INSTALLATION MANUAL

FOR

ROCK KRAWLER SUSPENSION, INC.

JK LONG ARM COIL OVER SYSTEMS
(Comp Kits and Rock Runner)

SECOND EDITION

10/16/14

ROCK KRAWLER
SUSPENSION

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.

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 locktite 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.
- Do not tighten connections until assemblies are installed in entirety.
- 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 Tips

- For Rock Crawling it is best to have the front sway bar disconnected. This will allow your suspension to do its intended function. Our suspension will give your vehicle unmatched articulation which will give you traction to keep your vehicle moving. Let the system do the work. This will save on vehicle abuse.

- For Mud, especially sloppy mud, it is best to have the front sway bar connected. This will limit the suspension travel which is better for mud.

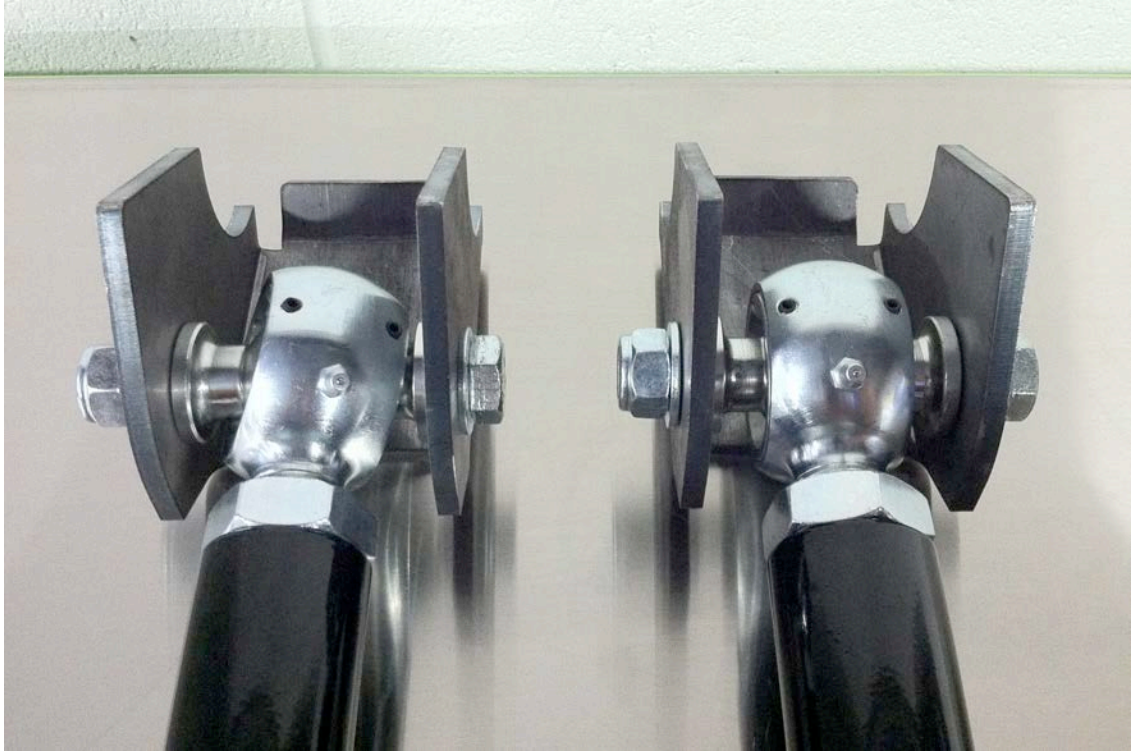
- For Highway driving it is best to have the front sway bar connected. This will give you the on highway ride and handling characteristics you expect. **If you choose otherwise, you do so at your own risk.**

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 headed 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 bracket it is mounting in. This same rule for orientation needs to be followed for all heim joints also. The photo below shows the wrong way (LEFT SIDE) and the right way (RIGHT SIDE) to orient a joint.



^WRONG WAY^ **^RIGHT WAY^**

MAINTAINING JOINTS

KRAWLER JOINTS (Rebuildable spherical joints):

The Pro Series Krawler Joints are greaseable. The grease valley is machined into the housing. The joints are very tight and typically a pneumatic grease gun is required. Approximately every 6 months or so the joints should be greased. They will not take a lot of grease! Use a general purpose light Marine Grade grease or similar product.

If the joint is not loose, it is not bad. Only if the joint is loose is it a bad joint and should be rebuilt. Krawler Joint Raceways are available for all series of Krawler Joints through Rock Krawler or an authorized dealer.

Please note: If you are not using the articulation of the Krawler Joint, the lubrication will not be moving around. In such cases we recommend spraying down the outside of the Joint with WD-40 or similar lubricant to ensure the race ways do not dry out, become brittle and crack..

HEIM JOINTS (Non- rebuildable spherical joints)

All Rock Krawler Heim Joints use a Teflon Liner and thus are self lubricating. They too can also benefit from spraying down the outside of them liberally with WD-40 or similar lubricant. Grease should not be applied.

FLEX JOINTS (Rebuildable bushing joints)

Our Flex Joints (bushing end) will benefit from being greased routinely. If there is no grease fitting, spray the exterior of the joint with WD-40 or similar lubricant.

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 #10-32 bolts are torqued to 25 to 30 inch pounds
- All 7/8" Jam Nuts are to be torqued 200-220 ft-lbs. Up to ½" 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 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.

Component Starting Lengths If you have a 2.5" System

2.5" Front Track Bar Assembled Length = 32.4375"
2.5" Rear Track Bar Assembled Length = 39.6875"
2.5" Front Lower Control Arm Assembled Length = 34.125"
2.5" Front Upper Control Arm Assembled Length = 36.25"
2.5" Rear Lower Control Arm (*2 Door*) = 33.625"
2.5" Rear Lower Control Arm (*4 Door*) = 34.500"
2.5" Rear Upper Control Arm (*2 Door*) = 27.250"
2.5" Rear Upper Control Arm (*4 Door*) = 26.750"

Component Starting Lengths If you have a 3.5" System

3.5" Front Track Bar Assembled Length = 32.50"
3.5" Rear Track Bar Assembled Length = 39.75"
3.5" Front Lower Control Arm Assembled Length = 34.125"
3.5" Front Upper Control Arm Assembled Length = 36.25"

3.5” Rear Lower Control Arm (*2 Door*) = 33.625”
3.5” Rear Lower Control Arm (*4 Door*) = 34.500”
3.5” Rear Upper Control Arm (*2 Door*) = 27.250”
3.5” Rear Upper Control Arm (*4 Door*) = 26.750”

Component Starting Lengths If you have a 5.5” System

5.5” Front Track Bar Assembled Length = 32.625”
5.5” Rear Track Bar Assembled Length = 40.00”
5.5” Front Lower Control Arm Assembled Length = 34.250”
5.5” Front Upper Control Arm Assembled Length = 36.313”
5.5” Rear Lower Control Arm (*2 Door*) = 33.750”
5.5” Rear Lower Control Arm (*4 Door*) = 34.625”
5.5” Rear Upper Control Arm (*2 Door*) = 27.375”
5.5” Rear Upper Control Arm (*4 Door*) = 26.875”

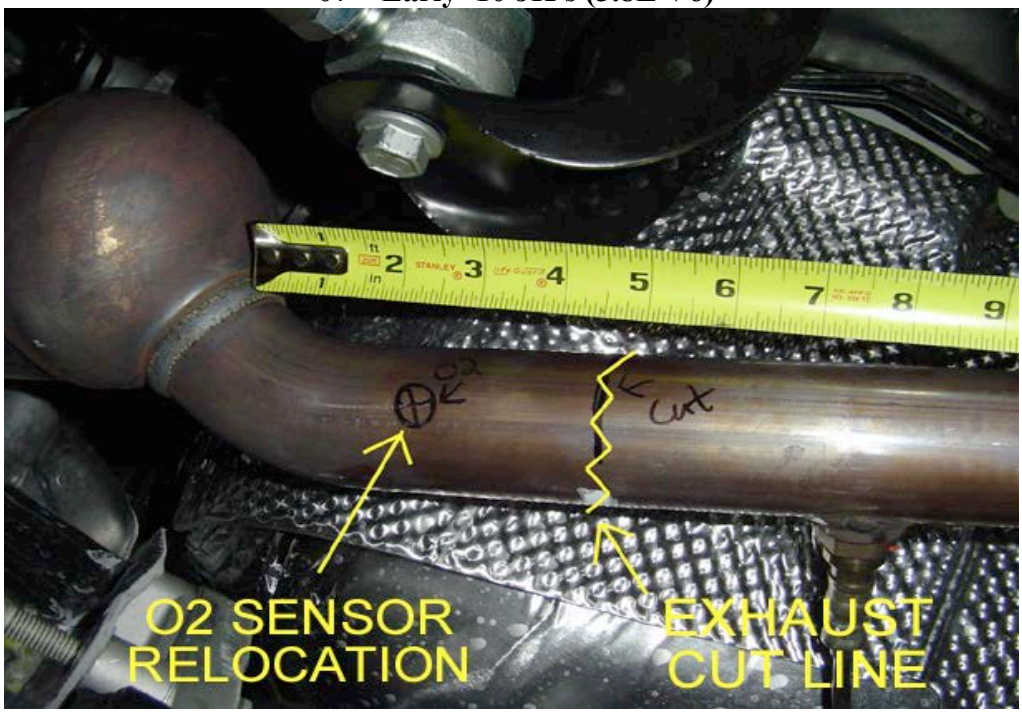
Note: All Control Arms, Torque Arms, Track Bars and Triangulated 4 -Link Assemblies come pre-assembled, but they require final adjustment as specified in the directions above. These measurements are taken from the center of one bolt hole to center of the other bolt hole.

Please note: Before you start this procedure it is recommended that you have your front exhaust modifications completed prior to installation of the system so when your installation is completed you can drive your JK away safely. The recommended exhaust modification is shown below. Please note the exact procedure will vary depending on years

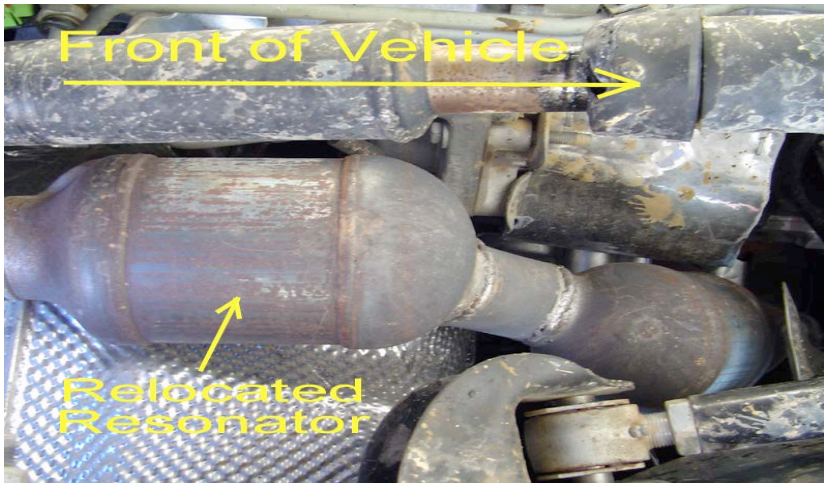
and engine models. The goal of the exhaust modification is to clear the new long arm mount and the new long front upper control arm. It may be helpful to bring the mount and upper control arm to the exhaust shop. Ensure the exhaust is not routed where is can interfere with hardware going into the long arm mounts.

EXHAUST MODIFICATION

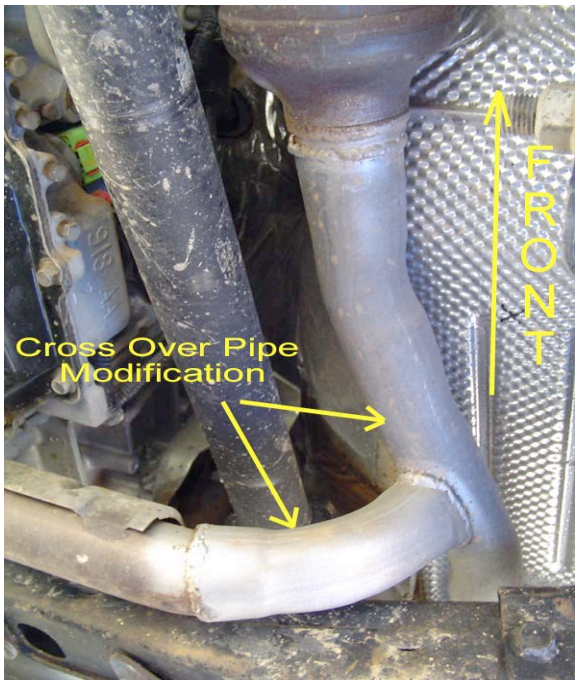
'07 – Early '10 JK's (3.8L V6)



- Remove the O2 Sensor and then cut the exhaust 4.5" back from the catalytic converter. Relocate the O2 Sensor 2.5" from the end of the first cat. **Please note: the O2 Sensor will actually function better the hotter it is so moving it closer to the manifold will certainly not hurt its operation.**

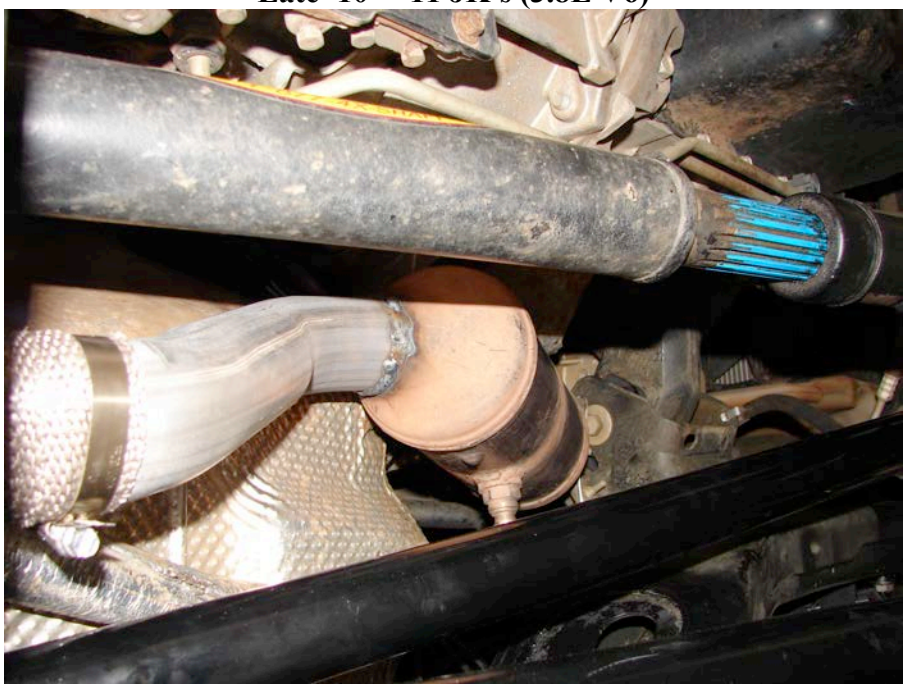


- Relocated Resonator after the Cat on the Driver's SideAfter Relocating the O2 Sensor forward (it must be relocated between the cat and the resonator) flip the resonator over 180 degrees and weld it back in place as shown above.



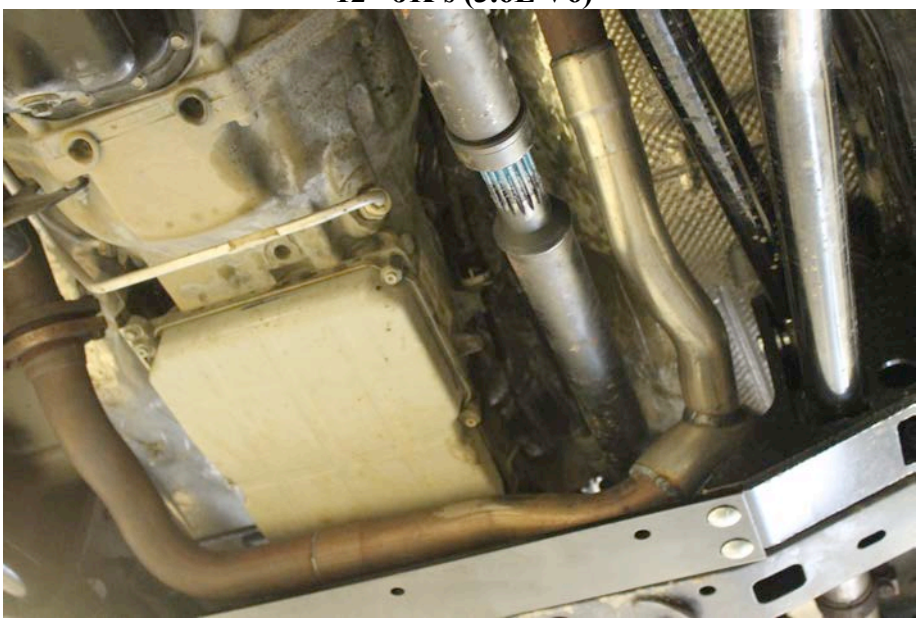
- Modify the cross over pipe and tie the driver's side resonator into the exhaust connection and then bring the entire exhaust system back together. Make sure your modifications allow for clearance for the new mounts and mounting hardware for the arms.

Late '10 – '11 JK's (3.8L V6)



- Cut out the catalytic converters and relocate them as close to the exhaust manifolds as possible.
- Reroute the exhaust around the long arm mounts and tie both left and right pipes back into each other.

'12+ JK's (3.6L V6)

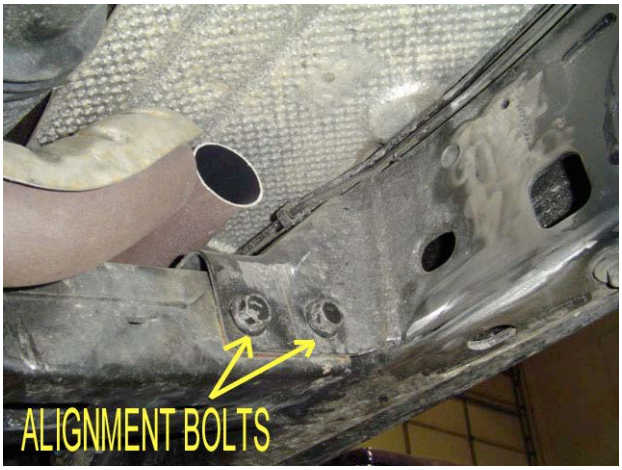


- You will want to cut out the exhaust loop on the drivers side of the y-pipe. Then reroute the pipe around our control arm mount and tie the crossover pip back into it. You will want to take into account the movement of the driveshaft during articulation as you are rerouting the pipes. Make sure that you do not have any contact at any point of your suspension movement.

FRONT OF VEHICLE

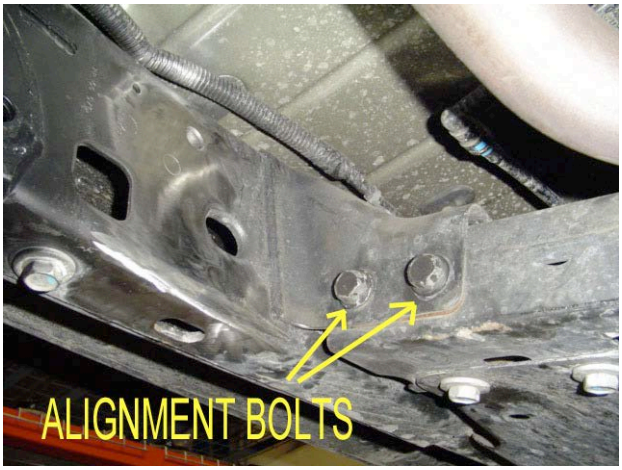
- Make sure vehicle is on a level, hard working surface if you are using a floor jack and jack stands.
- Block the rear wheels so the vehicle cannot move and make sure the emergency brake is applied.
- Raise the front of vehicle and support with safety jack stands. Locate jack stands on the frame in front of the axle.
- 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.
- Remove the front rims and tires with axle supported by a floor jack.
- Remove the front shocks. Save the OEM hardware to install the new shocks.
- Remove the front sway bar links.
- Lower the front axle assembly onto jack stands.
- Remove the front track bar from the vehicle and save the OEM hardware for reuse.
- Remove the front springs.
- Remove the front lower control arms. Discard the arms, but save the hardware for reuse.
- Remove the front upper control arms. Discard the arms and hardware.
- Install the front long arm mounts.

Note: *The mounts bolt into position using the OEM cross member bolts and then weld in place. Use a full ¼" fillet weld. Be sure to prep the surfaces properly. Apply a finish of your choice.*

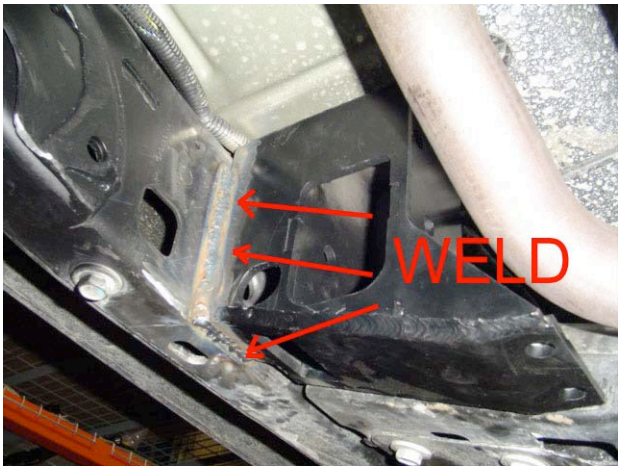


D.S. Bracket Location Bolts

D.S. Bracket Welded in Place



P.S. Bracket Location Bolts



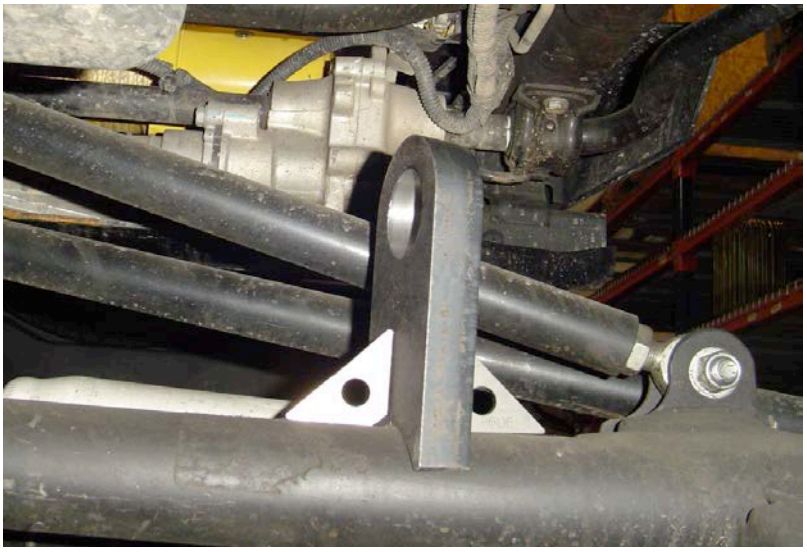
P.S. Bracket Welded in Place

- Install the new cross member using the (4) supplied ½" x 1.25" carriage bolts, ½" lock washers, and ½" free running nuts.

- Now is a good time to remove all the front OEM control arm mounts from the frame and the passenger side front upper arm mount on the axle (mark its location and orientation on the axle to put on the new heavy duty front upper mount if you have a **Triple Threat Kit**.) Be sure to grind the removed brackets smooth so they cause no interference to any moving parts.

- **(Triple Threat Kit Only)** Weld the new Heavy Duty "Tombstone" Axle Mount on the passenger side of the axle tube in the exact location and orientation as was the OEM passenger side front upper mount as shown below. Use a ¼" fillet weld all the way around its contact points with the axle tube as shown below.

- **(Triple Threat Kit Only)** After the mount is welded in place, then weld on the two gussets to give it lateral support as shown below. Apply a finish of your choice, like paint.

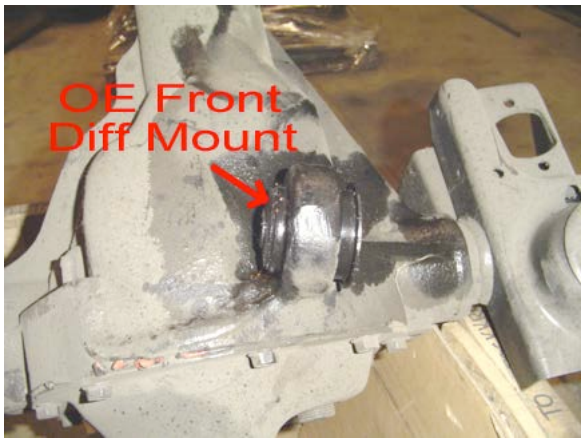


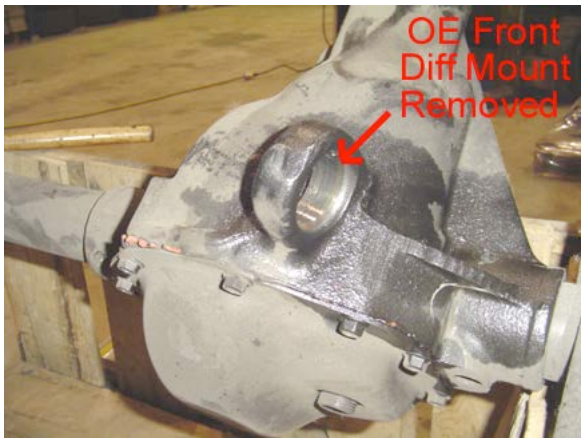
- **(<u>Offroad Pro Kits Only</u>)** Place the supplied sheetmetal passenger side upper control arm mount on the axle tube. Weld on using a 1/4" fillet weld. See note and picture below for placement.

<u>Note</u>: *To set the placement of the **Offroad Pro Upper Control Arm Mount** either set the mount one of two ways. Position the new mount in the same position as the factory passenger side upper mount. If your axle does not have this mount factory then set your axles pinion angle and then set the front face of the supplied bracket vertical.*

- **(<u>Comp and Triple Threat Kits Only</u>)** Remove the driver's side OEM front upper control arm bushing on the axle.

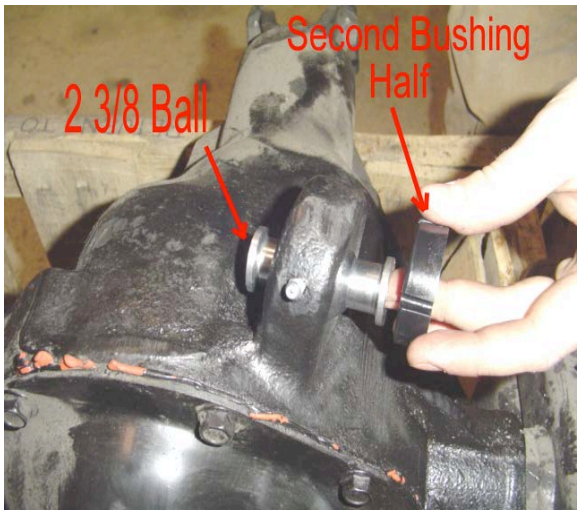
<u>Note</u>: *This can be done by striking it on the steel sleeve. If you run into trouble drill out the rubber bushing material and then remove the entire assembly.*





- Install the supplied build-a-ball joint into the casting of the axle.

<u>Note</u>: *Install one bushing then the spherical ball and then the second bushing making sure the slots for the fasteners are on top and bottom for correct orientation. Place one of the supplied washers on each side and secure using the supplied #10-32 x 2.00" bolts and #10-32 nyloc nuts and torque evenly. The washers should come in contact with the housing. Cut off any extra bolt length that extends past the nut.*



- **(<u>Triple Threat Kit Only</u>)** Repeat procedure on passenger side.

- Install the new front upper control arm(s) set to the specified length for kit.

<u>Note</u>: *Secure using the supplied 14mm x 100mm bolts, washers, and nyloc nuts at both ends. Check the clearance between the clevis mount on the arm and your electric locker connection if you have a Rubicon Model.*

- Install the new front lower control arms set to the specified length for kit. **(Comp Kit Shown)**

<u>Note</u>: *Secure using the OEM hardware at the axle and the supplied 14mm x 100mm bolts and nylok nuts for the new frame connection. The bend in the arms is for improved ground clearance, the Monster Krawler Joint (spherical joint) is placed at the axle and the Monster Bushing Joint at the frame.*

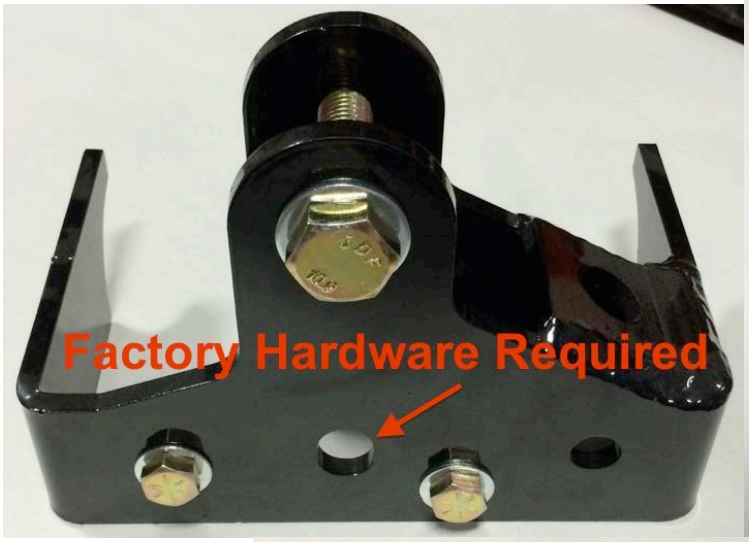
D.S. Frame Connections

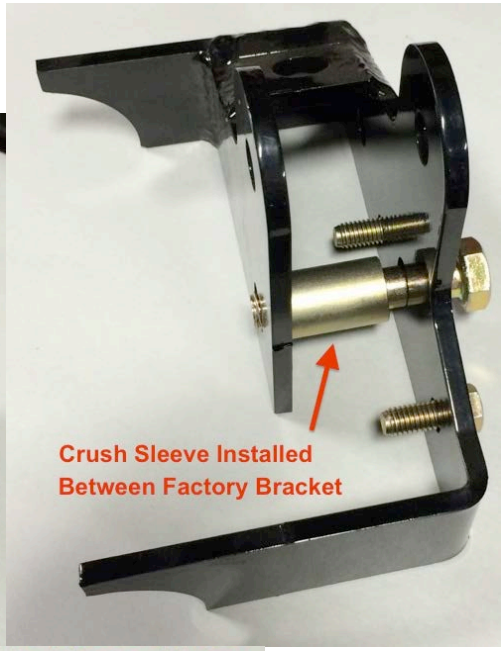
P.S. Frame Connection

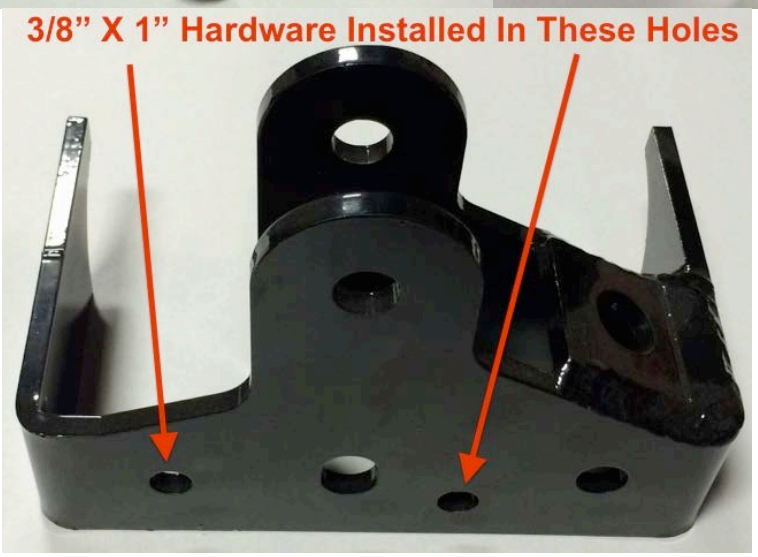
ROCK KRAWLER SUSPENSION

Front Track Bar Relocation Bracket (If supplied with or purchased seperatly)

- Install the supplied front track bar bracket onto your axle using the factory hardware in the hole marked below to secure the new bracket. Place the supplied crush sleeve between new relocation bracket and the factory bracket.



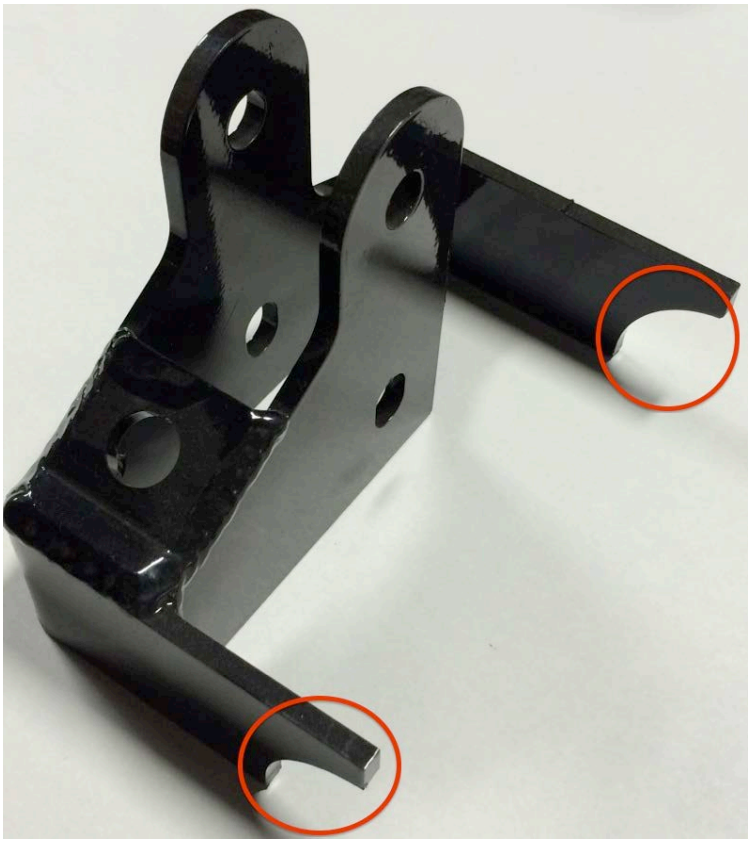




- Install the supplied 3/8" x 1" hardware with washers and nyloc nuts through the holes in the front of the new relocation bracket that line up with the factory holes in the factory track bar bracket.

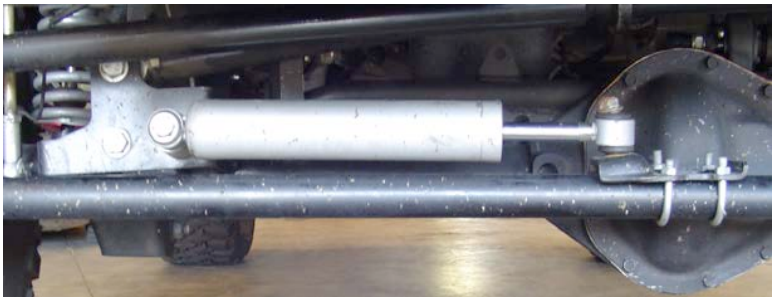
- Weld the new bracket to the axle tube using a 1/4” fillet weld around the radiuses of the bracket that touch the axle tube.

Note: *Using a 1/4” fillet weld on the new bracket where is touches the axle tube as shown in the picture below.*



Steering Stabilizer Note

There is an extra hole in the front track bar bracket support bracket to allow for relocation of the OEM steering stabilizer as shown below. All you need is a spacer and the hardware.

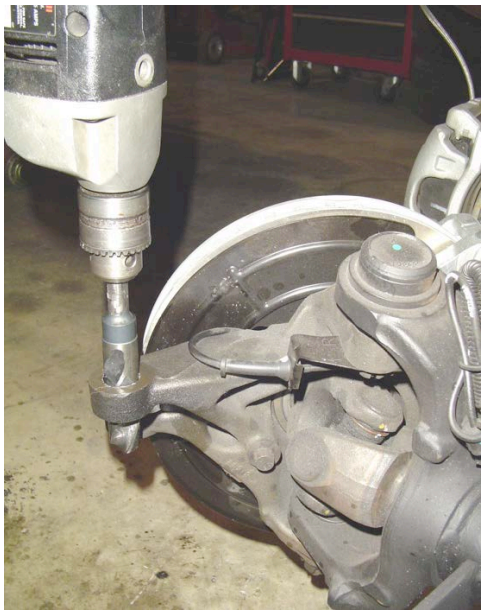


Steering Stabilizer Relocated

Note: *When setting length, balance the amount of thread showing past the jam nuts. The bushing end goes at the frame and the heim joint end goes to the factory bracket at the axle. The bend in the track bar is for clearance of the differential and the orientation of the track bar is controlled by locking the jam nut of the flex joint at the frame. Once the vehicle is on the ground, you will need to check that the axle is centered under the vehicle. If not centered, adjust the track bar so the axle is centered*

HD Drag Link Assembly (If supplied with kit or purchased separately)

- Disconnect and remove the drag link from the vehicle using a ball joint separator or dead blow technique. Save the Tie Rod End at the pitman arm for reuse if it is still in good condition.



- Drill out the passenger side knuckle mounting position for the drag link to 11/16".

Note: *It may take a slight ream to get the hardware to pass through. The tighter the hardware to the hole the better.*

- Assemble your new HD Drag Link like shown below with the supplied jam nut installed on the factory Tie Rod End and the Tie Rod End threaded into the HD Drag Link.

- Measure the OEM drag link operating length from center of one Tie Rod End to center of the other Tie Rod End. Make note of this length.

- Set your new HD Drag Link to the length of the factory assembly you noted.

- Install the new HD Drag Link using the supplied hardware to the top of your passenger side knuckle and the factory Tie Rod End hardware at the pitman arm connection.

Note: *You can go back to the OEM geometry if the need ever arises. Simply purchase our flip spacer follow the directions included.*

- Center your steering wheel by adjusting the new HD Drag Link.

- Ensure that both joints are in phase with each other (misaligned in the same direction) as shown in the images below before you tighten the jam nuts on the joints.

Passenger side knuckle connection

Pitman arm connection

- Install the supplied front track bar set to the specified length for your kit according to our measurements. Secure the frame and axle connections with the OEM hardware.

- Remove the factory coil spring mount and shock mount from the frame as shown below and prep the frame for welding.

Driver's Side Frame Rail Showing Removal of OEM Spring and Shock Mount

- Position the front upper coil over mount on the frame as shown below setting the back edge on top of the frame.

- Weld the legs to the frame using a ¼" fillet weld on each side and the back as shown below. This must be done by a certified welder. Apply a durable finish of your choice.

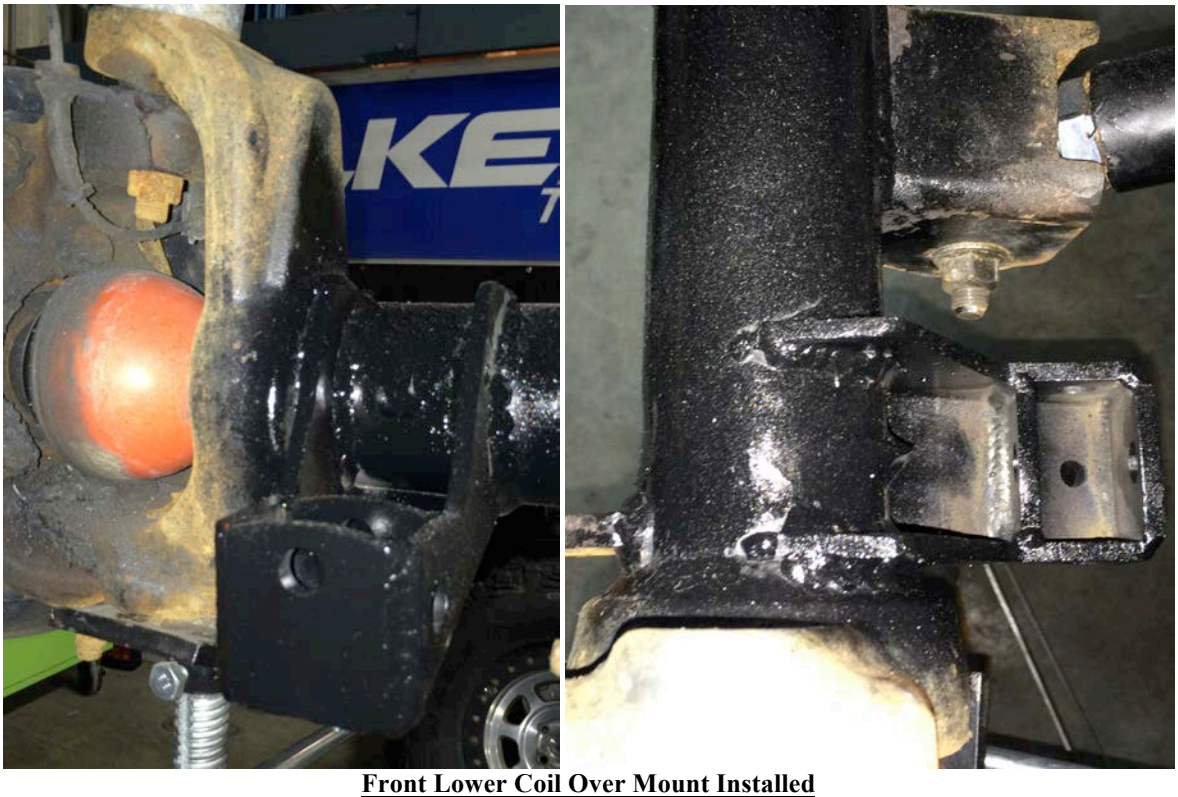
Note: *Tack the mounts onto the frame to mock up the positioning before welding them completely.*

Front Upper Coil Over Mount Positioned on the Frame

Front Upper Coil Over Shock Mount Welded to the Frame

- Remove the factory front lower shock mounts from the axle and prep for welding.
- Position the new lower coil over mount in the same orientation as the OEM lower shock mount.
- Weld the new lower coil over mount to the axle using a 1/4" fillet weld technique down the sides and across the bottom. A certified welder is required. Apply a durable finish of your choice.

Note: *The new mount should be placed ¾" away from the C on the axle if using an OEM axle housing. To orient the brackets on your axle, set your caster to 4.2 - 4.5 degrees and make sure the top edge of the coil over mount on the axle is horizontal or set to 0 degrees with an angle finder.*



Front Lower Coil Over Mount Installed

- Install the coil over assembly using the supplied ½" x 2.75" bolt, washers and nylok nuts on both top and bottom as shown below.

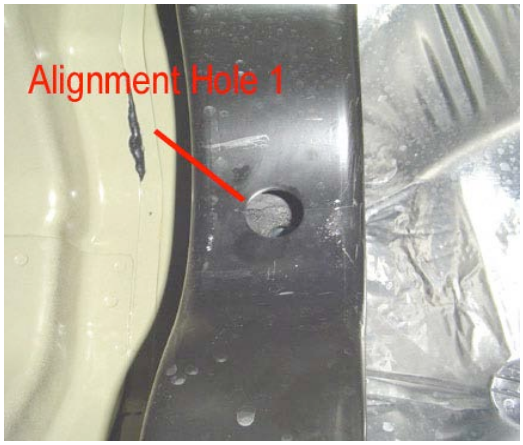
Note: *You want to have a minimum of 4.5" of compression. Use the spanners on the coil overs to adjust the height of the vehicle until your desired stance and lift is achieved.*

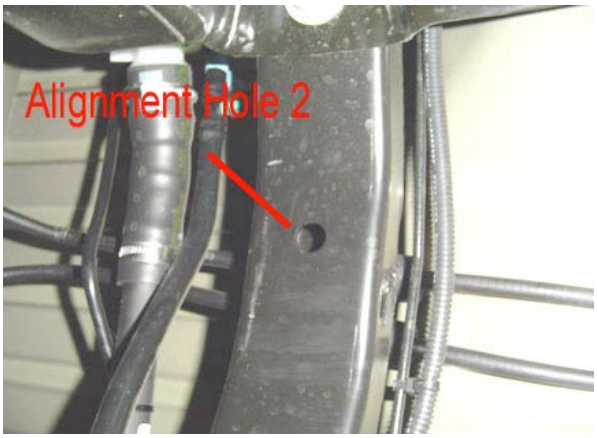
REAR OF VEHICLE

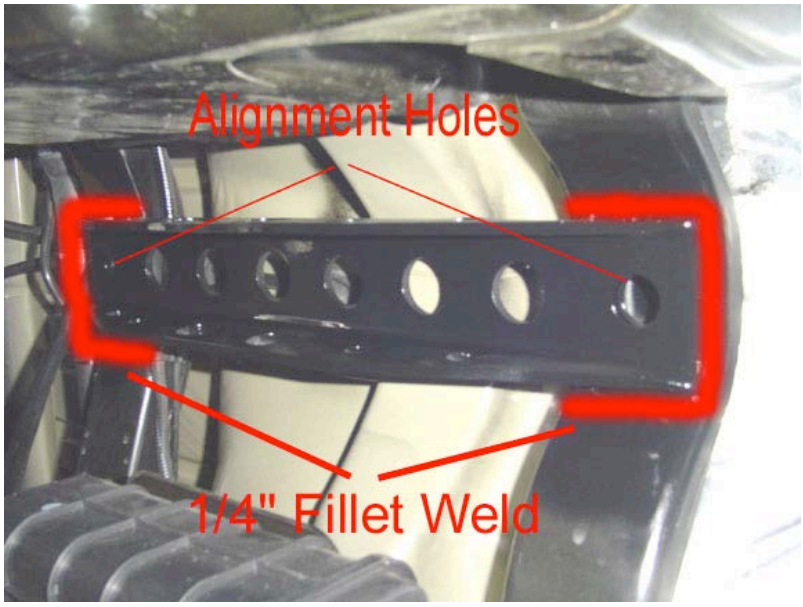
- Make sure vehicle is on a level, hard working surface if you are using a floor jack and jack stands.
- Block the front wheels so the vehicle cannot move.
- Raise the rear of vehicle and support with safety jack stands. Locate jack stands on the frame behind the rear axle.
- If you are using a vehicle 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.
- Remove the rear rims and tires with axle supported by a floor jack.
- Remove the rear shocks.
- Remove the rear sway bar links.
- Lower the rear axle assembly onto jack stands.
- Remove the rear coil springs.
- Remove the rear track bar, save the OEM hardware for reuse.
- Remove the rear lower control arms, save the OEM hardware for reuse.
- Remove the factory rear upper control arms, save the OEM hardware for reuse.
- Install the rear track bar relocation bracket using the OEM bolt and the supplied 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 as shown below. Drill a 10mm hole through the top of the OEM bracket where the existing hole is in out new bracket and secure it with the supplied 10mm x 35mm bolt and 10mm nyloc nut**.**

Note: *Tighten the 10mm hardware on the top of the bracket first to ensure the bracket sits flush and then tighten the remainder of the hardware. The OEM factory rear track bracket is weak so we require that the legs of our bracket be welded to the axle tube. This will prevent any failures of the rear track bracket assembly during hard use of your vehicle.*

- Install the rear upper control arm mount onto the frame. The bracket spans the two rear frame cross members and aligns off the holes in each cross member as shown below. Clamp the bracket with the holes aligned to the cross members and weld it in place using a ¼" fillet weld. Apply a durable finish after welding.

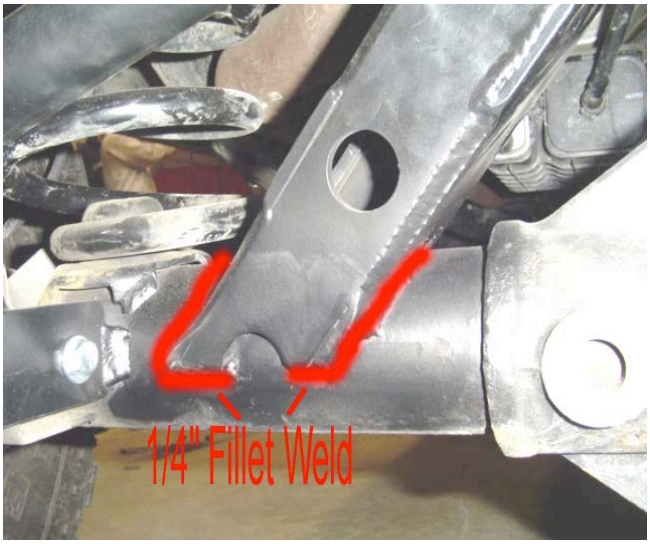






- Install the cradle onto the rear axle. Center the cradle left to right on the axle and make sure the third link mount on the top is open to the front. Then hold the offset tool as shown below against the factory differential cover and rotate the cradle back until it contacts the offset tool. Weld it in place on front and back using a ¼" fillet weld as shown below. Apply a durable finish after welding.

Aligning the rear cradle

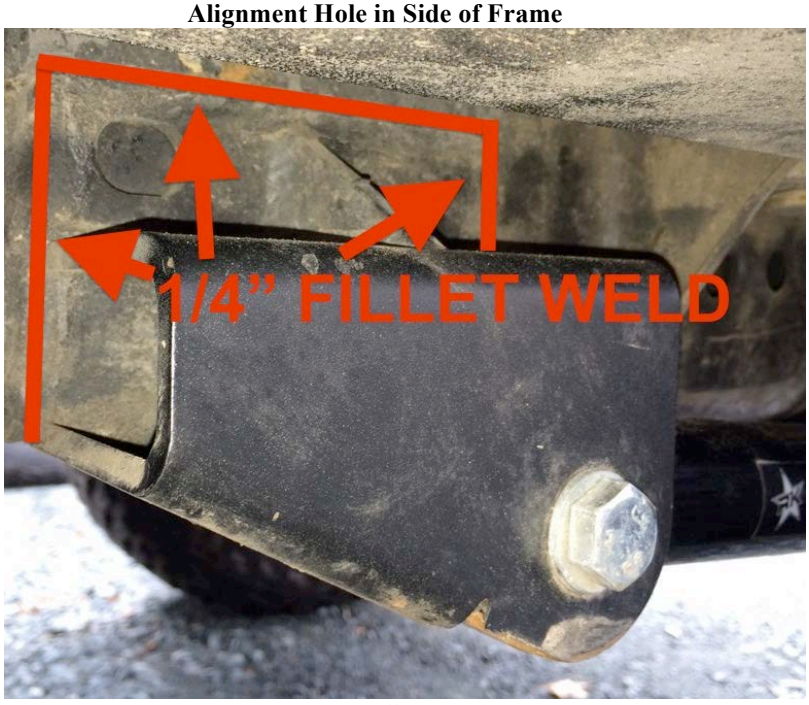


Welding the rear cradle

- Install the rear lower control arm long arm mounts. The mounts locate off the sloted hole in the side of the frame as shown below. Weld them in place using a ¼" fillet weld.

Note: *Keep the top edge of the mount horizontal when welding in place. It maters which mount goes on what side, the open end of the mount faces reward as shown below. Shown below is the driver's side only.*

Alignment Hole in Side of Frame



Weld on Lower Control Arm Mount

- Remove the OEM mounts, lower control arm and upper control arm mounts on the frame, and upper control arm mounts on axle.

- Install the supplied rear upper control arm set to the specified length for your kit according to our measurements. Secure using the supplied 14mm x 90mm bolts, washers, and nylok nuts.

Note: *The bend in the rear upper control arm is to go down to allow for greater up travel of the suspension. It is recommended that this jam nut on the frame side joint be loctited and tightened outside the vehicle due to the tight space it is in. The rear cradle has adjustable anti-squat holes built into it. It is recommended that you start out on the middle hole in the cradle, and then adjust to your liking and driving style. Moving the arm up one position will cause more anti-squat and going down one position will cause less anti-squat.*

- Install the supplied rear lower control arms set to the specified length for kit.

Note: *Secure using the OEM hardware at the axle and the supplied 14mm x 100mm bolts and nylok nuts for the new frame connection. The bend in the arms is for improved ground clearance, the Monster Krawler Joint (spherical joint) is placed at the axle and the Monster Bushing Joint at the frame.*

- Install the supplied rear track bar set to the specified length for your kit according to our measurements. Secure the frame connection with the OEM hardware and the axle connection with the supplied 14mm x 80mm bolt, 14mm washers, and 14mm nyloc nuts.

Note: *When setting length, balance the amount of thread showing past the jam nuts. The bushing end goes at the frame and the heim joint end goes to the factory bracket at the axle. The bend in the track bar is for clearance of the differential and the orientation of the track bar is controlled by locking the jam nut of the flex joint at the frame. Once the vehicle is on the ground, you will need to check that the axle is centered under the vehicle. If not centered, adjust the track bar so the axle is centered.*

ROCK KRAWLER
SUSPENSION

IMPORTANT REAR TRACK BAR INFORMATION

If you have contact with the differential and the track bar, you can break the jam nuts free on the track bar while it is bolted in place. Then roll the bend of the bar back away from the differential and loctite and tighten your jam nuts again. If you still have issues after doing this, you may need to adjust your pinion angle and/or wheelbase by adjusting the control arms.

- Install the supplied rear lower control arm/coil over axle brackets. See note and pictures below. Weld them in place using a 1/4" fillet weld.

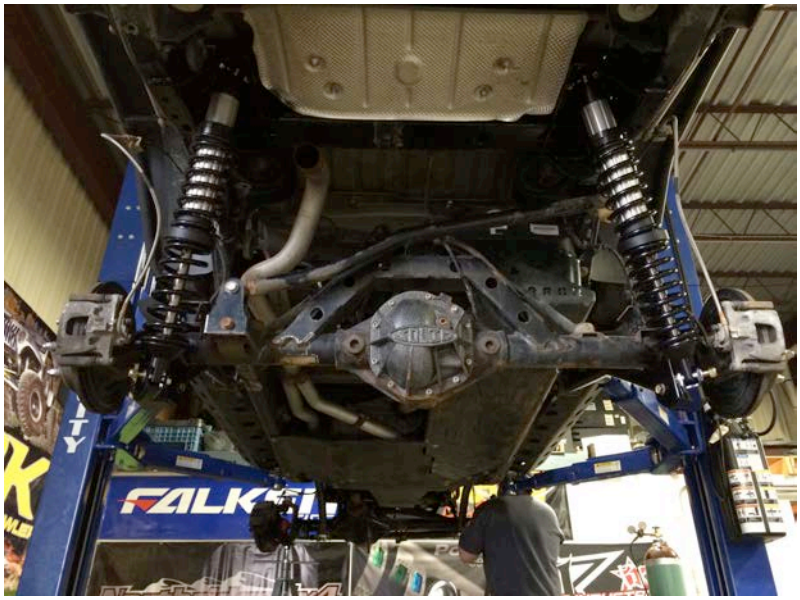
Note: ***The supplied lower control arm mounts for the axle are to be installed at the same angle the factory brackets are. You will want to slide the new mount at that angle out toward the tire 1/4"-3/8". Always tack brackets on and check placement before welding completely.***

- Cut out your factory upper shock mounts on the frame.

- Install the supplied rear upper coil over brackets as per the note and pictures shown below.

Note: The supplied upper coil over mounts for the axle are to be installed in the same place that the factory shock mounts were (in the corner of where the frame and rear crossmember meet). Always tack brackets on and check placement before welding completely.

- Install the rear coil overs into the new brackets using the supplied 1/2" x 2.75" bolts, washers and nylocs. See pictures and notes below.



Note: *If you have a **Rock Runner Kit** with emulsion coil overs then you can use the factory rear sway bar relocated. If you have remote reservoirs on your coil overs then you will need to run a **Currie Antirock** rear sway bar.*

- **(Rock Runner Kit with Reservoirs and Comp Kit Only)** We require you to relocate the rear sway bar mounting brackets back one inch due to the axle being moved back one inch. Unbolt the rear sway bar mounting brackets from the frame, measure one inch back from each mounting hole, mark and drill 4 new holes with a 5/16" drill bit. Using the (4) supplied 3/8 thread former screws remount the rear sway bar.

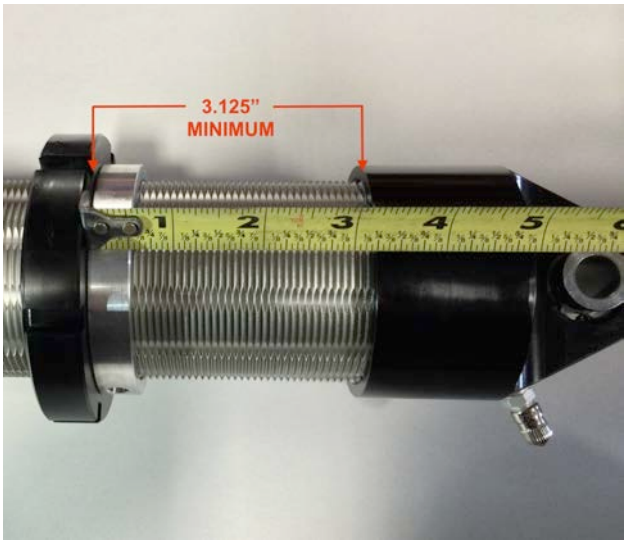
Note: *Use WD-40 or lubricant on the supplied thread former screws to start them. This will make the process easier. Torque them down to 25 to 30 ft-lbs.*

ROCK KRAWLER SUSPENSION

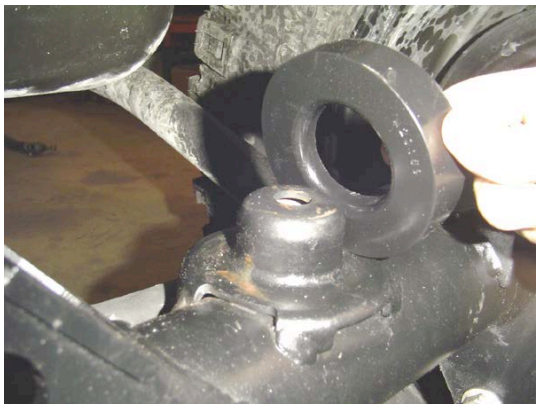
Adjusting The Rear Coil-Overs

- The coil height needs to be set on the coil-over by adjusting the top spring seat. You will want to set the top spring seat no less then 3 1/8" from the bottom of the of the coil-overs top cap. This will ensure that your coil does not hit the frame upon articulation.

- If you are experiencing the coil-over bottoming out you can adjust the transition rings to compensate for this. Spin the transition rings further down the body of the coil over to lock out the softer spring rate sooner. A good starting measurement would be to set the transition rings 1" from the spring slider **when the vehicle is at ride height**. You will want to make fine adjustments from there.



(Comp and Triple Threat Kits Only) Install the spring correction degree shims under the rear coils on the axle. The thick part of the shim goes towards the rear of the vehicle as shown below.



- **(<u>Comp and Triple Threat Kits Only</u>)** Install the Rock Krawler rear coil springs. Make sure to put the end of the coil winding all the way to the rear of the lower coil pad.

<u>Note</u>: *A simple and cost effective way to retain the rear coils to the axle is to use a hose clamp up through the center hole of the spring pad and clamp it around the bottom winding of the coil spring.*

- Remove the wire hanger for the rear emergency brake cable and route them to have as much slack as possible.

- **(<u>Comp and Triple Threat Kits Only</u>)** Install the rear shocks using the OEM hardware.

<u>Note</u>: *We recommend the rear shock bodies should be no more than 2" in diameter or there is a risk of the rear shock contacting the rear track bar relocation bracket.*

- Install bump stops.

<u>Note</u>: *Our rear fabricated bump stops mount to the factory bump stop pad on the rear axle using the supplied hardware. Use the existing holes in the factory pads. Make sure the bumps stop angles to the front of the vehicle as shown in the photo below.*

<u>BRAKE LINES</u>

- **Front:** Remove the factory front rubber brake lines and install the supplied extended stainless steel brake lines. Be sure to add slack to your ABS lines and route them with your new stainless steel lines using the supplied zip ties to secure them to each other. Do not worry about bleeding the brake system at this time unless your kit does not come with rear brake lines.

<u>Note</u>: *The factory front brake lines on a 07'-10' are routed different then the front brake lines on a 11'+. We use the same brake line for all of our JK products thus we require you to route the line on the 11'+ just as if you were routing a line on the prior year JK's. The 15 degree angle built in the fitting is designed so the line is pushed away from the tire and wheel assembly. See the photos below to reference your new front brake line and ABS line routing.*

- **Rear:** Remove the factory front rubber brake lines and install the supplied extended stainless steel brake lines. Now you can go ahead and bleed the brake system per the JK service manual.

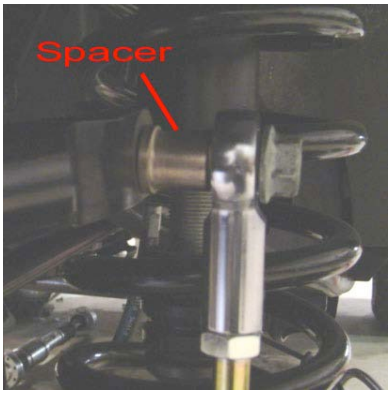
SWAY BAR LINKS

- **Front:** With the vehicle sitting on its own weight on level ground install the supplied front sway bar disconnects.

Note: *If you have a Non Rubicon model you will use our manual disconnect feature. If you have a Rubicon model you can use your factory electronic sway bar disconnect. We still recommend that you manually disconnect the sway bar when you are articulating your Rubicon to the max. If not manually disconnected the sway bar and sway bar link can become in line with each other. If the sway bar flips out to the front because of this it will bend the sway bar link pin and this is not warranted.*

TOP

Use the supplied ½" x 2.5" bolt, .595" long spacer, and nyloc nut. Note the shoulder of the spacer goes against the sway bar itself.

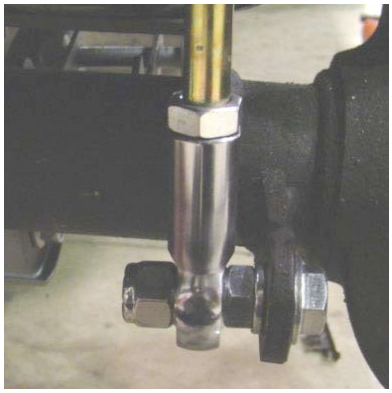


Top Sway Bar Connection

BOTTOM

For the bottom connection attach the ½" x 2.0" long bolt with cross drilled hole to the factory sway bar link bracket. Secure the bolt with the supplied ½" jam nut. If you have a non-rubicon you can attach the bottom end of the sway bar link with the 2 nylon washers on either side of the rod end and secure it with the hair pin. If you have a rubicon you can simply secure the bottom rod end with the supplied ½" nylok nut.

Bottom: Non- Rubicon



Bottom: Rubicon (Nut)

Bottom: Rubicon (Wing Nut)

Note: *On some front sway bars you may have to ream out the hole out with a ½" drill bit. Start with the heims threaded entirely onto the pin, then fine tune the length of one of them to ease in removal and installation of the disconnect when parked on flat and level ground. Tighten the jam nuts against the heims after the heims have been oriented for maximum articulation. Ideally you want the heims parallel to each other and point straight forward.*

- **Rear:** With the vehicle sitting on its own weight on level ground install the supplied rear sway bar disconnects.
- Install the supplied rear sway bar links using the supplied hardware as shown below. Note the shoulder of the spacer goes towards the sway bar and the bottom mounting bracket.

Note: *Start with the heims threaded entirely onto the pin, then fine tune the length of one of them to ease in removal and installation of the disconnect when parked on flat and level ground. Tighten the jam nuts against the heims after the heims have been oriented for maximum articulation. Ideally you want the heims parallel to each other and point straight forward.*

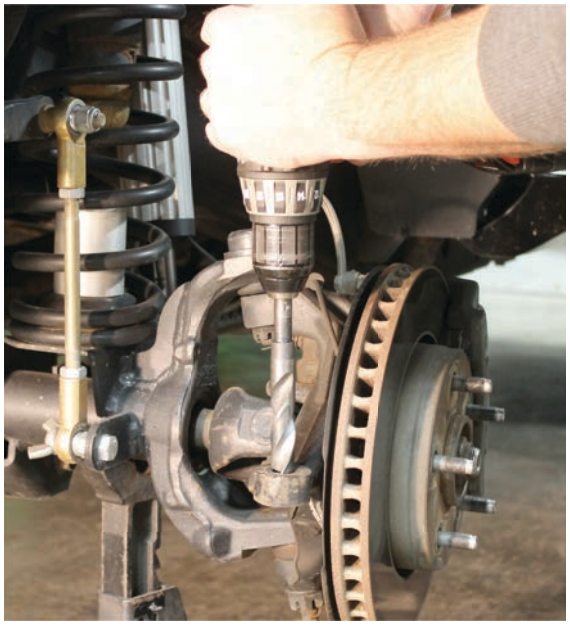
HD PRO TIE ROD (if purchased separately)

- Support the vehicle under the front axle with jack stands.
- With the front tires removed, disconnect the steering stabilizer from the steering stabilizer bracket.
- Remove the steering stabilizer bracket from the OEM tie rod.
- Remove the cotter pins (if applicable) and nuts from the ends of the OEM Tie Rod Ends.
- Using a ball joint separator or dead blow technique, remove the Tie Rod Ends from the knuckles.
- Set your new HD PRO Tie Rod to a good starting length.

Note: *Measure the OEM tie rod operating length from center of one Tie Rod End to the center of the other Tie Rod End. Set your new HD PRO Tie Rod assembly to that measurement to start, this means the CENTER OF ONE HEIM JOINT TO THE CENTER OF THE OTHER HEIM JOINT. When setting the new HD PRO Tie Rod assembly to length, be sure to have a equal amount of threads showing past the jam nut on each side. It is also a good idea to apply some Never-seize to the threads inside the HD PRO Tie Rod.* ***Make sure that there is no Never-seize on the threads where the jam nut will need loctite applied or it will not function properly.***

- Drill out the holes in your steering knuckles where the factory tie rod ends used to mount to an **11/16”** hole.

Note: *The supplied hardware is 18mm, you will want to drill the knuckle to 11/16” and ream the hole slightly to pass the hardware through as tightly as possible.*



Drilling out knuckle to 18mm

Grinding edges of steering knuckle

- Using a small grinder or sander, roll the edges of your steering knuckle slightly so the new HD PRO Tie Rod will have full misalignment throughout the entire Ackerman sweep.

Note: *Cycle the steering back and forth to ensure nothing binds at any point in the steerings movement. If it does you may need to clearance the steering knuckle a little more.*

- Attach your new HD PRO Tie Rod to your steering knuckles with the supplied hardware, Torque hardware to 225 ft-lbs.

- Adjust the toe to the factory specs by spinning the tie rod to either lengthen or shorten it, follow the note below to torque the jam nuts.

The note below describes how to properly setup this Tie Rod.

Note: *The Ackerman angle in your steering requires slight up and down movements of the tie rod ends. It is completely normal that the tie rod has some up and down movement in it. Once the toe is set, set the orientation of the tie rod (preferably horizontal) and lock down the jam nuts. This will be done with the wheels pointed straight ahead. Cycle the steering back and forth to ensure no jam nuts loosen up and nothing binds at any point in the steerings movement.* ***Torque the jam nuts on your HD PRO Tie Rod to 225-250 FT-LBS, this will ensure the proper amount of preload is on the threaded sections so you will not have issues with them down the road.***

It is a requirement that your vehicle be taken to a Jeep Dealership for an alignment. You should also get the printout of the alignment specs so you can reference back to them. If your steering wheel is off at all the ESP will be activated. This will be corrected once the vehicle is aligned by a certified Jeep dealership. Centering the steering wheel "by eye" is usually not good enough for ESP!

ALIGNMENT SPECS: If using a factory axle housing please follow the factory JEEP specs of 4.2-4.5 degrees of caster with .2-.5 degrees of cross caster. (Passenger side being the higher caster value)

* If using an aftermarket axle housing please refer to that axle manufactures specs. *

REAR PINION ANGLE SPECS: At vehicle ride height your rear pinion angle should be 2-3 degrees down from the driveshaft. (Your driveshaft and pinion should make a slight V where they come together)

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 locktite 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. Also check to see if at full flex your coil spring losses tension, if so you may want to look into a limit straps.

Congratulations, you have just finished installing your Rock Krawler Suspension System! Now your Jeep is ready for anything you can throw at it.