

ROCK KRAWLER S U S P E N S I O N

INSTALLATION MANUAL

FOR

ROCK KRAWLER SUSPENSION, INC.

JL ADVENTURE SERIES MID ARMSYSTEMS

2021 1st EDITION

06/16/2021



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Dear customer: Thank you for purchasing the best 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.

Welcome to TEAM RK

Share your before & after pictures, install photos & wheeling images.

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@rock_krawler

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

WARNING

- Properly block and secure vehicle prior to installation.
- Always wear safety glasses when using power tools.
- Rock Krawler Suspension recommends the use of Loctite on all hardware, unless noted otherwise.
- The use of limiting straps is recommended to avoid possible damage from over extending the suspension of your vehicle.
- Read and understand all instructions, warnings and safety precautions in these instructions and your owner's manual before attempting to install these components.
- Proper installation of Rock Krawler Suspension 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. Rock Krawler Suspension, Inc. strongly recommends that this system be installed by a certified mechanic with off road experience.
- Rock Krawler Suspension 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.
- Rock Krawler Suspension does not condone or authorize the use of any other suspension components with its products. Should Rock Krawler Systems or components be installed in junction with other products or not per the provided instructions Rock Krawler Suspension warranty is void and is not to be held accountable for any resulting actions.



Driving and Handling Tips

- For Highway driving it is best to have the front sway bar connected. This will give you the on highway ride and handling characteristics you expect. **If you choose otherwise, you do so at your own risk.**
- The ride quality and handling that Rock Krawler is known for is based on using OEM sway bars front and rear with approved shocks. Using any components other than directed can result in adverse handling characteristics and poor ride quality.
- For Off-Road use it is best to have the front sway bar disconnected and the rear sway bar connected. This will allow your suspension to do its intended function. Our suspension will give your vehicle unmatched articulation which will provide traction and feed back to keep your vehicle moving in almost all conditions. Let the suspension do the work! Even if you are a Rubicon Owner for most situations we recommend manually disconnecting the front sway bar.

IMPORTANCE OF JAM NUTS

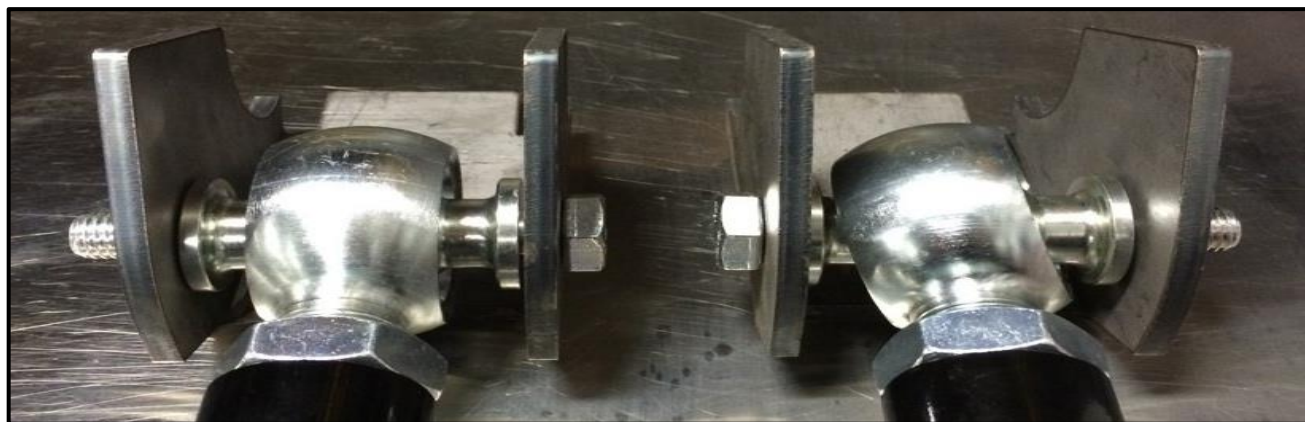
This is a note about jam nuts and the consumer's responsibility. The installer is the person or persons initially responsible for the proper setup of the suspension system and/or components and the initial tightening of the jam nuts. The jam nuts not only hold the orientation of the joint it is on but it is the single component that puts the necessary pre-load on the joints threads. The consumer or vehicle owner is the person or persons responsible for maintaining the jam nuts tightness. Failure to do so will result in the rapid deterioration of the threads in the control arm and will impose a "cause for concern" for the occupants of the vehicle. Failure to comply with the warnings heeded in the directions regarding the amount of threads showing past the jam nut will also result in the same "cause for concern" for the occupants of the vehicle. All of the above items are the responsibility of the vehicle owner and or installer. If a threaded section of a component is bad it will show itself defective immediately. Threads that fail over time are due to improper maintenance of jam nuts and can be proven very easily. Thread sections and jam nuts not properly maintained or setup, are not covered under warranty. This is the end user and installer's responsibility.

ORIENTATION OF JOINTS

Orient the Krawler Joint for maximum amount of movement with the head of joint perpendicular to bolt / head of the joint vertical in the mounting bracket. This same rule for orientation needs to be followed for all heim joints. The photo below shows the right way (LEFT SIDE) and the wrong way (RIGHT SIDE) to orient a joint.

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^RIGHT WAY^

^WRONG WAY^

MAINTAINING JOINTS

Krawler Joints/Pro Flex Joints, Anti-Wobble Joints and Pro Disconnect Joints

The Pro Series Krawler Joints, Pro Flex Joints, Anti-Wobble Joints and Pro Disconnect Joints are greaseable. They come pre-greased from the factory. The grease valley is machined into the housings. We require Triple Zero (000) grade grease for lubrication of all our joints. They will not take a lot of grease nor do they need a lot of grease. Approximately every 4 to 6 months under normal operating conditions they should be greased. This is condition and use dependent so please use common sense. Over lubrication or using the incorrect grade of grease can do damage to the joints and hydraulically displace the race way material causing a sloppy joint condition.

If the joint is not loose, it is not bad. Only if the ball is sloppy in the joint housing is it a bad joint and should be rebuilt. Krawler Joint Raceways, Pro Flex Joint Raceway, or Anti-Wobble Joint Raceways are available through Rock Krawler Suspension or an authorized dealer.

Please note: If you are not using the full range of motion of the Krawler Joint, Pro Flex Joint or Anti-Wobble Joint very often, the lubrication will not be moving inside the joint. In such cases we recommend spraying down the outside of the Joint with WD-40 or Liquid Fluid Film to ensure the race ways do not dry up. In highly corrosive environments it is also recommended to spray down the suspension components with WD-40 or Liquid Fluid Film. This will minimize corrosion of the components do to exposure to the elements.

HEIM JOINTS (Non- rebuildable spherical joints)

All Rock Krawler Heim Joints use Teflon Liners and thus are self lubricating. They too can also benefit from spraying down the outside of them liberally with WD-40 or Liquid Fluid Film. Grease should never be applied to them! Take caution when using cleaners and detergents on your vehicle as it can ruin the adhesives used on the Teflon liners yielding a bad heim joint!

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SUGGESTED STARTING LENGTHS

Front Track Bar (RK06187)

2.5" lift – 34 3/16"

3.5" lift – 34 5/16"

Front Lower Control Arms (RK06779)

2.5" lift heights – 24 5/16" - Fixed

3.5" lift heights – 24 5/16" - Fixed

Rear Lower Control Arms (RK06063)

2.5" lift heights – 20 7/16" - Fixed

3.5" lift heights – 20 7/16" - Fixed

Rear Track Bar (RK06692)

2.5" lift (w/ bracket) – 37 9/16"

3.5" lift (w/ bracket) – 37 13/16"

Front Upper Control Arms (RK06697)

2.5" lift heights – 20 7/16"

3.5" lift heights – 20 9/16"

Rear Upper Control Arms (RK020208B)

2.5" lift heights – 17 9/16"

3.5" lift heights – 17 5/8"

Please Note:* All Control Arms, Track Bars, and Sway Bar Links come preassembled, but require adjustment to the above recommended starting dimensions. These measurements are taken from the center of one bolt hole to center of the other bolt hole. **Please check out our Rock Krawler Youtube Channel if need be for how to set the control arms properly and the importance of Jam Nuts...



TORQUE VALUES FOR HARDWARE AND JAM NUTS

- All 10mm and 3/8 bolts are torqued to 30-35 ft-lbs.
- All 12mm and 1/2" bolts are torqued to 75-80 ft-lbs.
- All 14mm and 9/16" bolts are torqued to 90-100 ft-lbs.
- All 16mm and 5/8" bolts are torqued to 120-140 ft-lbs.
- All 7/8" Jam Nuts are to be torqued 200-220 ft-lbs. Up to 5/8" of threads showing past the jam nut is safe for final adjustment. These specifications are critical for the overall longevity of the threaded section.
- All 1 1/4" Jam Nuts are to be torqued to 275-325 ft-lbs. GET YOUR BIG BOY PANTS ON! Up to 7/8" of threads showing past the jam nut is safe for final adjustment. These specifications are critical for the overall longevity of the threaded section.

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FRONT OF VEHICLE (Perform all Steps for the System You Are Installing)

- 1) Make sure vehicle is on a level, hard working surface if you are using a floor jack and jack stands.
- 2) Block the rear wheels so the vehicle cannot move and make sure the emergency brake is applied.
- 3) Raise and support the front of vehicle with safety jack stands. Locate jack stands on the frame in front of the axle.
- 4) If you are using a vehicle lift, place the lift arms according to those specific vehicles lifting procedures. Ensure that the lift arms will not interfere with the components that are being replaced.
- 5) Remove the front rims and tires with axle supported by a floor jack.
- 6) Remove the front shocks. Save the OEM hardware to install the new shocks.
- 7) Remove the front sway bar links and discard them. You will be relocating the rear sway bar links to the front of the vehicle. This step should be done after the front suspension is mostly together.
- 8) Remove the nut holding the factory brake line to the OEM lower control arms. Clip the ties holding the pass. side disconnect motor cable from the passenger side front upper control arm and disconnect motor housing. Be sure to add slack to the breather tube as well. All are shown below.



Remove Brake Lines from Arms



Clip for Breather Line Slack

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Remove the plastic clips holding the pass. disconnect motor cable from the upper arm and motor housing as shown.

9) Lower the front axle assembly onto jack stands.

10) Remove the front track bar from the vehicle and save the OEM hardware for reuse.

11) Remove the front springs.

***Please Note:** For all OEM components being reused, loosen the mounting hardware at all connections so you do not overstress the OEM vulcanized rubber bushings. Failure to do so can result in a rougher than expected ride, adverse handling and premature wear of the OEM components.

12) Remove the front lower control arms and save the OEM hardware for reuse on all but Stock Mod Systems. Stock Mod Systems skip this step, but please note some time of Caster Correction is Highly Recommended.

13) **Adventure Series 3** Remove the front upper control arms and save the OEM hardware for reuse.

14) For the **3.5"** and **Taller Systems**, the drag link end will be your limiting factor without shocks to allow the axle to droop. For these systems, we recommend you separate the drag link from the knuckle connection to allow for ease of axle movement.



15) To make servicing your control arms easier and to have the Zirc fitting facing upward at the axle; we recommend you cut a little relief in the upper control arm mount as shown. A hole saw is a simple way to make a nice, clean cut. Then add some paint of your choice to minimize rust later on.

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- 16) If you received or purchased separately the Rock Krawler front stackable bump stops, now is a great time to drill the lower bump stop pad with a $\frac{1}{2}$ " drill bit to make installation of the stackable bump stops easy. We recommend 2 pads for 2.5" of lift, 3 pads for 3.5" of lift and 4 pads for 4.5" of lift. Choose the proper $\frac{1}{2}$ " bolt.



- 17) Remove the OEM spring isolators or spring seats on the axle and replace them with the supplied Rock Krawler spring seats. They are not side specific and use the locating pin on the axle to set their orientation. Please see below.

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New Bottom Spring Seats Shown with Bump Stop Stack in Place

- 18) **Adventure Series 3** Install the supplied front upper control arms set to the specified length for your kit according to our measurements. Secure using the OEM hardware. The bend in the upper arms are designed for frame clearance and go away from the frame. Be sure to rewrap the OEM heat shielding products after installation is supplied on your vehicle.



Driver Side Front Upper Arm Showing Proper Bend Orientation (Away From the Frame)

- 19) **All Systems other than Stock Mod;** Install the front lower control arms using the OEM hardware. The Adventure Series Front Lower are approximately 24 5/16 center to center.

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***Please Note:** The bend in the arm is for improved ground clearance and goes up.

20) Install the supplied front coil springs. Make sure the bottom winding of the coil butts up against the stop in the new bottom spring seat and the top winding is properly centered using the OEM spring pad on the frame. If the coil is not seated properly it will bow more than it should and can damage your coil.

21) Install the front shocks using OEM hardware.

****Note:** If your OEM shock bolt runs into the control arms, swap them with the rear sway bar link top bolts.

22) As you are compressing the suspension, install the front track bar reusing the OEM hardware. Be sure to set it to the starting dimensions for your system as specified above. The rebuildable Anti-Wobble joint goes to the frame connection and the heim joint with high misalignment spacers go to the axle connection as shown below. Helpful hint. Be sure to have the steering column unlocked so the axle will swing side to side freely.



Frame Side



Axle Side

23) Reattach the drag link to the passenger side knuckle.

24) Relocate the rear sway bar links to the front of the vehicle

25) Remove the metal bracket that held the factory brake line to the control arm from the brake line itself by prying it off the line or gently cutting it off. This will provide you with more than enough extra brake line slack. *Helpful hint; use 2 pair of vice grips, one pair to hold the bracket and one pair to peel the bracket back off the line.*



26) Tighten all connections per the recommended torque specs above.

27) Put the tires and wheels back on the front end and carefully lower the vehicle to the ground.

REAR OF VEHICLE (Perform all Steps for the System You Are Installing)

- 1) Make sure vehicle is on a level, hard, working surface if you are using a floor jack and jack stands
- 2) Block the front wheels so the vehicle cannot move.
- 3) Raise and support the rear of vehicle with safety jack stands. Locate jack stands on the frame behind the rear axle.
- 4) If you are using a vehicle lift, place the lift arms according to those specific vehicles lifting procedures. Ensure that the lift arms will not interfere with the components that are being replaced.
- 5) Remove the rear rims and tires with axle supported by a floorjack.
- 6) Remove the rear shocks. Save the OEM hardware for reuse.
- 7) Remove the OEM rear sway bar links and place them in the front of the vehicle.
- 8) For Rubicon models only; remove the electric locker line from the plastic clips holding it to the cross member as shown below to gain slack in the line.



Remove E Locker Line from this connection point to add slack in the line.

- 9) Disconnect the E Brake Cables from the axle and reroute them ahead of the upper cross member instead of behind the cross member to gain the necessary slack in the E Brake Cables and reattach them to the axle as shown below. Be sure to remove and discard the clip that holds the E brake Cables to the bottom of the floor.

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E Brake Cables routed ahead of the cross member

- 10) Add slack to the breather hose and lower the rear axle assembly onto jack stands.
- 11) Remove the rear coil springs and bottom spring seats.
- 12) For 2.5" systems unbolt the axle end of the rear track bar, save it and the OEM hardware for reuse. For 3.5" Systems or if you purchased the optional rear adjustable track bar for the 2.5" systems remove the OEM rear track bar and save the OEM hardware for reuse.

***Please Note:** For all OEM components being reused; loosen the mounting hardware at all connections so you do not overstress the OEM vulcanized rubber bushings. Failure to do so can result in a rougher than expected ride, adverse handling and premature wear of the OEM components.

- 13) **ADVENTURE SERIES 2 & 3 ONLY;** Remove the rear upper control arms and save the OEM hardware for reuse.
- 14) **ADVENTURE SERIES 3 ONLY;** Remove the rear lower control arms and discard them, save the OEM hardware for reuse.
- 15) Install the rear track bar relocation bracket using the supplied 14mmx90mm bolt, washers, nylok nut, the 7/8" O.D. x 9/16 I.D. x 1.625" long crush sleeve on the inside of the OEM lower track bar mount, and supplied 1/2" u-bolt, washers, and nylok nuts as shown below.

Tightening sequence is as follows; with all the hardware in place, tighten the 1/2" nylok nuts on the u-bolt to 50-55 ft-lbs. Then tighten the OEM mounting bolt at the OEM location.

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Crush Sleeve



14x90mm Bolt



1/2" U Bolt

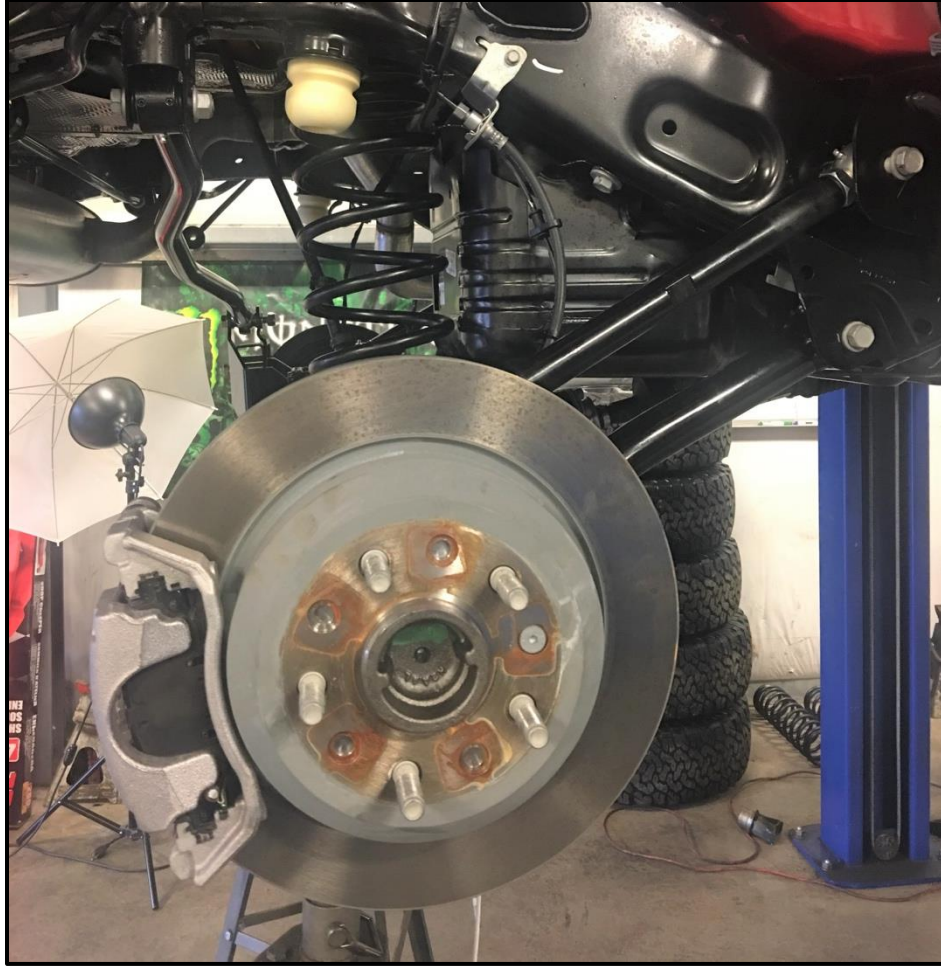
- 16) **ADVENTURE SERIES 2 and 3** Install the rear upper control arms set to the specified length for your kit according to our measurements and secure using the OEM hardware.

**Please Note:* When setting length, balance the amount of thread showing past the jam nuts. The rear upper arms adjust in the vehicle to make setting the pinion angle a snap.

- 17) **ADVENTURE SERIES 3** Install the rear lower control arms using OEM hardware. The bend in the arms is for improved ground clearance and goes up.

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Rear Uppers and Rear Loweres Installed in the Vehicle

- 18) Install the spring seats on the axle. The thick part of the spring seats goes toward the rear of the vehicle. There is a specific driver and passenger side marked by a D and P on the bottom of the spring seats. The passenger side is thicker than the driver side. They key in on the OEM spring pad hole for proper orientation.



Driver Side Spring Seat



Pass. Side Spring Seat w/ Spring Installed

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**Please note: The markings are for LHD applications. RHD applications will be reversed.*

19) Install the Rock Krawler rear coil springs. Make sure to put the tighter wound coils up and the end coil winding is sitting in the top spring seat properly. Please note: the top spring seats are indexed as well with a pin to set their orientation. This too must be correct.

20) **Slowly start to compress the suspension and attach the rear track bar to the supplied track bar bracket.**

For all 2.5" Systems; as the suspension is compressing, attach the OEM track bar to the newly supplied bracket on the axle using the supplied 14mm x 80mm bolt, washers and nylok nut.

For all 3.5" Systems or if you opted to purchase the rear track bar along with your 2.5" System; install the Rock Krawler rear track bar with the anti-wobble joint at the frame connection using the OEM hardware and the heim joint to the newly supplier rear track bar bracket using the supplied 14mm x 80mm bolt, washers and nylok nut. *Be sure to set the length of the track bar per the instructions for your lift height out of the tables at the beginning of the instructions.*

***Please Note:** The offset in the bar (bend) goes around the rear differential.

21) Install the rear shocks using the OEM hardware.

22) If purchased, install the RK fabbed rear bump stops. Our rear fabricated bump stops mount to the factory bump stop pad using the supplied 3/8 x 3/4 bolts, washers, and nylok nuts. Make sure the bumps stop angles to the front of the vehicle as shown in the photo below.



For 2.5" lifts we recommend (1) 1" rubber pad stacked on top of the mounting pad. For 3.5" lifts we recommend (2) 1" rubber pads stacked on top of the mounting pad. We recommend having the rubber spacer moved to the back of the pad as far as possible for starters. We also recommend you cycle the suspension to ensure the bump stops are making contact correctly.

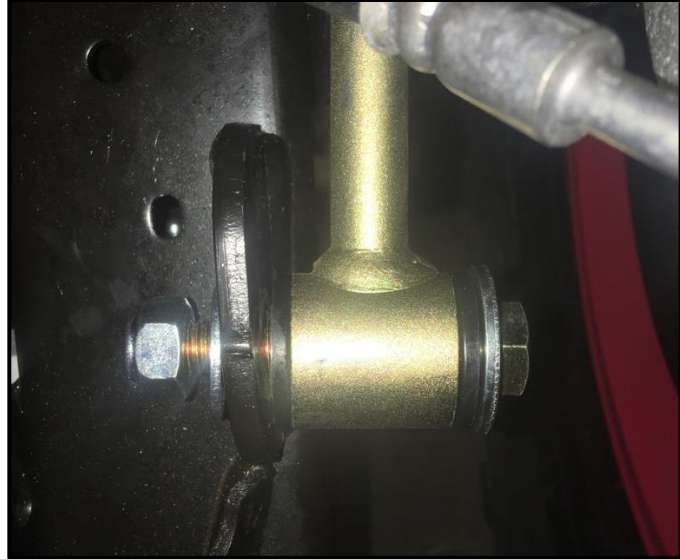
23) Install the Supplied Rear Sway Bar Links using the supplied 12mm x 70mm bolts, washers and nylok nuts. Please note: the extra thick washer goes under the head of the bolt as shown below.

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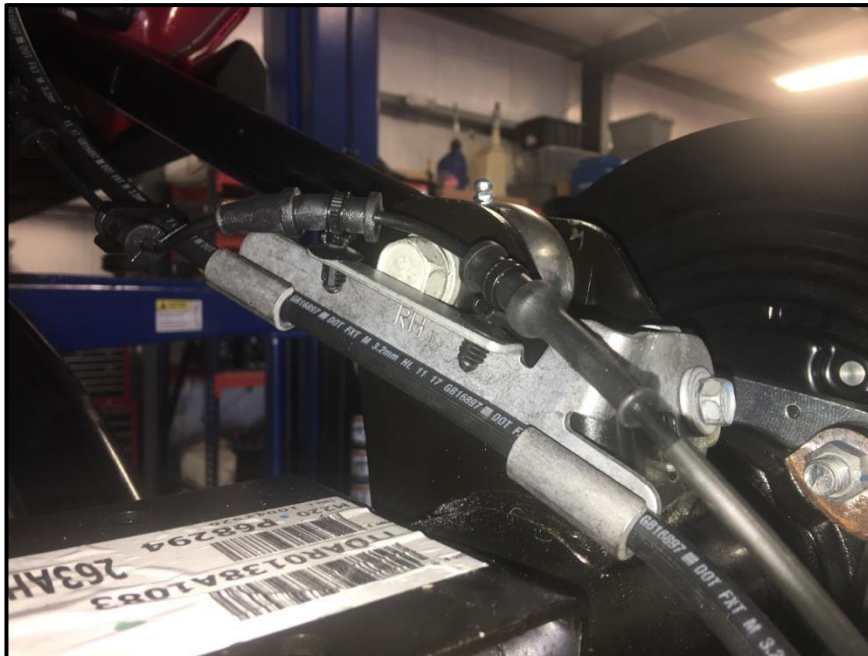


Top Connection



Bottom Connection

- 24) **Gently and Easily** bend the rear brake line bracket on the axle toward the frame as shown. This will allow you plenty of travel in the brake lines for your systems.



New Orientation for Rear Brake Line Brackets

- 25) Install the rear wheels and tires and lower the vehicle to the ground.

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26) Tighten all mounting bolts at this time!

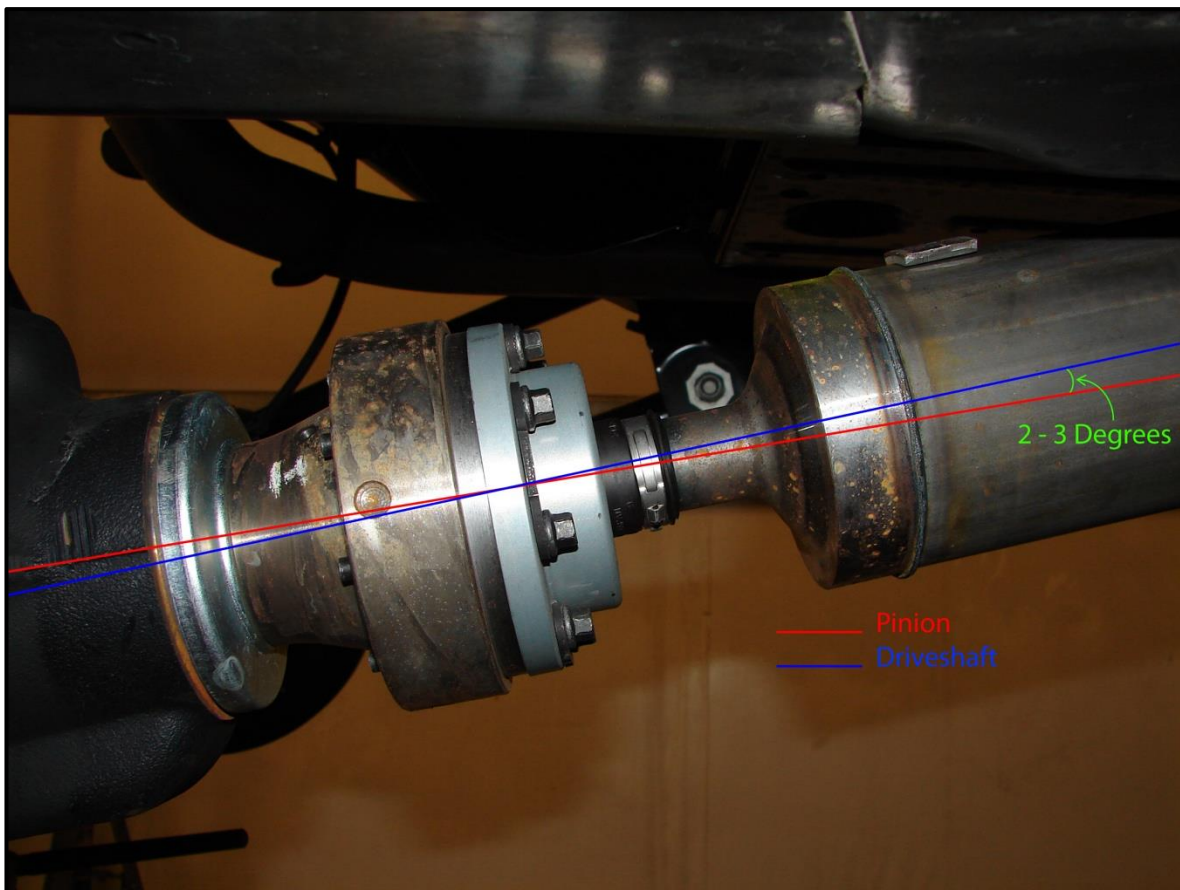
Recommended Alignment Specs are as follows:

2.5" Lift Height: 4.8 to 6.35 degrees of Caster with a .2 to .4 Cross Caster Split (.2 to .4 degrees more caster on the pass. side than the driver's side.)

3.5" Lift Height: 4.2 to 5.75 degrees of Caster with a .2 to .4 Cross Caster Split (.2 to .4 degrees more caster on the pass. side than the driver's side.)

Tow: 0 to slightly towed in but within factory specifications

The rear pinion angle should be down 2 – 3 degrees from the driveshaft as shown below.



***Please Note:** If you do not have adjustable components you will not be able to dial in the alignment or pinion angle settings so what you get is what you get.

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A note about tires, wheels, tire pressure and how it effects ride quality:

Tire and Wheel combinations at a given tire pressure have their own spring and dampening rates associated with them. This plays a major part in ride quality and off-road performance. The stock tire pressure settings on your Wrangler are based on stock C rated light duty tires on 17" wheels. Larger aftermarket tires typically have a much firmer side wall than the stock ones, thus increasing the spring rate and decreasing the dampening rate associated with the tires themselves. Going from a C to a D or E rated tire also amplifies this effect. Increasing wheel diameters cuts down on the sidewall size of the tire; for example going from a 17" wheel to a 20" to 22" wheels will increase the spring rate and decrease the dampening rate of the tire and wheel combination. As you increase tire strength and wheel size it is common to have to reduce the tire pressures in order to make your aftermarket tire and wheel combination feel like a stock stock and wheel combination. **Choose pressures wisely and safely! This is one part of your suspension tuning you can do on your own.**

Before hitting the pavement or the trails be sure to make sure the control arms are oriented properly, all spherical joints (heim joints and Krawler Joints) are oriented correctly to allow for maximum movement without bind, and all jam nuts have Loctite on them and are tight. Make sure the axles are properly centered, pinion angles are correct, there is proper slack in ABS lines, and all lines are properly routed. Go back over all your hardware and make sure each connection is tightened to its proper torque spec. Check your vehicles articulation and ensure that no moving parts contact or interfere with any other components throughout the travel (brake lines, shocks, coils, sway bar links). Also check to see if at full flex your coil spring losses tension, if so you may want to look into a limit straps. You may need to look at bump stops depending on what shocks you choose to run.

Congratulations, you have just finished installing your Rock Krawler Suspension System! Your Jeep is now free to roam about the country.

Common Service Parts Listings:

Rock Krawler 000 Grade Grease – 3 oz tube – RK05494

Front and Rear Lower Control Arms:

Pro Flex Bushings– RK04709 – Requires Large Joint Tool – RK04484

Front and Rear Track Bars:

Anti-Wobble Joint Bushings (Frame End) – RK00221 – Requires Small Joint Tool – RK04487

Replacement Heim Joints (Axle End) – RK03426 – Optional New Misalignment Spacers – RK03428

Front Upper Control Arms:

Replacement Krawler Joint – RK03524

Replacement Krawler Joint Bushings – RK00221 – Requires Small Joint Tool – RK04487

Rear Upper Control Arms:

Replacement Krawler Joints – RK03499 (Right Hand Thread) RK03499L (Left Hand Thread)

Replacement Krawler Joint Bushings – RK00221 – Requires Small Joint Tool – RK04487