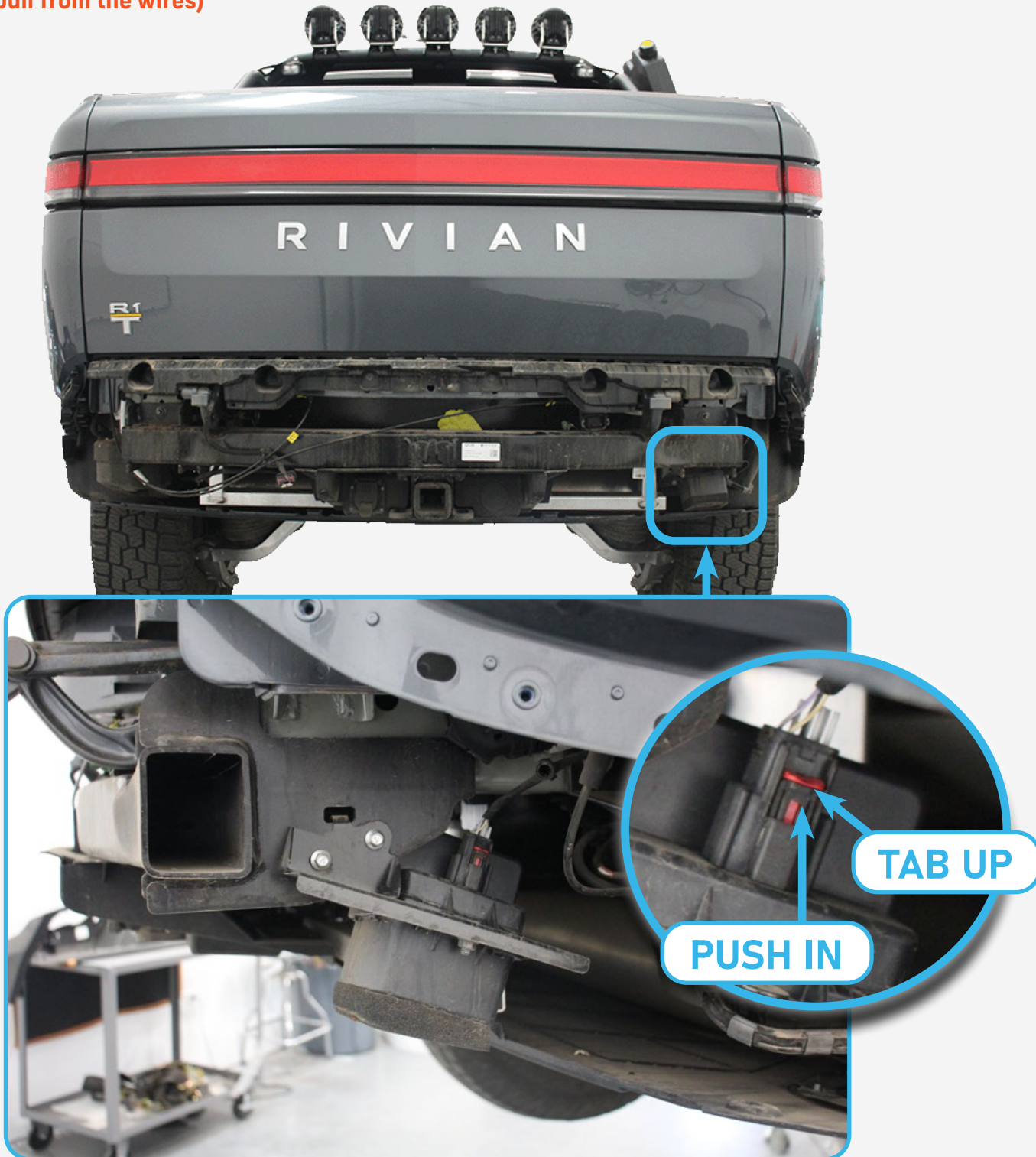
Using a (10mm socket), locate and remove the (5 per side) bolts indicated below.
(Repeat for other side)



□ STEP 12

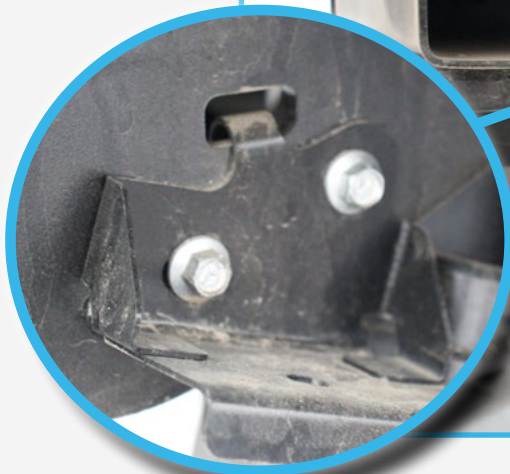
Locate the plug for the AVAS speaker on the passenger side. Slide out the red lock tab then depress the tab and pull connector to disconnect.

(Do NOT pull from the wires)



□ STEP 13

Using a (8mm socket), locate and remove the (2) speaker bolts indicated below.



□ STEP 14

Using a (T20 Torx) remove the (3) screws surrounding the BSM.

(Repeat on both sides. Handle with extreme caution these modules are very sensitive and can effect the functionality of your truck)



□ STEP 15

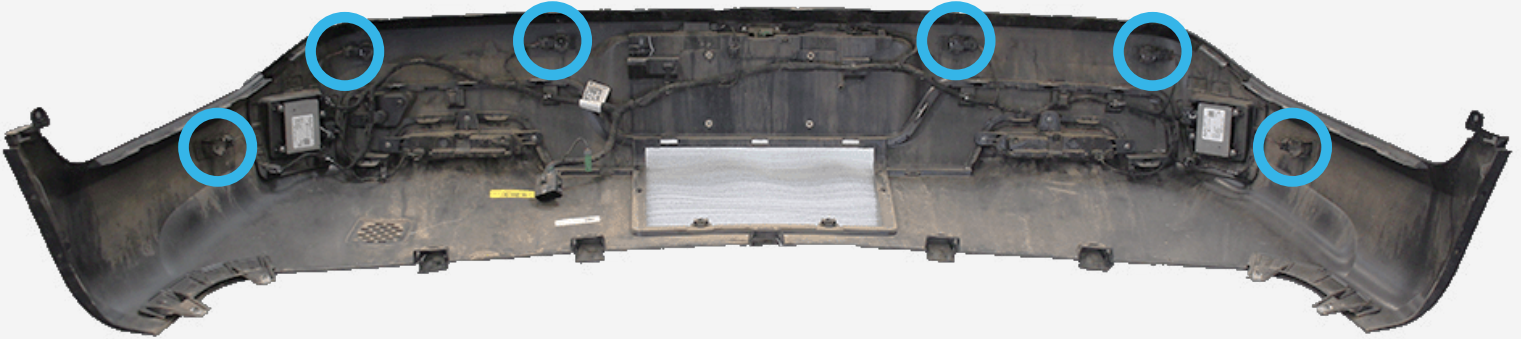
Locate the (6) parking sensors indicated below. Gently spread the top and bottom bezel tabs to release the parking sensor, then push the sensor from the face side of the bumper to remove.
(Be gentle when handling bezels. These will break if excessive force is used.)



□ STEP 16

With the parking sensors removed, slowly apply medium heat using a (heat gun) to the (6) parking sensor bezels and use a pry tool to remove.

(Be gentle when handling bezels. These will break if excessive force is used.)



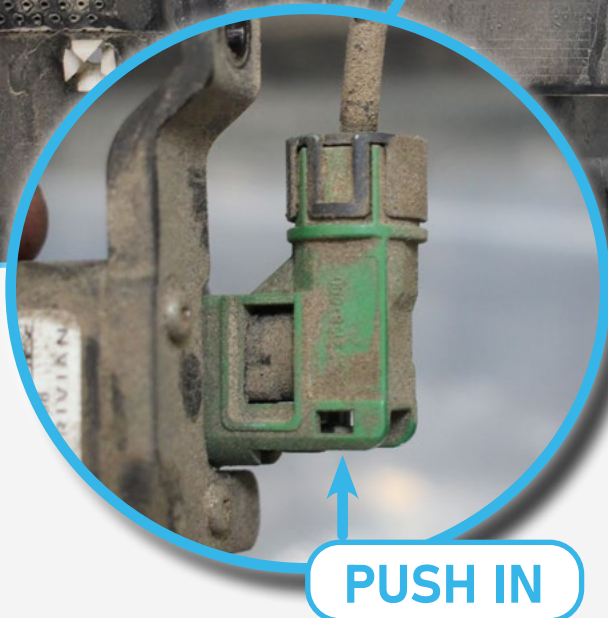
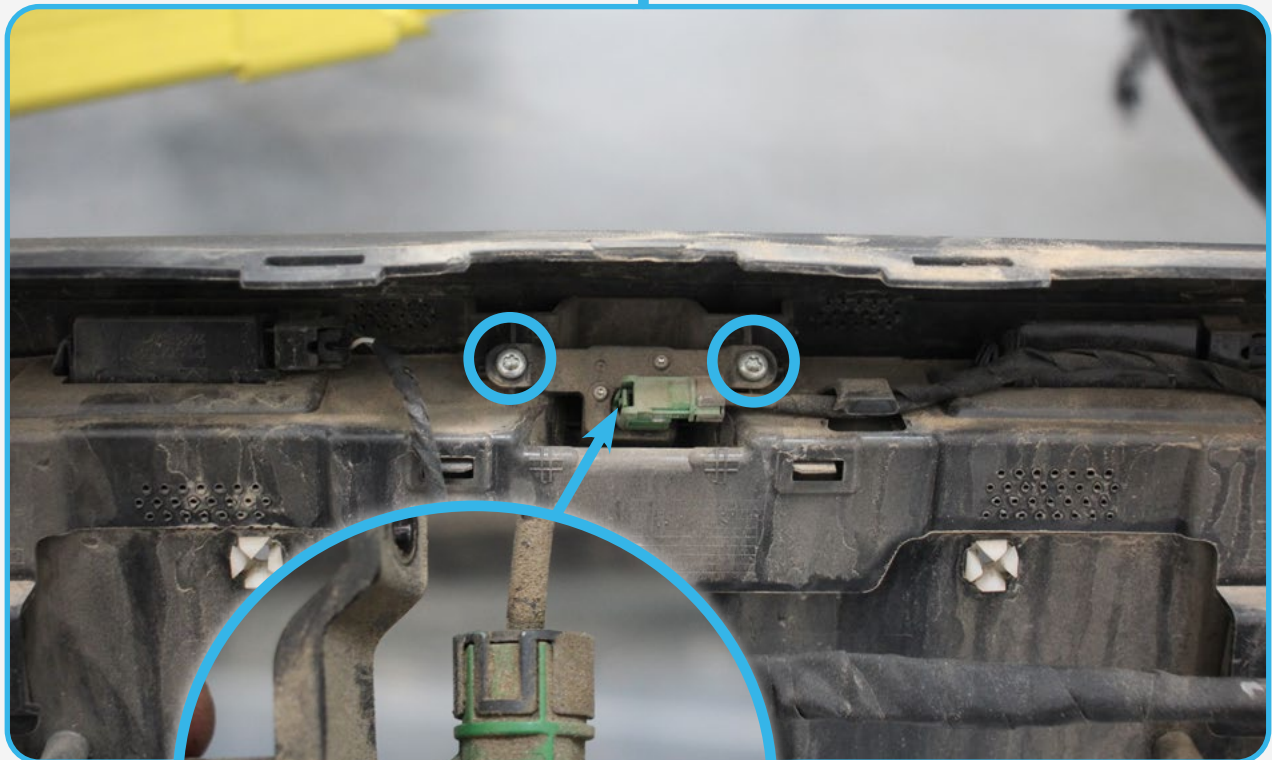
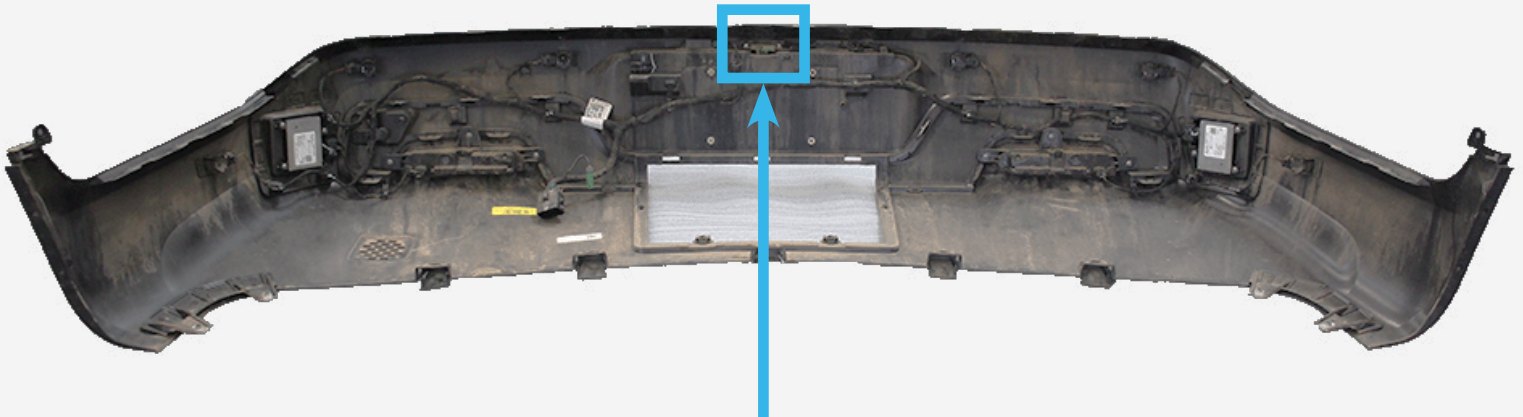
STEP 17

Using a (pry tool), remove the (13) wire harness retainers from the locations indicated below.
(Work slowly to avoid damaging retainers)



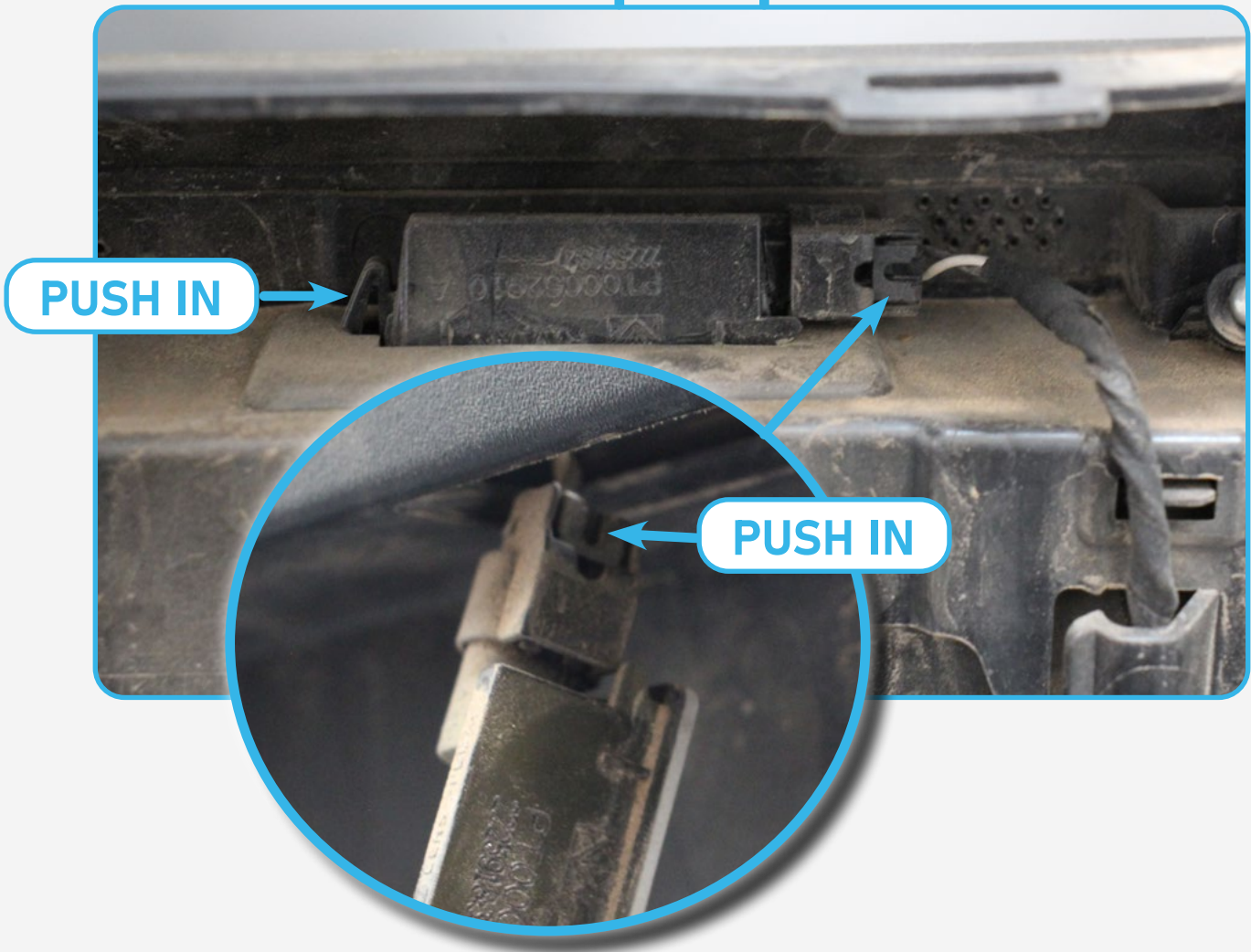
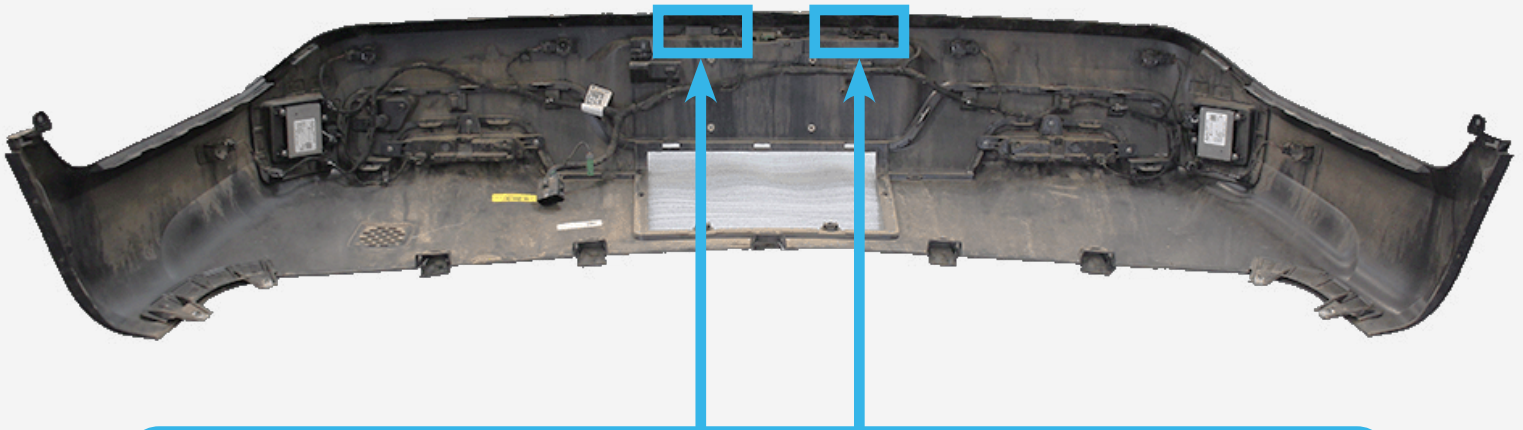
□ STEP 18

Locate the reverse camera and the two screws indicated below. Then use a (T20 Torx) to remove the camera from the rear bumper. Next, press the tab in on the plug in and pull to unplug it from the main wire harness. (Do NOT pull by the wires.)



□ STEP 19

Locate the (2) license plate lights indicated below. Then depress the tab and pull connector to disconnect the lights. Depress the tabs on the left hand side of the lights to remove them from the bumper. (Do NOT pull by the wires.)



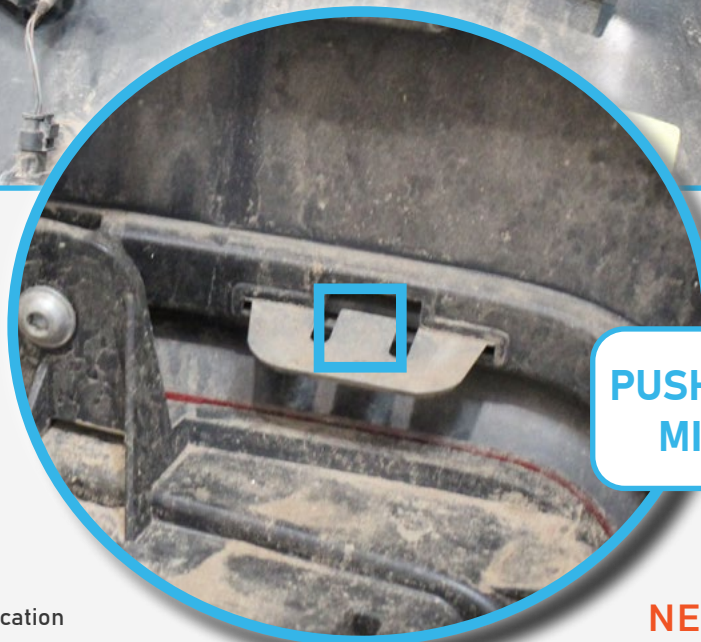
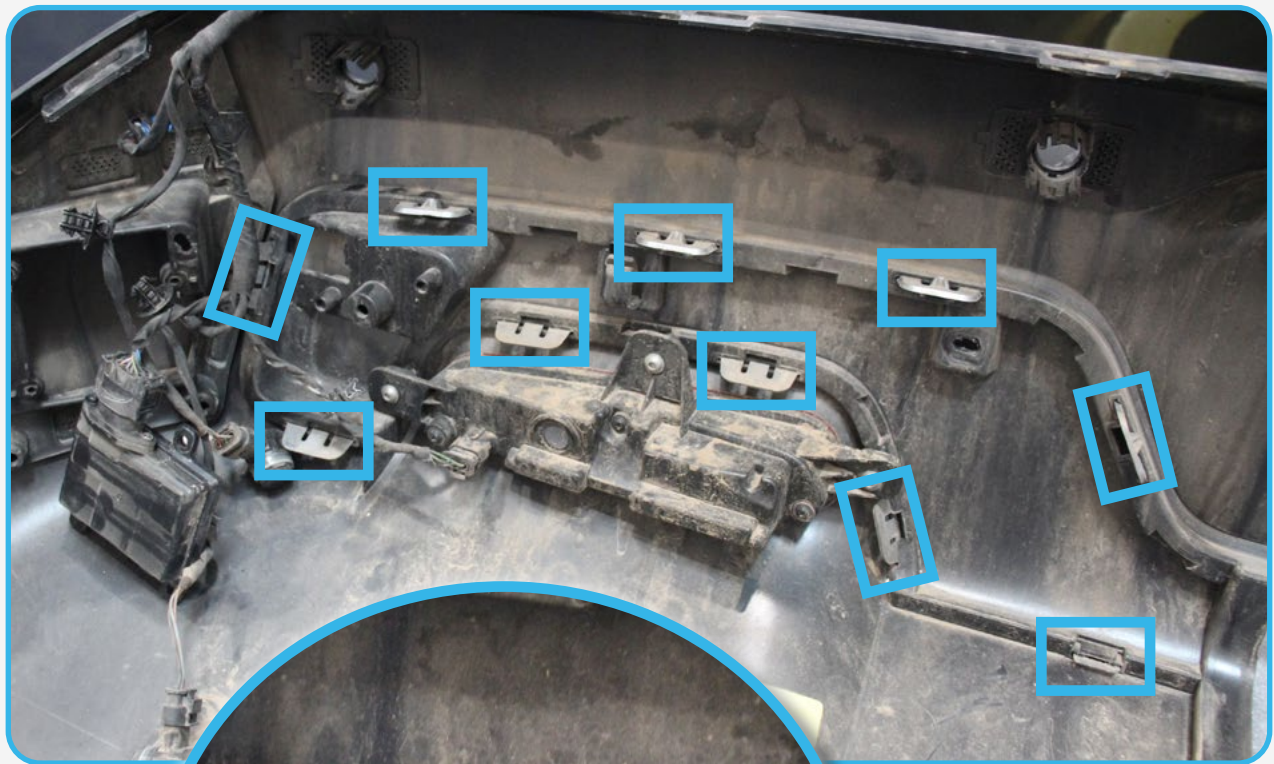
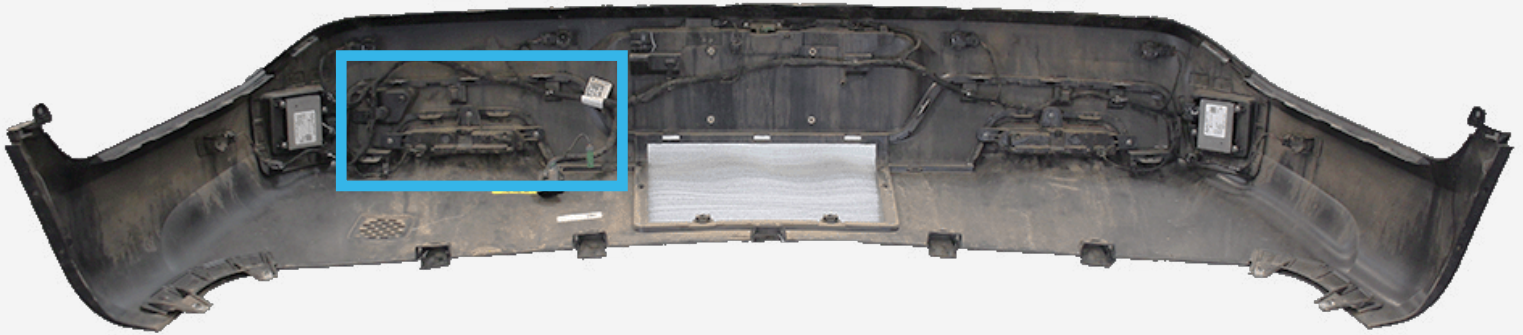
□ STEP 20

Locate the (2) reverse lights indicated below. Slide the tab up and depress the lock tab and pull connector to disconnect. Next, locate the (3) screws indicated below holding the reverse light and use a (T20 Torx) to remove the indicated screws below. (Do NOT pull by the wires. Repeat step on the other side.)



□ STEP 21

Locate the (10) plastic tabs indicated below. Then use a pry tool to depress the tabs pushing the tabs out towards the front of the bumper. *(Work slowly to minimize risk of breaking tabs)*

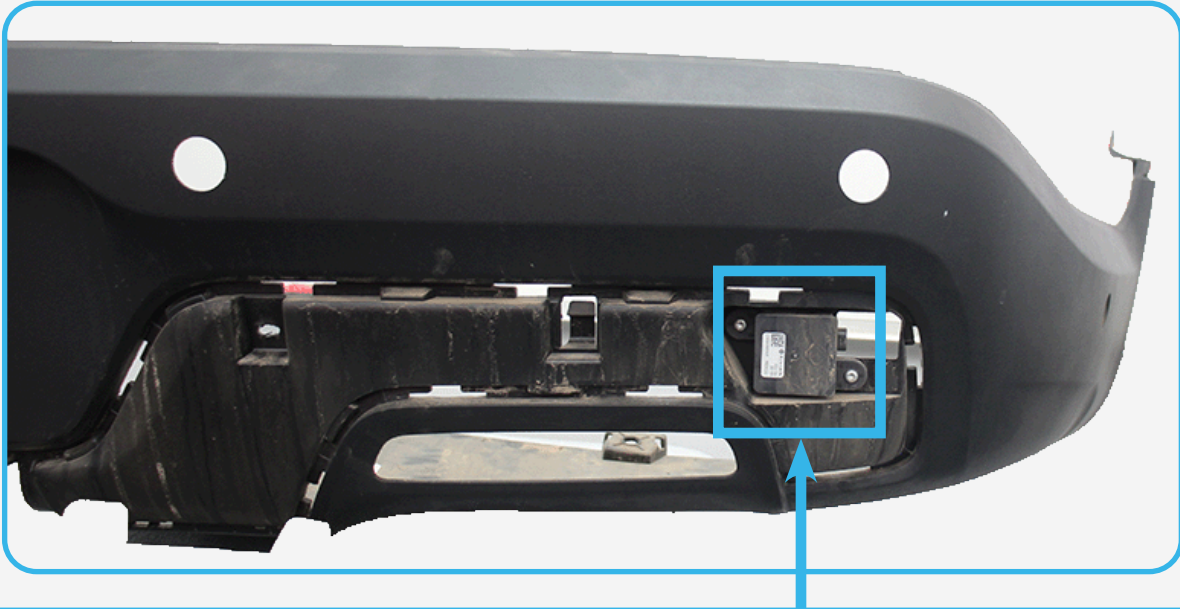


**PUSH TAB IN
MIDDLE**



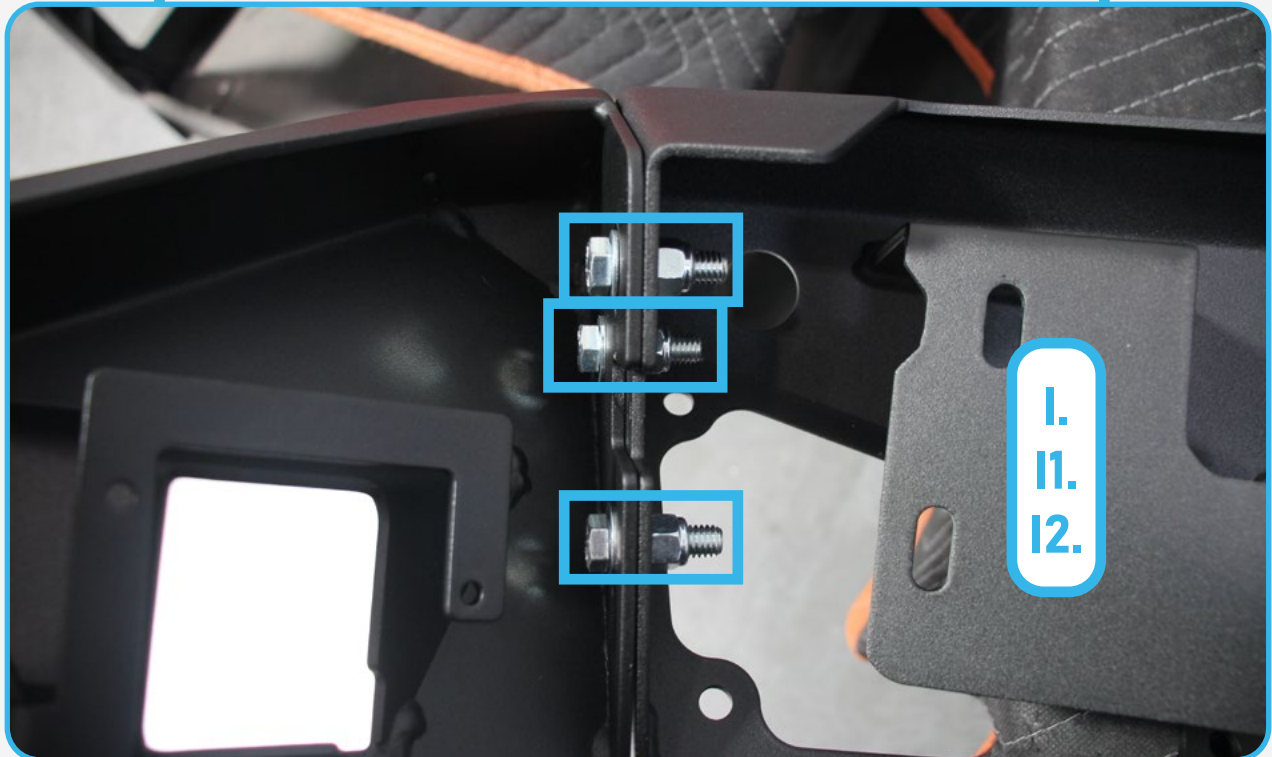
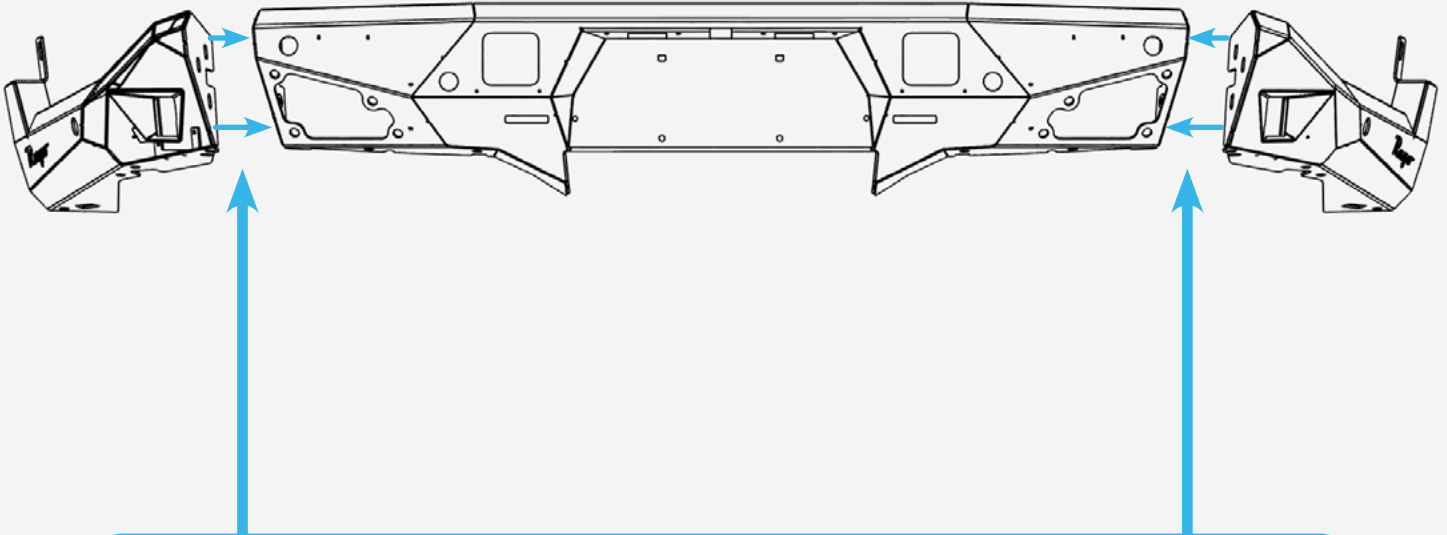
□ STEP 22

Locate the radio antenna amplifier module indicated below. Then use a (T20 Torx) to remove the (2) bolts holding the module in. (Use care when handling sensors. This is delicate equipment and will be reused.)



□ STEP 23

Install the side wings to the center with the provided (I, I1, I2) 3/8" hardware using a (9/16 socket) and a (9/16 wrench). (Ensure to line up the side wings flush with center for best fitment. Repeat on other side. There is some adjustment in the side wings if you are not happy with fitment when installed)

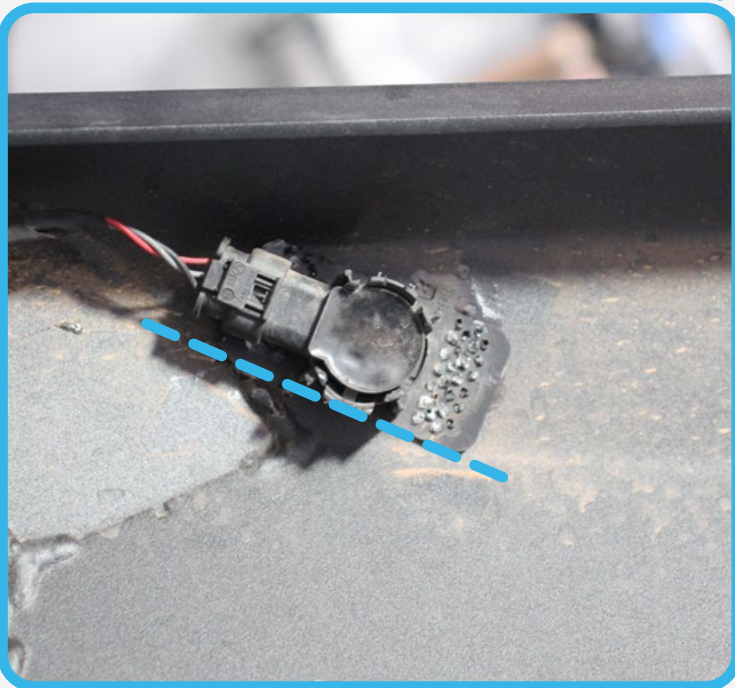


**STEPS 24-29 ARE CRUCIAL TO PROPER
SYSTEM FUNCTION PAY CLOSE ATTENTION
AND TAKE YOUR TIME**

□ STEP 24

Position the driver side outer sensor bezel (labeled ROR) with the arrows positioned in the up position ensure the upper edge of the sensor bezel sits level with the bend line on the inside of the bumper, use a suitable amount of (epoxy) to bond the corresponding sensor bezel into the bumper. Ensure the orientation indicated in the image shown below matches the position on your bumper.

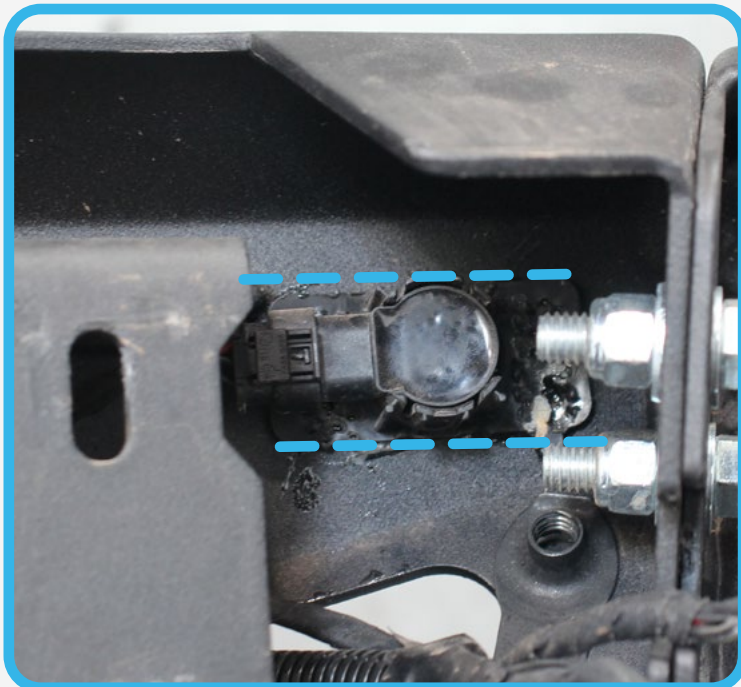
(Clean the surface for best bond. Apply constant pressure during cure time to ensure proper fitment. **System errors will be present if these are not installed properly**)



□ STEP 25

Position the driver side middle sensor bezel (labeled ROL) with the arrows positioned in the up position ensure the sensor bezel sits level with the mount plate on the inside of the bumper, use a suitable amount of (epoxy) to bond the corresponding sensor bezel into the bumper. Ensure the orientation indicated in the image shown below matches the position in your bumper.

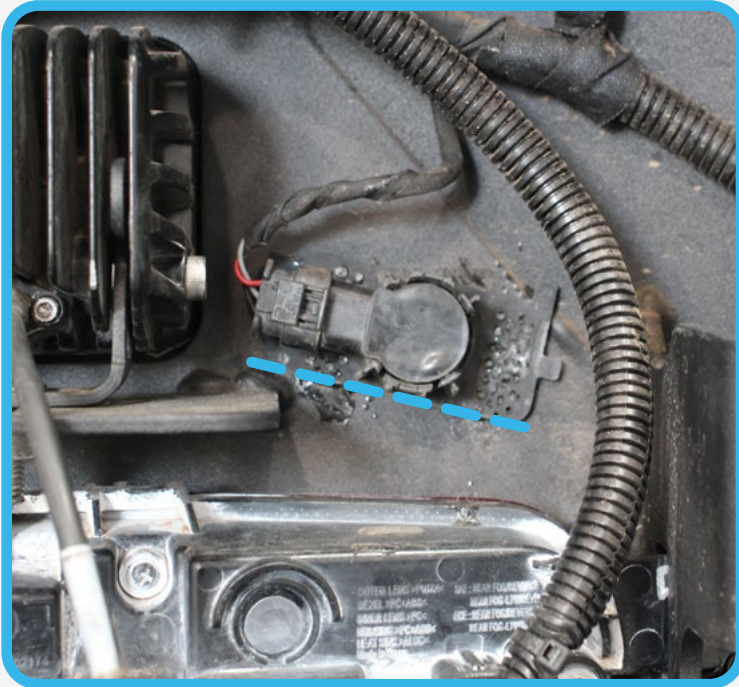
(Clean the surface for best bond. Apply constant pressure during cure time to ensure proper fitment. **System errors will be present if these are not installed properly**)



□ STEP 26

Position the inner driver side sensor bezel (labeled RIL) with the arrows positioned in the up position ensure the sensor bezel sits level with the light pod mounting bracket on the inside of the bumper, use a suitable amount of (epoxy) to bond the corresponding sensor bezel into the bumper. Ensure the orientation indicated in the image shown below matches the position in your bumper.

(Clean the surface for best bond. Apply constant pressure during cure time to ensure proper fitment. **System errors will be present if these are not installed properly**)



□ STEP 27

Position the passenger side outer sensor bezel (labeled ROR) with the arrows positioned in the up position ensure the upper edge of the sensor bezel sits level with the bend line on the inside of the bumper, use a suitable amount of (epoxy) to bond the corresponding sensor bezel into the bumper. Ensure the orientation indicated in the image shown below matches the position in your bumper.

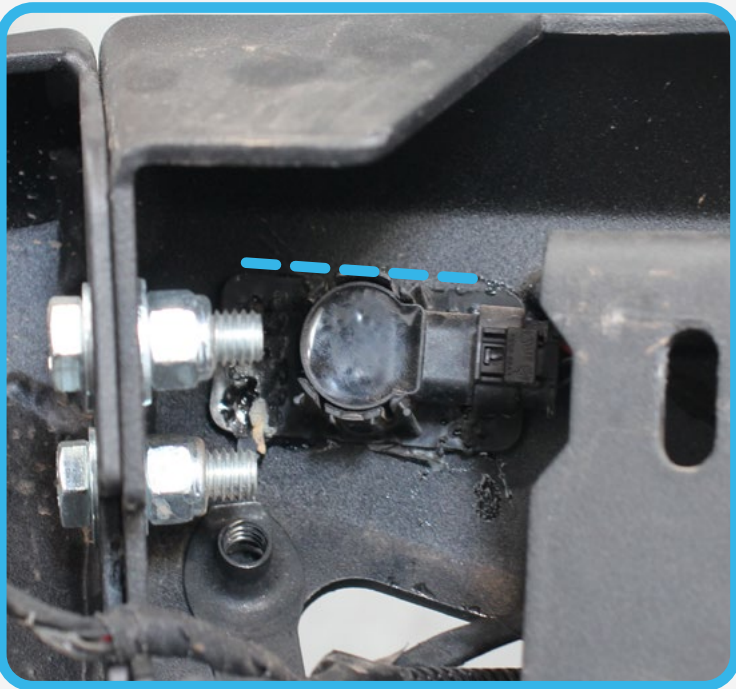
(Clean the surface for best bond. Apply constant pressure during cure time to ensure proper fitment. **System errors will be present if these are not installed properly**)



□ STEP 28

Position the passenger side middle sensor bezel (labeled RSL) with the arrows positioned in the up position ensure the sensor bezel sits level with the mount plate on the inside of the bumper, use a suitable amount of (epoxy) to bond the corresponding sensor bezel into the bumper. Ensure the orientation indicated in the image shown below matches the position in your bumper.

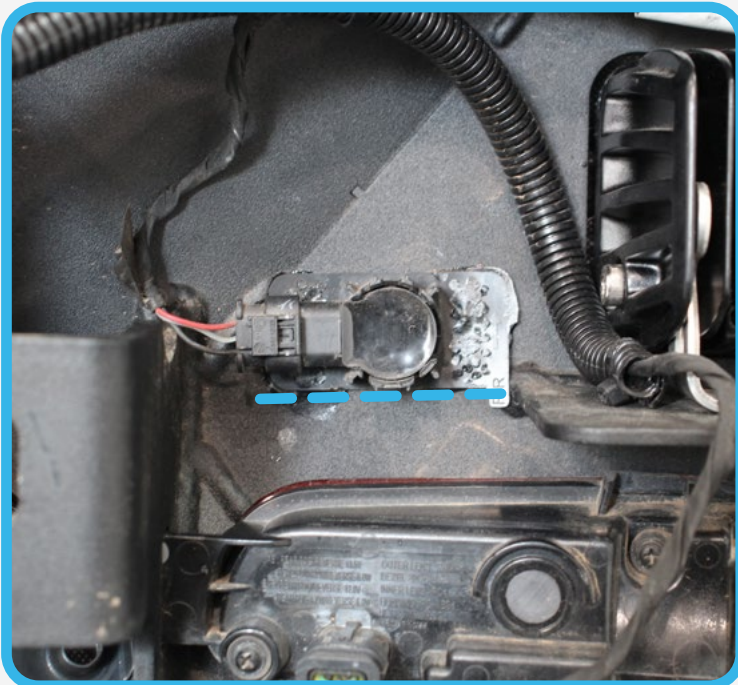
(Clean the surface for best bond. Apply constant pressure during cure time to ensure proper fitment. **System errors will be present if these are not installed properly**)



□ STEP 29

Position the inner passenger side sensor bezel (labeled RIR) with the arrows positioned in the up position ensure the sensor bezel sits level with the light pod mounting bracket on the inside of the bumper, use a suitable amount of (epoxy) to bond the corresponding sensor bezel into the bumper. Ensure the orientation indicated in the image shown below matches the position in your bumper.

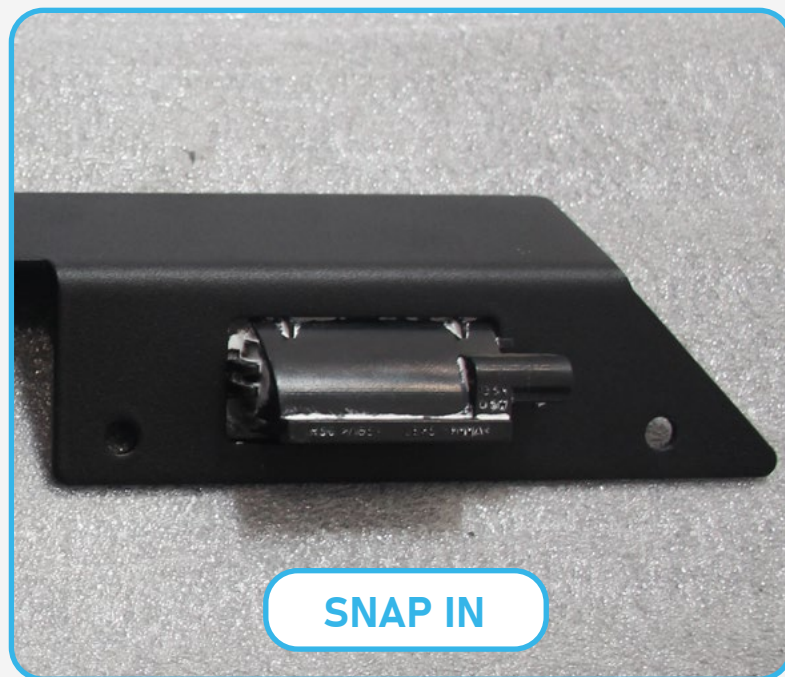
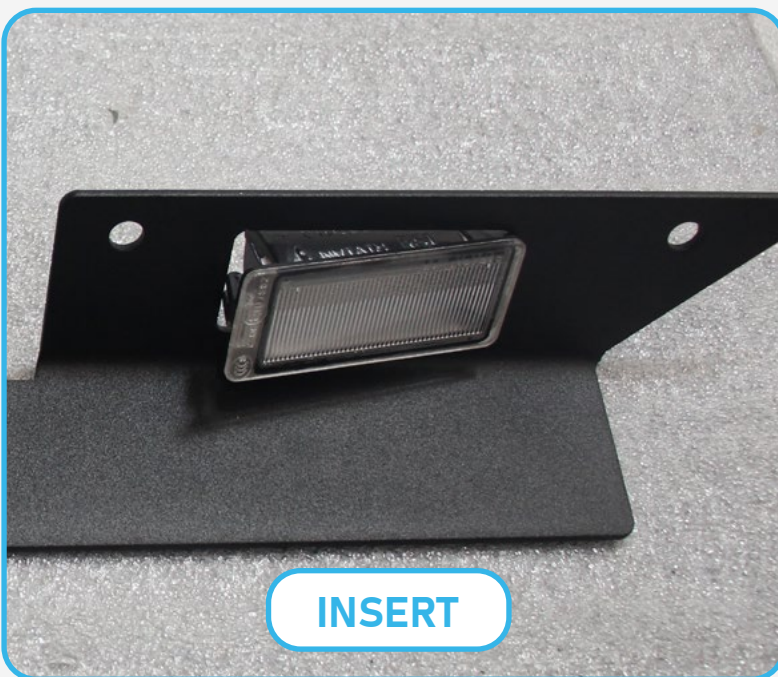
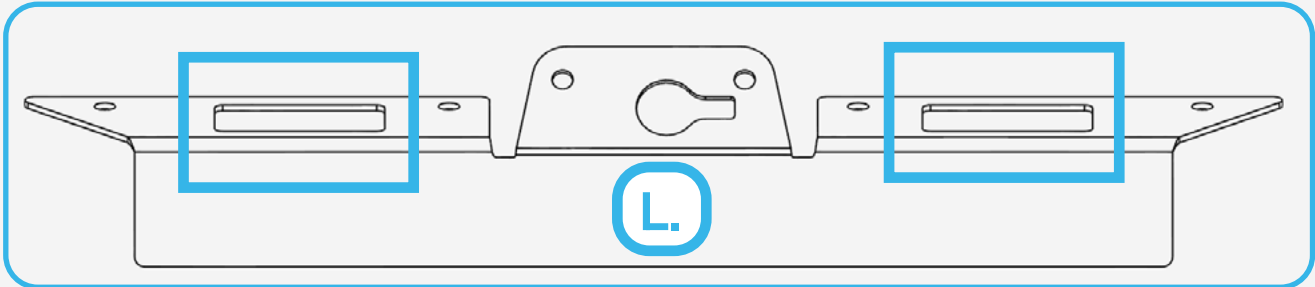
(Clean the surface for best bond. Apply constant pressure during cure time to ensure proper fitment. **System errors will be present if these are not installed properly**)



□ STEP 30

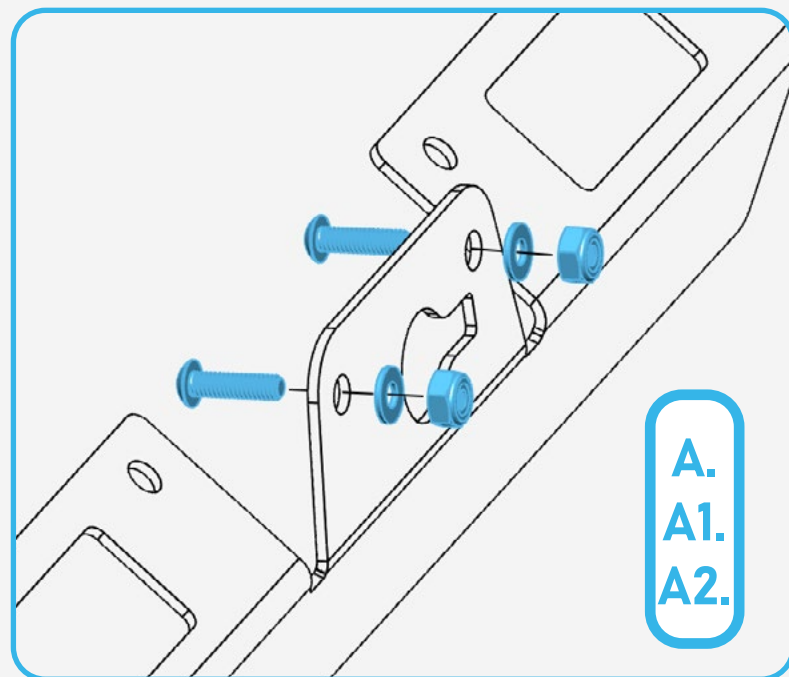
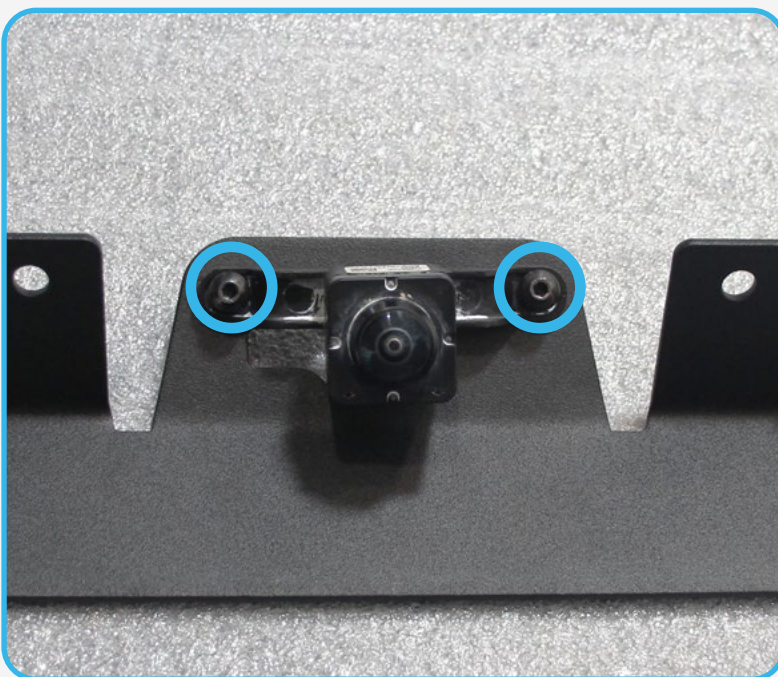
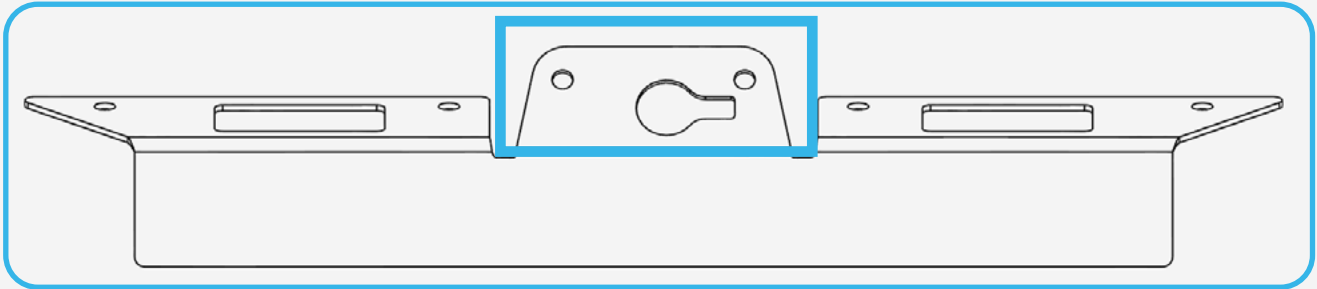
Locate the supplied reverse camera bracket (L), then insert the reverse lights removed in **step 19** in the hole indicated below.

(Ensure the plug is pointing to the driver side of the vehicle when installed.)



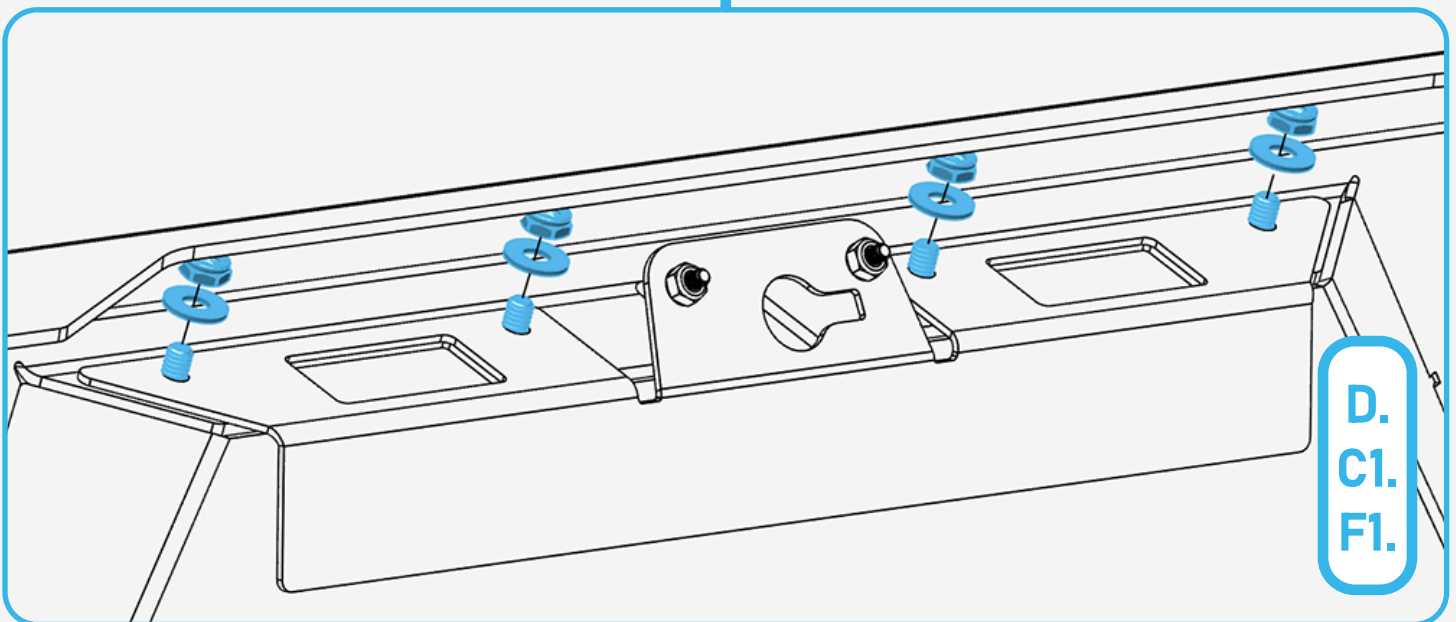
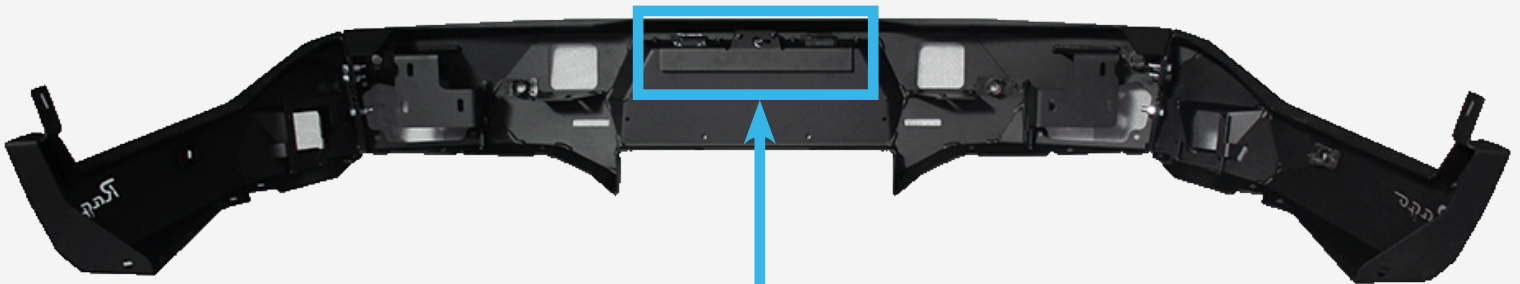
□ STEP 31

Mount the camera removed in **step 18** into the camera bracket with the provided (**A, A1, A2**) #8 hardware indicated below using a (**3/32 allen wrench**) and a (**3/8 wrench**).



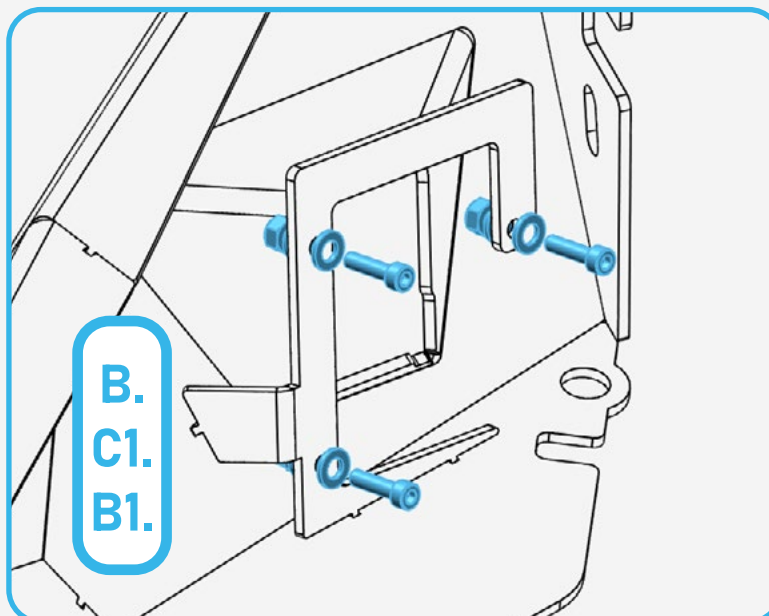
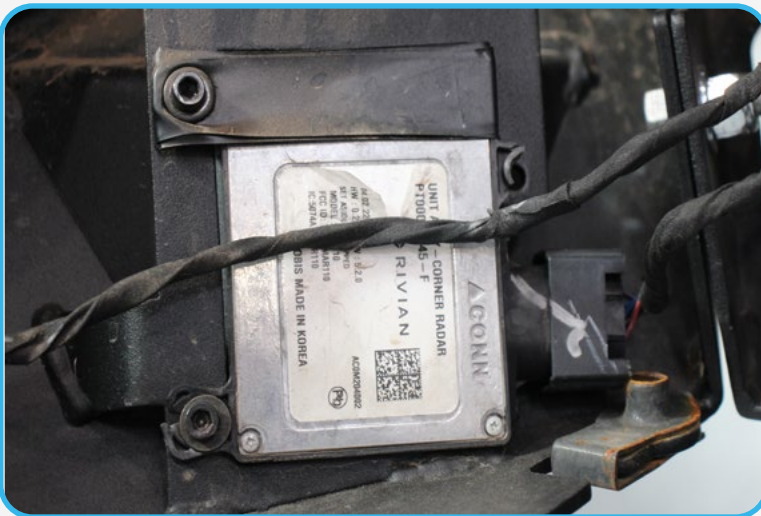
□ STEP 32

Install the (L) back up camera bracket to the bumper with the provided (D, C1, F1) 1/4" hardware using a (5/32 Allen) and a (7/16 wrench).



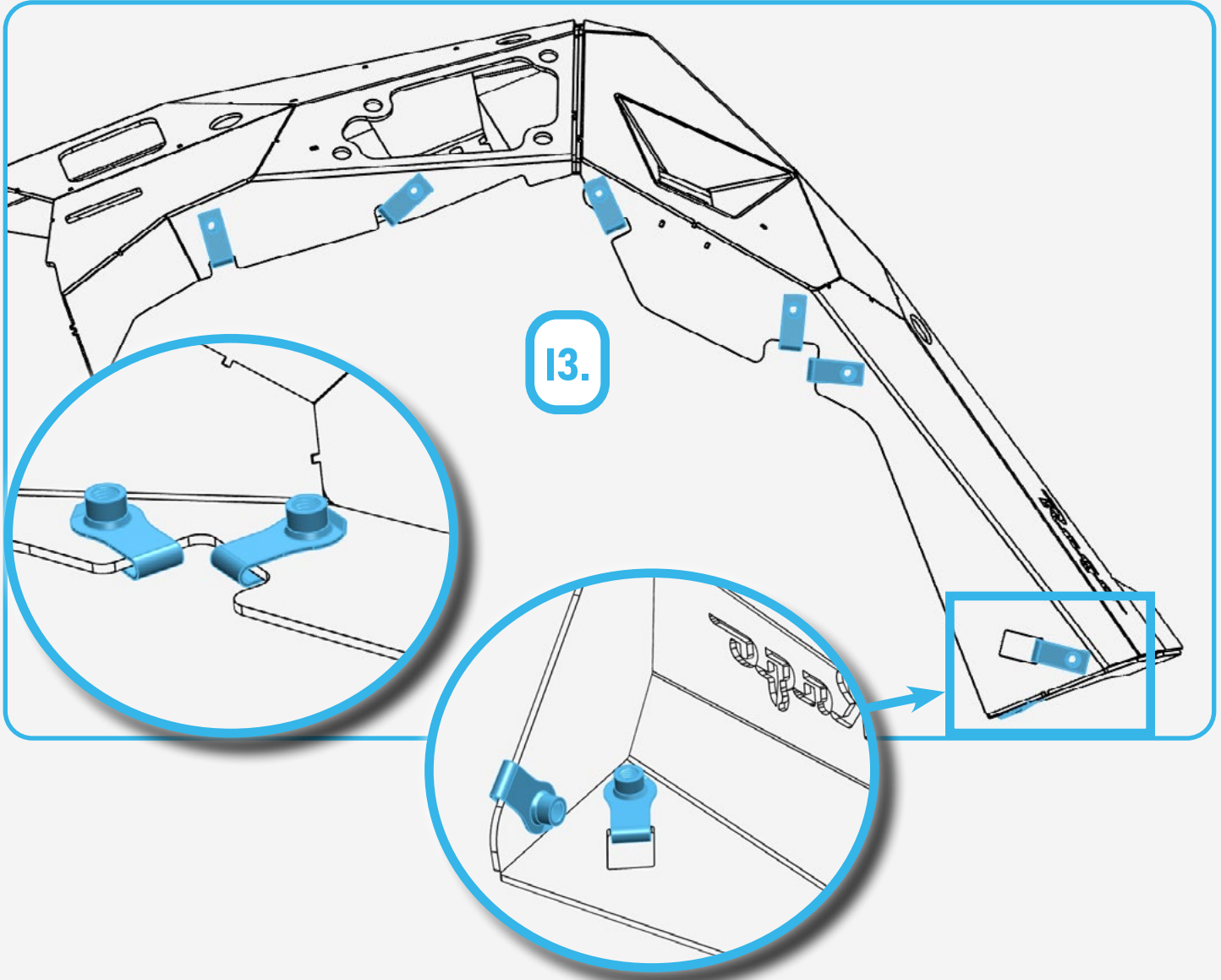
□ STEP 33

With the provided **(B, C1, B1)** #10 hardware install the BSM removed in **step 14** with a **(5/32 allen wrench)** and a **(3/8 wrench)**. Repeat on other side. **(Handle the sensors with extreme care. DO NOT over tighten due to breakage of mounting tabs)**



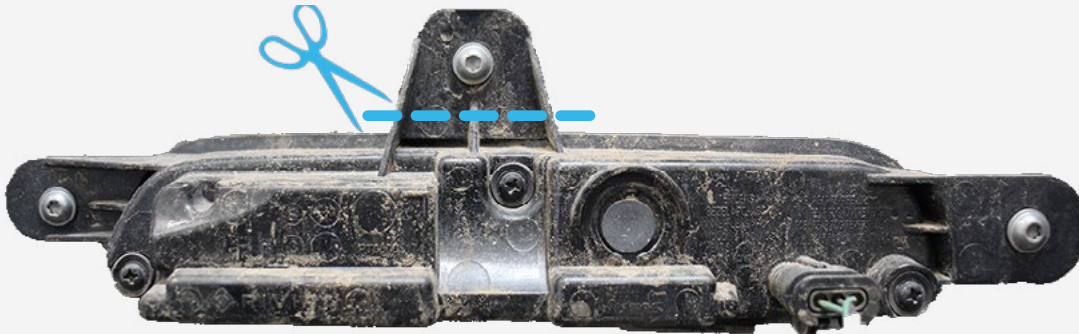
□ STEP 34

Install the (7) provided nut clips in the areas indicated below.
(Repeat on the other side.)



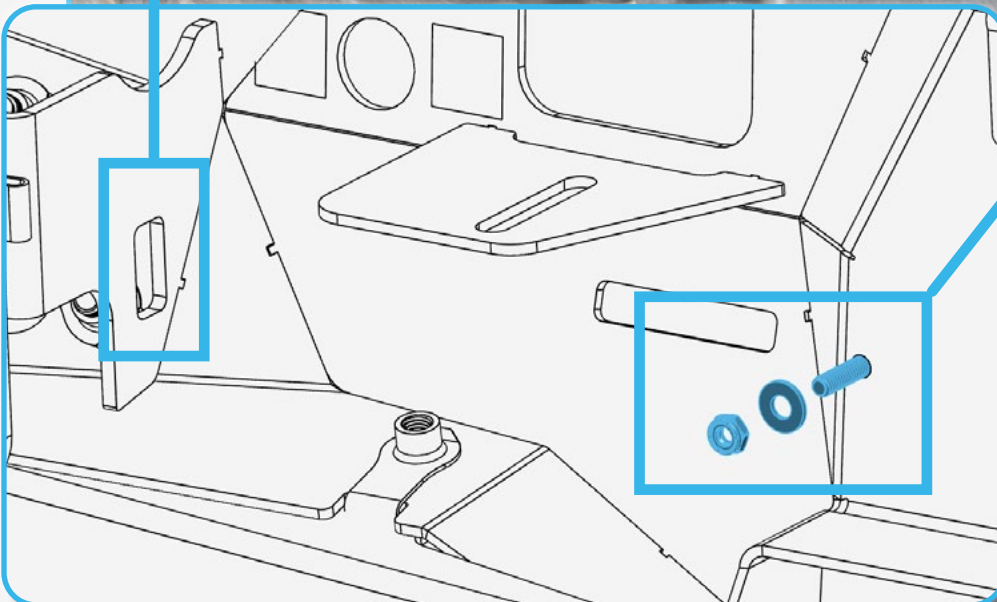
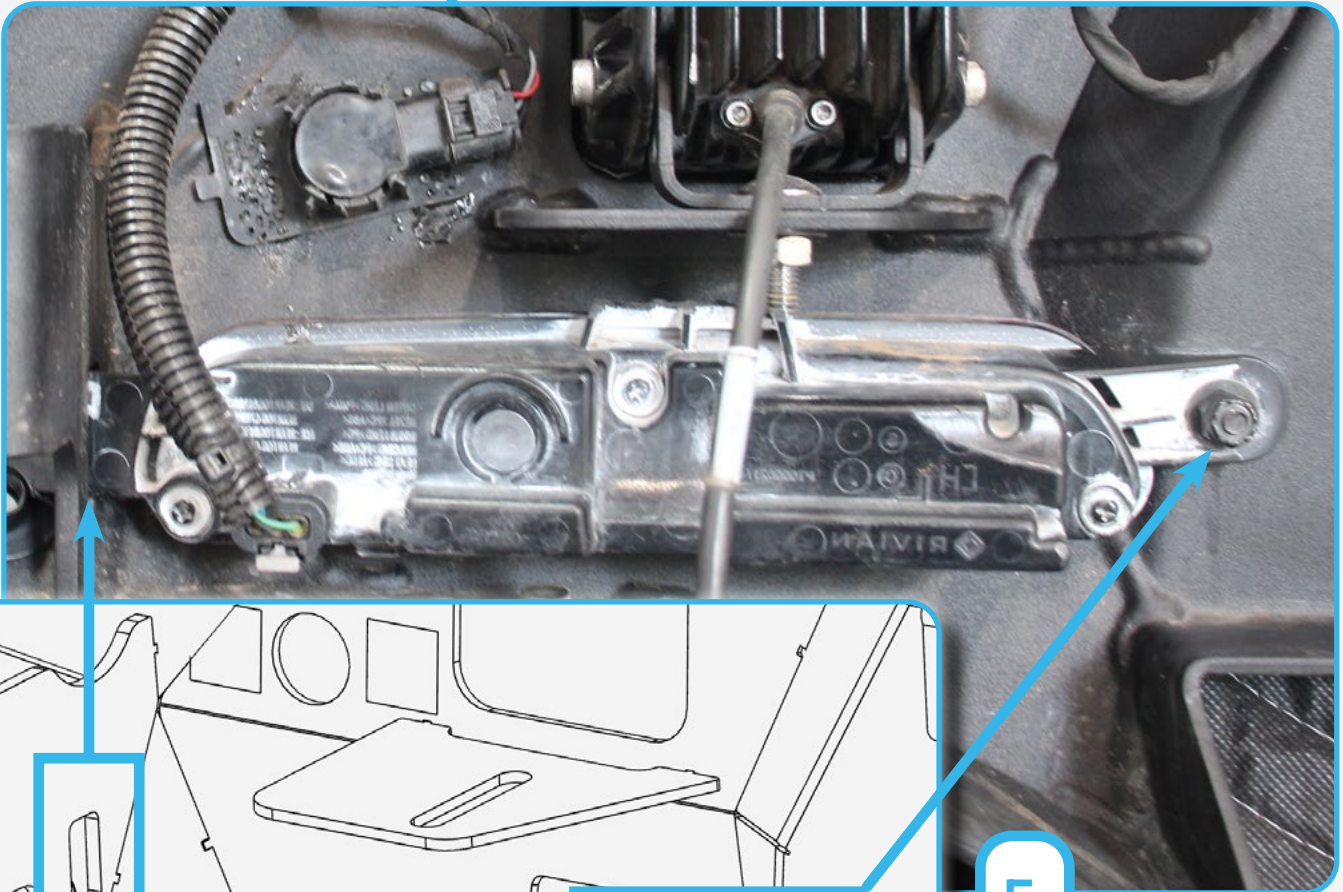
□ STEP 35

Locate your (2) reverse lights removed from **step 20** and trim the top tab off following the blue dotted line below with your choice of cutting tools.
(Cut with caution, do not damage the light itself)



□ STEP 36

Install the trimmed reverse light into the areas highlighted below by first sliding it into the slot located near the bumper mount. Then with the provided (**E, F2, F1**) 1/4" hardware listed below with the button head on the outside of the bumper using a (5/32 allen wrench) and a (7/16 wrench). (Be careful not to over tighten.)



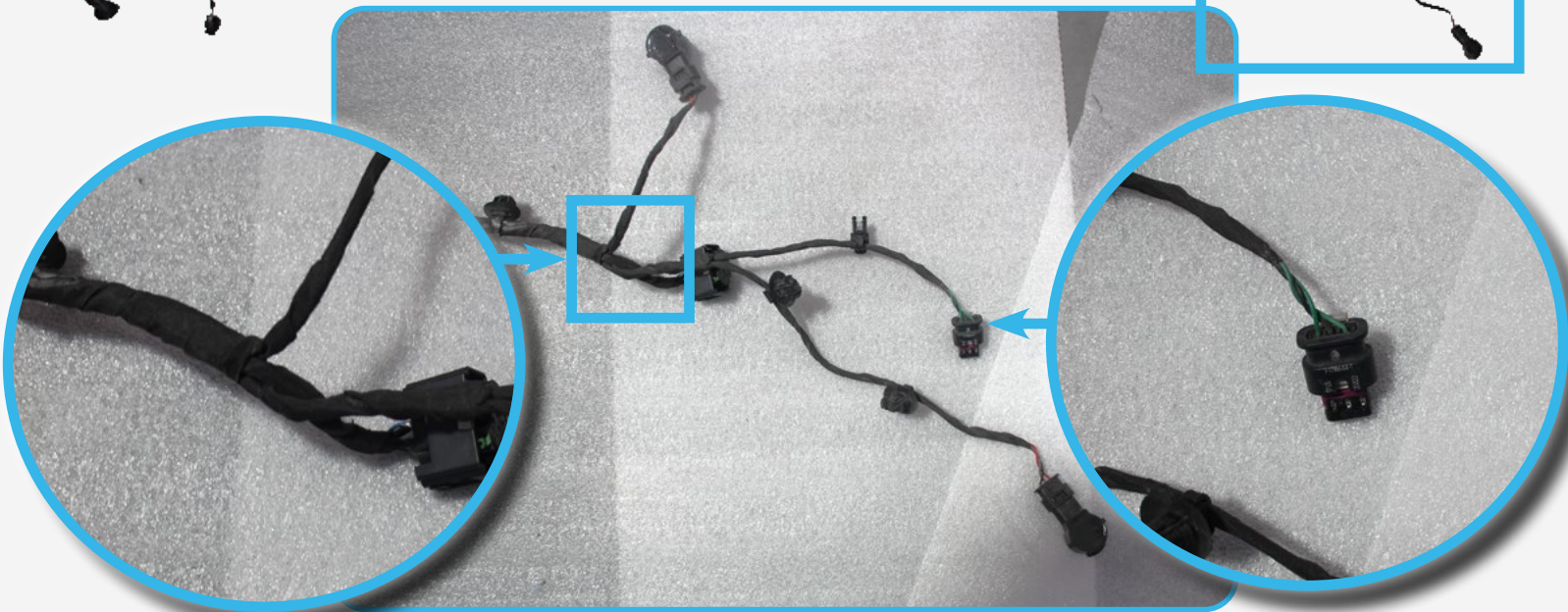
**E.
F2.
F1.**



□ STEP 37

Lay your wire harness flat on the ground and locate the section indicated below and extend your wire harness to reach your reverse lights in your new Rago rear bumper.

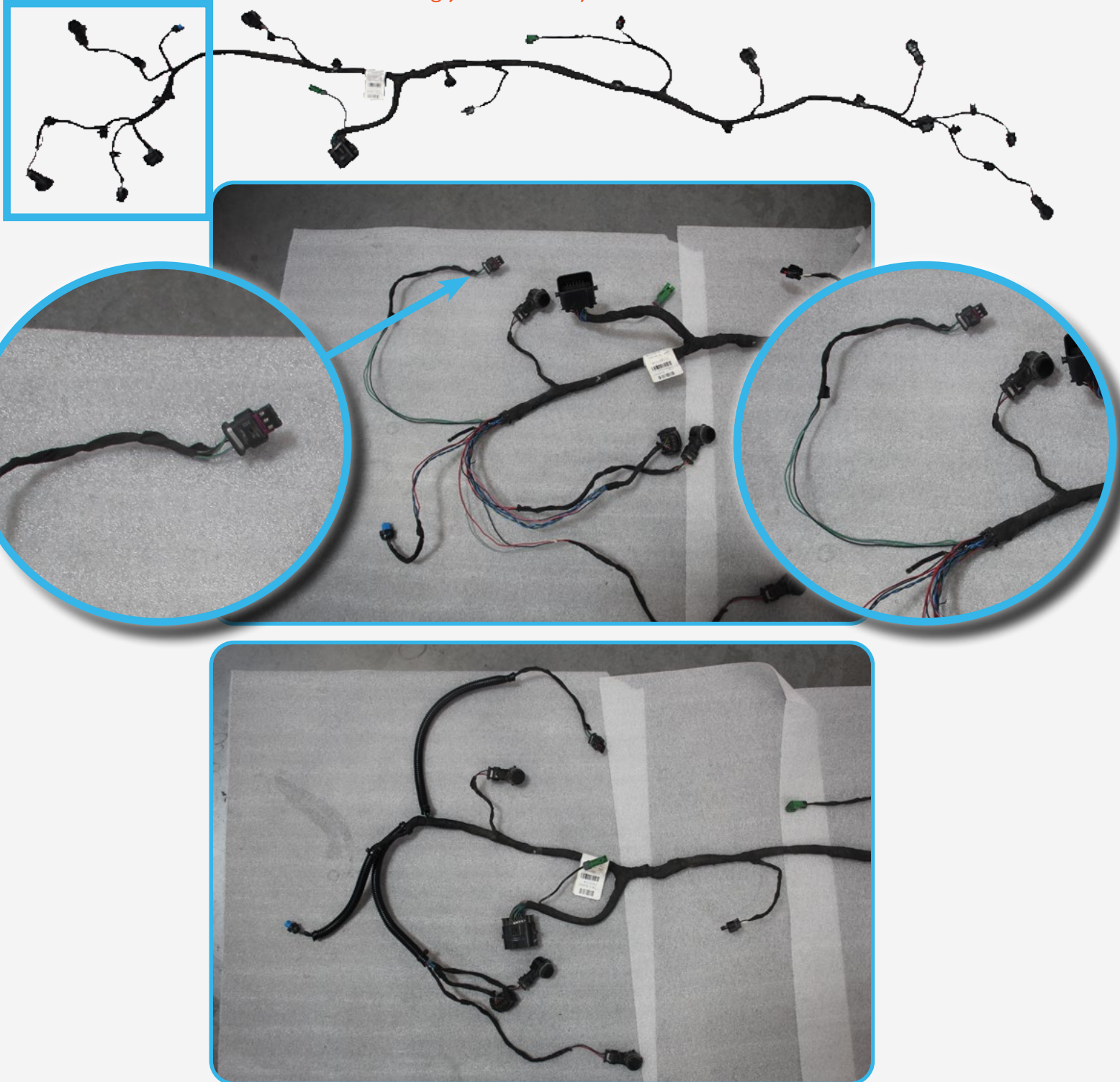
(Be cautious of all wires while extending your harness.)



□ STEP 38

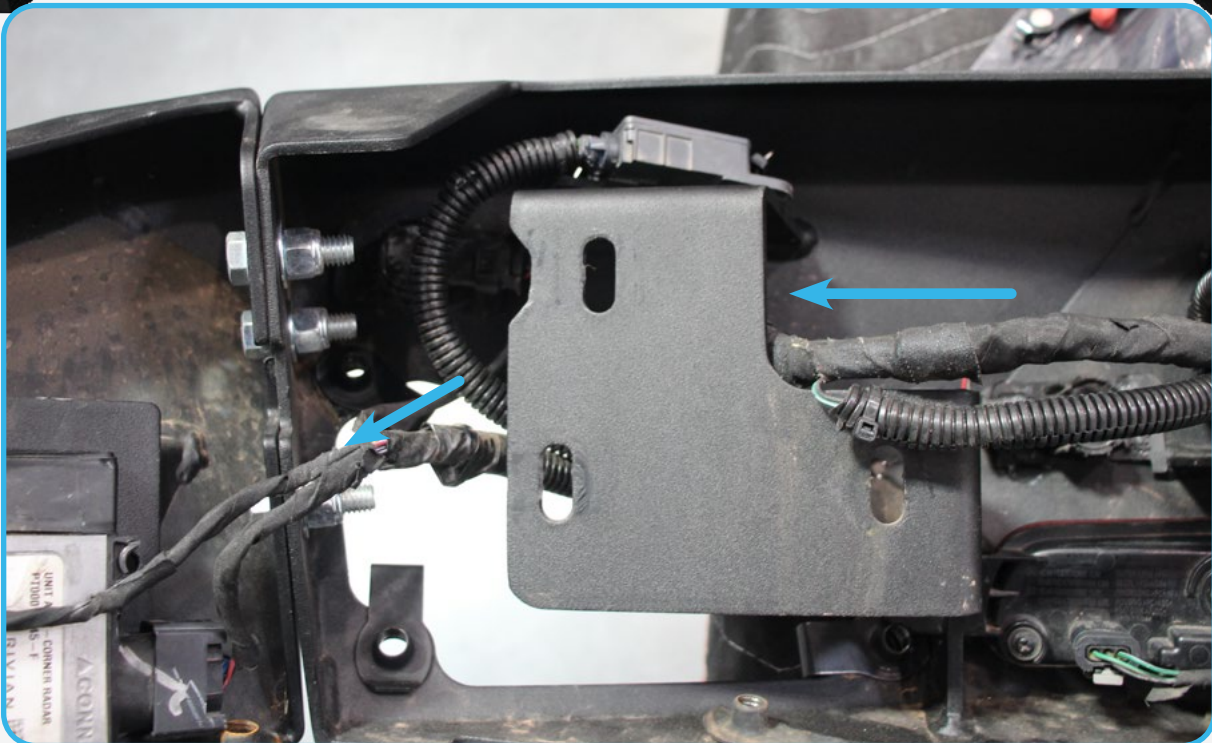
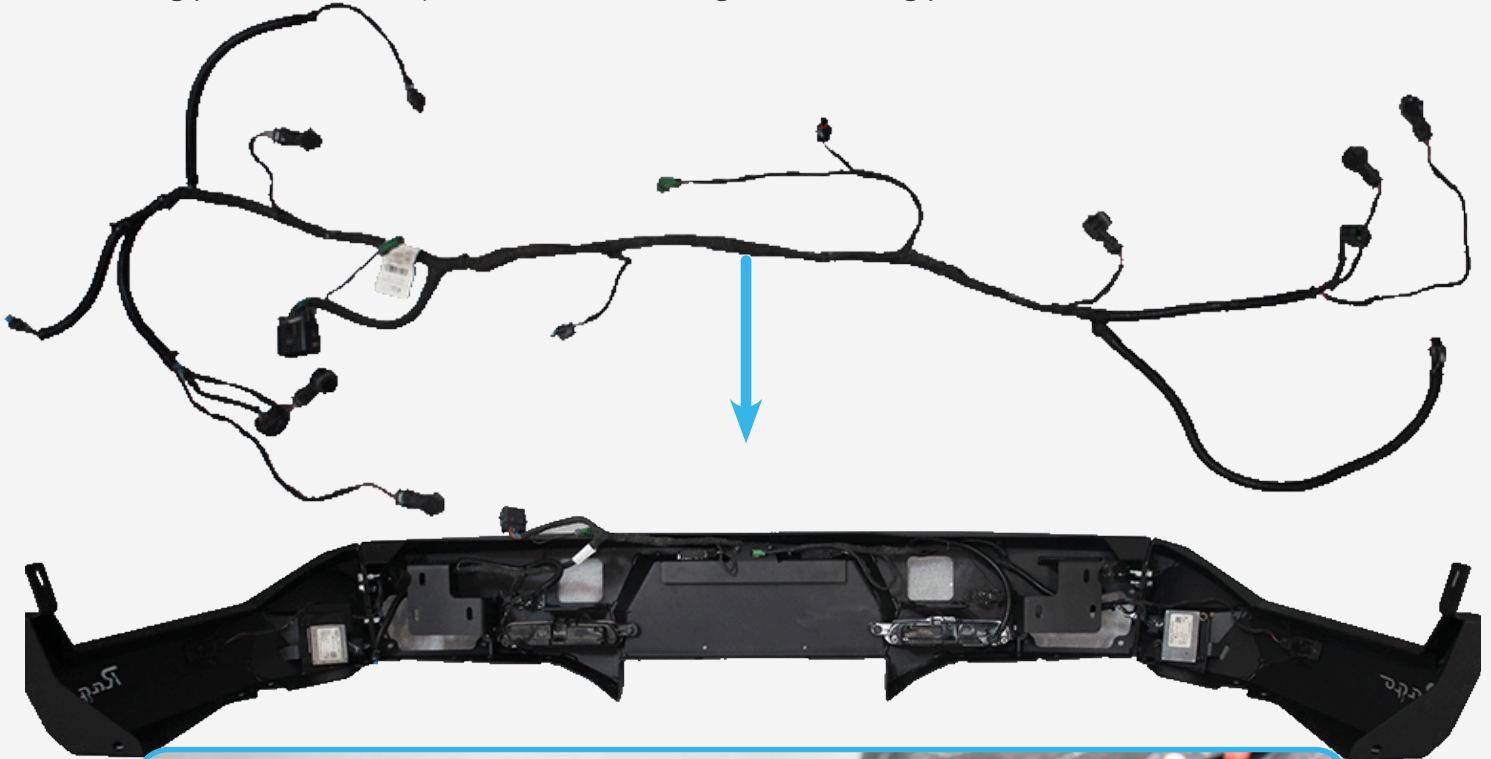
With your wire harness still flat on the ground and locate the section indicated below and extend your wire harness to reach your reverse lights in your new Rago rear bumper.

(Be cautious of all wires while extending your harness.)



□ STEP 39

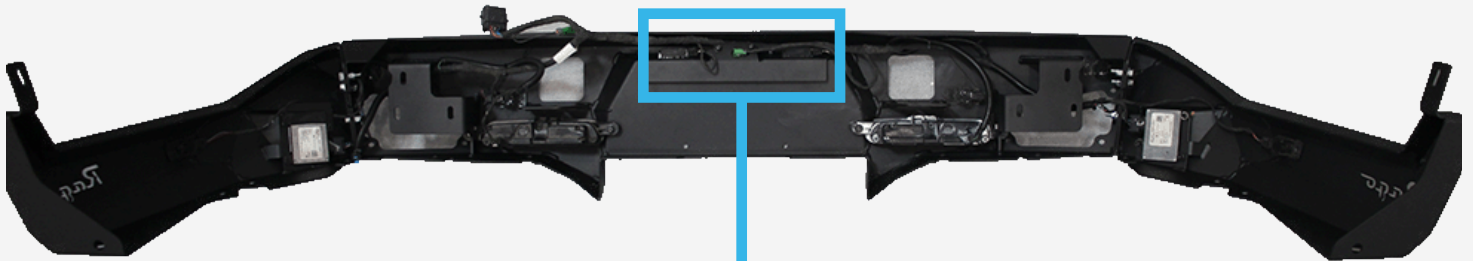
Now lay your extended wire harness into the rear bumper. When routing it is recommended to start from the center and work your way to the edges. Ensure you are going in front of the mounting plate to avoid any crushed wires during the mounting process.



□ STEP 40

With the wire harness now routed plug in your reverse camera and license plate lights as shown below.

(Ensure all connectors are seated properly and the tabs are fully clicked in.)

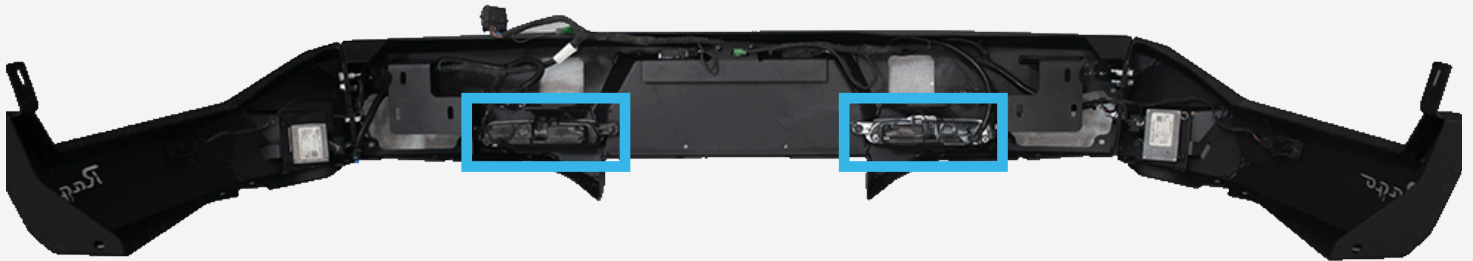


(Ensure your connector is seated fully and both tabs are completely clicked in. Repeat on the other side.)



□ STEP 42

Now located your reverse light plugs and plug in your reverse lights.
(Ensure the connector is fully seated and the tab is completely clicked in.)



□ STEP 43

At this point mount your light pods (sold separately) into the rear bumper. (The mounting slots are made to accommodate most lighting options for your convenience. This means the install will be up to your discretion. It is recommended for the cleanest look to leave the lights loose and adjust until in desired position.)



□ STEP 44

Following the dotted line below use your choice of cutting tools to trim the tab to have proper clearance for your bumper.

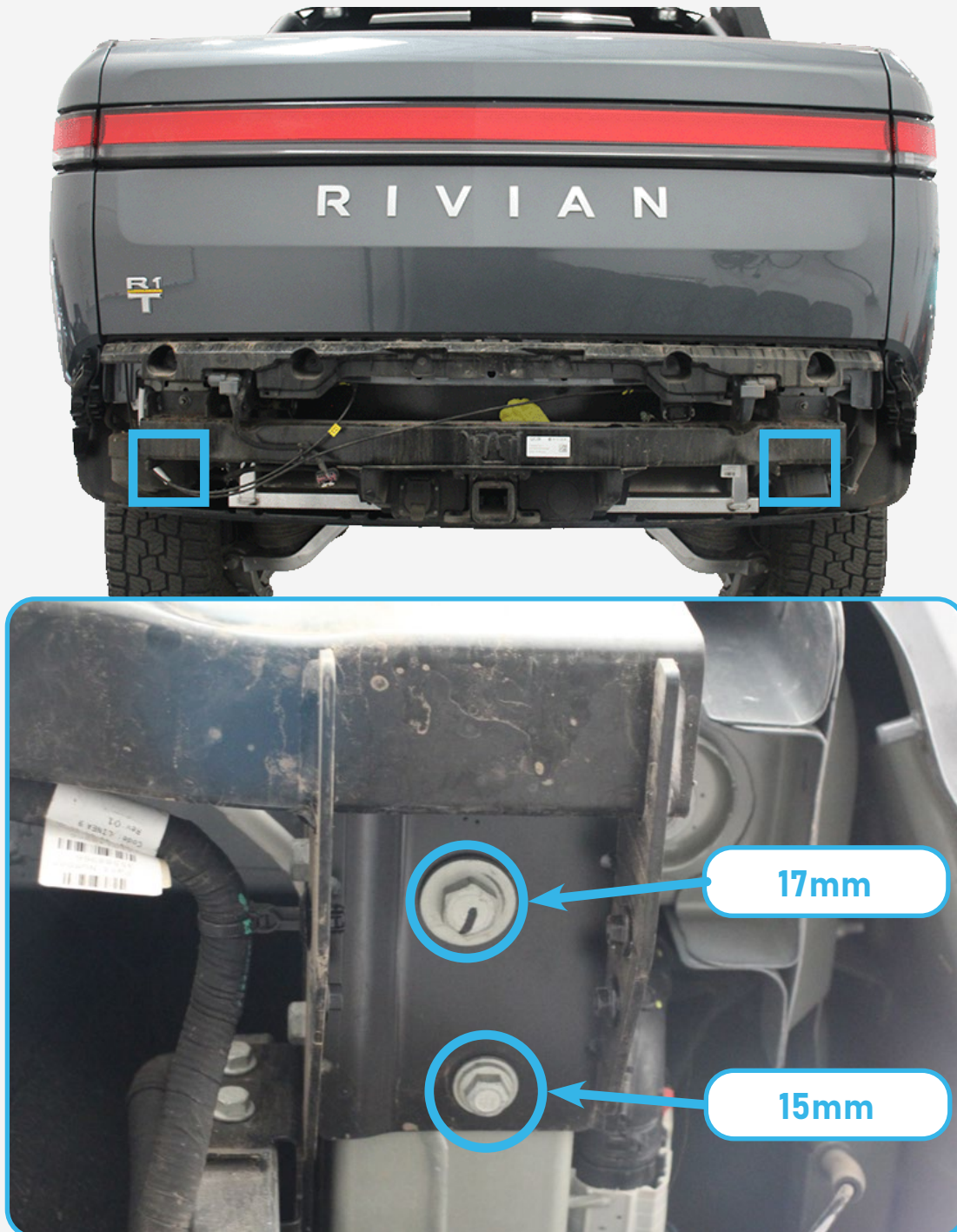
(Be very cautious to not cut any wires.)



□ STEP 45

Locate the OEM hardware shown below and using a (15mm socket) and (17mm socket) and remove.

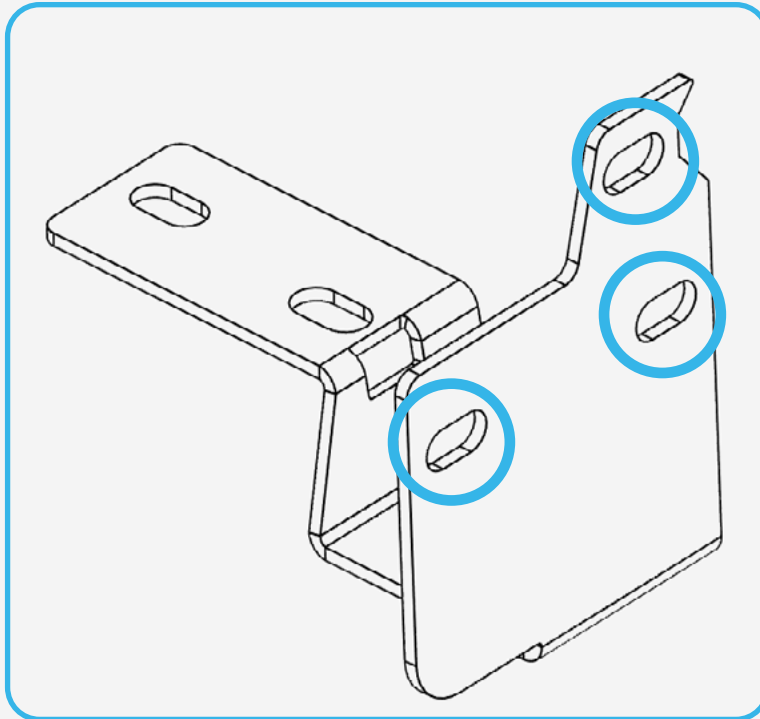
(Keep these bolts for future steps. Repeat on the other side.)



□ STEP 46

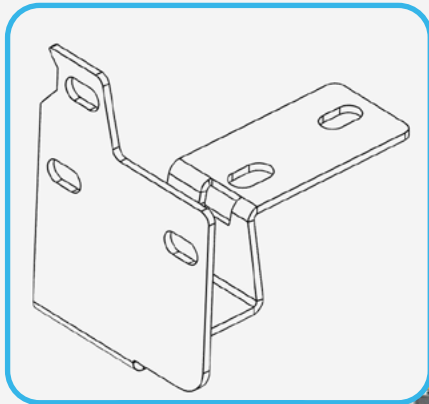
Locate the provide frame mount adapter **(M)** and install the provided **(I3)** nut clips as shown below.

(Repeat on the other side.)

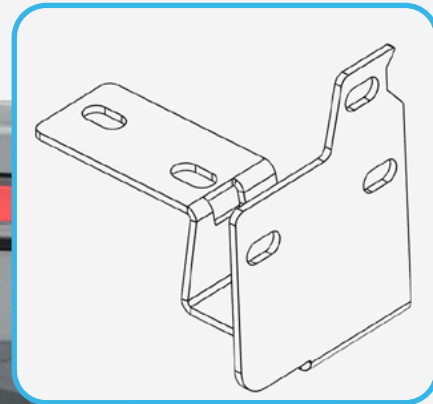


□ STEP 47

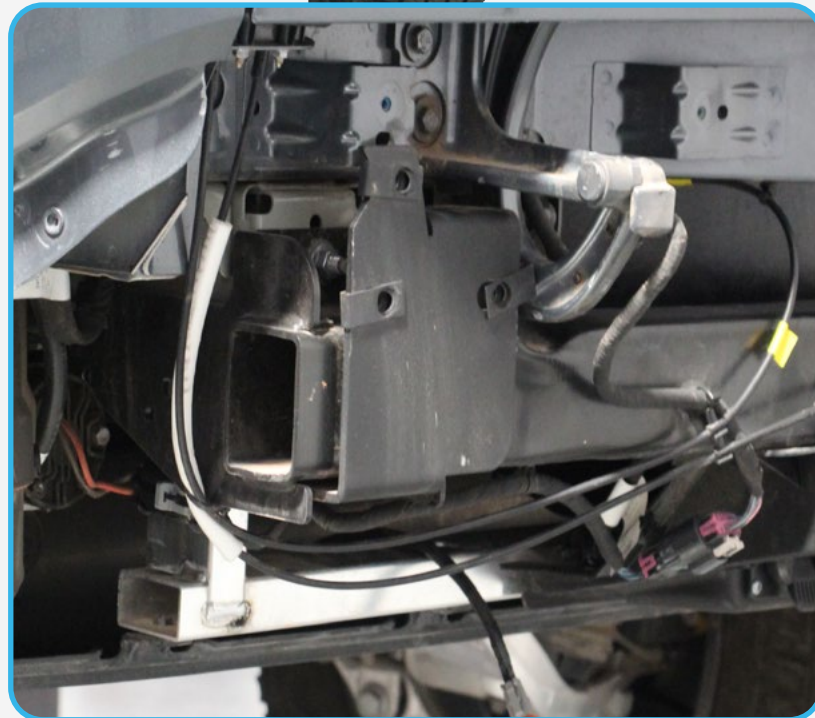
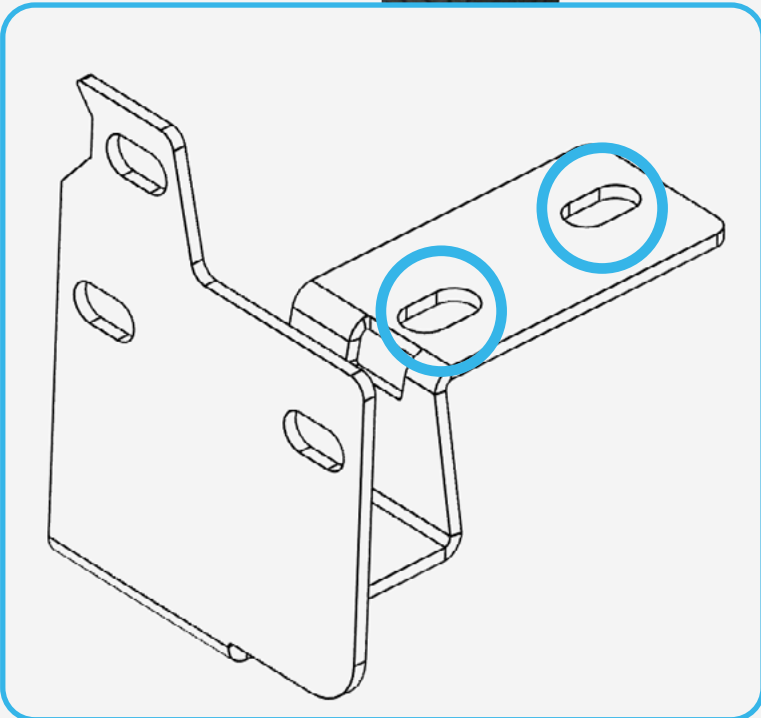
Now reusing the holes of the factory bolts you removed earlier install your frame mount adapter (M) with the (15mm socket) and (17mm socket).
(Run the bolts in but do not fully tighten until final install.)



DRIVER



PASSENGER



□ STEP 48

Using a pry tool remove the plastic clips holding the main wire harness and rear camera plug to the rear crash bar.

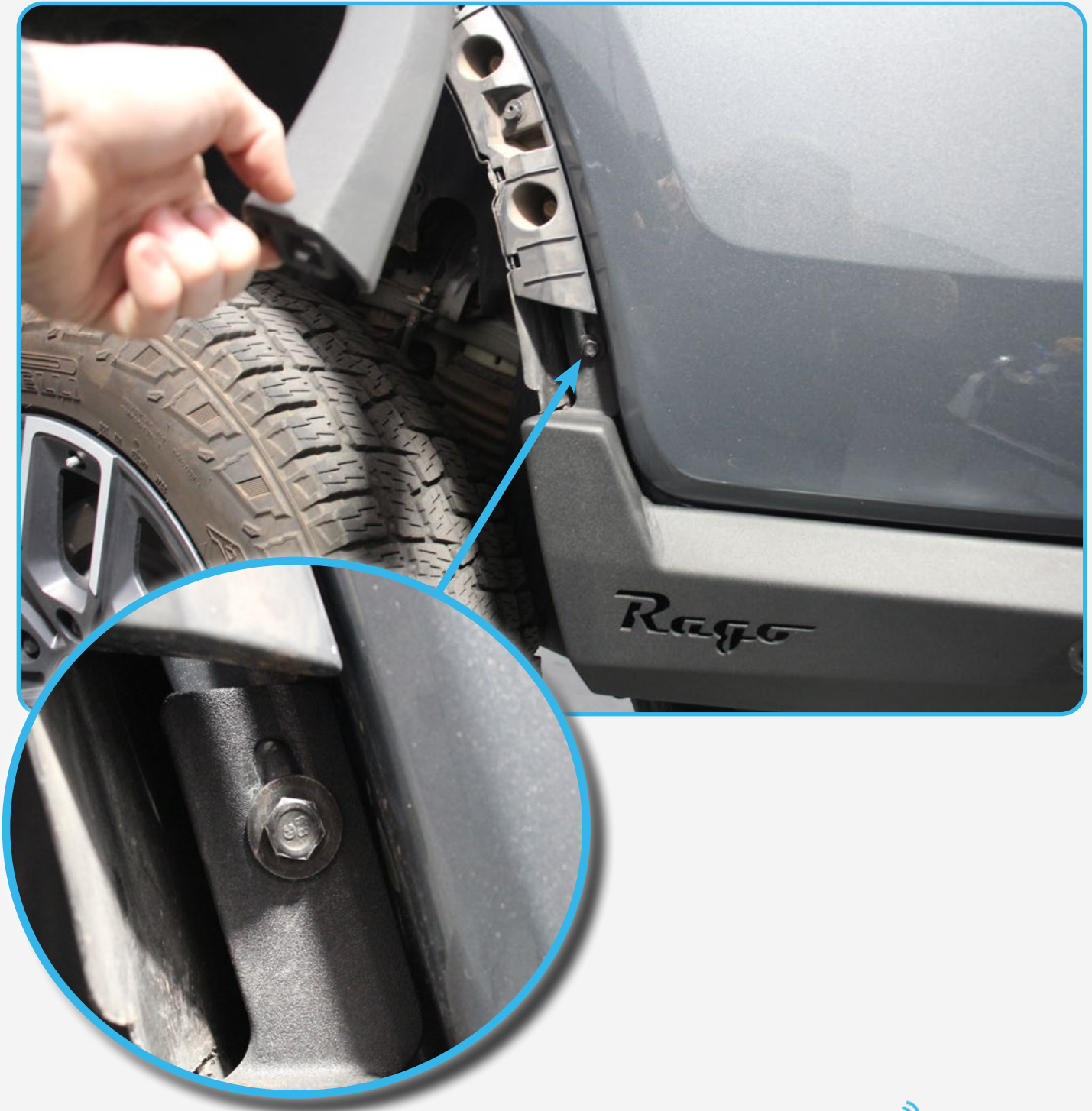
(Do NOT pull on any wires)



□ STEP 49

Now install your rear bumper onto the truck tightening the (1) (10mm) previously removed first into the side tabs as shown below.

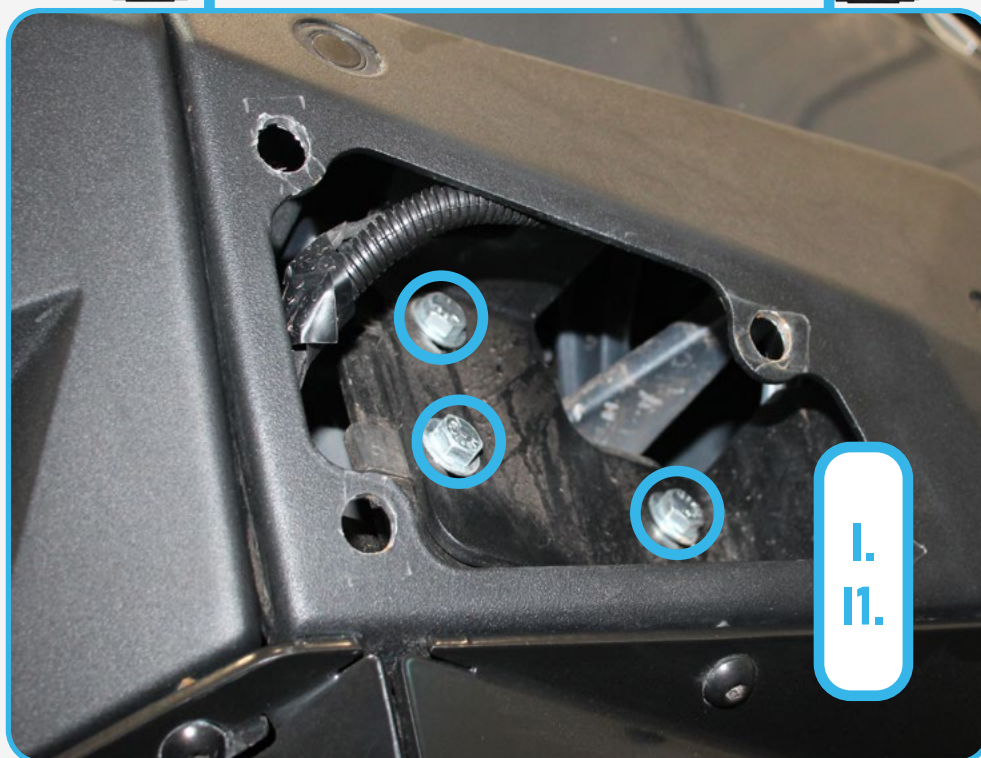
(At this point it is recommended to have 2 people to install your new bumper to avoid any damages to your truck. Leave this bolt loose until you are ready to tighten down everything. Repeat on the other side.)



□ STEP 50

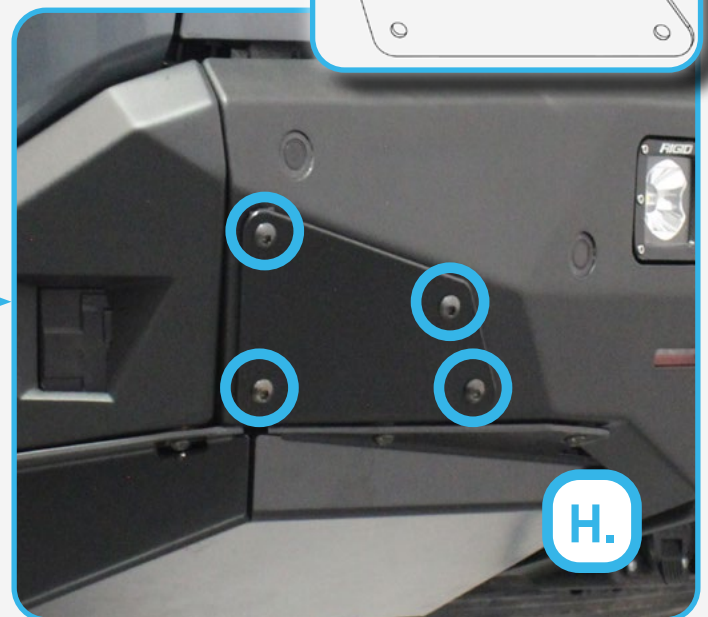
Now with the bumper secured on the truck install the provided **(I, I1)** 3/8" hardware below and tighten down with a **(9/16 socket)**

(Repeat on the other side. At this time adjust the bumper to your desired fitment before fully tightening any bolts. 2 people are recommended for this step.)



□ STEP 51

Now with the bumper tightened down into the desired position, install the provided **(I3)** nut clips as shown below onto the bumper. Next, install the **(K)** cover plate and with the provided **(H)** 3/8" hardware using a **(7/32 allen)**. *(Repeat on the other side.)*



□ STEP 52

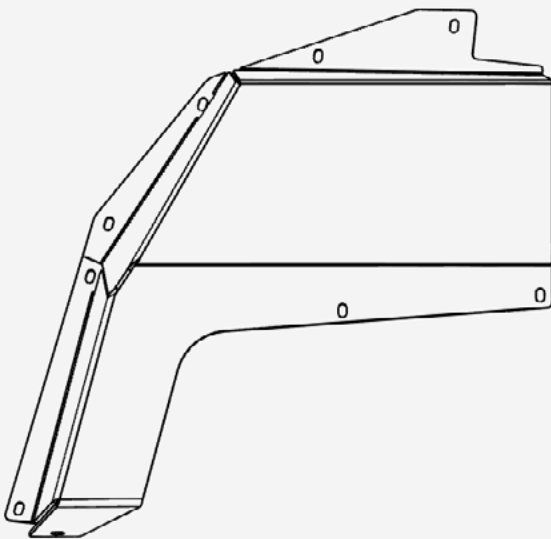
With the bumper secure onto the truck plug in your main wire harness and rear camera.
(Ensure the connectors are fully seated and the tabs are completely clicked in.)



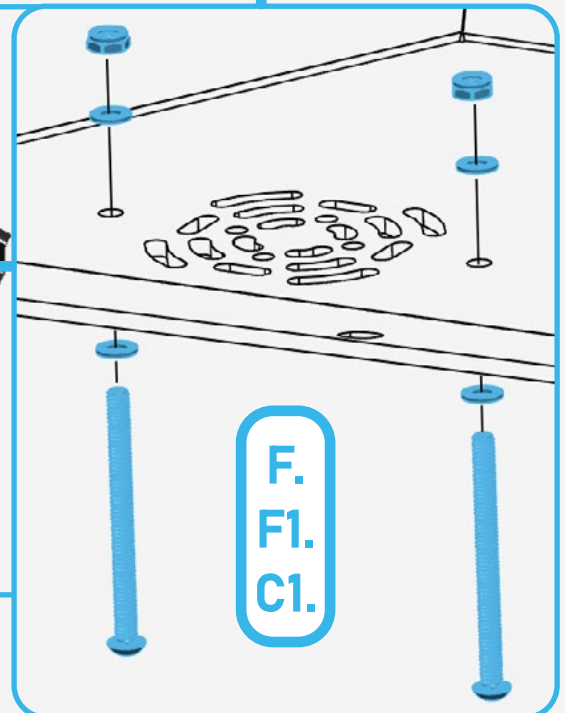
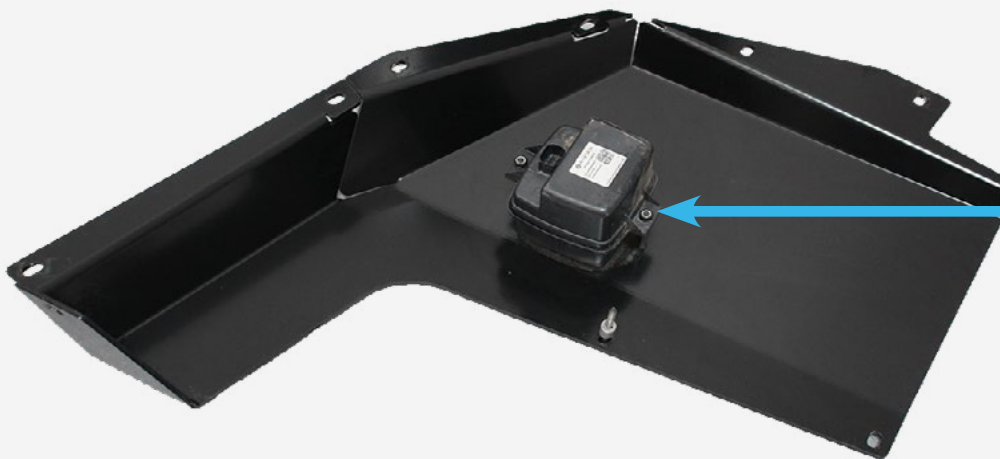
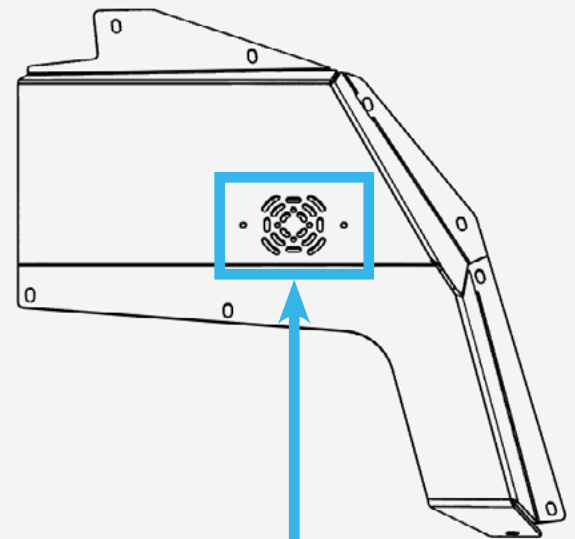
STEP 53

Locate the passenger side skid plate (0) and install the AVAS module with the provided (F, F1, C1) 1/4" hardware using a (5/32 allen) and a (7/16 wrench)
(Handle the module with extreme care this is very delicate equipment. DO NOT overtighten)

Driver

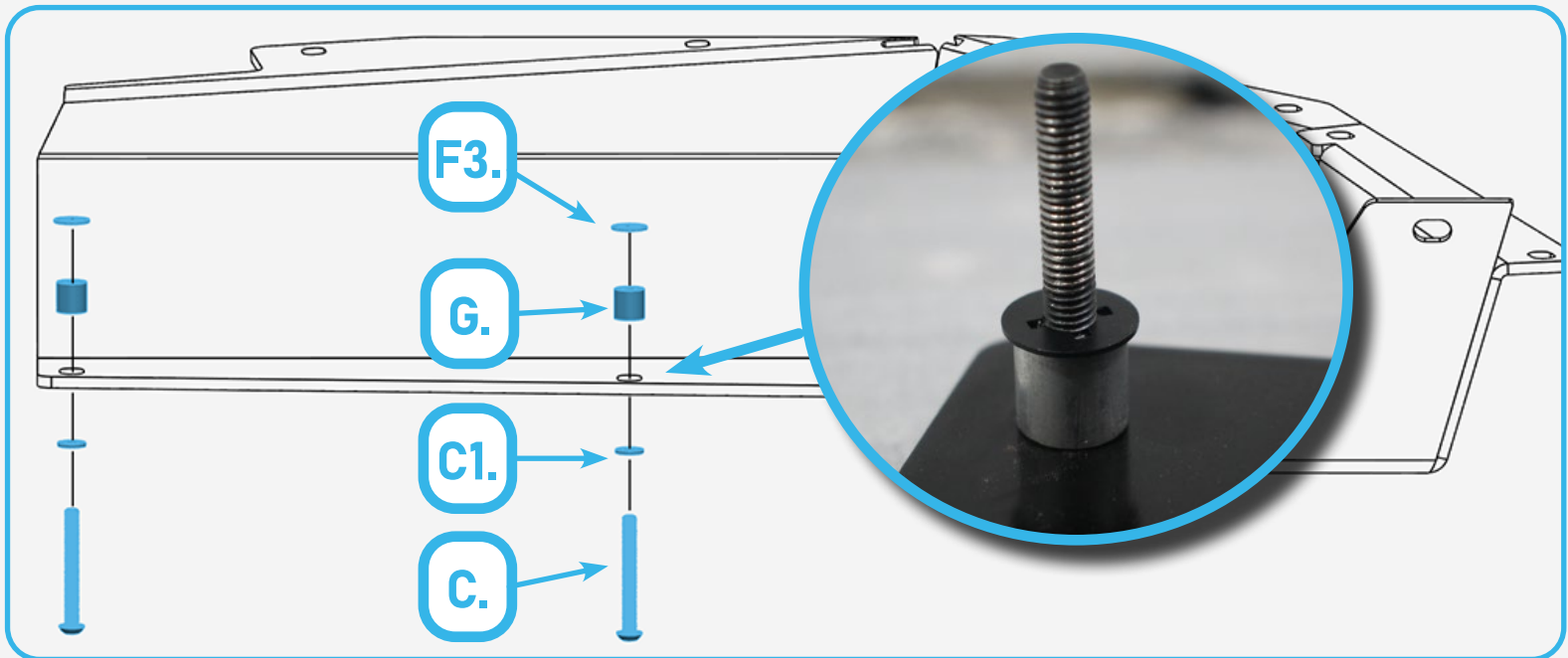
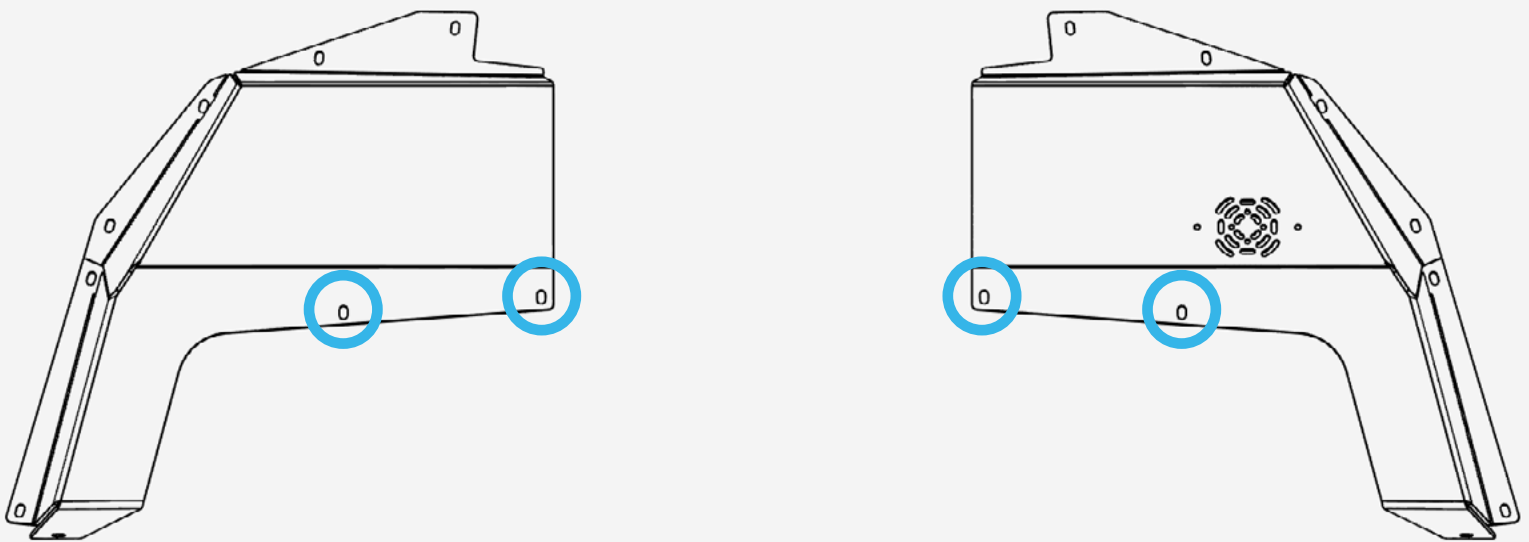


PASSENGER



□ STEP 54

Before installing the skid plates to the bumper, install the provided **(G, C, C1, F3)** M6 hardware as shown below. Install in the order shown below.



□ STEP 55

With the bolts now secured to the skid plate ensure you plug in your AVAS speaker before installing the passenger skid plate (P). Then use a (5/32 allen wrench) to secure the bottom of the skid plate.

(Leave all bolts loose at this time.)



□ STEP 56

With the bottom part of the skid plate now secure install the provided **(H)** 3/8" hardware below and hand tighten until all bolts are secured. Then tighten with a **(7/32 allen)** working from the outside-in.

(Repeat on the other side.)



□ STEP 57

With the skid plate now secure located the (1 per side) mounting hole and install the provided (H) 3/8" hardware using a (7/32 allen wrench).
(Repeat step on the other side)



□ STEP 58

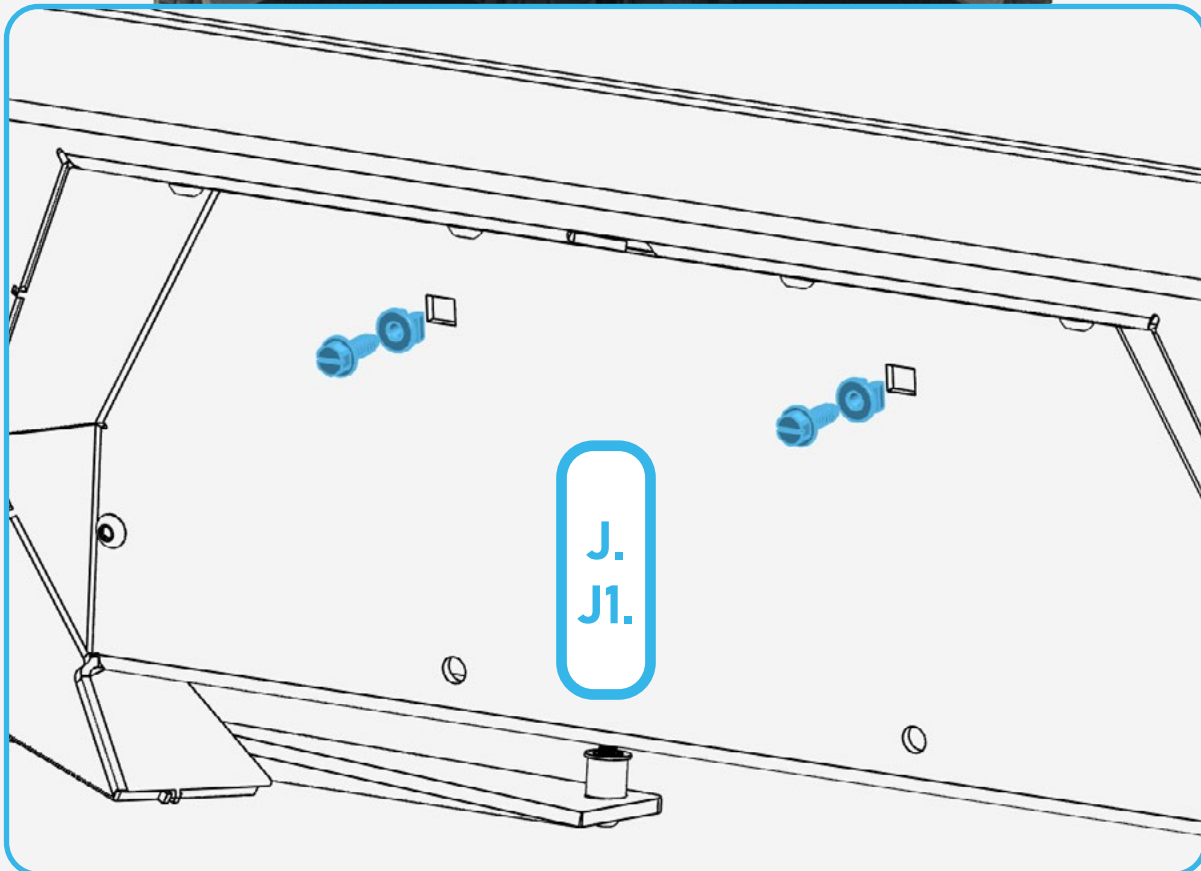
With the bumper now secure mark out the fender liner following the dotted line below and trim with a razor blade.

(Be careful not to cut any wires during this process. Repeat on the other side.)



□ STEP 59

Install the provided (J, J1) hardware to install the license plate using a (8mm socket).



□ STEP 60

Stand back and enjoy your new RAGO Rear Bumper.

Check and re-tighten all mounting bolts after 100 miles and periodically thereafter.

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