

INSTALLATION MANUAL

FOR

ROCK KRAWLER SUSPENSION, INC.

JK Steering Upgrades

Second Edition

03/01/09

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S U S P E N S I O N

Dear customer: Thank you for purchasing the best steering system on the market for your Jeep Vehicle. We are sure you will be happy with this system after your installation is complete. Please take your time during the installation and be sure to do it correctly. Completely read the directions before starting your installation so you know what to expect. Remember, your personal safety depends on it. Should you have any questions during this installation feel free to give our tech line a call (518-270-9822) and we will be happy to help you.

Note: BE SURE TO CHECK ALL FASTENERS FOR PROPER TORQUE BEFORE TEST DRIVE. RECHECK AFTER 500 MILES AND BE SURE TO CHECK PERIODICALLY.

Warning

Read and understand all instructions, warnings and safety precautions in these instructions and your owner's manual before attempting to install these components.

Caution

Proper installation of Rock Krawler Suspension, Inc. Products requires knowledge of recommended procedures for disassembly/assembly of OE vehicles and components. Access to OE shop manuals and special tools are required. Attempting to install this kit without knowledge of these procedures may affect the safety of your vehicle and or the performance of these components.

Warning

Rock Krawler Suspension, Inc. does not recommend combined use of suspension lifts, body lifts or other lift devices. Combined use of lifts may result in unsafe and unexpected handling characteristics. Also, many states now have laws restricting vehicle lift, bumper heights and other alterations. Consult local laws to determine if your proposed alterations (including installation of this system) comply with your state laws.

Caution

Rock Krawler Suspension Inc. recommends the use of locktite on all hardware, unless noted otherwise.

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Warning

Properly block and secure vehicle prior to installation.

Warning

Always wear safety glasses when using power tools

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Prior to getting started:

- 1) If you purchased the Rock Krawler HD Tie Rod you will need to go to your local Jeep or auto parts store and purchase the following tie rod ends; you will need (2) Tie Rod ends for the OEM JK pitman arm location. If you are buying after market parts then it is smart to choose Moog!
- 2) If you purchased the Rock Krawler HD Drag Link you will need to go to your local auto parts store and purchase the following tie rod ends; you will need (2) Tie Rod ends for the OEM JK pitman arm location. If you are buying after market parts then it is smart to choose Moog!

We choose Moog tie rod ends for their quality and warranty. Be sure to keep your receipt to be able to maintain your warranty on the new heavy duty tie rod ends.

How to check a tie rod end for wear? Have a friend hop in your vehicle and turn the wheel left to right. Watch the tie rod end spherical joints for play. The obvious movement is if you see any up and down movement in the joint then it is bad. Take it back with your receipt and have your local auto parts center warranty the joint for you.

Installation Procedure for the Rock Krawler HD Drag Link

- 1) Stabilize your vehicle so it is safe to remove your OEM drag link.
- 2) Remove the cotter pins (if applicable) from the ends of the OEM ball joints on the OEM drag link.
- 3) Remove the nuts from the OEM ball joints at the knuckle and pitman arm connections on the OEM drag link.
- 4) Using a ball joint separator or dead blow technique, remove the ball joints from the knuckle and pitman arm. Remove the OEM drag link for it will not be reused. If you choose you can reuse the tie rod end that was at the pitman arm if it is still in good condition.
- 5) Grab the jam nut supplied with the new drag link kit from Rock Krawler and thread it all the way up one of the tie rod ends. Insert it into the new drag link and show approximately ½” of thread past the jam nut when inserted! Please note, this tie rod end will be going to the knuckle connection as shown below.

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P.S. Knuckle Connections

- 6) Measure the OEM drag link operating length from center of ball joint to center of ball joint. Mark the length for that is where you are going to start with your new assembly.
- 7) Attach the quick adjuster to the newly supplied tie rod and thread it on all the way. Put the other OEM tie rod end into the other end of the quick adjuster and thread it in all the way as well.
- 8) Set the newly supplied tie rod to the measured length of the original one by adjusting the quick adjuster only. Do not adjust the other tie rod end that will be at the axle connection unless it is absolutely necessary.
- 9) Insert the ball joint ends of the tie rods into the knuckle connection and pitman arm connection in the same orientation as the OEM units. Place the supplied 5/8 flat washer on top prior to threading on the nut.
- 10) Torque the nuts down 90 to 100 ft-lbs.
- 11) Be sure to do your best to center the steering wheel using the turn buckle style quick adjuster in the drag link, then lock the jam nut using the wrench flat sections of the drag link for the tie rod end at the knuckle and secure the quick adjuster by clamping down the slits on the quick adjuster as shown below. Be sure to orient the tie rod ends so the ball joints are free to move without bind. Please note to follow the SAE rules of thread engagement so you do not put yourself into a bad position!

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Pitman Arm Ball Joint Connections



Quick Adjuster with Shaft Collars Installed

12) Make sure to take your JK to the local Jeep Dealer to get aligned so the steering wheel is properly centered. This way you will not run into issues with ESP controls! Be sure to lock the jam nuts in place with thread locker like loctite when all is said and done.

Installation Procedure for the Rock Krawler HD Tie Rod

1) Stabilize your vehicle so it is safe to remove your OEM tie rod.

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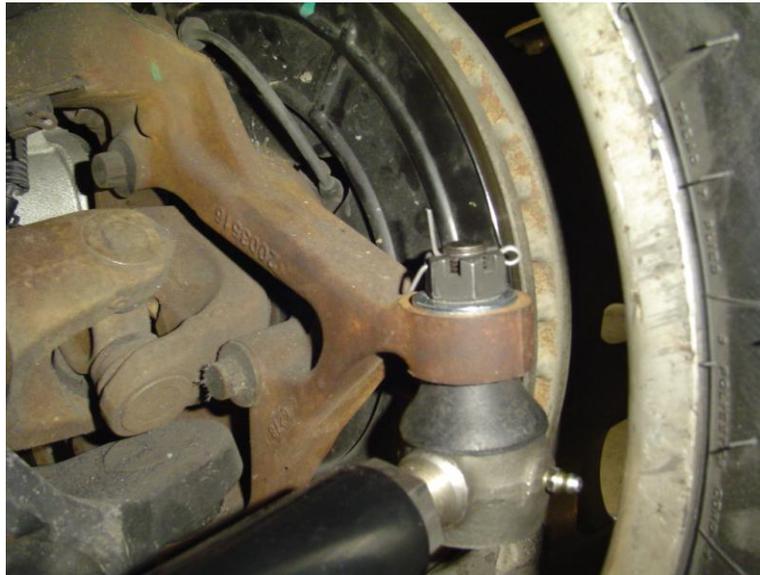
- 2) Disconnect the steering stabilizer from the steering stabilizer bracket.
- 3) Remove the steering stabilizer bracket from the OEM tie rod and save it for reuse.
- 4) Remove the cotter pins (if applicable) from the ends of the OEM ball joints on the OEM tie rod.
- 5) Remove the nuts from the OEM ball joints at the knuckle connections on the OEM tie rod.
- 6) Using a ball joint separator or dead blow technique, remove the ball joints from the knuckles.
- 7) Grab the jam nuts supplied with the new tie rod kit from Rock Krawler and thread them all the way up the (2) tie rod ends.
- 8) Measure the OEM tie rod operating length from center of ball joint to center of ball joint. Then insert the new tie rod ends into the Rock Krawler supplied heavy duty tie rod and set the operating length (ball joint to ball joint) to that of the OEM tie rod measurement. Please note; be sure to show equal threads of engagement for each new tie rod end for easy adjustment later on.
- 9) Insert the ball joint ends of the tie rods into the knuckle connections in the same orientation as the OEM units. Place the supplied 5/8 flat washer on top of as shown below prior to threading on the castle nut.



P.S. Knuckle Connections

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D.S. Knuckle Connections

- 8) Torque the nuts down 90 to 100 ft-lbs.
- 9) Be sure to lock the tie rod in your desired orientation by locking the jam nuts. Cycle the steering left to right to ensure your tie rod moves freely. The Ackerman angle changes will require up and down movements of the tie rod ends.
- 10) Install the steering stabilizer bracket by using the supplied u-bolts. You will need to pinch the u-bolts a bit once they are around the new beefy tie rod in order to get them through the factory stabilizer bracket. Once they are through tighten them up to 15 to 20 ft-lbs. Be sure to trim off any extra thread that may interfere with the steering stabilizer cylinder. **Note:** setting the position of the steering stabilizer bracket is critical to function. Be sure to have your steering wheel centered with the wheels pointed perfectly straight forward. Then be sure to have the steering stabilizer centered in its stroke and attach it to the steering stabilizer bracket. This way you will not run out of steering stabilizer throw before you reach your steering stops.

Also, if you are looking to relocate your steering stabilizer for better clearance now is a good time to do so as we have done in the full assembly picture above. Be sure to not have any interference with any components and follow the above recommendations.

Originally Posted by Rock Krawler Suspension

Sir

Give us a shout! We will walk you through the proper tightening sequence for the jam nuts to hold the orientation of the tie rod. You need to account for the Ackermann Sweep and that is it. Once that is understood, you will know how to tighten the jam nuts to hold the orientation of the tie rod where ever you would like. Sometimes, playing with steering involves a little more knowledge of steering than most people think.

We will try to explain it here as well, but give us a shout for clarification...

With the Tie Rod Ends set to give you proper or desired tow settings and the jam nuts loose, do the following!

- 1) Stabilize the tie rod in the desired orientation with the steering wheel straight.
- 2) Take the driver's side TRE, rotate it down as much as possible taking out all the misalignment... Then tighten the jam nut on the driver's side holding the TRE on the driver's side in this position. You should notice that if you remove whatever you used to hold the orientation of the Tie Rod Bar itself, that it can no longer rotate it down and the orientation is held..
- 3) Now, Turn the steering wheel all the way to the passenger side! Spin the passenger side TRE completely in the opposite direction and tighten the jam nut! This will allow for the proper amount of usable misalignment for the Ackermann effect!

If you do not account for the Ackermann effect properly, your jam nuts will constantly keep coming loose which will degrade the threads in the bar itself which may eventually lead to failure!

If the above is not clear to anyone, please give us a call. This holds true for all Tie Rods, not just ours!! Hope this helps you out!

RK

The orientation of the bar (i.e. how far it hangs down is actually set by the D.S. TRE and Jam nut).

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Example of Steering Stabilizer Relocation

11) Make sure to take your JK to the local Jeep Dealer to get aligned so the tow is set properly. Any adverse tow settings could cause unwanted ESP activation. Be sure to lock the jam nuts in place with thread locker like loctite when all is said and done.