



Dodge Off Road, LLC

Specializing in Dodge Ram Solid-Axle 4x4
Suspension and Steering for Off Road Applications
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DODGE OFF ROAD 5th GEN STEERING KIT INSTALLATION INSTRUCTIONS

For all 2013-2017 Ram 3500 4x4 Trucks, and all 2014-2017 Ram 2500 4x4 trucks.

Thank you for your purchase of our steering kit! Please read over the instructions carefully before beginning your installation. If done properly, you can install this kit without needing an alignment afterwards, as long as your truck is currently aligned. Installation should be performed by a qualified mechanic. If you are not comfortable with alignments and your steering system, do not install this kit without assistance from someone who is more comfortable or qualified. This is not a difficult install, however it does require average mechanical ability and an understanding of steering systems. If you don't install it correctly, you can have loose steering. Most people can install this in their driveway with basic hand tools in one hour.

Your new steering kit includes a tie rod (the larger and longer tube), a drag link tube, and four hardware bags that are labeled as to what part of the steering they go to. Additionally, you may have ordered a steering stabilizer clamp and a steering stabilizer. If you ordered heim seals, those are already attached to the heims. If you are missing any of this hardware, please let us know prior to installing the steering.

Tools Needed

Tape measure, assorted sockets and wrenches, and a large crescent wrench for adjustments and to tighten the jam nuts. The 9/16" nuts we provide take a 7/8" socket or wrench; the 3/4" nuts take a 1" socket or wrench, and the 7/8" jam nuts take a 1.25" wrench.



5th Gen Steering Linkage Upgrade

Tie Rod Installation Procedure

Park the truck on a flat, level surface, with the tires pointed straight ahead and the steering wheel in the centered position. Ensure the truck will not roll away while you are working under it.

With the tires on the ground, loosen and remove the stock steering. This includes the connection at the pitman arm (but do not remove the pitman arm), and the connections at both knuckles. You will also need to unbolt the steering stabilizer from your tie rod, if equipped. Take care when removing the steering that you do not move the pitman arm or the knuckles. By keeping them in place, you will not need to make adjustments to the alignment once the new kit is installed.

With the stock steering removed, insert the tapered bolts into the knuckles, with the larger $\frac{3}{4}$ " thread pointing down. These bolts will install exactly as they are packed in the kit – we take the guesswork out of it for you. The heims simply mount in between the shoulder on the bolt, and the $\frac{1}{4}$ " thick stainless washer. If you opted for heim seals, they will go on either side of the heim. Install the tapered bolts by themselves first. You can tighten the top nut on these bolts to 40 ft.lbs so that they do not move while you install the tie rod assembly.

With the bolts in place, thread the heims into the tie rod loosely and attempt to install the tie rod to the knuckles onto the bolts you just installed. The tie rod has bends in it to push the tie rod away from the axle, providing clearance for the sway bar mounts and differential cover. This bend should not be angled up or down, simply straight out in front of the axle. This does not affect the function of the tie rod, it just provides the most clearance. The driver side hex adapter will be left hand thread and the passenger side will be right hand thread. The left hand thread side is denoted by slits in the hex tube adapter at the end of the tube. Adjust the tie rod as necessary, off of the truck, to make it fit the knuckle to knuckle distance. Do not move the knuckles or force the steering into place – keep adjusting the heims, evenly (do not thread one side out more than the other) until the entire tie rod slides into position easily. Jack stands are very helpful during this process, if you do not have a helper. Once the length of the tie rod is perfect, you will need to hold the tie rod up in position while you tighten the heim jam nuts to 65 ft.lbs. The heims should be flat (not angled) and the tie rod should be angled out away from the axle, as if it were laying flat on the ground. It will move up and down slightly because of the misalignment of the heims, and that is okay. This misalignment is required for proper function of the steering.

Once the knuckle bolts are securely holding the tie rod assembly in place, and with the jam nuts tight, you can move to the drag link install.



Steering installed in a stock 3" configuration, with the drag link above the stock pitman arm.

Drag Link Installation Procedure

The drag link is the smaller 1.5" OD tube, and it bolts up from the pitman arm to the passenger side knuckle.

Installation is similar to the tie rod, with one difference. You will want to mount the tapered bolt at the knuckle first, and then leave the tapered bolt inside the pitman arm heim. If you mount the tapered bolt to the pitman arm by itself, installing the drag link will be more difficult.

The drag link is bent on both ends. The left hand threaded side goes towards the pitman arm. You can tell which end is LH thread by looking for slit marks on the hex tube adapter. The bends in the drag link are there so the tube can clear the sway bar mount at full lock, and also provide better heim joint angles at the pitman arm and tie rod. The drag link must be installed with the LH thread at the pitman arm and the RH thread at the tie rod/drag link mount location. If you reverse these ends, the heims will bind up and you will break or bend part of the hardware.

The first step is to insert the tapered bolt into your passenger side knuckle. Use the nut and washer to secure the bolt to the pitman arm and torque to 40 ft.lbs.

Next, with the tapered bolt in the knuckle, you can thread the passenger side heim joint into the drag link, leaving the heim and jam nut loose enough to adjust easily. Do the same thing with the pitman arm heim joint on the left hand end of the drag link, with the tapered bolt and hardware loosely attached to the heim.

With both heims threaded into the drag link, you can now measure from the center of the pitman arm bolt hole, to the center of the tapered bolt on the knuckle. Set your drag link as close to that measurement as possible. Make sure that you have not moved your pitman arm or steering wheel. The drag link length is what sets your steering wheel center. If you have a helper, they can hold onto the steering wheel during this process to make sure you do not throw the steering box center position off. If the drag link is too long or too short, it will cause the steering wheel to be off center.

Once you have the drag link length set, drop the tapered bolt through the pitman arm, and then swing the passenger side end up onto the knuckle bolt. Loosely attach the hardware to hold the heim in place on the knuckle, and check your steering wheel to make sure it has not moved during this procedure. If the steering wheel is off center, remove the passenger side end of the drag link and adjust it as needed until the steering wheel is centered. Thread both ends of the drag link out the same amount of turns so that one heim joint is not sticking out of the tube more than the other heim joint.

Once the drag link is attached at both ends and the steering wheel is centered, you can snug the jam nuts to secure the drag link and keep it from moving. While tightening those jam nuts, make sure the bend in the drag link stays pushed "out" way from the axle so you maintain the clearance needed between the drag link and the sway bar mount. You also want the heims to be in the centered position as much as possible, so they will have the full range of misalignment available.

Adjustments and Final Notes

At this point you will want to check your steering wheel to make sure it is still centered. If it is not, you can adjust the drag link by threading the heims in or out as needed. This is how you adjust your steering wheel position. Centering the steering wheel is best done with the truck running so the power steering pump is applying pressure to the box, and then loosen the jam nuts and rotate the drag link. Depending on lift height, you may have to undo one end of the drag link to spin the full assembly. The heims should be easy

to turn by hand, but you can also use a crescent wrench on either end of the tube. Once this is done and the steering wheel is centered, tighten the drag link jam nuts to 65 ft.lbs.

After all of your parts are installed and everything is tightened, you can test the steering system to make sure nothing is binding or making contact. Start the truck and turn the steering lock to lock to make sure there are no clearance problems. You may need to raise the front tires off the ground to do this. If there are clearance issues, you will need to rotate the drag link or tie rod to compensate for them, or clearance the spot that it hits with an appropriate tool. You also need to make sure that the steering does not bind up during the suspension cycle, so check the steering for clearance and binding at full bump and full extension as well, lock to lock on both.

If you purchased our optional steering stabilizer clamp, you will now bolt it to the tie rod. The mounting location will vary slightly depending on which stabilizer you are running. The clamp will mount very near the passenger side edge of the tie rod, and faces the axle. The easiest way to find the clamp mounting position is to turn the truck all the way to the passenger side, have someone hold the wheel at full lock for you, and then extend your stabilizer all the way out. Put the clamp on the tie rod where the stabilizer end is at, bolt it all together, and then turn the steering wheel all the way to the driver side and make sure the stabilizer doesn't bottom out. Also check the clamp for clearance as it moves in front of the axle. If everything is good, you're done. Otherwise just make adjustments as needed until you get it dialed in.



If you purchased the Fox stabilizer from us, the method above is the same, except you'll need to bolt your stabilizer into the factory mount. The body end goes into the axle mount, with the nitrogen valve facing down (you can make it face up if you clearance your track bar mount). The shaft end goes towards the driver side of the truck. This will help keep the truck from pulling to the right when you are driving down the road. If the truck pulls to the driver side too much, you can let some of the nitrogen out of the shock, but you have to do it very quickly. The whole shock will empty in about half a second. The shocks will ship with 100 psi in them, so you can drop them down to 75 psi if needed, but not lower. You will need a gauge that does not let the nitrogen bleed out, and a way to refill the stabilizer if you empty it all the way. Do not use compressed air – only use nitrogen. You can pressurize them all the way to 150 psi if your truck is still pulling to the right, but make sure the truck is aligned if you have that much of a left or right pull.



Once everything is finalized and you have double checked all hardware, you can now drive your truck and have it aligned if needed.

If you have any questions about the install, please give us a call or send us an email and we'll help you troubleshoot the steering. It's a very simple setup and as long as it's installed per these instructions, you won't have any issues. If you drop your truck off to have it aligned, make sure they understand that the adjustment is with the heims, and they don't need to touch anything with power tools. Just loosen the jam nuts, adjust as needed, and hand-tighten it all back. Very easy. It does take a little longer than the factory linkage, however once it's set, you don't have to mess with it again until your heims wear out.

Alignment Info

If you take your truck to have it aligned, it will need to be done differently than a factory linkage. The only adjustment from the steering kit is your toe, which should be 1/8" to 1/16" toed in, depending on how tight your hubs are. The tie rod will need to be unbolted on one or both ends to adjust the toe distance (knuckle to knuckle). Then you'll need the drag link length adjusted so that the steering wheel is centered when the steering box is centered. Just having the steering wheel centered when you drive straight down the road, does not always mean the steering box is centered. If you go to a shop that does not understand these two statements, you may need to find another shop. Big service centers don't usually hire technicians that have as much experience as the smaller automotive shops. A small shop that specializes in off road vehicles with heim steering is your best bet. You can also align the truck yourself with nothing more than a tape measure.

Setting your toe is not hard to do and you don't need laser sensors to do it.

Alignment specs – 0.00 to 0.05 total toe in, with 3.7 to 4.5 degrees caster. Less than 0.5 degrees of cross-caster (driver to passenger side).

Final Torque Numbers

Tapered knuckle bolts – 60 ft.lbs

Grade 8 knuckle bolts – 95 ft.lbs

Tapered pitman arm bolt – 60 ft.lbs

Grade 8 pitman arm bolt – 95 ft.lbs

Stabilizer clamp Allen head bolts – 30 ft.lbs

Stabilizer clamp Grade 8 bolt – 95 ft.lbs

Drag Link and Tie Rod Heim jam nuts – 65 ft.lbs

IMPORTANT NOTE ON TORQUE SPECS!

If you or your installer use an impact wrench on these bolts to torque them, your warranty is void. These need to be hand-torqued to spec. Over-torquing the bolts can stretch the threads and cause issues later on down the road. It takes a few more minutes to hand-tighten them, but it is the correct way to fasten the tapered bolts.

Please recheck all hardware after 100 miles, as the bolts can stretch. Recheck as needed afterwards. Trucks used in harsh conditions such as gravel roads, poorly maintained roads, or in off road environments, should recheck hardware more frequently. It is up to the owner of the truck to ensure all hardware is securely tightened and remains tight as part of your truck maintenance.

Heim maintenance is very simple, you just need to keep them clean. 3-in-1 oil works best, however WD40 and other cleaners also work well. Keep the ball of the heim clean and oiled, do not let debris build up around the ball of the heim. If you keep them clean, heim joints can last 10 years or more. If you use our heim seals, you can squirt some grease under the seals to provide a protective layer around the heim ball.

If you have any questions, please do not hesitate to call or email us! We can troubleshoot your install quickly if you provide a couple of pictures of the issue you are having. Thanks again for your purchase. Check out our other products for more Dodge Ram upgrades: store.dodgeoffroad.com



To keep up with the latest product info and for a glimpse into what goes on at DOR, follow us on Instagram @dodgeoffroad1 or on Facebook: [facebook.com/dodgeoffroad](https://www.facebook.com/dodgeoffroad)



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