



# Dodge Off Road, LLC

Specializing in Dodge Ram Solid-Axle 4x4  
Suspension and Steering for Off Road Applications

[dodgeoffroad.com](http://dodgeoffroad.com)

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## DODGE OFF ROAD SHACKLE FLIP INSTALLATION INSTRUCTIONS

For all 1994-2002 Dodge Ram 2500/3500 4x4 Trucks

Installation of the shackle flip kit requires your stock shackle plate to be removed. If this is done properly, the plate can be reused later if you wish to return to stock. There are no permanent modifications required.

The kit includes two frame brackets, two shackles, two zero rates, eight Grade 8 bolts with nuts and washers and all of the mounting hardware and center pins required. Some kits come with the optional U bolt flip, which includes new U bolts and a top mount U bolt plate that works with the offset zero rate. Please look over all parts included and make sure you have everything needed before beginning the install.



*Driver Side Shown*

## Installation Procedure

Block the rear wheels so that the axle cannot move once the leaf springs are detached. We recommend blocking the front and back side of all four (or six) tires.

Loosen the nuts holding the leaf spring to the stock shackle. If you have difficulty reaching these, you can opt to remove them later, but they are usually easier to loosen while the truck's weight is holding them in place.

You also need to remove the factory U bolts. If you bought our optional U bolt flip, you will not reuse any of the factory U bolt hardware pieces, which includes the plate on the bottom of the axle tube and the small plate on top of the main leaf pack. Never reuse U bolts! If you did not buy our U bolt flip, you need to purchase new square U bolts and you'll need to modify the small flat top plate that keeps the square U bolts in place on top of the spring pack.

You will need to jack up the rear of the truck by its frame to take the weight of the truck off of the suspension. Use a jack stand to hold the truck frame in the air if you don't have a two-post lift. This will allow the axle to separate from the leaf pack – you only need to raise the springs above the axle by 6" to 12", so you have enough room to work.

Now you can unbolt the factory shackle from the leaf spring pack. If you do not intend to reuse the factory shackles or brackets at any point in the future, you can cut the middle of the shackle and let the leaf spring drop down onto the axle, which will give you more room to work on the bracket. Either way, you need to remove the shackle bolt from the leaf spring pack.

After the shackle is loose from the spring pack, you will need to remove the factory shackle plate from the frame. Do not confuse this with the spring hanger, which is on the front side of the leaf pack. You will only be removing the shackle hanger at the rear of the spring pack. The easiest way to do this is to grind the heads off of the rivets holding it on, and then use an air chisel to pop the rivets out. Doing it this way will ensure that the frame and the shackle plate are not damaged and can be returned to stock easily. Other methods include drilling the rivets out, or using a torch or plasma cutter. If you have a good grinding disc (we recommend 36 grit Zirconia flap discs over standard grinding discs) then the process of grinding the heads off can actually be faster than the other methods. An air chisel is not required, although it does make the job go much faster. A standard chisel or punch with a hammer will work as well.

With the factory shackle bracket removed from the frame, you can now begin to install the new DOR parts. Do not fully tighten any bolts until everything is mocked up, then use the torque specs at the end of the instructions to tighten all hardware to spec.

Bolt the DOR shackle bracket to the frame, with the offset of the bushing towards the front of the truck. The brackets are side-specific. See the picture on page 1 for clarification. The bracket is bolted to the frame using four 1/2" Grade 8 bolts, washers, and nuts.

Now bolt the DOR shackle to the DOR bracket, using the supplied 5/8" x 6" bolts, washers, and nuts. The single hole attaches to the bracket, the three hole side faces down towards the leaf pack. The middle hole is for the advertised lift height (1.25" without the factory block, or 5.75" with the factory block), the other two holes are your 1/4" adjustment.

With the leaf pack bolted to the shackle, you can now work on the leaf pack itself. You will need two large C clamps to hold the leaf pack together while you remove the factory center pin. If you don't have C clamps, stop the installation and go buy some. You will need one clamp 2" away on each side of the center pin. This will allow you to replace the center pin and install the zero rate without having to remove and reset the clamps.

With the leaf pack clamped as much as possible, remove the nut for the factory center pin, knock the center pin out of the leaf pack from the top, and discard. You may need to use vice grips to hold the head of the center pin on the bottom of the spring pack. In rare cases, you will need to loosen the C clamps to get the center pin out, but usually you can knock it out with a punch and hammer.

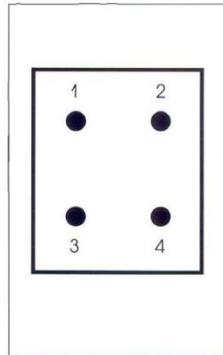
To install the new zero rate and center pin, you will run the black oxide Grade 9 center pin we provide up through the zero rate so that the head is recessed into the zero rate. The 4.5" long center pin goes to the front of the truck, and the bolt head that is already fastened to the zero rate will be centered. That bolt head goes into the spring perch or block. You may need to use a Dremel to clean out the hole on the spring perch or block so that the bolt head fully seats inside the hole, so you may want to test fit that while the zero rate is loose. Once you have verified the zero rate will sit flush against the perch or block, attach the zero rate to the leaf pack using the 4.5" long black oxide center pin as described above. The provided black oxide flange nut will secure the center pin on the top side of the leaf pack. You can torque this to 90 ft.lbs while the C clamps hold the leaf pack together. **DO NOT USE THE CENTER PIN TO PULL THE LEAF PACK TOGETHER!** That is what the C clamps are for. If the new center pins don't reach all the way through the leaf pack, you probably still have the factory upper overload installed and need to remove those two springs plus their spacer block. The shackle flip and upper overload setup do not work together – we recommend using our bolt-on air bag setup if you need the extra load capacity.

Once the zero rates are bolted and torqued, you can remove the C clamps. Now you will position the axle so that the zero rate bolt head will line up with the perch or block, and slowly let the truck back down onto the axle. Ensure everything is lined up correctly, and then you can install the U bolts. If you use our U bolt flip, the new bolts come up from below the axle and go through the 3/8" U bolt plate on top of the leaf pack. If you use the factory style U bolts, they will install the same as stock except you will need to cut a hole in the factory top plate to clear the offset center pin nut. The DOR U bolt plate requires no modification.



When tightening the U bolts we provide, you will need to run all of the nuts down in equal lengths so as to keep the U bolts from pulling on one side or the other. We recommend running the nuts down until they are finger tight, then tighten them all in a cross-pattern sequence. Partially torque 1, then 4, then 2 and then 3, using the chart below as a reference. Then fully torque each one in the same order. Torque specs are 170 ft.lbs. Once the U bolts are torqued, you can remove excess thread, but leave at least 1" of thread above the top of the nut in case you decide to add our air bag setup or other upgrades at a later date.

U-Bolt Torque Pattern  
Visual Aid



## Torque Specs

1/2" Grade 8 Bolts – 80 ft.lbs

5/8" Grade 8 Bolts – 180 ft.lbs

Grade 9 Center Pin – 90 ft.lbs

U Bolts – 170 ft.lbs, in a cross-pattern. Retorque after 500 miles

All hardware needs to be rechecked after 500 miles, but the U bolts will definitely need to be re-torqued. U Bolts always stretch after install and that is why you can't reuse them.

If you have any questions, please do not hesitate to call us or email us at [sales@dodgeoffroad.com](mailto:sales@dodgeoffroad.com) We are always glad to help in any way that we can. 855-900-9367 ext 2 for the Tech Department.

Please consider our other steering and suspension upgrades as part of your truck's upgrade plan. We have many high quality products to keep your truck in great shape for years to come, and 2<sup>nd</sup> gens are our specialty. Thank you for your purchase and for supporting our business!



100% Made in Lakeview, Arkansas