INSTALLATION MANUAL

FOR

ROCK KRAWLER SUSPENSION, INC.

TJ/LJ SHORT ARM SYSTEMS

THIRD EDITION

1/06/21

Dear customer: Thank you for purchasing the best system on the market for your Jeep Wrangler. 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

- 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 and bump stops are 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 may be 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 municipalities 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 conjunction 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 action.

Driving and Handling Tips

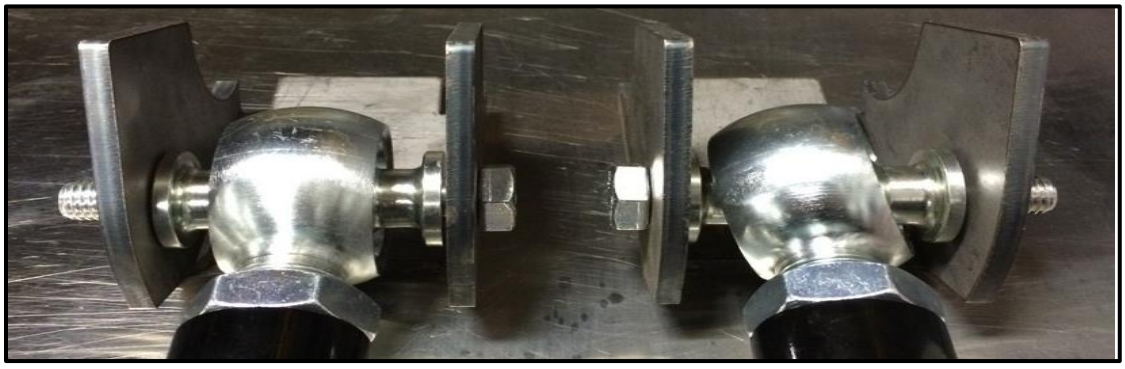
- For Highway driving it is best to have the front sway bar connected. This will give you the on highway ride and handling characteristics you expect. **If you choose otherwise, you do so at your own risk.**
- The ride quality and handling that Rock Krawler is known for is based on using OEM sway bars 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 improve traction and feed back to keep your vehicle moving in almost all conditions. Let the suspension do the work!

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. On arms with Krawler Joints on both ends, the joint housings must be set in plane with each other. While the bar may roll left or right in the bracket during operation, the housings set must be in plane.



^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 NLGI #1 grade grease, or thinner, 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. Joints will need to be rebuilt when the ball is sloppy inside the housing. 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 due 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!

TORQUE VALUES FOR HARDWARE AND JAM NUTS

- All 14mm and 9/16" bolts are torqued to 90-100 ft-lbs.
- All 12mm and ½" bolts are torqued to 75-80 ft-lbs.
- All 10mm and 3/8 bolts are torqued to 30-35 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" Jam Nuts are to be torqued to 250-300 ft-lbs. GET YOUR BIG BOY PANTS ON! Up to 3/4" of threads showing past the jam nut is safe for final adjustment. These specifications are critical for the overall longevity of the threaded section.

Reference Lengths:

TJ/LJ Front Lower Control Arm Assembled Length = 16.25"
TJ/LJ Front Upper Control Arm Assembled Length = 15.375"
TJ/LJ Rear Lower Control Arm Assembled Length = 16.25"
TJ/LJ Rear Upper Control Arm Assembled Length = 13.75"
TJ/LJ Front Track Bar 2.00" Systems = 32.375"
TJ/LJ Front Track Bar 3.50" Systems = 32.500"

Please Note: All Control Arms, Torque Arms, Track Bars and Triangulated 4 -Link Assemblies come pre-assembled, but they require adjustment to the initial starting dimensions as specified in the directions above. Final dimensions should be determined by proper driving parameters and set within our guidelines for thread engagement. It is strongly recommended to apply anti-seize to the internal thread of the control arms if the vehicle is being used in an area with a heavy salt environment.

Front End Procedure:

1. Make sure vehicle is still on a level hardworking surface. Block the rear wheels so the vehicle cannot move and make sure the emergency brake is applied. Raise the front of vehicle and support with safety jack stands. Locate jack stands on the frame in front of the axle.

   Please Note: If you are reusing OEM components and not replacing them, it is recommended that you loosen the control arm mounting hardware before raising the vehicle. This will preserve your rubber bushings. IE Stock Mod kits where the factory control arms are being retained.

2. Remove the front wheels and tires.

3. Support the front axle housing using a hydraulic floor jack.

4. Remove the front shocks using 15mm box wrench for the top and 13mm socket with ratchet in combination with 13mm box wrench on the lower bolts. Keep the original axle side hardware to install the new shocks.

5. Remove the front sway bar links from upper location using 15mm box wrench. It may be helpful to use a hammer to push up against then end of the sway bar while pulling down on the old links to release.

6. Loosen the factory brake line, abs line and breather tubes from the frame to add slack in them to prevent over extension and or damage.

7. Lower the front axle assembly.

8. Remove the front track bar from the vehicle and discard the hardware since it will not be reused.

9. Remove the front spring retainer clip(s) if applicable and remove the front springs.

10. Remove the front lower control arms using 21mm wrench and 21mm socket with ratchet and save the hardware for reuse.

11. Remove the front upper control arms and save the OEM hardware for reuse.

12. Install the new Rock Krawler front upper control arms using the OEM hardware. The Krawler Joint goes to the frame connection and the clevis end attaches to the axle. **Do not allow more than 5/8" of threads to show past the jam nuts for final adjustment.**

13. Install the front lower control arms set to the specified length for your application. The Krawler Joint (Zinc Plated Spherical Joint) goes to the axle and the Pro Flex Joint (Bushing Joint) goes to the frame. **Do not allow more than 3/4 " of thread to show past the jam nut for proper thread engagement.**

Axle side

Frame side

14. Drill out the lower track bar mounting hole on the axle to 9/16” and the frame side track bar mounting hole to 1/2” as shown below.

Axle Connection

Frame Connection

15. Once your original frame side track bar hole is drilled to 1/2”, attach your front track bar bracket starting with the 1/2” x 2” bolt included in your kit. Make sure a washer is on either side and insert the bolt from the ground up.

16. When the front track bar bracket is in position, center punch four of the holes on the frame. Drill each to ½” and insert the supplied ½” x 4” bolt included in your kit. Make sure a washer is on either side of the bracket and secure with a ½” nyloc nut on the inside of the frame.

17. If you purchased a system with bump stops, install them now as directed below.

Please Note: To install mark the center of the spring pad and follow one of the two following options:

A. Drill a 1/2" hole. Place the bump stop inside the coil spring and place the coil and bump stop onto the spring mount together. Tighten the hardware once the coil is placed on the spring pad.
B. Drill and tap a ½"-13 hole in the center of the spring perch. This option makes install much easier as you will not need to put a box wrench on a nut under the spring perch as with option A.

18. Install the Rock Krawler front springs and. Make sure coil windings are seated properly in the axle. Do not install spring retaining clips. These clips will likely induce a spring bow.

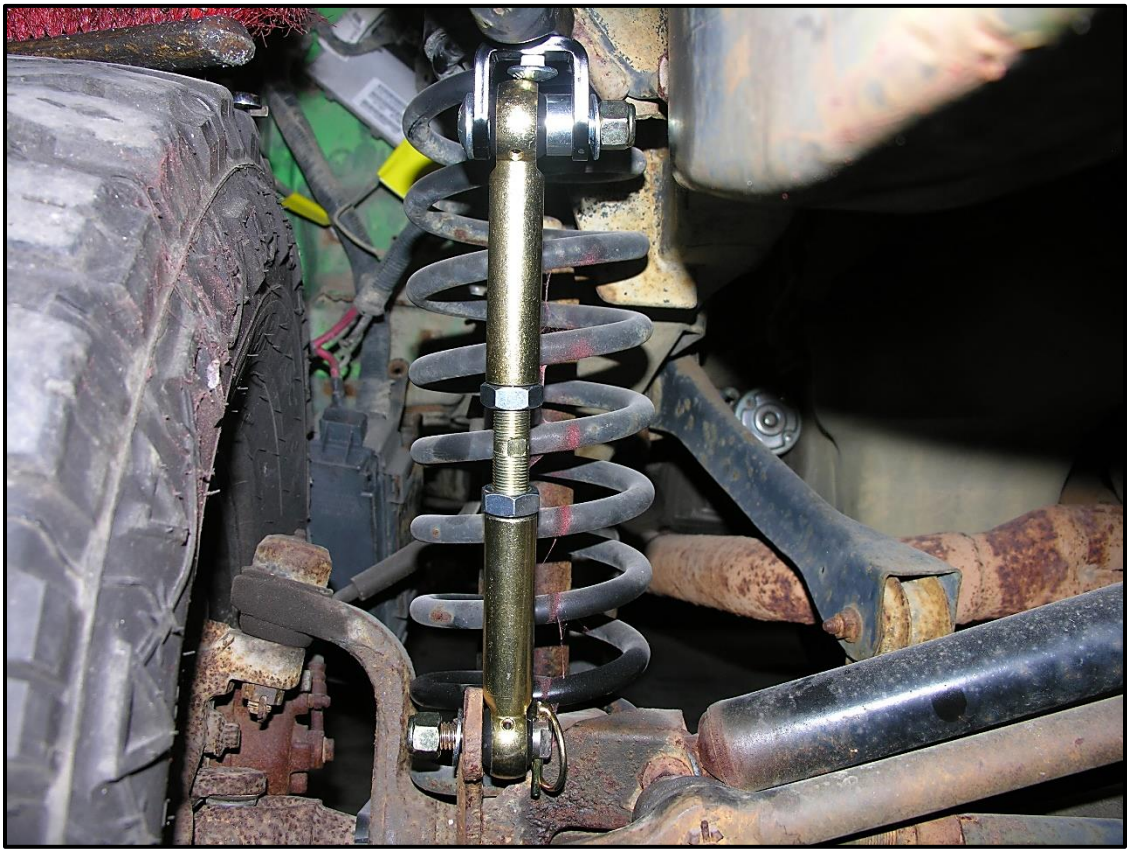
19. While raising the axle to compress the coils, install the supplied front track bar. Set the dimension to that prior specified center to center for your given application. Use the supplied 14mm x 70mm bolt and nyloc nut for the lower axle connection. Use the supplied 5/8 x 3.5" bolt and nyloc nut to connect the track bar to the track bar bracket. **Do not allow more than 5/8" of threads to show past the jam nut for final adjustment. Be sure to orient the joints in plane with each other and tighten the jam nut!**

20. Mark the orientation of the stock drop pitman arm with a marker. Disconnect the drag link from the pitman arm. Remove the OEM Drop Pitman Arm and install the newly supplied drop pitman arm. Then reconnect the stock drag link to the newly supplied component. Note that the drag link will need adjusting in order for the steering wheel to sit properly

21. Install the front shocks using the original axle side hardware.

22. Install the front sway bar disconnects and sway bar strap as shown in the image below. Don't forget the Zerk fittings!

***Note: The passenger's side front sway bar link is shown in the picture below. Follow the orientation of hardware and flip it for the driver's side.*



Front Disconnects

On top, connect the sway bar link assembly to the sway bar using the supplied carriage bolt 3/8" x 1.5" long bolt, lock nut and 3/8" flat washer. On the bottom, tighten the supplied special bolt (with hole) to the OEM mounting bracket, jam nut and spiral lock washer as shown. Then connect the sway bar link assembly to the special bolt with a supplied ½" nylon washer on each side of the rod end. Secure it with the hair pin as shown aobve. Make sure you have 5/8" of thread engagement at a minimum for your rod ends.

To install your sway bar retaining straps:

Drill a 5/16" hole in the sheet metal as shown in the picture below to the left and secure the fixed end of the sway bar link strap with the supplied 5/16" x 1" bolt, two washers, and a nyloc nut as shown below.

When disconnecting, wrap the sway bar link strap around the sway bar and link. Then secure them up and out of the way. When not using the sway bar straps it is recommended the bottom end of the straps be removed and stored in a safe storage place.

23. Remove the factory front rubber brake lines and install the new stainless-steel brake lines. Do not worry about bleeding the brake system at this time since you are going to have to install the new rear line later on in the install.

24. Install the front wheels and tires back on the Jeep.

Rear End Procedure:

1. Park vehicle on a level, hardworking surface. Raise rear of vehicle and support with safety jack stands. Place a pair of jack stands on the frame behind the rear axle.

2. Remove the rear wheels and tires.

3. Support the rear axle using a hydraulic floor jack.

4. Remove the rear shocks and save the hardware for reuse.

5. Loosen the factory brake line, abs line and breather tubes from the frame to add slack in them to prevent over extension and or damage.

6. Remove the rear sway bar links and save the hardware for reuse.

7. Lower rear axle using hydraulic jack until rear springs can be easily removed and remove springs.

8. Remove the rear lower control arms using 21mm socket with ratchet and a 21mm box wrench and save the hardware for reuse.

9. Disconnect the rear brake line and parking break lines from rear upper control arms.

10. Remove the factory rear rubber brake line and replace with the supplied stainless steel brake line.

11. Remove the rear upper control arms using 15mm socket with ratchet. Discard the rear uppers since they will be replaced. Save Hardware

12. **R**emove rear track bar using the T-55 torx bit for the lower mount and 18mm wrench and 18mm socket with ratchet. Maintain the rear track bar and OEM hardware for reuse.

13. Install the newly supplied rear upper control arms using the OEM hardware. Adjust as required to achieve the proper axle position and pinion angle. **Do not allow more than 5/8" of threads to show past the jam nut for final adjustment.**

17. Remove the steel mounting brackets for rear parking brake cables. Then zip tie the brake lines to the rear upper control arms using the supplied ties. Use vice-grips and a pry bar to unwrap the brackets from the brake lines.

18. Install the rear lower control arms set to the specified length for your application. The Krawler Joint (Zinc Plated Spherical Joint) goes to the axle and the Pro Flex Joint (Bushing Joint) goes to the frame. **Do not allow more than 3/4" of thread to show past any jam nut for proper thread engagement.**

19. **For All 3.5" Systems:** Bolt in the supplied rear track bar relocation bracket as shown, below. Be sure to remove the factory plastic cover before installing the new bracket. Bolt the relocation bracket into place with the OEM fastener and the supplied two 5/16 x ¾ bolts and nuts in the holes. Then bolt the OEM track bar to the relocation bracket with the supplied 10mm x 70mm bolt and lock nut. Bolt the top side of the track bar to the frame bracket using the OEM hardware. The rear track bar relocation bracket should look like that in the picture below.

Rear Track Bar Relocation Bracket

20. If you purchased a system with bump stops, install them now as directed below.

Please Note: To install mark the center of the spring pad and drill a 1/2" hole. Place the bump stop inside the coil spring and place the coil and bump stop onto the spring mount together. Tighten the hardware once the coil is placed on the spring pad. As with the front, you may choose to drill and tap to ½"-13 thread.

21. Install your Rock Krawler rear coil springs. Make sure coil windings are seated properly in the axle.

22. Install the supplied rear sway bar links. Use the OEM hardware.

23. Install the rear shocks.

24. **For All Systems other than 2.0" Stock Mod.** Bleed the entire brake system and check for leaks.

25. Install wheels and tires, raise vehicle off jack stands and lower vehicle to the ground.

26. When the vehicle is settled out and on a level surface tighten all the hardware to the specifications mentioned above. Secure all brake lines, abs lines and breather tubes to the frame. Be sure to have plenty of operating length in them.

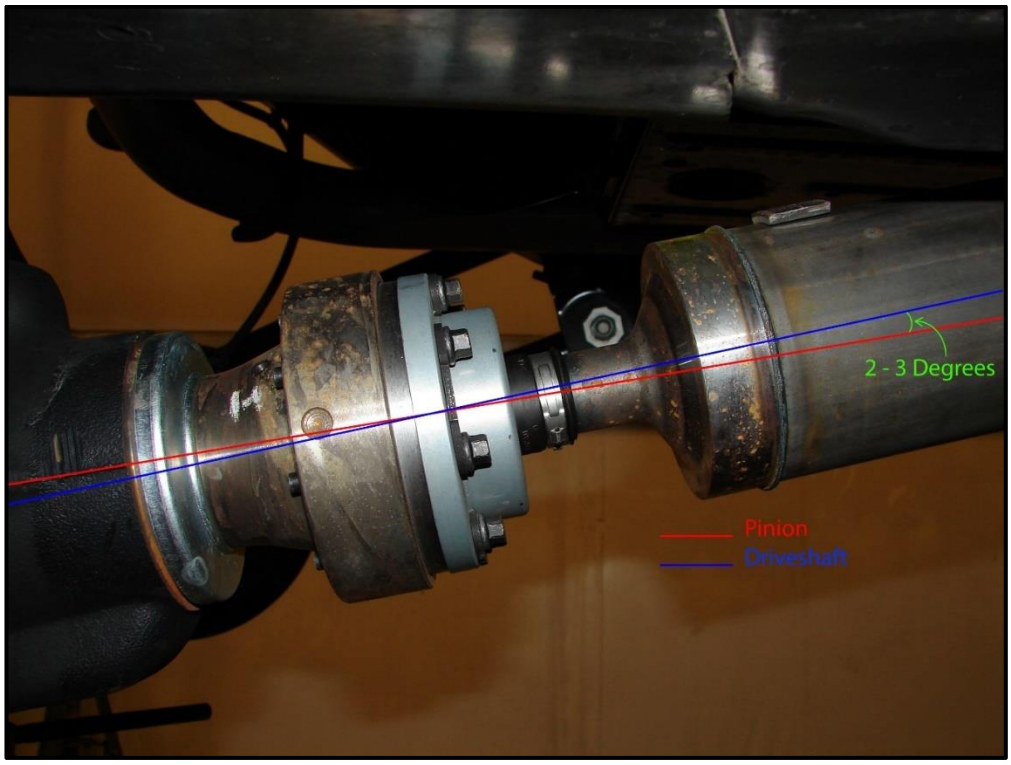
Recommended Alignment Specs are as follows;

2.0" Lift Height: 7.0 to 9.0 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: 6.5 to 8.5 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.)

Toe: 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.



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.

Applicable Service Parts: Correct for kits purchased in 2014 and newer

FRAME SIDE JOINTS

Part Number	Location	Use	Width
RK04708K	FRONT/REAR LOWER	Replacement Bushing [Frame]	N/A
RK04784	FRONT/REAR LOWER	Side Retaining Ring [Frame]	N/A
RK04709	FRONT/REAR LOWER	Internal Ball [2.625" x 14 mm] [Frame]	2.625"
RK00221K	FRONT/REAR UPPER	Replacement Bushing [FRAME]	N/A
RK04031	FRONT/REAR UPPER	Side Retaining Ring [Frame]	N/A
RK05007	FRONT/REAR UPPER	Internal Ball [2.00" x 10 mm] [Frame]	2.00"
RK03544 [RH/LH]	FRONT/REAR UPPER	New Joint [7/8"-14 THREAD] [Frame]	2.00"

AXLE SIDE JOINTS

Part Number	Location	Use	Width
N/A	FRONT UPPER	Replacement Clevis [AXLE]	2.00"
RK02219	FRONT LOWER	Replacement Joint [AXLE]	2.625"
RK03544 [RH/LH]	REAR UPPER	Replacement Joint [AXLE]	2.00"
RK02219	REAR LOWER	Replacement Joint [AXLE]	2.625"

TRACK BAR JOINTS

Part Number	Location	Use	Width
RK07836K	FRONT TBAR AXLE	Replacement Bushing [FRAME]	N/A
RK04031	FRONT TBAR AXLE	Retaining Ring [FRAME]	N/A
RK04825	FRONT TBAR AXLE	Internal Ball [1.625" x 14 mm] [FRAME]	N/A

RK03426	FRONT TBAR FRAME	Replacement Heim Joint [AXLE]	.875"
RK03427	FRONT TBAR FRAME	Replacement Heim Spacers [7/8" to 14MM]	1.10"