



RIVER RAIDER

SKID PLATE INSTRUCTIONS

In addition to the supplied hardware, you will require the following for installation:

15mm Socket	Socket Extension	1/4" Drill bit
16mm Socket	Ratchet	1/2" Drill bit
17mm Socket	C-clamp	3/16" Allen wrench
18mm Socket	Drill	5/16" Allen wrench
Flathead screwdriver	Floor jack	1/2" Wrench

Thread locker is recommended

If you have any questions or concerns please contact River Raider at 1-855-339-2915.

All bolts should be lightly snug to allow for shifting in fitment then fully tightened at the end.

1. Remove the factory transmission skid.
 - Support the skid with a floor jack. Remove the three bolts holding the factory transmission skid.
2. Remove the factory transfer case skid.
 - Support the skid with a floor jack. Remove the four bolts holding the factory transfer case skid.
3. 2007-2011 Manual without tow package skip this step. 2012-Current skip ahead to step 6.
 - 2007-2011 Automatic and 2007-2011 Manual transmissions with tow package will need to relocate the oil cooler line bracket.
 - Remove the oil cooler line support bracket from the driver side of the transmission. This will get remounted later on the provided hanger (01) in step 4C.
4. Remove engine mount bolts and attach oil pan skid.
 - Remove the two lower engine mount bolts from the passenger side and the lower bolt from the driver side front engine mount. Save these bolts so that if you ever want to sell the jeep and keep your skid system, you can.
 - To attach the rear mounting point on the driver side of the oil pan skid you will need to use an existing unused hole on the side of the engine. Take a flashlight and M10x1.5 pitch tap and ensure the hole is clear of debris.
 - Attach the oil pan skid (03) and oil cooler line hanger (01) to the front driver side engine mounting the sequence (H), (L), skid, hanger, (R). Make sure that the skid goes between the

engine mount and the hanger. If you removed the oil cooler line bracket in step 3, reattach it to the hanger (01). A small dab of silicone or grease can help keep the spacers (R) in place while you get the skid positioned.

- The front passenger bolt sequence is (H), (L), skid, (R), engine mount.
- The rear passenger bolt sequence is (H), (L), skid, (R), engine mount.
- The rear driver side bolt sequence is (I), (Q), skid, (R), into the hole in the engine block you tapped.

5. If you received a painted or coated transmission skid to step 5D.

- After you have coated or painted the skid, you will need to insert the bushing (U) and metal sleeve (W) in the hole of the transmission skid. It is advised that you use some WD40 to lubricate the sleeve and the polyurethane bushings.
- Once you get the sleeve started in one half of the bushing, install it in the skid with the other bushing inserted on the other side.
- Press the brass insert into the polyurethane bushings with a C-clamp or bench vice. Use a small piece of wood behind the bushing to spread the force on the bushing and make things a little easier.
- Lift the transmission skid with a floor jack and align the bushing with the tab at the end of the oil pan skid. Attach from front toward rear in the sequence (T) (E) bushing (E) (S). Snug the bolt but do not tighten.

6. 2012-Current – Install the oil/transmission skid.

- Remove the nut from the driver side lower engine mount and knock the bolt back just enough to fit the spacer (01) and mounting bracket(02) ensuring the spacer is between the engine mount and the bracket.
- On the passenger side remove the back nut on the lower engine mount and insert mounting bracket (03) and secure using the factory nut.
- Lift and support the oil/transmission skid (04).
- Both front oil pan brackets(02) + (03) go on the inside of the oil pan skid (04). Loosely install the four bolts from outside of the skid inward in the bolt sequence (A) (L) skid, bracket (L) (N) (M).

7. The rear driver side of the transmission skid is secured into the factory hole in the sequence (B) (L) skid, cross member, (L) (M) (N).

8. Clamp the passenger side of the skid to the cross member. Measure from the back of the skid to the end of the cross member on both the driver and passenger side. Ensure that the skid is square and even.

9. Drill a 1/2" hole into the cross member on the passenger side through the hole in the skid.

10. Remove the C-clamp. If you would like, remove the bolts in order to lower the skid. Spray some rust preventative paint on and in the hole to prevent rust. Then raise the skid back up and replace the bolts you removed.
11. The rear passenger side of the transmission skid is secured into the hole you just drilled upward in the sequence (B) (L) skid, cross member, (L) (M) (N).
12. Snug all bolts but do not torque them down until all skids are in place.
13. Install the oil drain cover (05) by aligning the plate and screwing in the three flush mount screws (D).
14. Install the transfer case skid.
 - Lift the transfer case skid into position and secure the front center and rear driver side holes in the sequence (G) (L) skid, frame.
 - Clamp the passenger side to the cross member and butt the skid up to the rear of the already squared transmission skid.
 - Check the driver side front hole to ensure it is lined up with the hole in the frame rail. If not, a die grinder or drill will allow that hole to open up.
15. Drill a 1/2" hole into the cross member on the front passenger side through the hole in the transfer case skid.
16. (optional) Remove all of the transfer case skid bolts and lower the skid. Spray some rust preventative paint on and in the hole to prevent rust. Raise the skid and replace the bolts you removed.
17. The front driver and passenger holes are secured upward using the bolt sequence (B) (L) skid, cross member, (L) (M) (N).
18. If you bought a full skid system, the back passenger side hole will be secured after the gas tank skid in step 23F. If you did not buy a full skid system the factory bolt is re-used in that location with the addition of one 1/4" washer (M).
19. Install gas tank skid. *****We strongly recommend not removing your stock gas tank skid.** However, if you choose to remove the factory skid you must be aware that it is the only thing supporting the gas tank. You will need to keep the tank supported until the River Raider skid is in place. *******
 - There are bolts that hold the factory gas tank skid along the outside edge of the tank. You will need to install the supplied gas tank hangers from these bolts in order to install the new gas tank skid. The outside front on a 2 door and outside front and middle bolt area will need modification for the brackets.
 - You have the option of cutting a small notch in the factory skid 2" wide and 1" deep or taking a hammer and tapping in the factory skid a bit. Either way is perfectly fine. (but the second is easier, looks better and is a lot more fun)
20. One at a time, remove the gas tank bolts and install the drop down brackets for the gas tank. Snug the bolts but leave them with some play for when you attach the gas tank skid.

- **2 Door Jeeps:** The long gas bracket (13) goes on the inside rear of the gas tank, the twisted gas bracket (14) goes on the outside rear with the notch facing forward and the 90 degree bracket (10) goes on the outside front.
- **4 Door Jeeps:** The long gas bracket (13) goes on the inside rear of the gas tank, the short gas tank bracket (12) goes to the inside middle, the twisted gas bracket (14) goes to the outside rear with the notch facing forward, and the two remaining 90 degree gas brackets go on the outside middle and outside front of the gas tank.

21. Remove the two bolts at the very front of the stock gas skid.

22. Lift the River Raider gas tank skid with a floor jack and position it under the brackets. Ensure you are keeping all the gas tank brackets inside the edge of the skid.

23. Attach the brackets to the skid with the bolts snug.

- Start by securing the outside rear bracket with the inward sequence (A) (M) (L) skid, bracket.
- Then secure the front two bolts you removed in step 19.
- Then secure the rest of the brackets using the same inward sequence of (A) (M) (L) skid, bracket.
- Once all the gas tank brackets have been attached to the gas tank skid snug, the factory gas tank bolts will need to be fully tightened.
- Using the floor jack, lift the skid up tight to the bottom of the factory gas tank skid. Then fully tighten all the gas tank skid hardware.
- The last bolt will be the long bolt (F) and washer (L). This is inserted upward in the sequence (F)(L) (08) (06). You may need to use a die grinder or drill to make sure the holes are large enough and straight to avoid cross threading of this bolt. Snug this bolt.

24. Install the connector plate above the transfer case and gas tank skids using the bolt sequence (C) skid, (15) (J) (O).

25. Now that everything is lined up and in place you can tighten all bolts starting from the front and ending at the rear.

26. The transfer case rear support bracket is the last step and varies based on model:

2 Door Jeeps:

- Unbolt the front two bolts on the factory evap canister skid.
- Position the bracket between the frame and the evap canister skid with the other end against the transfer case skid.
- Once the bracket is lined up, replace the bolts at the front of the evap skid.
- Secure the last two bolts to the transfer case skid in the inward sequence (Y) (L) (06) (09) (L) (M) (N).

4 Door Jeeps:

- Bolt the bracket to the transfer case skid with the inward sequence (Y) (L) (06) (09) (L) (M) (N) ensuring the bracket is facing the rear and up against the cross member.
- Drill two 1/2" holes through the upper holes of the bracket into the cross member.

(Optional) remove the bracket and spray rust preventative paint in and around the holes to prevent rust.

- Attach the bracket and secure with the sequence (X) (L) (09) cross member (L) (M) (N).A Now that everything is lined up and in place you can tighten all bolts starting from the front and ending at the rear.

27. Go through all of the bolts a second time to ensure everything is located correctly and tight.

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SKID SYSTEMS HARDWARE LIST

4 Door Gas Tank:

- A. (5) 1/2" x 1" Hex Head
- C. (4) 5/16" x 1" Flush Mount
- F. (1) M12 x 50mm Button Head
- J. (4) 5/16" Flat Washers
- L. (6) 1/2" Flat Washers
- M. (5) 1/2" Lock Washers
- O. (4) 5/16" Lock Nuts

4 Door Transfer Case Bracket:

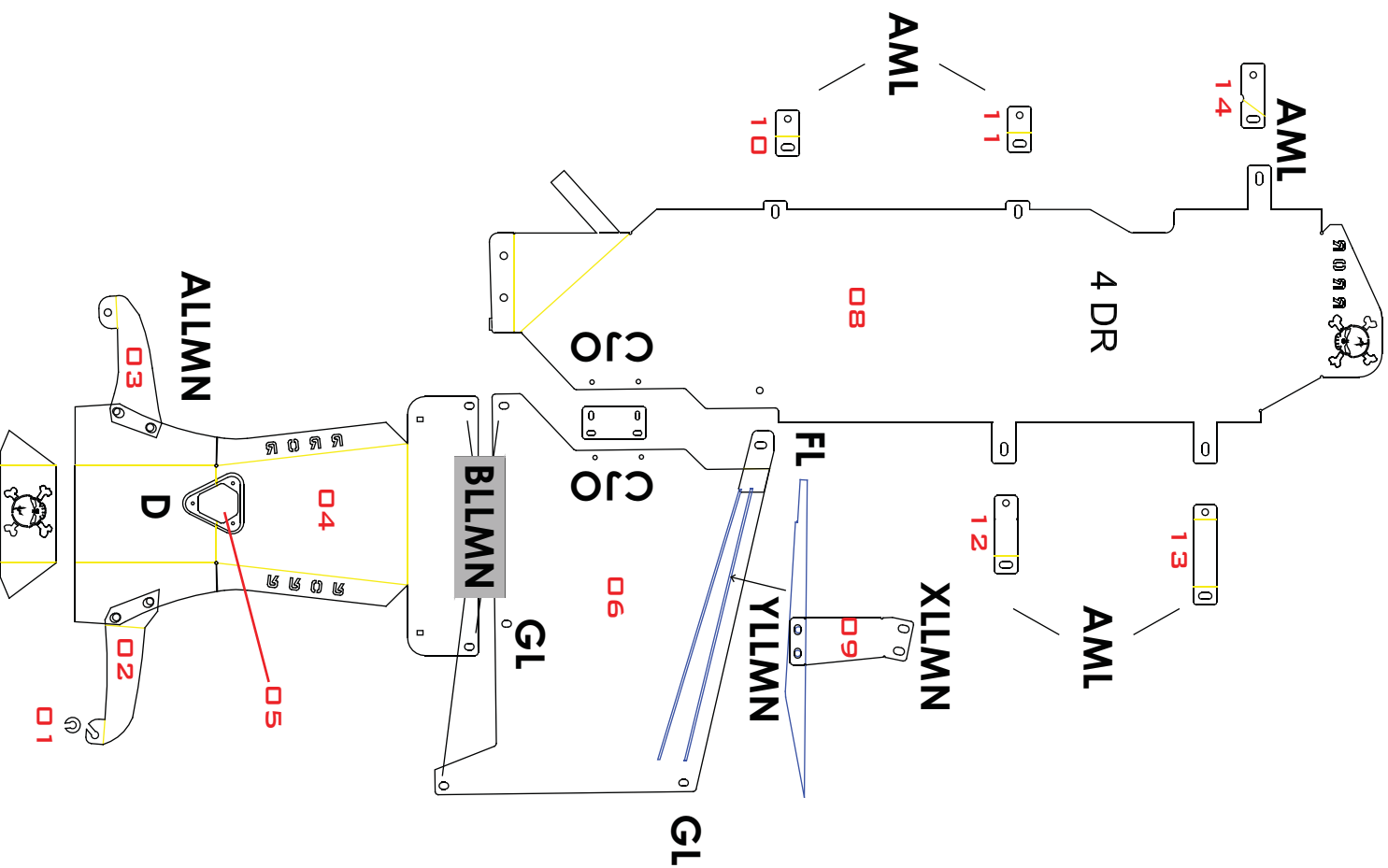
- X. (2) 1/2" x 2" Hex Head
- Y. (2) 1/2" x 1-1/2" Hex Head
- L. (8) 1/2" Flat Washers
- M. (4) 1/2" Lock Washers
- N. (4) 1/2" Nuts

Transfer Case Skid:

- B. (2) 1/2" x 1 1/4" Button Head
- G. (2) M12 x 40mm Button Head
- L. (7) 1/2" Flat Washers
- M. (2) 1/2" Lock Washers
- N. (2) 1/2" Nuts

2012 Oil Pan & Transmission Skid:

- A. (4) 1/2" x 1" Hex Head
- B. (2) 1/2" x 1 1/4" Button Head
- D. (3) 5/16" x 1/2" Flush Mount
- L. (12) 1/2" Flat Washers
- N. (6) 1/2" Lock Nuts
- V. (1) 1/2" Steel Crescent Spacer
- M. (6) 1/2" Lock Washers



2 Door Gas Tank:

- A. (3) 1/2" x 1" Hex Head
- C. (4) 5/16" x 1" Flush Mount
- F. (1) M12 x 50mm Button Head
- J. (4) 5/16" Flat Washers
- L. (4) 1/2" Flat Washers
- M. (3) 1/2" Lock Washers
- O. (4) 5/16" Lock Nuts

2 Door Transfer Case Bracket:

- X. (2) 1/2" x 2" Hex Head
- Y. (2) 1/2" x 1-1/2" Hex Head
- L. (4) 1/2" Flat Washers
- M. (2) 1/2" Lock Washers
- N. (4) 1/2" Nuts

2007-2011 Oil Pan & Transmission Skid:

- B. (2) 1/2" x 1 1/4" Button Head
- D. (3) 5/16" x 1/2" Flush Mount
- E. (2) M14 Flat Washers
- H. (1) M12 x 40mm (1.75 p) Bolt
- I. (3) M10 x 40mm Bolt
- L. (5) 1/2" Flat Washers
- N. (2) 1/2" Lock Nut
- Q. (3) 7/16" Flat Washer
- R. (3) 3/16" Steel Spacers
- S. (1) M14 Lock Nut
- T. (1) M14 x 90mm Bolt
- U. (2) Rubber Bushings with (1) Metal Sleeve
- M. (6) 1/2" Lock Washers

