



## NEXT VENTURE MOTORSPORTS ALUMINUM BELLY SKID INSTALLATION GUIDE

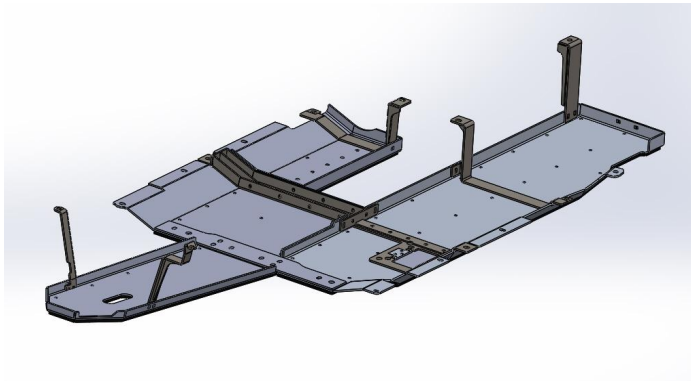
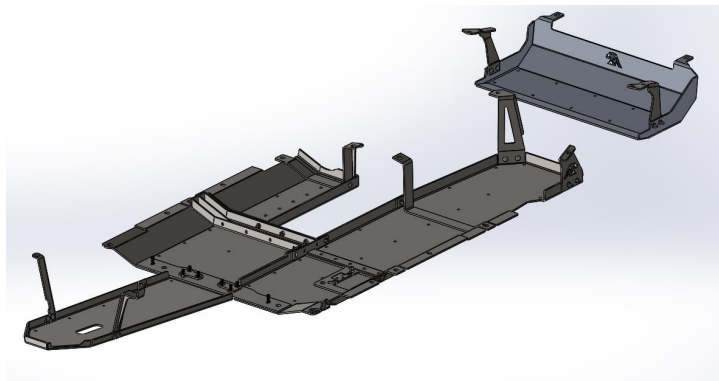
### 2018-2021 JLU/JT Ecodiesel Belly Skid Install Guide for NV-JL/JT-00042

Dear fellow Jeep,

Let me start by saying thank you for choosing Next Venture Motorsports products for your Jeep. Our goal is complete satisfaction, and confidence to go hit the trail for our friends and customers. If you have any questions or feedback, please do not hesitate to reach out to us via email or give us a call.

This is an installation guide for the JLU/JT Aluminum Belly Skid System; it is not a 100% illustrated/photographed step by step guide. This guide should be enough for any competent shop to get the job done; and if anything should come up as a question, please give us a call.

We know every rig is different once it has started collecting upgrades, trail character, and modifications. I cannot at the time of this writing, confirm that this kit will fit with every other aftermarket skid plate, aftermarket exhaust system, or other modifications. This system *should* fit on every 2020 and up diesel JLU/JT regardless of the trim.



These instructions cover the JLU (upper left) and JT (upper right) Ecodiesel skid plate installation.

#### Pre-Installation Notes

Install will be vastly easier if your JLU/JT fuel tank is nearly empty. This will make removal of the factory fuel tank skid much simpler.

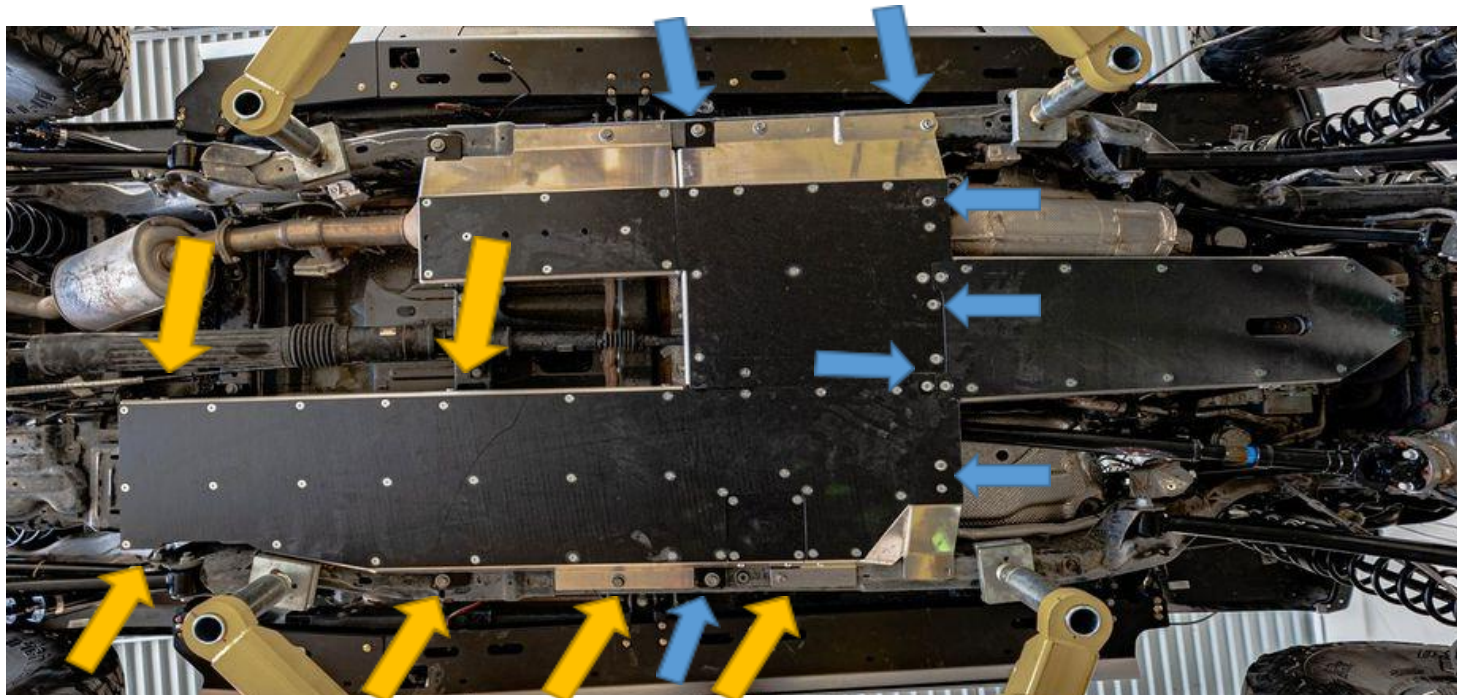
Most of this installation can be completed with basic hand tools. An additional set of hands is helpful in removal of the factory fuel tank skid, and installation of the replacement skid and replacement crossmember. A pair of ratchet straps is recommended on all models in order to hold the fuel tank in position during part of the installation.

For an installation location, a flat driveway or garage will do. If your Jeep is covered in mud, dirt, clay or any other naturally occurring form of earth, we recommend going to your local self service car wash and power washing the bottom of your Jeep where you will be working.

After it's dry, park it on a level surface with the e-brake set, and remove the negative battery cable.

### Removing Your Factory Skid Plates and Crossmembers

Remove or loosen the factory bolts specified below in Figure 1.



**Figure 1.**

**Blue Arrows:** Entirely Remove this hardware. Entirely remove the two crossmembers and supports held in place by this hardware. These crossmembers can be discarded and will not be reused. Note that you are not removing the larger transmission crossmember.

**Yellow Arrows:** Loosen these bolts that hold the fuel tank skid in place; but do not entirely remove them yet. The goal is to make some wiggle room where our ratchet straps can be slid between the bottom of the fuel tank, and the factory skid.

Once the bolts have been removed and or/loosened up per Figure 1 above, removal of the factory fuel tank skid can begin. Loosening the fuel tank skid bolts will help create a bit of room between the bottom of the fuel tank, and the factory skid. You want to maintain a little thread engagement, so the bolts aren't able to just fall out. The goal here is to support the fuel tank with 2 ratchet straps; one towards the back, and one towards the front. Again, *make sure the fuel tank is nearly empty for this step*. Fishing the 2 ratchet straps into position requires a bit of patience and a flashlight but is entirely worth the ground clearance and weight improvements. In our experience, starting at the front of the fuel tank skid and working the straps back is easier than working from the back. Having a 2<sup>nd</sup> set of hands to help guide these into place is immensely helpful. Once they are in place between the tank and skid, secure them to the Jeep (via the frame, rock sliders or holes in the frames upper crossmembers) and drop the skid – ensuring the fuel tank is staying in place.

Note: Do not remove the DEF tank skid plate. It will be retained on both JL's and JT's.



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## Hardware

Figure 2 below will be referenced throughout the install guide to assist with placing the correct bolts in the correct locations.

ITEM NO.	PART NUMBER	QTY.	INT.
1	CSSH-M12-1.5X45	8	
2	HHS-.375-16X1.25	2	
3	BHCS-.375-16x.75	3	
4	SQCB-.375-16X1.25	15	
5	3/8" Flat Washer	22	
6	3/8"-16 Nylock Nut	19	
7	M10 Flat Washer	6	
8	HHS-M10-1.5X55	2	
9	HHS-M10-1.5X35	2	
10	HRN-M10-1.5	2	
11	M10-1.5 Nylock Nut	2	
12	HHS-.375-16X1.50	1	
13	SQCB-.375-16X1.50	1	

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TITLE:  
NV-HWK-JL-00042

SIZE	DWG. NO.	REV
<b>B</b>	NV-JL-00042 Pack List	<b>1</b>
SCALE: 1:50   lbs.		SHEET 5 OF 6

**Figure 2: JL Diesel belly skid hardware. Please note, the hardware kit for the JT diesel is slightly different and can be found below in the JT skid installation section.**



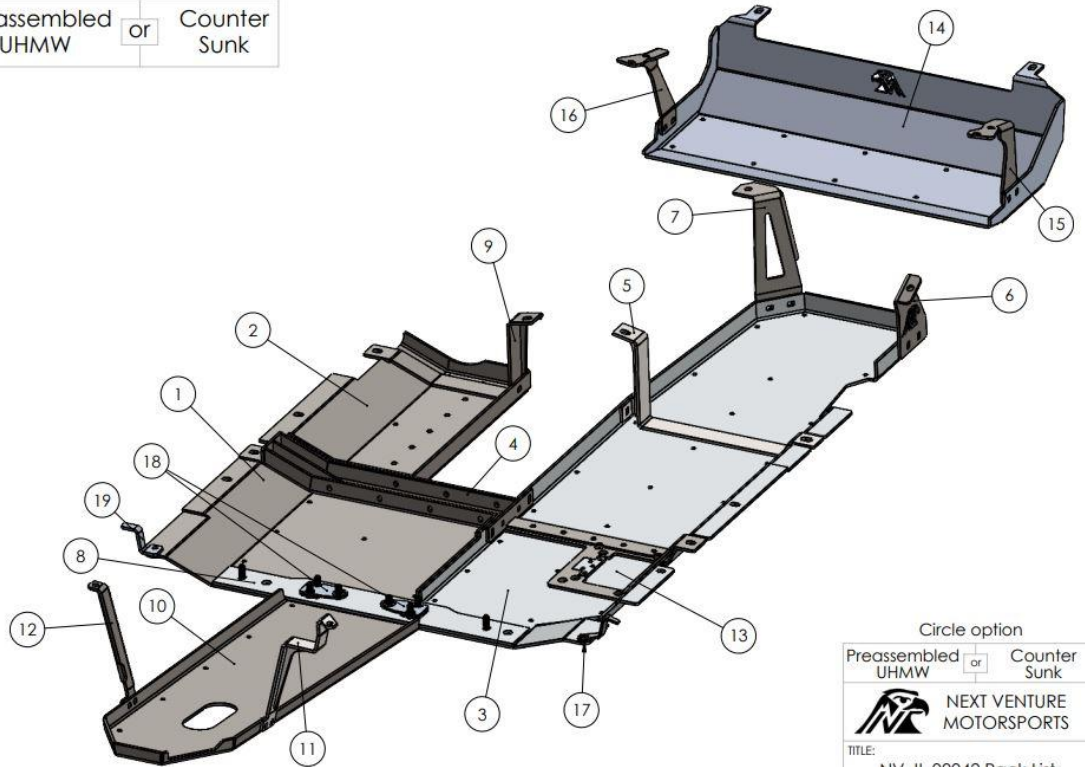
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## Installing The New Crossmember and Fuel Tank Support

**NV-JL-00042**

Preassembled UHMW  or Counter Sunk

ITEM NO.	PART NUMBER	QTY.
1	NV-JLT-00042-P	1
2	NV-JLT-00042-R	1
3	NV-JL-00042-Q	1
4	NV-JLT-00042-F	1
5	NV-JL-00042-I	1
6	NV-JL-00042-K	1
7	NV-JL-00042-L	1
8	NV-JLT-00042-S	1
9	NV-JL-00042-M	1
10	NV-JLT-00042-D	1
11	NV-JL-00042-A	1
12	NV-JLT-00042-C	1
13	NV-JLT-00042-GQ	1
14	NV-JL-00042-U	1
15	NV-JL-00042-V	1
16	NV-JL-00042-W	1
17	NV-JLT-00042-E	1
18	NV-JL-00040-HI	2
19	NV-JL-00040-Q	1



Circle option

Preassembled UHMW  or Counter Sunk

**NEXT VENTURE MOTORSPORTS**

TITLE: NV-JL-00042 Pack List

SIZE	DWG. NO.	REV
<b>B</b>	NV-JL-00042 Pack List	<b>1</b>
SCALE: 1:50/lbs.		SHEET 6 OF 6

**Figure 3: JL Diesel Full Assembly**

To begin, install both fuel tank support crossmembers F and I (Figure 3 Items #4, 5). Crossmember F will mount to both the driver and passenger side frame rail, while fuel tank support I will mount to the driver frame rail as well as a factory crossmember above the rear driveshaft. These mounting locations are shown below.

We recommend not fully torquing down these bolts yet, as it will make the remainder of the components easier to line up and install. Once secure, the ratchet straps holding the fuel tank can be removed.



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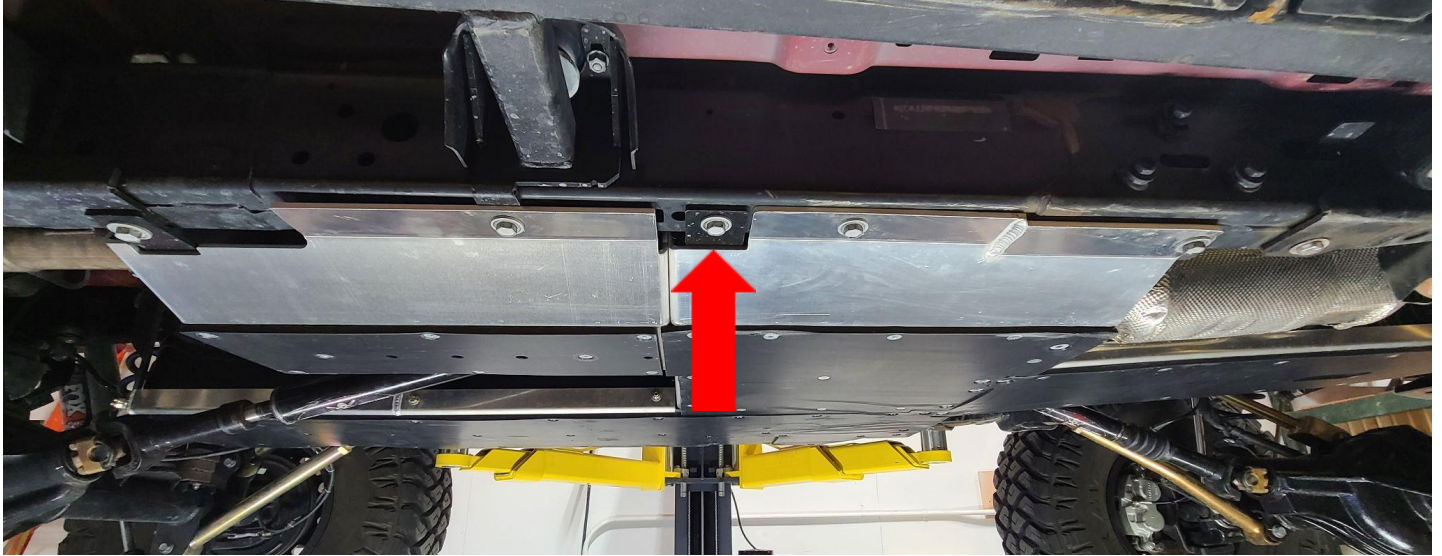


Figure 4: Passenger side of vehicle shown. The red arrow calls out the mounting location used at this step. This will use a factory bolt to fasten the passenger side of main crossmember F (Figure 3 Item #4) to the frame. Please note, at this time the aluminum skids should not be installed

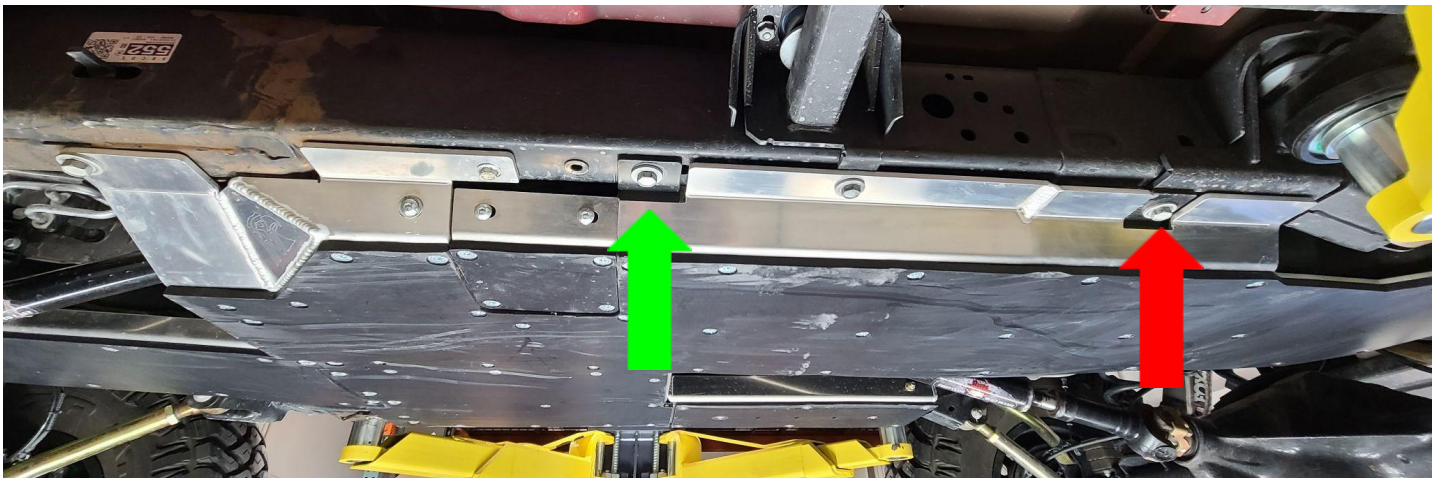


Figure 5: Driver side of vehicle shown. The green arrow calls out the driver side frame mounting location for crossmember F (Figure 3 Item #4). The red arrow call out the driver side frame mounting location of fuel tank support I (Figure 3 Item #5). Both of these mounts will utilize factory hardware Please note, at this time the aluminum skids should not be installed



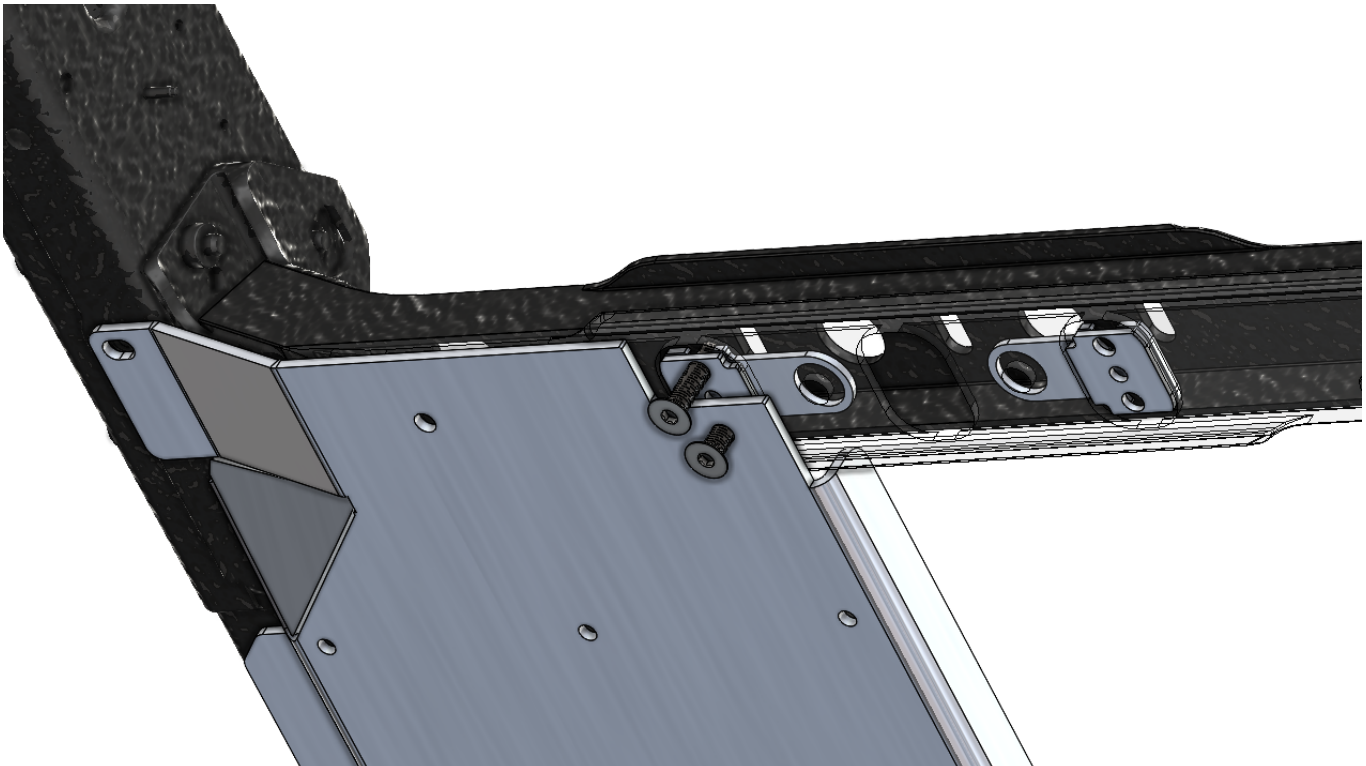
Figure 6: Inside mounting location of rear fuel tank support I (Figure 3 Item #5) will utilize factory hardware.



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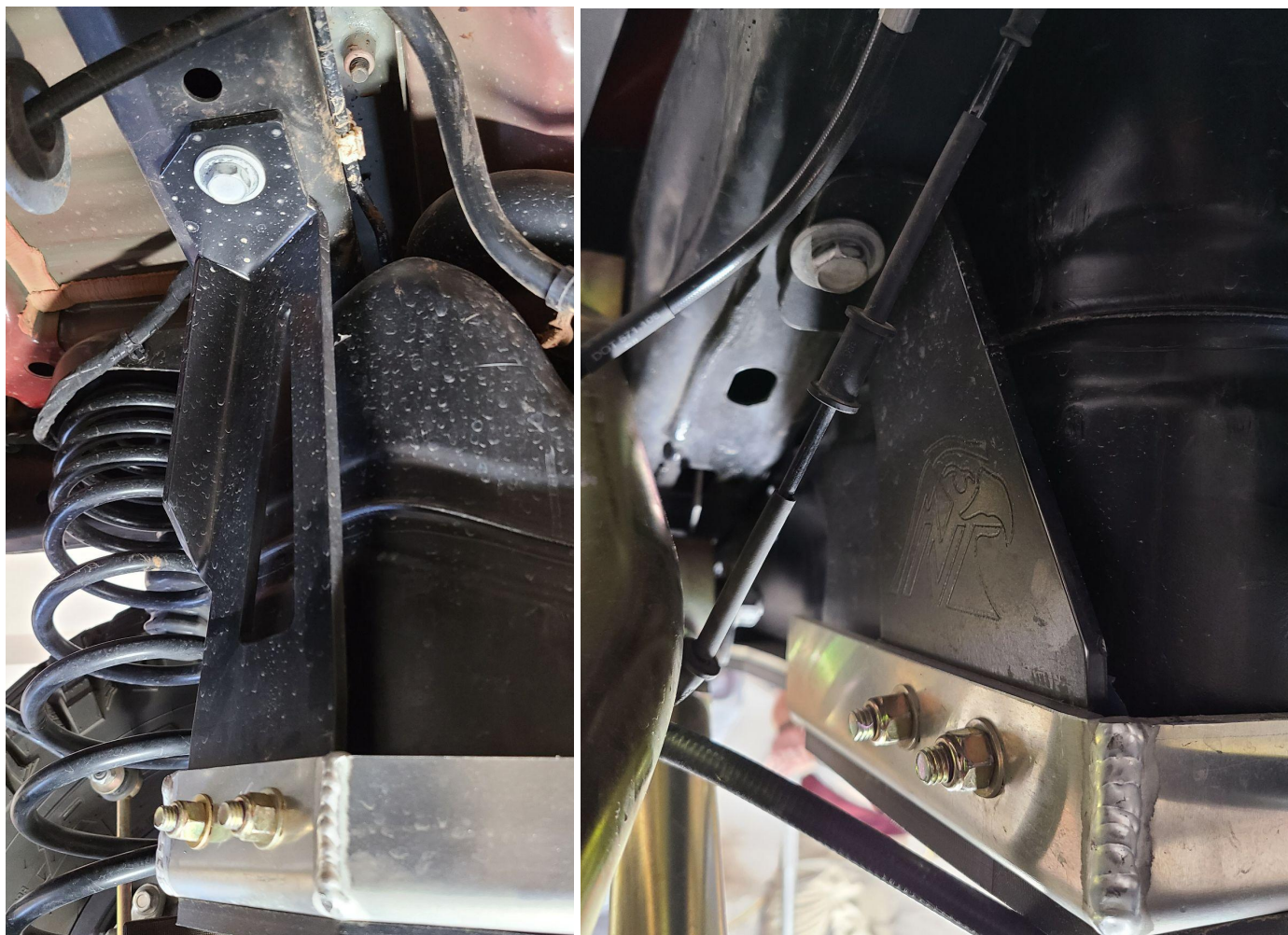
### Installing the Aluminum Skids:

This is the fun part, where everything starts to come together. First, install the crossmember hardware sticks (Figure 3 Items #18) into the transmission crossmember. We recommend inserting the frontmost bolt into each of these so they are easier to maneuver. The bolts that will thread into these are the M12-1.5x45mm countersunk bolts (Figure 2 Item #1).



**Figure 7:** Insert hardware sticks (Figure 3 Items #18) – note that the large cutout slides over the factory nuts inside the crossmember to help keep them aligned throughout installation. Repeat this for the transfer case skid. Note the bottom plate of the factory crossmember has been made transparent in the above image; the hardware stick will go inside the crossmember.

At this time, loosely bolt the two rear fuel tank skid supports (Figure 3 Items #6, 7) onto the back of the fuel tank skid (Figure 3 Item #3). Note they will be installed on the outside of the ski plate and the provided  $\frac{3}{8}$ "-16x1.25 carriage bolts, washers, and nuts (Figure 2 Items #4, 5, 6) will be installed from the inside of the skid out so that they clear the fuel tank. See Figure 8 below for these mounting locations.



**Figure 8: Left: Fuel tank support bracket L (Figure 3 Item #7) mounting location on the fuel tank skid. Right: Fuel tank support bracket K (Figure 3 Item #6) mounting location on the fuel tank skid. Note that the aluminum skids should not be installed on the vehicle at this time.**

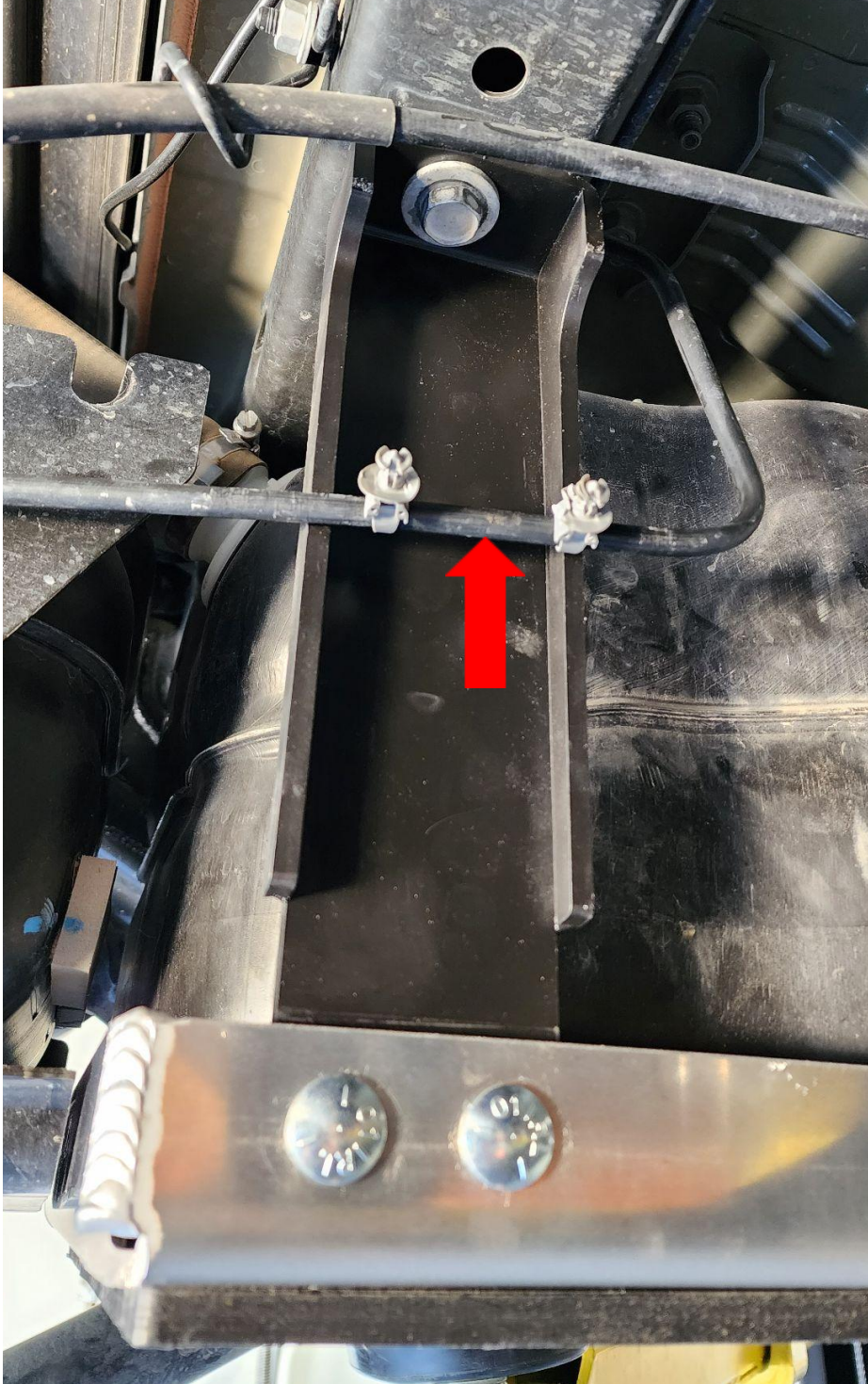
Now, the fuel tank skid can be carefully lifted into place on your Jeep. Note that the  $\frac{1}{4}$ " aluminum spacer will need to be installed on top of the front mounting points for the fuel tank skid plate. The location of this spacer is called out in the figures below. There are numerous mounting points for this skid plate that can be seen outlined in the figures below as well as the hardware needed at each location. Please note the difference between JL and JT mounting in Figure 10.



Figure 9: Aluminum Spacer (Figure 3 Item #8) shown with green arrow and sandwiched in between the fuel tank, transfer case, engine skid and the frame



**Figure 10-JL: Rear fuel tank support bracket L (Figure 3 Item #7) mounting location on the frame will utilize factory hardware. See slight differences in install for JT version of this bracket below:**



**Figure 10-JT:** The carriage bolts can be installed inward on the JT for better driveshaft clearance. Additionally, install the line called out by the red arrow behind bracket LLL (not as shown) and insert the plastic clips into the integrated holes in the bracket. Please note that the bracket shown is an older version and therefore does not have the holes for the plastic line clips.

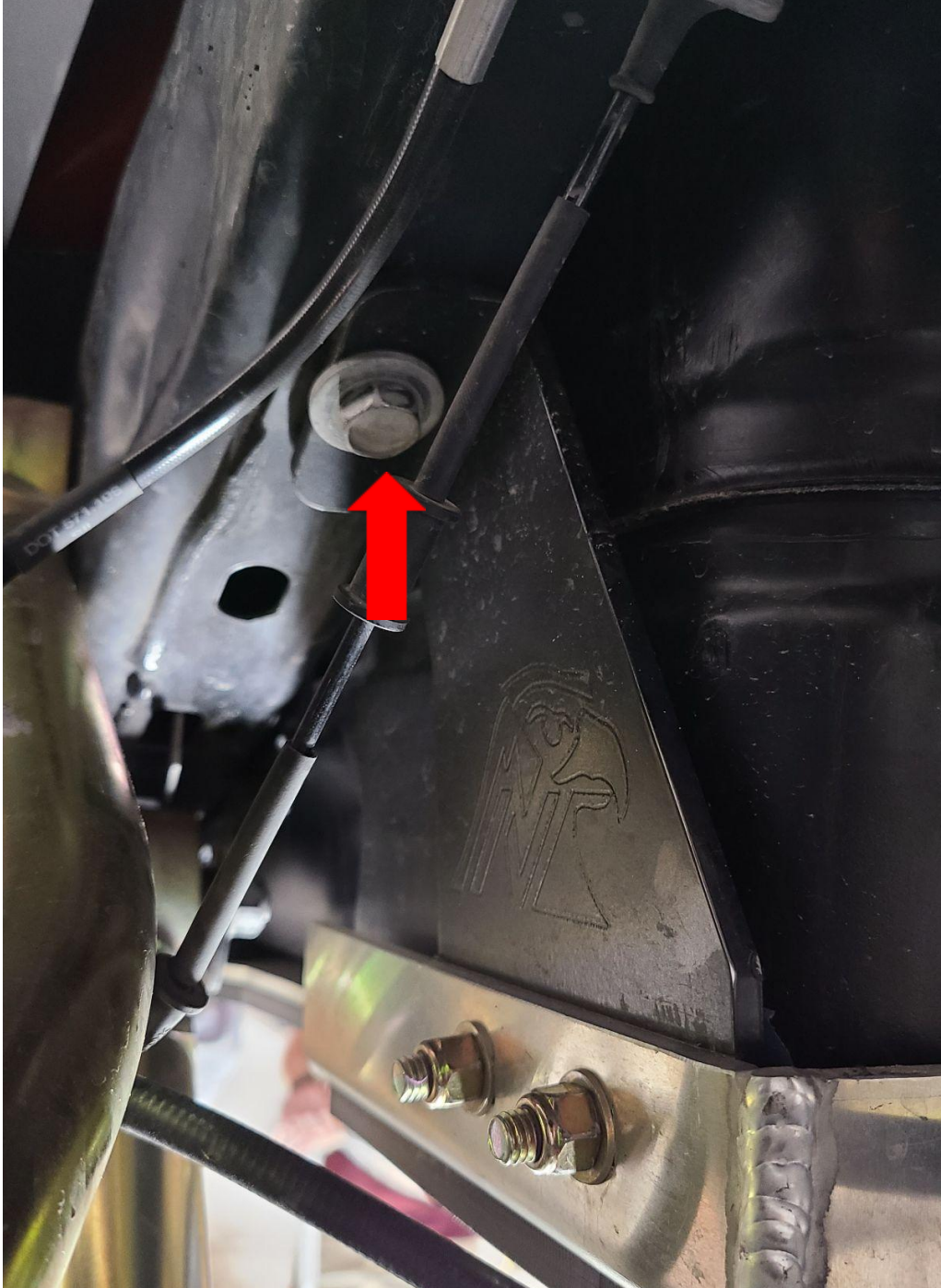
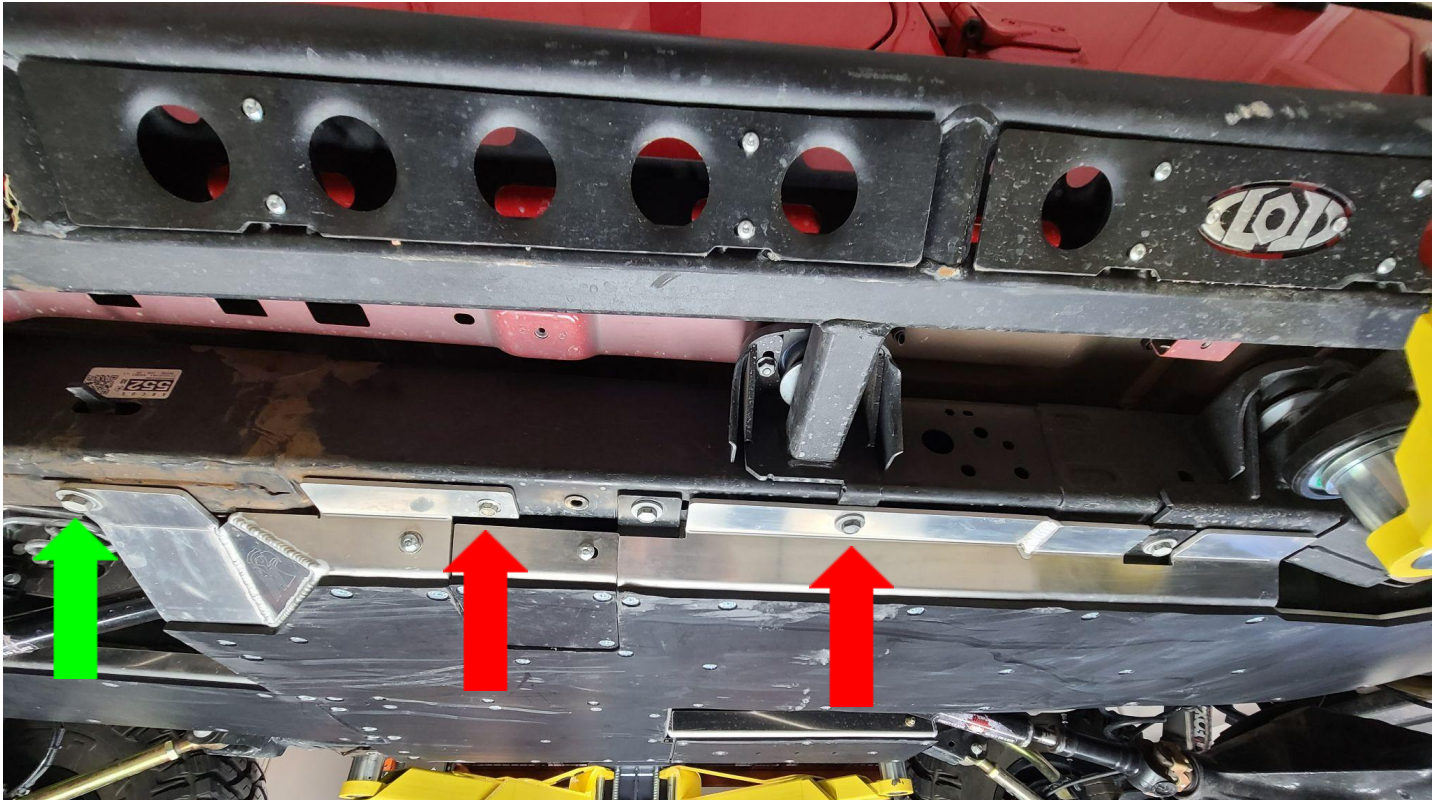


Figure 11: Rear Fuel tank skid support bracket K (Figure 3 Item #6) uses factory hardware



Figure 12: Fuel tank mount to crossmember I (Figure 3 Item #5) will utilize a provided  $\frac{3}{8}$ "-16x1.25" carriage bolt, washer, and nut (Figure 2 Items #4, 5, 6) rather than the hex head bolt pictured here.



**Figure 13: Driver frame rail mounting locations. These will all use factory hardware with the addition of the provided nut stick (Figure 3 Item #17) used in the location called out by the green arrow. This location may need a hole to be drilled. If this is the case, drill this hole last once everything is tight so the hole lines up in the correct location.**

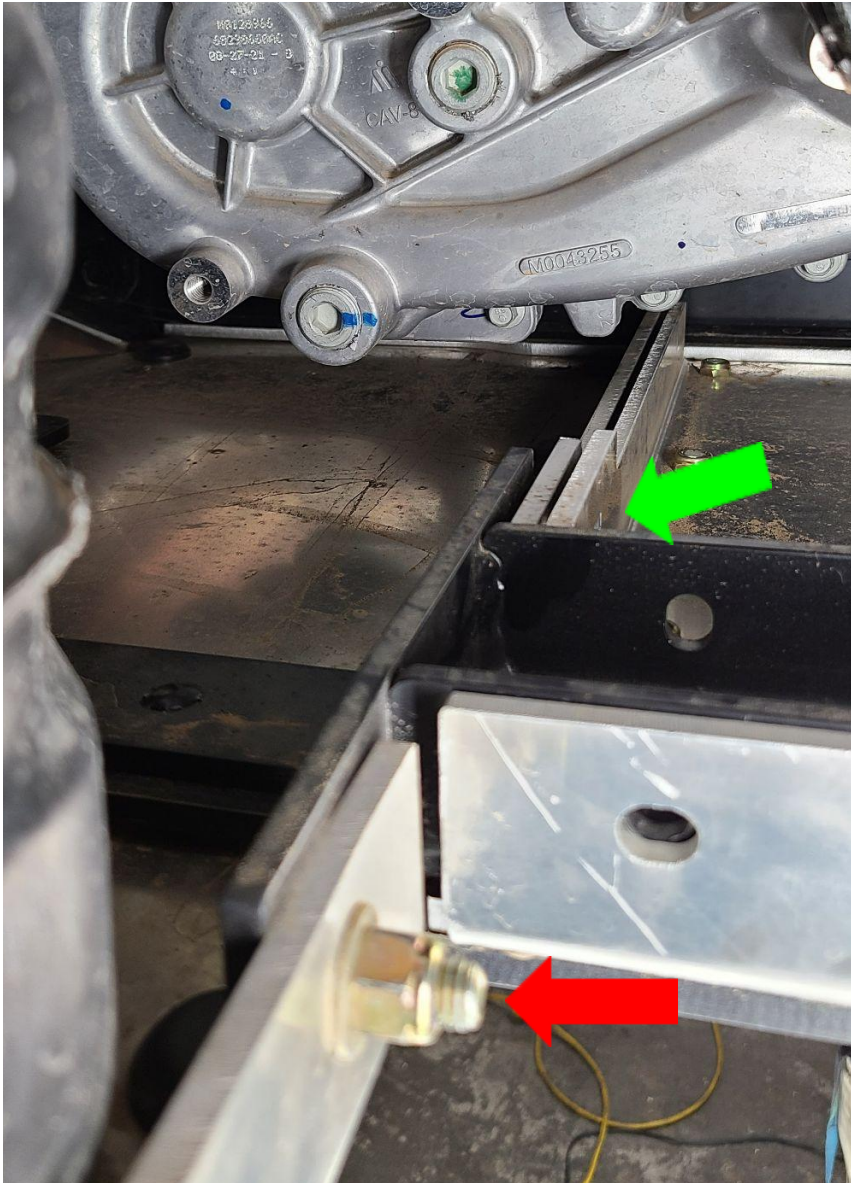


Figure 14: Inside fuel tank to main crossmember mount. The front hole as shown by the green arrow should remain unpopulated at this time as the transfer case skid will also utilize this mounting location. The location called out by the red arrow will use a provided  $\frac{3}{8}$ "-16x1.25 carriage bolt, washer and nut (Figure 2 Items #4, 5, 6)

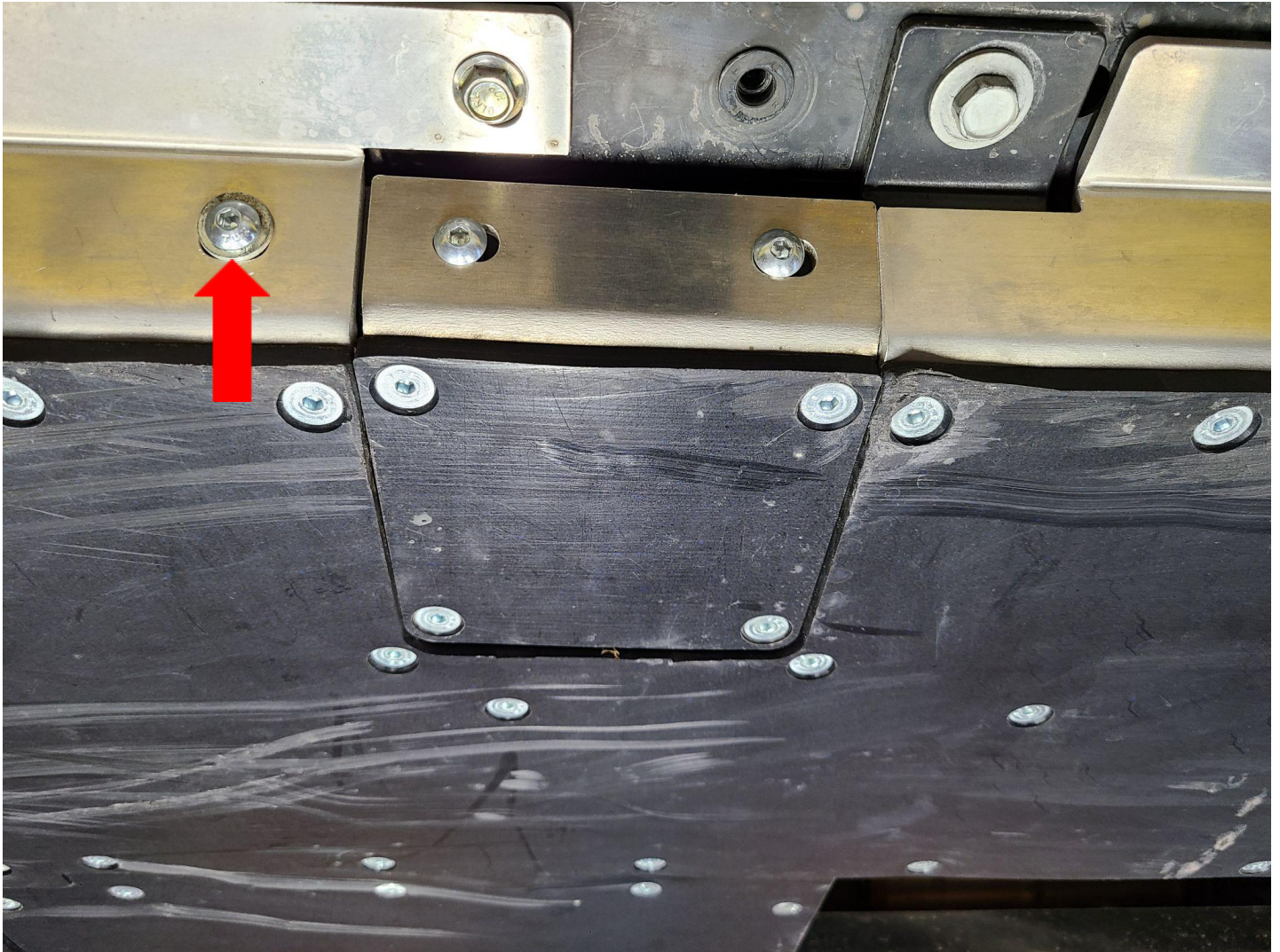
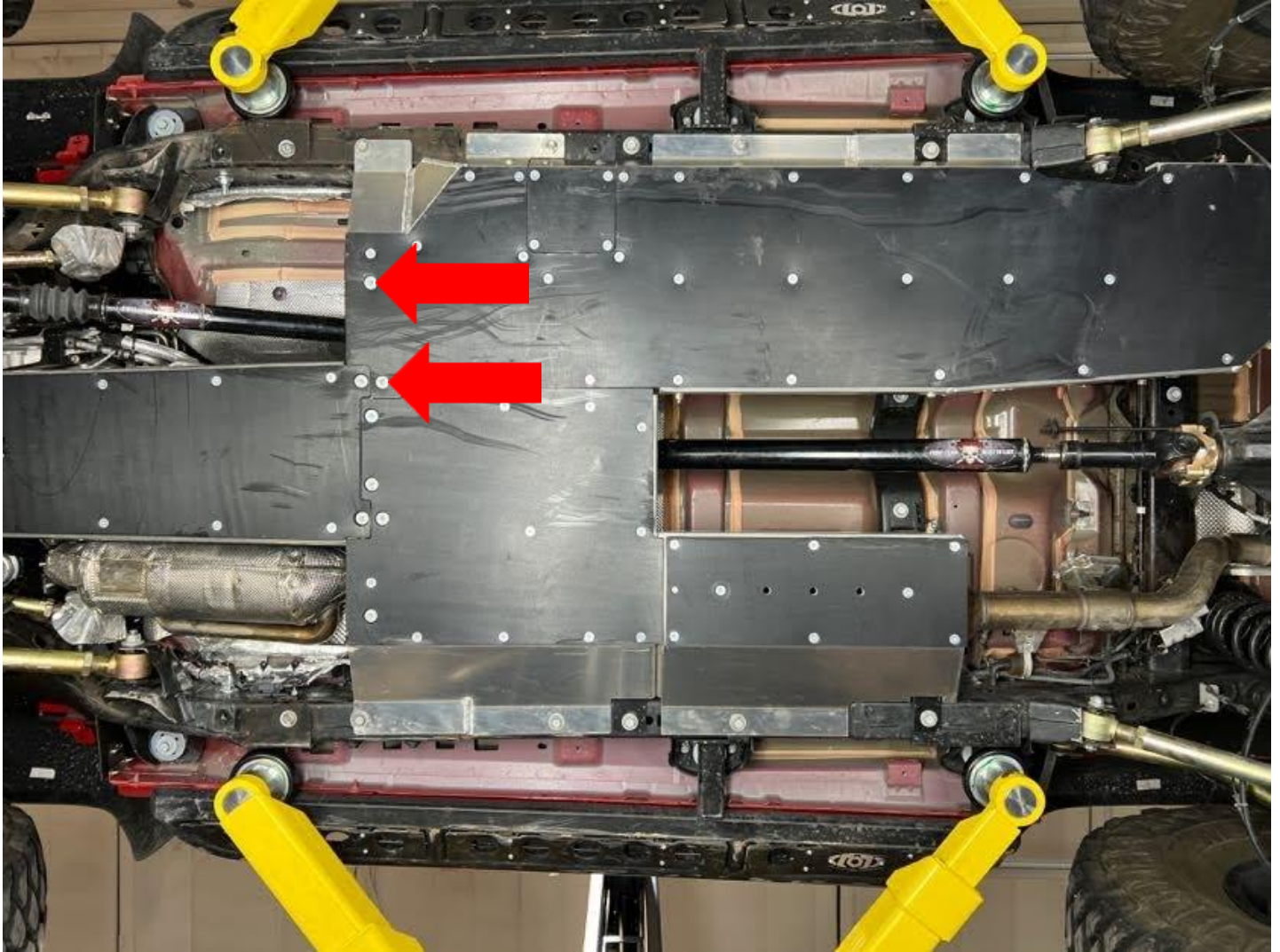


Figure 15: The access door to the fuel/water separator can be installed last, however it will utilize the provided  $\frac{3}{8}$ "-16x0.75" button head bolts (Figure 2 Item #3) as will the additional fuel tank skid mount called out with the red arrow.



**Figure 16:** These two mounting locations with thread into factory threads (top arrow) and the provided nut stick (bottom arrow) and will utilize the provided M12-1.5x45mm countersunk bolts (Figure 2 Item #1)

Next, the transfer case skid plate (Figure 3 Item #1) can be lifted into position. See the figures below for each mounting location and the hardware used.



**Figure 17: Passenger frame rail mounting locations will use factory hardware. Please note that the forward most mounting location called out above may require the use of the provided nut stick Q (Figure 3 Item #19). If your Jeep's frame already has a factory threaded insert, this nut stick will not be used.**

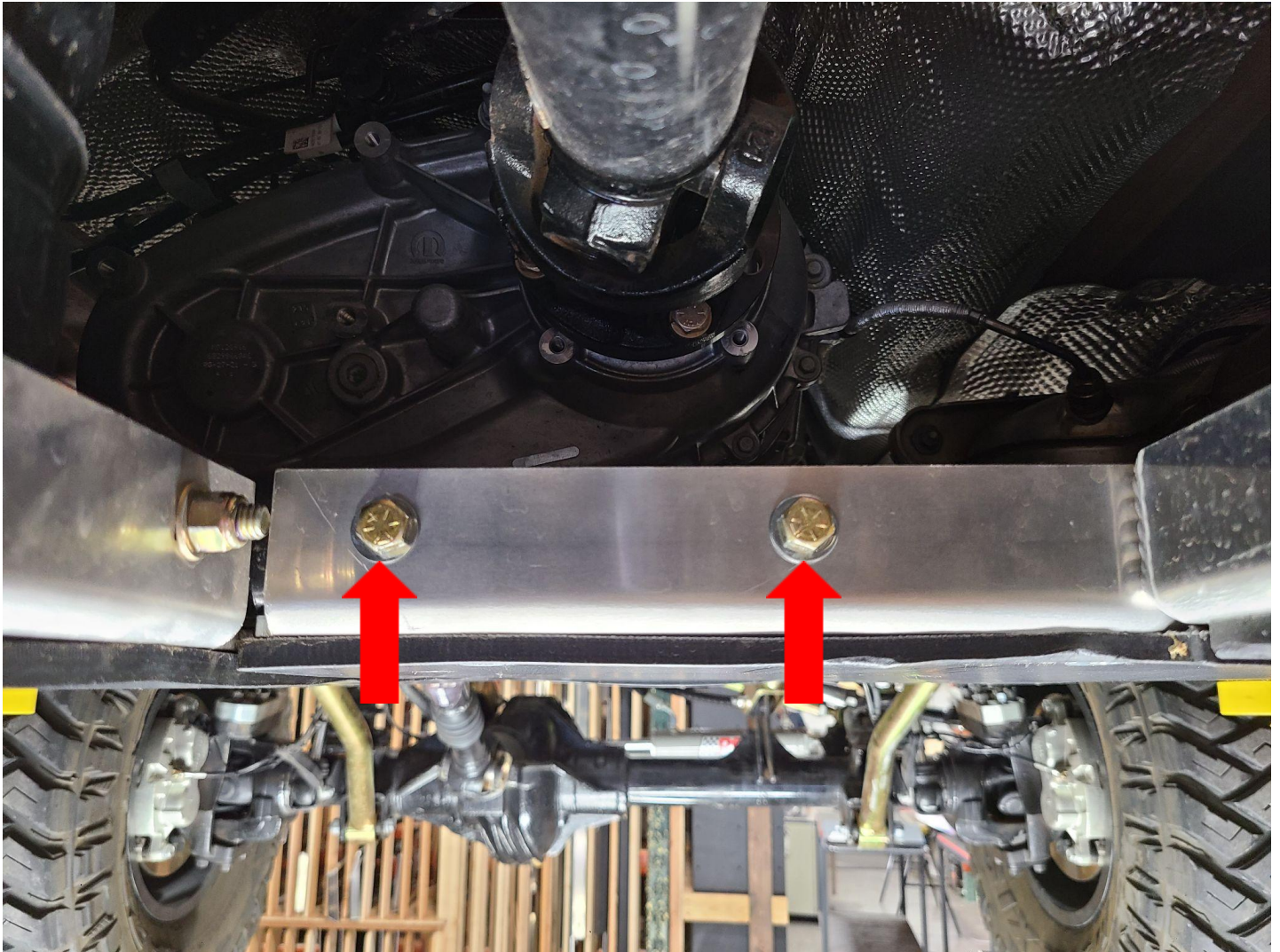
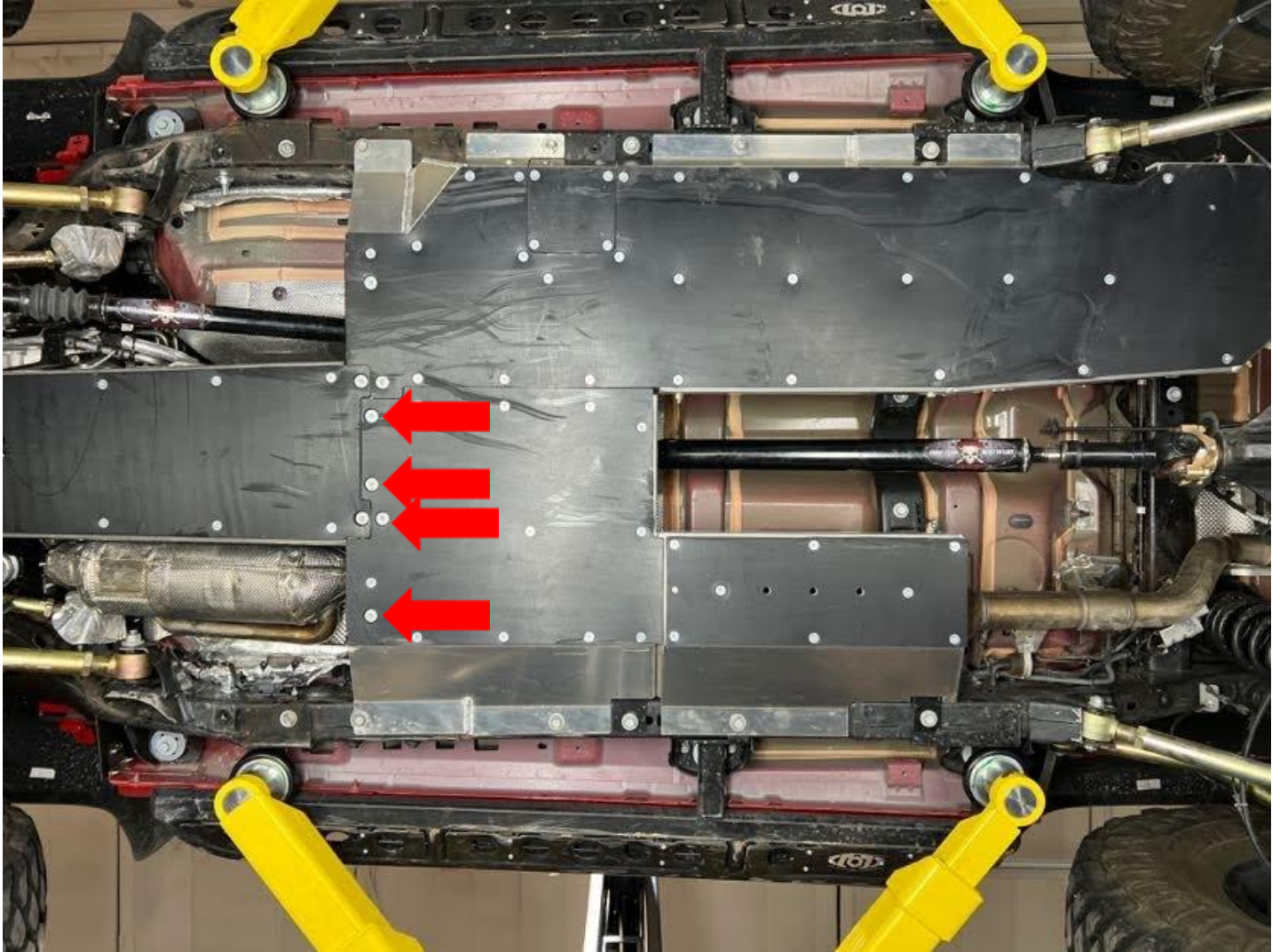


Figure 18: The back of the transfer case skid plate where it bolts to the main crossmember will utilize the provided  $\frac{3}{8}$ "-16x1.25 hex head bolts, washers, and nuts (Figure 2 Items #2, 5, 6)



**Figure 19: The front 4 mounting points will utilize the provided M12-1.5x45mm countersunk bolts as shown.**

The exhaust skid (Figure 3 Item #2) that mounts behind the transfer case skid can now be installed. The accompanying support bracket for this skid will also be installed at this time (Figure 3 Item #9). Loosely bolt the support bracket to the exhaust skid with the provided  $\frac{3}{8}$ "-16x1.25 carriage bolt, nut, and washer (Figure 2 Items #4, 5, 6), then lift the assembly up to your Jeep. The mounting locations and hardware that are used at this time are called out in the figures below.



Figure 20: The passenger frame rail mounting location will use factory hardware.

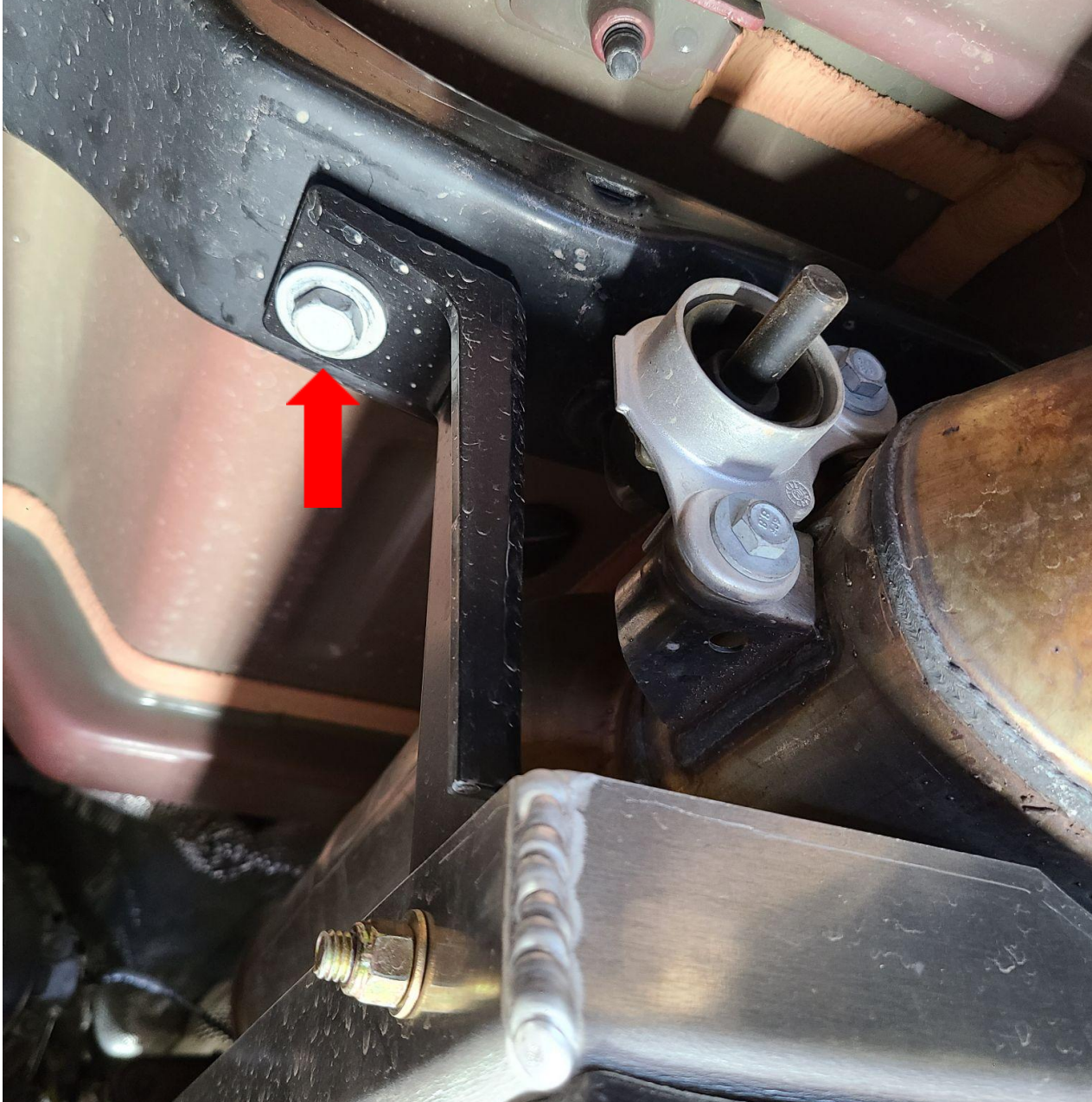


Figure 21: Exhaust skid support bracket M (Figure 3 Item #9) will bolt to the frame with factory hardware.



**Figure 22: This mounting location (exhaust, transfer case, and main crossmember) will utilize the 1 provided  $\frac{3}{8}$ "-16x1.5 hex head bolt, washers, and nut (Figure 2 Items #12, 5, 6)**

Next, the engine skid can be installed. First, loosely install the driver side engine mount bracket (Figure 3 Item #11) onto the engine mount using the provided M10-1.5x55mm hex head bolts, washers, and nut (Figure 2 Items #7, 8, 11). Then loosely install the passenger side engine mount bracket onto the aluminum engine skid plate with the provided  $\frac{3}{8}$ "-16x1.25 carriage bolts, washer, and nuts (Figure 2 Items #4, 5, 6). Note that both engine mount brackets will mount on the inside of the aluminum engine skid plate. The aluminum engine skid can now be lifted into place. See the figures below for the final mounting locations.

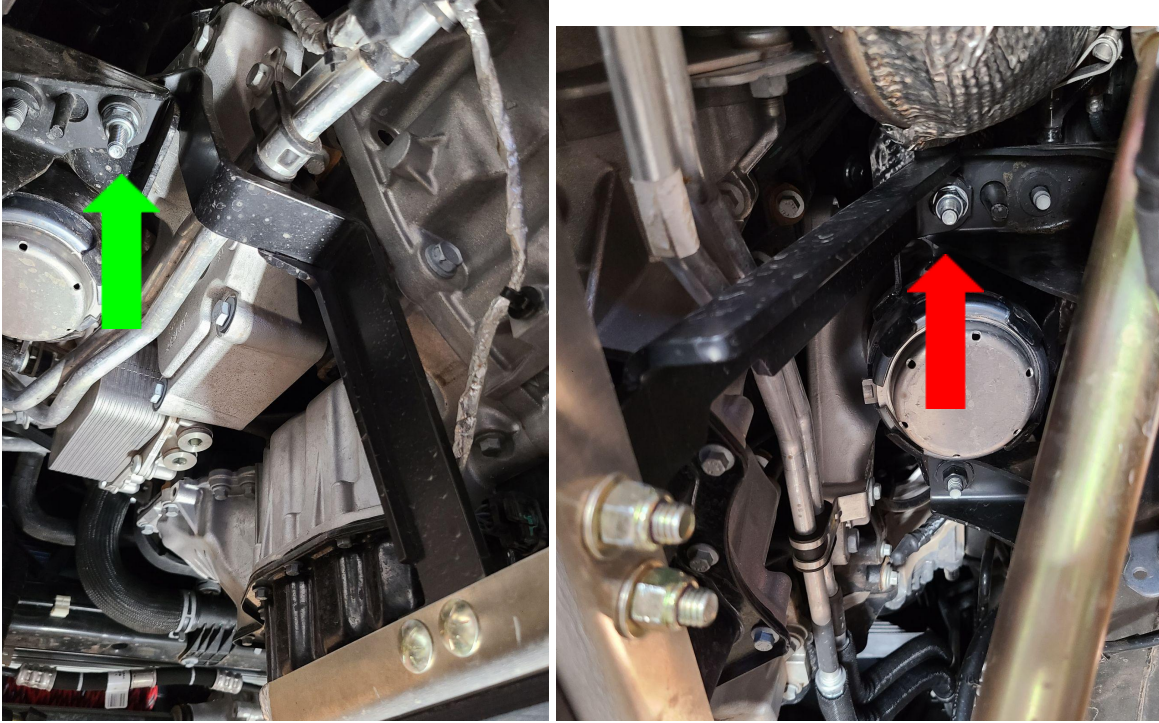


Figure 23: Orientation of Engine Skid Brackets. Left: Driver side engine mount bracket is installed above the engine mount (green arrow). Right: Passenger side engine mount bracket is installed below the engine mount (red arrow)

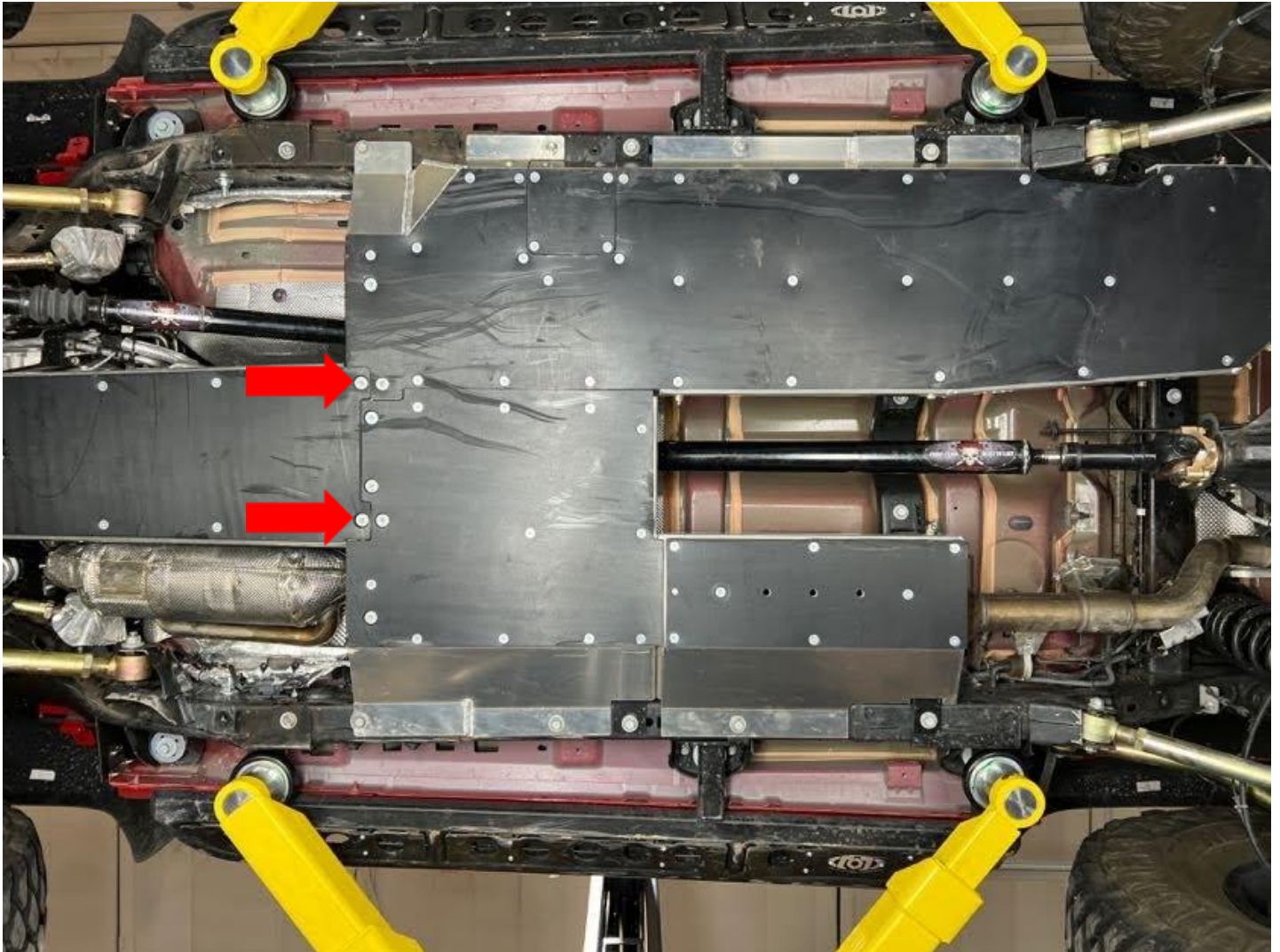
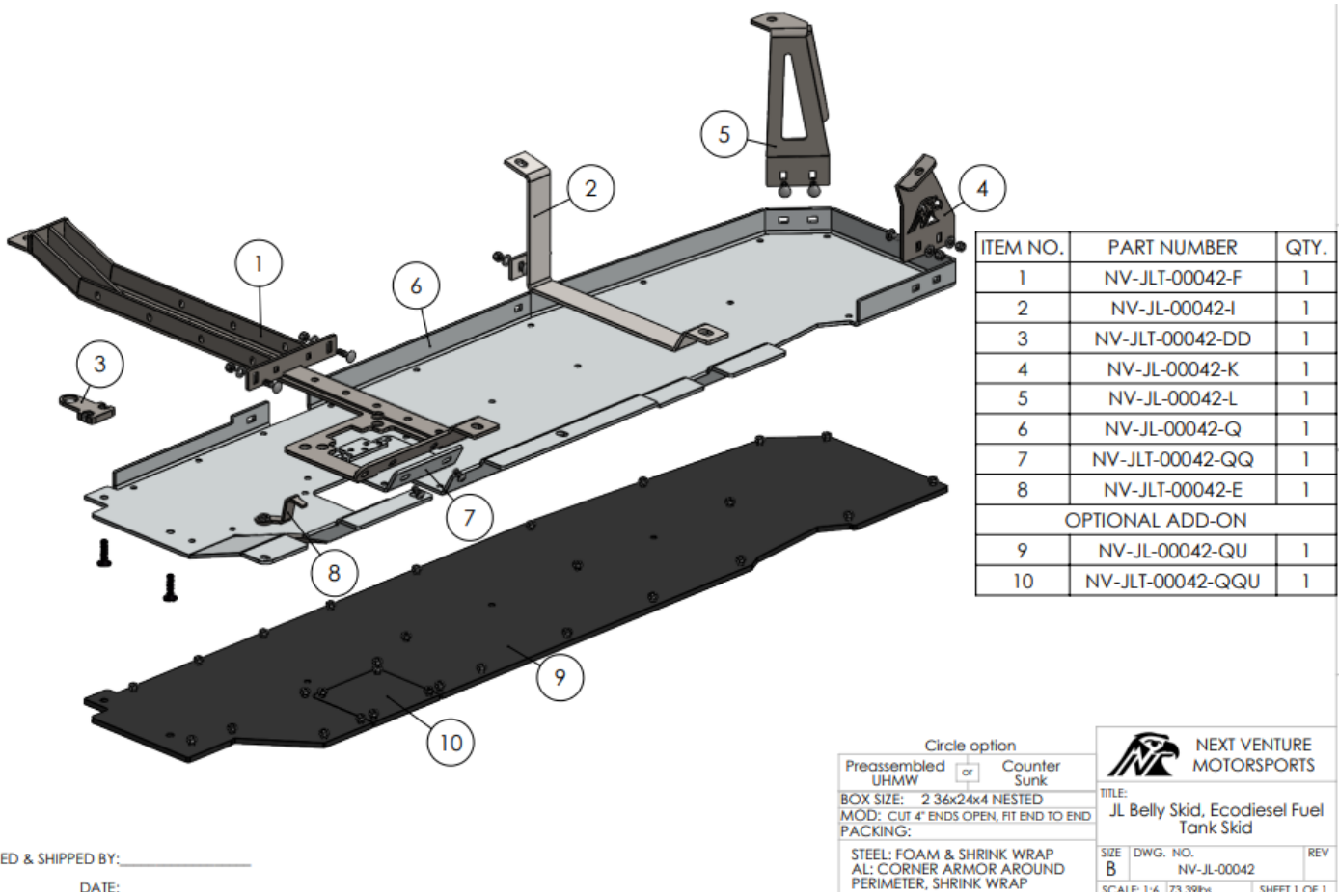


Figure 24: The final 2 engine skid mounting locations will use the provided M12-1.5x45mm countersunk bolts (Figure 2 Item #1)



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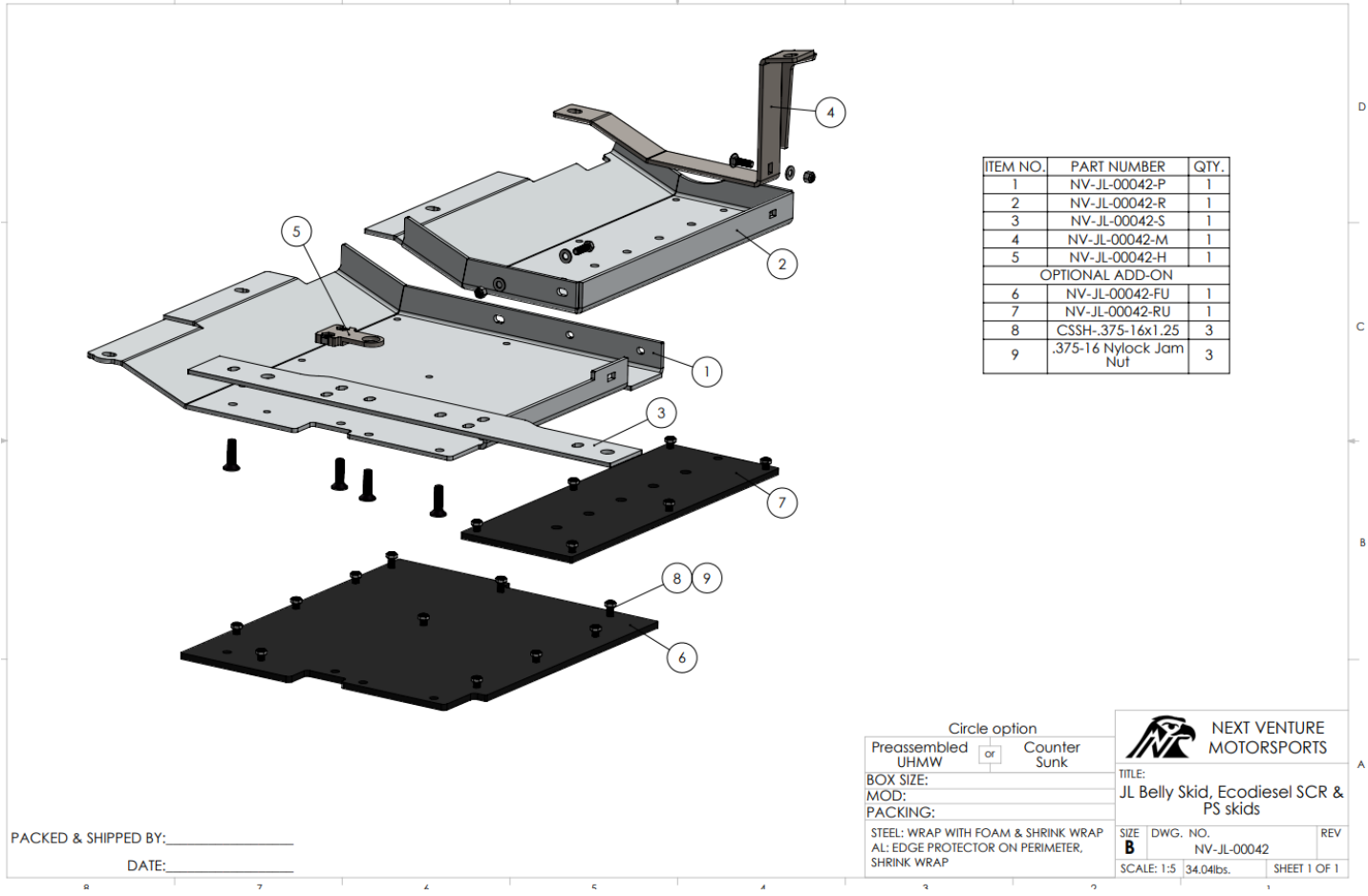
The following exploded view CAD models have been included for additional reference if needed. Below are JT specific instructions for installation as well as installation of the JL only DEF tank skid.



**Figure 25: Fuel Tank Skid and Crossmember Component Location Diagram**



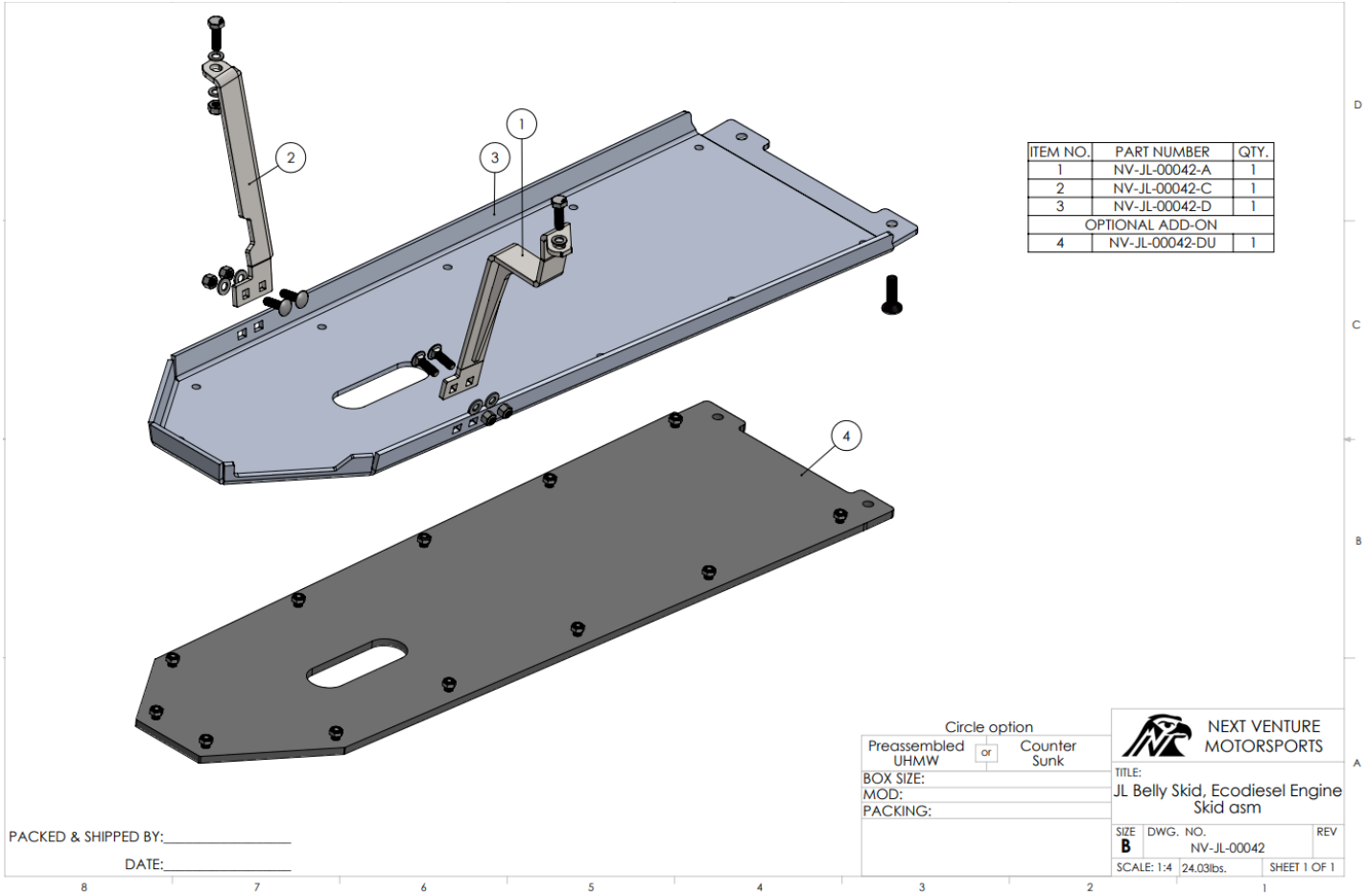
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**Figure 26: Passenger Side Skid Component Location Diagram**



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**Figure 27: Engine Skid Component Location Diagram**



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ALUMINUM BELLY SKID INSTALLATION GUIDE**

The JT diesel skid plates install largely the same as the JL diesel skid plates. The main difference is the fuel tank mounts. The JT only has one rear steel bracket (Figure 28 Item #9) instead of the two brackets for the JL, but otherwise will install the same. Additionally, the JT does not have a DEF tank skid to install.

PULLED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 ORDER #: \_\_\_\_\_

ITEM NO.	PART NUMBER	QTY.	INT.
1	NV-JLT-00042-R	1	
2	NV-JLT-00042-C	1	
3	NV-JLT-00042-D	1	
4	NV-JLT-00042-F	1	
5	NV-JLT-00042-DD	2	
6	NV-JT-00042-U	1	
7	NV-JLT-00042-A8-V1.2	1	
8	NV-JT-00042-MN	1	
9	NV-JT-00042-LLL	1	
10	NV-JLT-00042-E	2	
11	NV-JLT-00042-P	1	
12	NV-JLT-00042-S	1	
13	NV-JT-00042-Q	1	
14	NV-JLT-00042-Q-Q	1	
Hardware			
15	C55H-M12-1.5X45	8	
16	HHS-.375-16X1.25	1	
17	5 Q C B-.375-16X1.25	10	
18	3/8" Flat Washer	12	
19	3/8"-16 Nylock Nut	11	
20	BHCS-.375-16x.75	3	
21	HHS-M10-1.5X55	2	
22	M10 Flat Washer	3	
23	M10-1.5 Nylock Nut	1	
UHMW Kit Optional			
24	NV-JLT-00042-FU	1	
25	NV-JLT-00042-RU	1	
26	NV-JT-00042-QU	1	
27	NV-JLT-00042-QQU	1	
28	NV-JLT-00042-DU	1	
UHMW Hardware			
29	.375-16 Nylock Jam Nut	60	
30	C55H-.375-16x1.25	3	
31	C55H-.375-16x.875	57	

Circle option

Preassembled  UHMW or  Counter Sunk

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THRU:  
 JT Diesel, Belly Skid Assembly  
 w/ Hardware

SCALE: 1:24 (as)      SHEET 1 OF 2

**Figure 28: Full Diagram of JT Component Locations**  
*Orange arrows* signifies bolt and hardware stick (Item #10) that may require drilling. Save the marking and drilling for the last step if needed.  
*Blue Arrows* signify carriage bolts for Item #9 that we recommend installing into the fuel tank skid before lifting it into position.



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### JL Only DEF Tank Skid Install

The skid plate for the DEF tank may now be installed. Note the factory DEF skid plate will not be removed and your new skid plate will be installed outside of the factory one. The rearmost two mounting points bolt into the frame of your Jeep using the provided M10-1.5 x 35mm bolts (Figure 29 Item #5), M10 washers (Figure 29 Item #6), and M10-1.5 Hexagonal RivNuts (Figure 29 Item #4). RivNuts are a type of nut that deforms around the material it is set through to provide a solid connection point. Note that these RivNuts may already be installed in the frame, in which case the supplied RivNuts will not be needed. Refer to Figure 31 below for RivNut installation if needed. Note: Install the two provided Hexagonal RivNuts before installing the DEF skid plate. The front two mounts (Figure 29 Item #2 and #3) bolt up in between the factory sway bar mounts and the frame. These can be installed by removing the sway bar mounts, inserting the skid plate brackets between the sway bar mounts and the frame, and finally tightening the sway bar mounts back up.

ITEM NO.	PART NUMBER	QTY.
1	NV-JL-00042-U	1
2	NV-JL-00042-V	1
3	NV-JL-00042-W	1
4	HRN-M10-1.5	2
5	HHS-M10-1.5X35	2
6	M10 Flat Washer	2
7	3/8"-16 Nylock Nut	4
8	SQCB-.375-16X1.25	4
9	3/8" Flat Washer	4

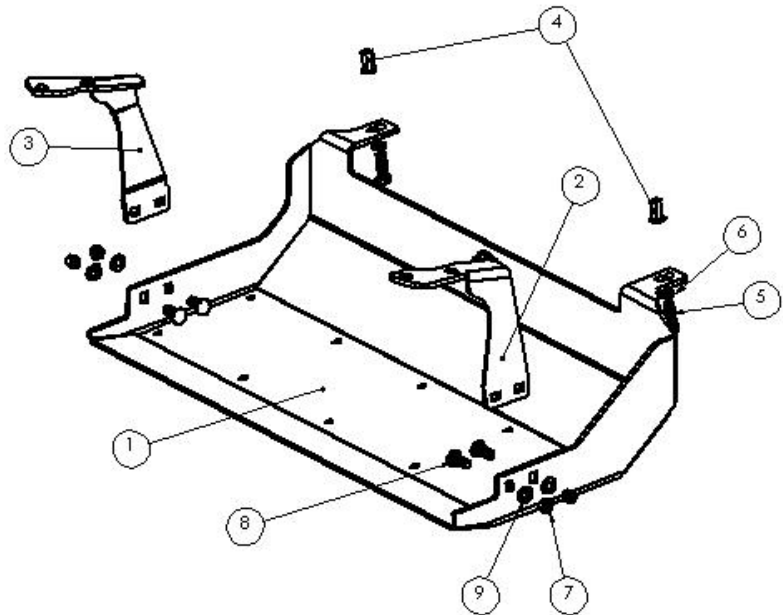


Figure 29: DEF Skid Plate Diagram

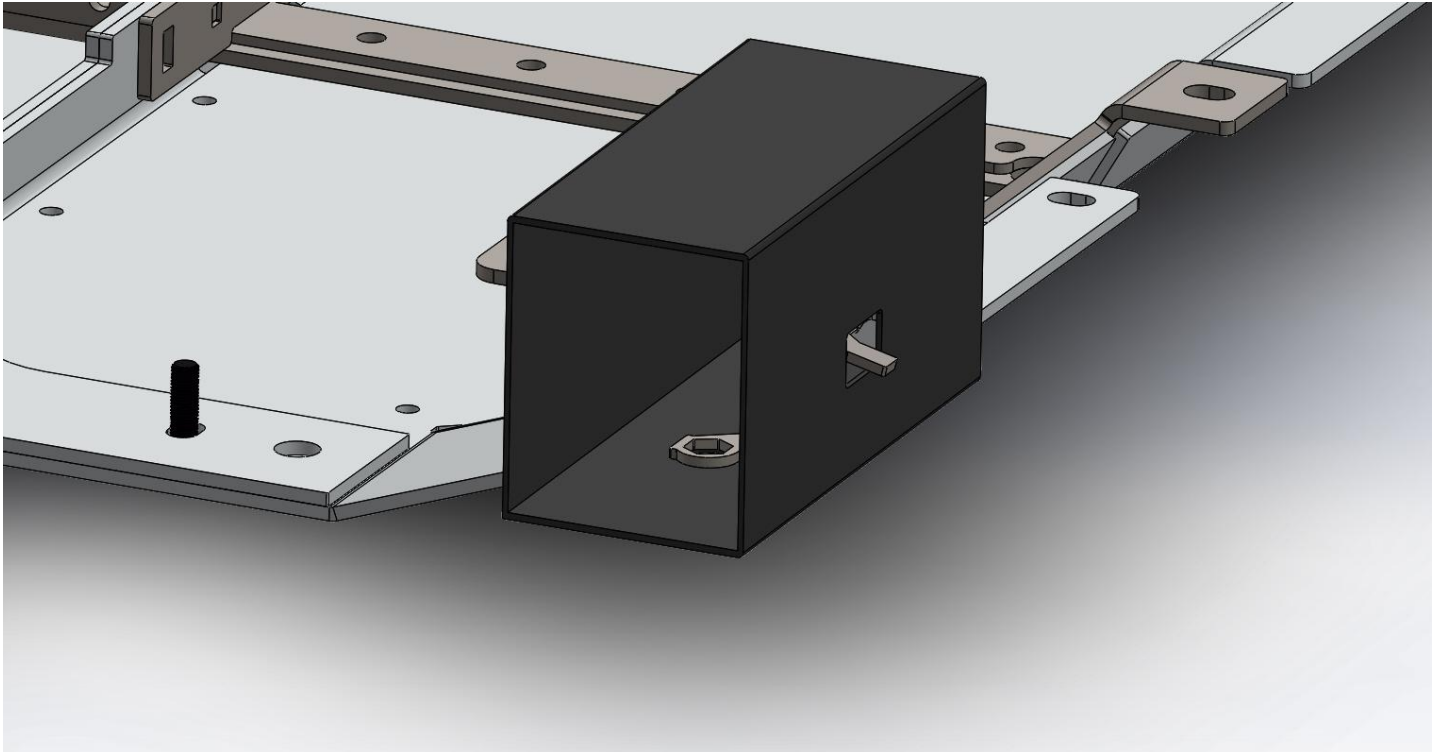
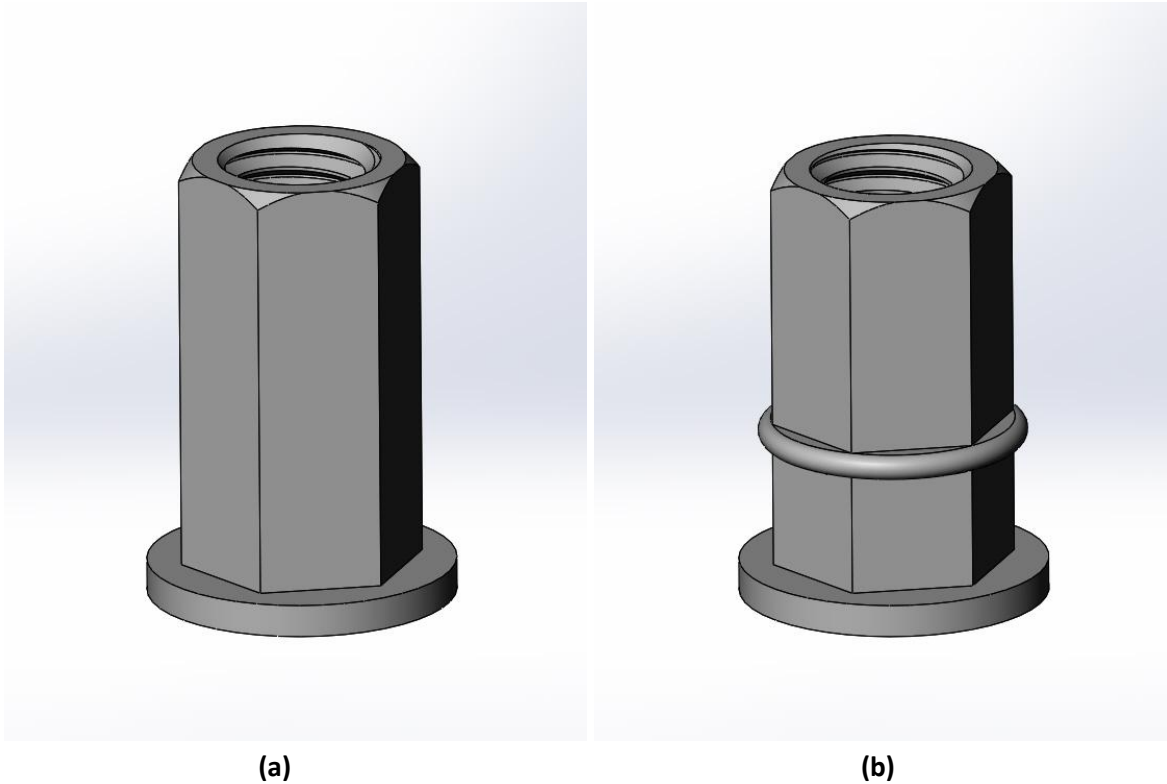


Figure 30: Orientation of nut stick through frame



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**Figure 31: (a) RivNut Before Installation (b) RivNut After Installation**

*Rivnuts are made to deform and must be properly deformed around your Jeep frame for correct operation of the RivNuts and to prevent loosening or failure of mounting hardware. To install these RivNuts, slide them up into the frame and thread the included M10 bolts with their M10 washers into the rivnuts. While providing upward pressure to ensure the RivNuts stay fully seated against the bottom of the frame, tighten the M10 bolts down to cause the RivNuts to deform around the frame. Once deformed, the M10 bolts may be removed and the DEF skid plate may be installed.*

### Post Installation Notes

Check that all bolts are installed and tight, ensure your wiring is secure and clear of any moving parts or vehicle components that get hot, reconnect your battery.... And go hit the road or the trail! We recommend checking the hardware after the next 500 miles of driving

Questions?

Email us at [Info@NextVentureMotorsports.com](mailto:Info@NextVentureMotorsports.com) or give us a call at 970 462 7368

-Dan and the Next Venture Team