



XOPlate

Rear Sub-Frame Skid Plate

For Jeep Cherokee (KL)

(XO-KL-RSUB)

Installation and Owners Guide

Revision A

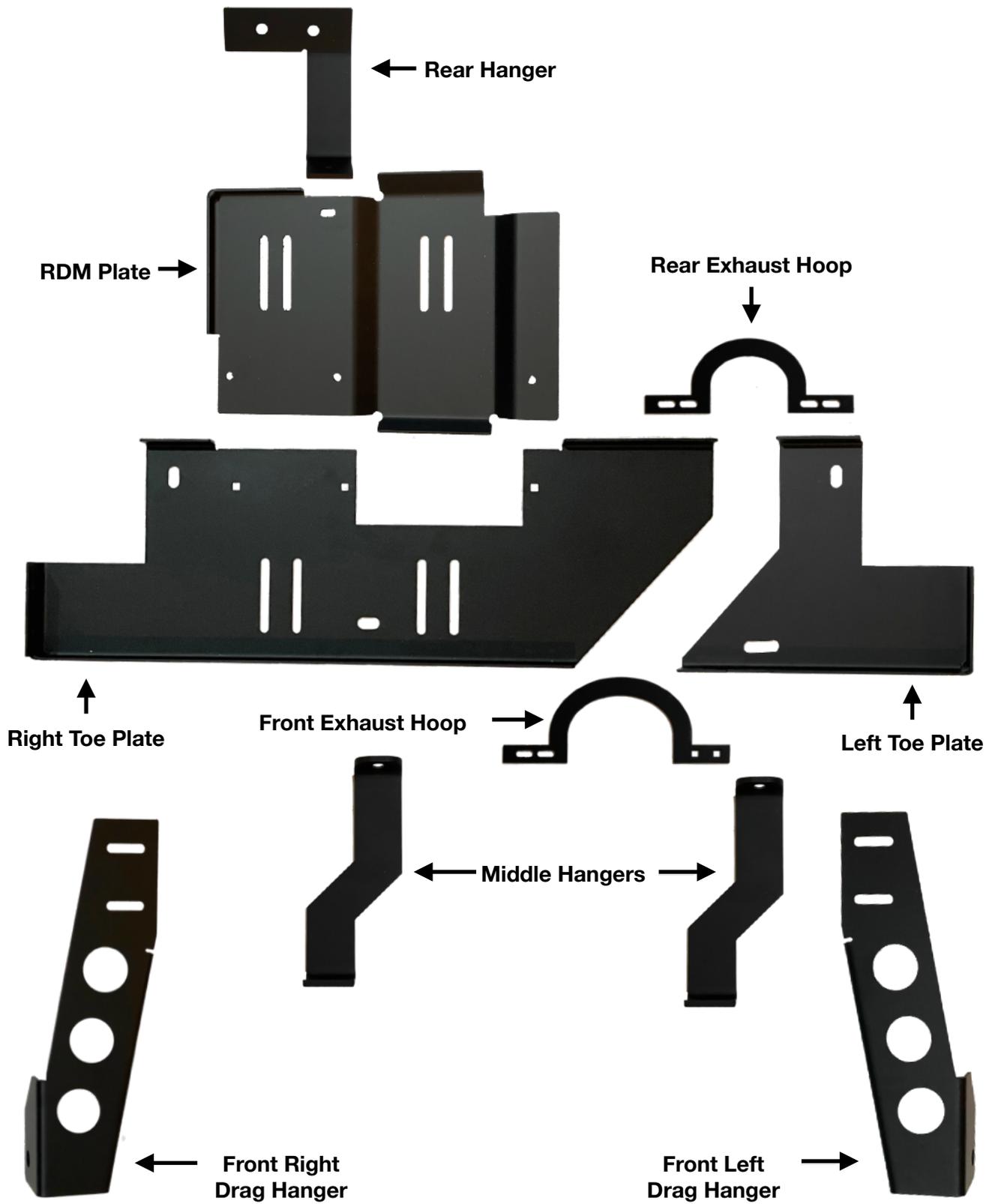
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Welcome to the Gleaming Alloy Family!

We'd like to sincerely thank you for purchasing this XOPlate Rear Sub-Frame Skid Plate for Jeep Cherokee (KL)! It is our second XOPlate product but has actually been in development longer than any of our other products. With your continued support, there will be many more similar products for the Jeep Cherokee (KL) and other platforms.



Get to Know Your XOPlate...



Installation Instructions

Please read completely through the following guide before attempting the installation. It will give you a good feel for what is involved to install the XOPlate. Some steps offer optional procedures and or tips, so reading through the entire steps first will prepare you if there are any alternate actions to take.

Parts List

1x XOPlate rear hanger
2x XOPlate middle hanger
1x XOPlate left drag hanger
1x XOPlate right drag hanger
1x XOPlate rear exhaust hoop
1x XOPlate front exhaust hoop
1x XOPlate RDM plate
1x XOPlate left toe plate
1x XOPlate right toe plate

Bag 2: 2x M10 nut-plates, 2x M10 studs, 2x M10 retaining clips, 2x spacer washers, 1x mini-tube Loctite thread locking compound.
Bag 3: 2x M12x1.75x100 flange bolts, 2x M12 flange nuts, 3x spacer washers, 1x M8 retaining clip.
Bag 5: 2x M8x1.25x25 flange bolts, 2x M8x1.25 flange nuts, 4x M8 washers.
Bag 6: 2x M8x1.25x20 carriage bolts, 2x M8x1.25 flange nuts.
Bag 7: 3x M8x1.25 flange nuts, 1x M10x1.5 flange nut.
Bag 8: 6x M8x1.25x16 carriage bolts, 6x M8x1.25 flange nuts.
Bag 9: 6x M8x1.25 flange nuts, 1x M10x1.5 flange nut.
Bag 10: 4x M8x1.25 flange nuts.

Optional:

5x bolt head protectors

Required Tools

Socket wrench
Socket extension (9"/23cm or longer)
13mm socket
15mm socket
13mm open end or box wrench
16mm open end or box wrench (or a crescent wrench)
18mm open end or box wrench
Small vice grips
Torque wrench

This installation guide is targeted at the DIY'er who is installing the skid plate at a home workshop, either inside a garage or in the driveway. If you are a professional mechanic and/or have access to a professional facility and tools, you will be able to replace some of the steps with more efficient techniques and equipment.

Where To Get Help

Should you have any questions about installation, or problems during the installation process, feel free to reach out to us for assistance. You can send email to info@gleaming-alloy.com or use Facebook Messenger to message “Gleaming Alloy” directly. You can also message us on Instagram at [@gleaming_alloy](https://www.instagram.com/gleaming_alloy). If you have a particular issue, please accompany it with photographs showing the nature of the problem.

The following resources are also available on the internet.
Just scan the QR code to take you there:



[Gleaming Alloy
Owners Group](#)



[Gleaming Alloy
Support Documents](#)



[Gleaming Alloy
YouTube Channel](#)

Step 1: Raise the vehicle

We recommend backing your Jeep up a pair of auto ramps to create more room beneath the vehicle. It is a much safer alternative to raising the vehicle with a floor jack. If you decide to jack the vehicle up, be sure to use a pair of floor jacks placed beneath the pinch weld in front of both rear tires.

In either case, be sure to engage the parking brake and place a wheel chock or similar device in front of the front tires.



Step 2: Install Toe-Link Nut-Plates

For this step you will need the two toe-link nut-plates, two M10 studs, two M10 retaining clips, two spacer washers and the Loctite thread-locking compound. These parts are packaged together in the bag marked "2".

Before proceeding, test fit the M10 studs in the nut-plate. Make sure the threads are free of dirt and debris so they can be hand-threaded easily.



Locate the left toe-link mount on the sub-frame. You will notice there is a hole on the rear side of the toe-mount. This is the hole that will serve as one of the mounting points for the XOPlate.



Slide the nut-plate into the toe-mount cavity. The nut welded onto the nut-plate should be facing up and should be inserted first, as shown in the picture.



Using the tips of your fingers, maneuver the nut-plate so that the bolt hole is situated directly behind the hole in the toe-link mount, as shown in the picture. A Phillips screwdriver is helpful in aligning the hole.



Place two drops of Loctite thread-locking compound on one end of the M10 stud, each drop 180° apart. One end of the stud has been cleaned with a wire brush. That is the end you should apply the Loctite to.

Note: The Loctite compound starts to set in five minutes, so proceed with some sense of urgency once it is applied. Also, try not to waste any Loctite compound since the mini-tube only contains enough compound for six applications.



Thread the stud into the nut-plate. It helps to insert one of your fingers into the toe-mount cavity to hold the plate still and provide back pressure while you are doing this.

Thread the stud into the nut-plate about 3-4 full turns. Don't thread it any more than this! If you have difficulty threading the stud fully, use a small pair of vice grips to grab the stud. You should not need a lot of force to thread the stud into place, but maybe more force than your fingers can provide.



Once the stud has been threaded into the nut-plate, slide one of the thick spacer washers onto the M10 stud and then push the retaining clip onto the stud.

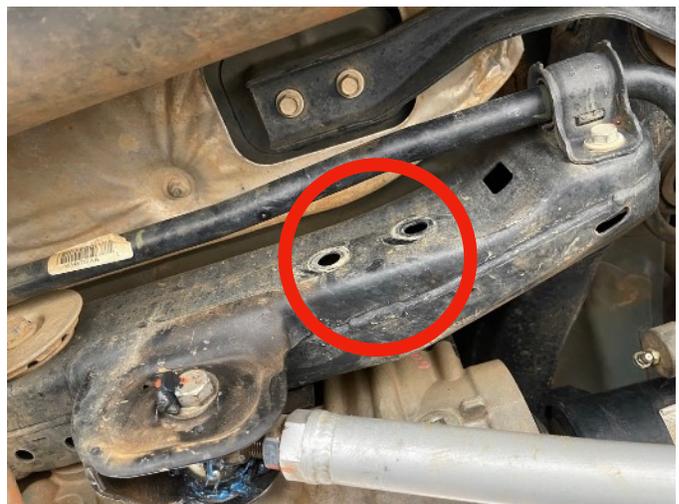
Now repeat these same steps for the right-side toe-mount.



Step 3: Install the Rear Hanger

For this step you will need the rear hanger bracket, two M12x1.75x100mm flange bolts, three thick M12 washers, two M12 flange nuts and an M8 retaining clip. The hardware for this step is packaged together in the bag marked "3".

Locate the two holes on the right side of the rear sub-frame crossmember. These holes are going to be the mounting point for the rear hanger.



Insert the two M12 flange bolts through these holes from the rear of the vehicle so the threads exit the front of the crossmember.



Place the two thick M12 washers over the threads of the bolts in front of the crossmember.



Place the rear hanger bracket over the two M12 bolts. The leg of the bracket that hangs down is positioned towards the center of the vehicle.

Thread the M12 nuts onto the bolts. Finger tighten only! You want the bracket to still have a bit of play at this point until you get the entire skid plate into its proper position



Place the thick spacer on the stud at the end of the leg that hangs down. Press the supplied retaining clip onto the threads to hold the spacer in place.



Step 4: Install The Middle Hangers

For this step you will need the two middle hanger brackets.

Locate the left fuel tank skid plate which is in front of the left axle. On the rear of the fuel tank skid plate there is a riser that bolts to the uni-body. This riser is in the vicinity of the exhaust pipe.



Use a 15mm socket on a long extension to remove the bolt that connects the fuel tank skid plate riser to the unibody.



Install one of the middle hanger brackets over the hole exposed by the bolt you just removed. Thread the bolt back into the uni-body to fasten the mid-hanger bracket into place. The middle hanger bracket should nest inside the fuel tank skid-plate riser and the “zig” in the bracket should point away from the exhaust pipe.

Torque the fuel tank skid plate bolt to 50 ft-lbs (68 Nm).



Repeat this procedure for the rear of the right fuel tank skid plate. The riser for this skid plate is more exposed and easier to reach than the one on the left side.

Note: there is a bolt for the fuel tank strap in this general vicinity. Be sure to loosen the bolt for the fuel tank skid plate and not the fuel tank itself!



When installed, the right-side middle hanger should look as pictured.

Torque the fuel tank skid plate bolt to 50 ft-lbs (68 Nm).



Step 5: Install the Front Drag Hangers

This step will require the left and right front drag hangers, two M8x1.25x25 flange bolts, two M8x1.25 flange nuts and four M8 washers. The hardware for this step is packaged together in the bag marked "5".

Note: the drag hanger brackets are *not* identical and are marked 'left' and 'right'.

On the right side of your Jeep, locate the right fuel tank skid plate. On the outer side of the skid plate is a riser that bolts to the uni-body. This is going to be the mounting point for the right front drag hanger.



Thread the M8 flange bolt through the auxiliary mounting hole in the fuel tank skid plate riser as shown in the picture.

Note: The next steps are going to require a bit of manual dexterity. A second set of hands are useful!



Place one of the M8 washers over the bolt threads and hold in place.



Push the rubber isolator on the right drag hanger bracket onto the thread of the M8 bolt.



Slide the other M8 washer over the threads and then secure the entire drag hanger bracket with an M8 flange nut.



You should NOT fully tighten the nut at this time, Just thread it on by 1-2 turns and then let the entire bracket hang loose. You will come back and secure it later.

Repeat this same process for the left side of the vehicle.



Step 6: Assemble the Left Toe Plate

This step requires the left toe plate, the front exhaust hoop, two M8x1.25x20 carriage bolts and two M8x1.25 flange nuts. The hardware for this step is packaged in the bag marked "6".

The front hoop is the larger of the two hoops. On one side, there are two square holes. Push the two M8 carriage bolts through these holes as pictured.



Push the protruding threads of the two carriage bolts through the slots on the front of the left toe plate as shown. In this configuration, the hoop will be on the inside of the front flange of the toe plate as shown in the picture..

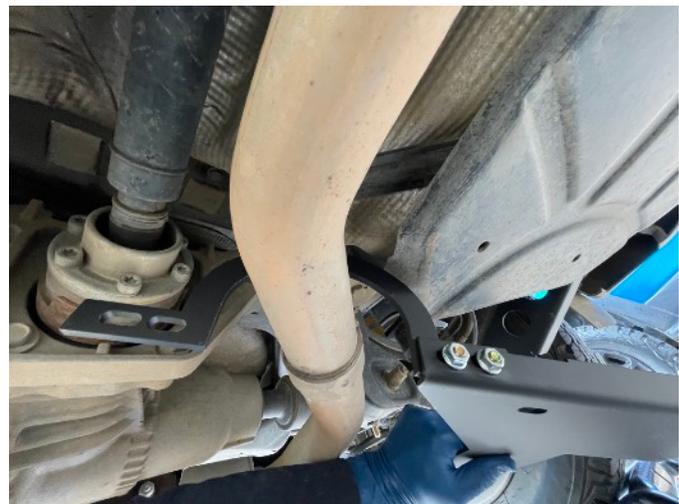
Use the two M8 flange nuts to finger tighten the carriage bolts in place. You want the hoop to be firmly attached but still have the ability to slide left-to-right along the slots of the toe plate.



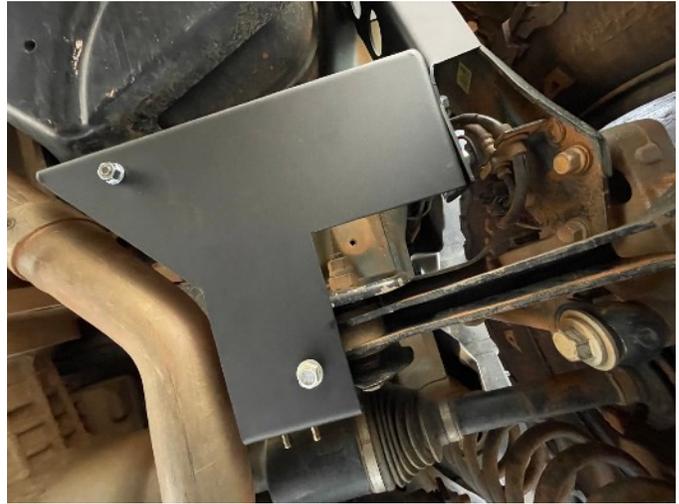
Step 7: Install the Left Toe Plate Assembly

This step requires the left toe plate assembly (from Step 6), three M8x1.25 flange nuts and one M10x1.5 flange nut. The hardware for this step is packaged in the bag marked "7".

Move the left toe-plate assembly into position by weaving the front hoop up and over the exhaust as shown in the picture.



Once the front hoop has been maneuvered over the exhaust, align the studs on the middle hanger and the toe-link nut-plate with the corresponding slots on the toe-plate assembly. Once those studs pass through the slots, thread an M8 flange washer onto the middle hanger stud and the M10 flange nut onto the toe-link mount stud. Thread both of the nuts loosely... you just need them to keep the left toe plate from falling.



Note: when tightening the M10 flange nut on the left side, make sure the nut-plate does not rotate out and interfere with the toe control arm.



Position the pre-welded studs on the outer, left side of the toe-plate through the slots of the left front drag hanger. Use two M8 flange nuts to hold the drag hanger in place but do not tighten the nuts.



Step 8: Assemble the Main Plate

The step requires the right toe plate, the RDM cover plate, six M8x1.25x16 carriage bolts and six M8x1.25 flange nuts. The hardware for this step is packaged in the bag marked "8". The right toe plate and the RDM cover plate will be attached together and become what is known as the Main Plate.

Insert the front of the RDM plate into the rear of the right toe plate at a slight angle as pictured. The angled front of the RDM plate is designed to interlock with the right toe plate.

Flatten the two plates against each other. Make note of the six holes shown in the picture.

Insert the six M8 carriage bolts through the holes from the bottom. Thread all six M8 flange nuts onto the carriage bolts. Tighten only enough to keep the neck of the carriage bolts from popping out of the bottom plate.

When all carriage bolts have been threaded, tighten each one firmly then torque to 25 ft-lbs (34 Nm). Start with the center pair and then work outwards.

Note: An assistant is helpful here since you'll need to hold the main plate assembly firmly when doing this. 25 ft-lbs is more than it sounds like!



Step 9: Install the Main Plate

The step requires the main plate (assembled in Step 8), one M10x1.5 flange nut and six M8x1.25 flange nuts. The hardware for this step is packaged in the bag marked "9".

Raise the main plate into position on the right side of the exhaust pipe.

Tip: The main plate is heavy! Another pair of hands to hold the plate up will be very useful. If a helper isn't available, try using a floor jack if it is too heavy for you.

Begin by passing the middle hanger stud through the slot on the front of the main plate. Once the stud has passed through the slot, thread an M8 flange nut onto it just enough to keep the plate from falling.

With the front of the plate supported, it will be much easier to pass the rear hanger stud and the toe-link mount stud through their associated slots on the main plate. Once each stud passes through its slot, thread a flange nut onto the stud to support the weight of the plate. The rear hanger stud uses an M8 flange nut while the toe-link mount stud requires the M10 flange nut.

In all cases, do not fully tighten the flange nuts. Just thread them on enough to carry the weight of the main plate.

On the front left flange of the main plate, insert the two studs through their corresponding slots on the front exhaust hoop, which is already affixed to the left toe plate. Loosely thread two M8 flange nuts onto these studs. You'll need to be able to slide the hoop left-to-right in a later step.

Note: The following series of photos shows the exhaust pipe in relation to the skid plate. The exhaust pipe on first generation KL Cherokees (2014-2018) hangs lower than the second generation (2019+) and thus the photos may not match what you're seeing on your Jeep.



On the right side flange of the main plate, pass the two studs through their corresponding slots on the front-right drag hanger bracket. Loosely thread two M8 flange nuts onto these studs to hold the drag hanger bracket in place. Do not fully tighten these nuts since you will still need to adjust the position of the main plate.



Step 10: Install the Rear Exhaust Hoop

This step requires the rear exhaust hoop and four M8x1.25 flange nuts. The hardware for this step is packaged in the bag marked "10".

Weave the rear exhaust hoop over the exhaust pipe and pass the studs on the rear flanges of both the left toe plate and the main plate through the slots on the hoop. The hoop is symmetric, so there is no need to worry about which is the left or right side.

Loosely thread the four M8 flange nuts onto the studs. Do not fully tighten since you will need to adjust the exhaust hoop left-to-right.

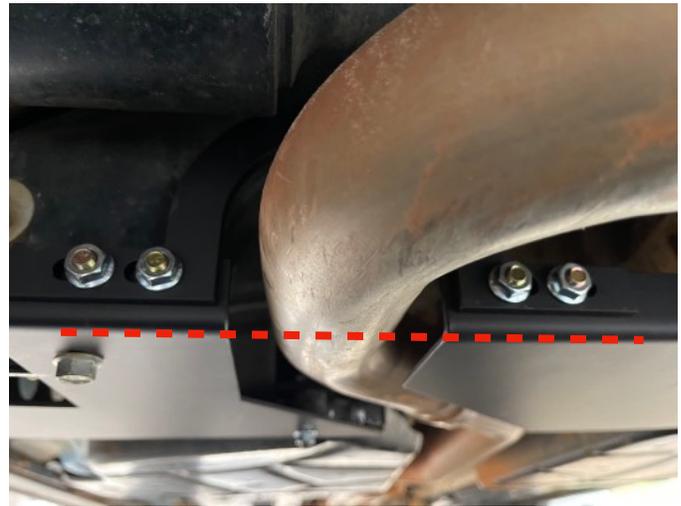


Step 11: Align the Entire XOPlate Assembly

Now it's time to adjust the position of the XOPlate and tighten things up! Alignment begins at the rear exhaust hoop. The goal is to get the bottom edge of the main plate at the same height as the left toe plate. You will likely need to push up on the main plate to make this happen, as shown in this picture.



Once the bottom edges of the main & left toe plate are even, use a 13mm wrench to tighten the four flange nuts on the exhaust hoop to keep them aligned. Do not fully torque just yet since you may need to come back and adjust the hoop. Just make sure the nuts are tight enough to hold both plates even with each other.



Now repeat this process for the front exhaust hoop.



At this point, check to make sure that both the main plate and the left toe plate are more-or-less symmetrically positioned around the exhaust. Also make sure there is at least a finger-tip worth of clearance around the exhaust pipes and both the front and rear exhaust hoops. Adjust the position of the hoops and plates as necessary.

When the two plates appear properly aligned, use a 13mm socket wrench to tighten the two middle hanger flange nuts and the rear hanger flange nut. Do not fully torque them yet! Just make them tight enough to firmly hold the plates in place.



Next, align the bottom edge of the left front drag hanger with the rounded edge of the left toe plate. Use a 13mm wrench to tighten the two flange nuts. Do not fully torque them yet. Just make them tight enough to firmly hold the plates in place.



Repeat this procedure with the right front drag hanger. Use a 13mm wrench to tighten the two flange nuts. Do not fully torque them yet. Just make them tight enough to firmly hold the plates in place.



Lastly, use a 15mm socket wrench to tighten the two toe mount flange nuts. Do not fully torque them yet. Just make them tight enough to firmly hold the plates in place. Be careful not to let the nut-plates rotate and interfere with the toe control arm when doing this.

At this point, inspect the entire skid plate assembly and make any adjustments you see fit. Remember, symmetry around the exhaust pipes is the goal. You also want the skid plate to be more-or-less even with the bottom of the fuel tank skid plates.



Step 12: Fully Tighten All Nuts & Bolts

Starting at the rear hanger, tighten the two M12 bolts that pass through the sub-frame crossmember. You will need a 16mm wrench on the bolt-head and an 18mm wrench on the flange nut. There is not a specific torque value for these bolts. Just tighten them as firmly as possible with an 8-10" wrench.

Note: Excessive torque will crush the sub-frame crossmember!



Next, move to the front drag hangers. Choose a side and completely remove the M8 flange nut. Be careful not to lose the M8 washer!

Place two drops of the supplied Loctite thread locking compound onto the threads of the M8 flange nut, then tighten the nut using a 13mm socket. You will likely need to hold the head of the bolt with a 13mm wrench to keep it from turning. Tighten the nut until about two threads of the bolt are visible. This will compress the rubber isolator, but not excessively.

When finished, repeat this procedure for the other front drag hanger.



Next, move on to the middle hangers. One at a time, remove the flange nut, place two drops of Loctite on the threads of the M8 flange nut, then tighten the nut firmly, but not excessively, with an 8" wrench.

Optional: If you purchased your XOPlate with bolt head protectors, place one onto the stud after applying the Loctite, then thread and tighten the flange nut.

Repeat this procedure for the other mid-hanger.



Now move on to the rear hanger and perform a similar procedure. If using bolt-head protectors, remove the flange nut and place it over the stud before tightening the flange nut.

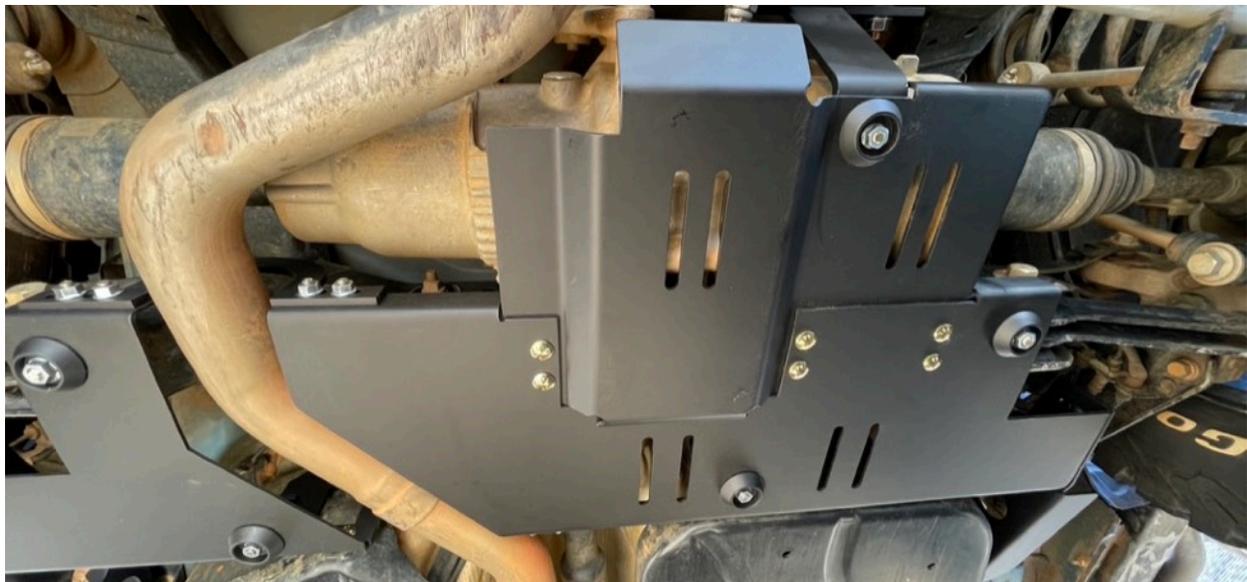
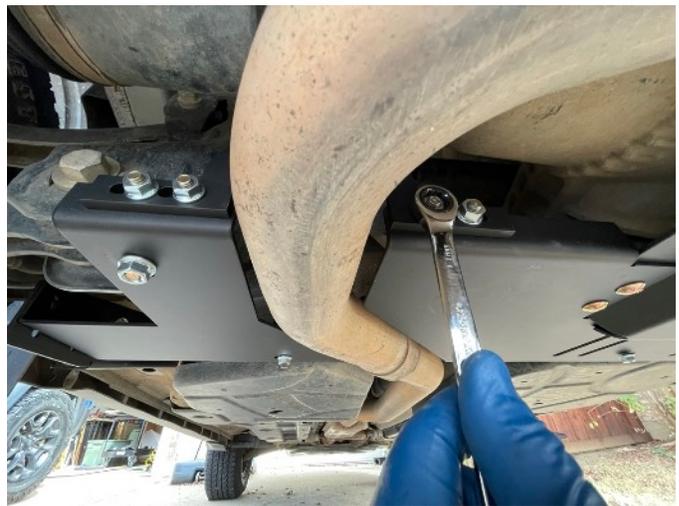
Do NOT use Loctite on the threads. Instead, torque the flange nut to 22 ft-lbs (29 Nm).

Next, move on to toe-link mount points. As before, if you purchased the XOPlate with bolt head protectors, remove the nut and place one onto the stud before tightening the flange nut. **Do NOT use Loctite.** Instead, torque the flange nut to 50 ft-lbs (68 Nm).

Now repeat for the other toe-link mount point.



Lastly, move on to the flange nuts for the exhaust hoops and front drag hangers. Ideally, torque them to 22 ft-lbs (29 Nm). If you can't fit a torque wrench into the tight spaces, use an 8" wrench and tighten them as firmly as possible without banging on the wrench.



You have successfully completed installation of your XOPlate rear sub-frame skid plate! Go have a beer!

Care and Use

Now that you've installed your XOPlate, you're probably anxious to head out onto the trails to put it to the test. Before you do that, however, there are a couple of steps you need to take to make sure that everything is performing properly.

The 'Bang' Test

Once the final nut has been fully torqued, you should proceed to "bang" the XOPlate with the ball of your fist. It should feel firm and solid. If there is any rattling, something is likely not tight and you should try to isolate the source of the sound. The flange nuts that fasten the front drag hangers to the main/toe plate are easy to overlook, as are the nuts that fasten the exhaust hoops. Everything must be firmly tightened for the skid plate to function properly.

First Test Drive

After installing the XOPlate, you should take it for a quick test drive. You need to pay attention to any rattles that may be caused by the exhaust hoops interfering with the exhaust pipes. After the test drive is complete, visually inspect the XOPlate and make sure everything looks properly fastened. If there is any interference with the exhaust hoops, you should be able to slide them left-to-right as necessary to eliminate interference.

300 Mile Inspection

After you have been driving your Jeep for about 300 miles, you should inspect your XOPlate to make sure everything looks properly fastened. On all the nuts that you did NOT use Loctite, you should re-torque them to make sure they have not worked their way loose. On the Loctite-applied nuts, visually inspect them to make sure they are not coming loose. You can use a wrench to loosely apply torque to confirm that they are still firmly attached. If any are coming loose, you should re-apply Loctite and tighten them as originally instructed.

Theory of Operation

The XOPlate Rear Sub-frame Skid Plate is designed to function as an extension of the fuel tank skid plates. Obstacles that you are dragging on with the fuel tank skids will continue to drag harmlessly over the rear sub-frame. The drag hangers provide extra strength if you snag on an obstacle with the XOPlate. They also provide re-direction if you happen to catch an obstacle on the outside of the fuel tank skid. Additionally, they provide protection for critical brake and sensor lines affixed to your trailing arms. While the XOPlate offers tremendous protection for your rear sub-frame, it is not a "bash plate" and will not hold up to repeated "slamming" into obstacles. Bouncing your way through rock gardens should still be avoided!

Regular Maintenance

The XOPlate Rear Sub-Frame Skid Plate for Jeep Cherokee (KL) is generally maintenance-free. You will need to keep it clean and free of debris, however. Mud will have the tendency to accumulate between the skid plate and the RDM unit. You should always shoot a stream of high-pressure water between the XOPlate and the RDM after engaging in off-road activities that involve mud and water crossings. You should also keep the bottom of the skid plate clean and hit it with some automotive spray paint if scratches and gouges develop.

Spare Parts

Every component of the XOPlate Rear Sub-Frame Skid Plate for Jeep Cherokee (KL) is available for purchase from Gleaming Alloy and can be easily replaced should they become damaged.