INSTALLATION MANUAL

FOR

Rock Krawler Suspension

11-Pres. F450 Ford Super Duty

4.0” SYSTEMS

FIRST EDITION

06/01/25

Dear customer

Thank you for purchasing the best system on the market for your FORD F450 4x4 Truck. We are sure you will be happy with this system when 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 DRIVING. RECHECK AFTER 500 MILES AND BE SURE TO CHECK PERIODICALLY.

Note: DO NOT DISCARD THIS MANUAL. REBUILD PARTS & COMPONENTS SPECIFIC TO THIS KIT ARE LISTED WITH PART NUMBERS AT THE END OF THIS MANUAL.

Warning

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

Caution

Proper installation of Rock Krawler Suspension 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 strongly recommends that a certified mechanic with off road experience install this system.

Warning

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 lifts, bumper heights and other alterations. Consult local laws to determine if your proposed alterations (including installation of this system) comply with your state laws.

Caution

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

Warning

Properly block and secure vehicle prior to installation.

Warning

Always wear safety glasses when using power tools.

Warning

The use of limiting straps is recommended to avoid possible damage from over extending the suspension of your vehicle.

Helpful hint:

Do not tighten connections until assemblies are installed in entirety.

Start with the rear suspension. This is easier and it will get you warmed up for the front suspension.

1. Block the front wheels in place. Jack the rear of the vehicle up a minimum of 6". Place jack stands under the frame as far back as possible. Be sure to check for ABS lines, emergency brake cables, brake lines, and breather tubes becoming tight while jacking the rear of the vehicle. Unbolt, or relocate as necessary.

2. Remove the rear wheels and tires.

3. Remove the OEM rear shocks and save the hardware for reuse.

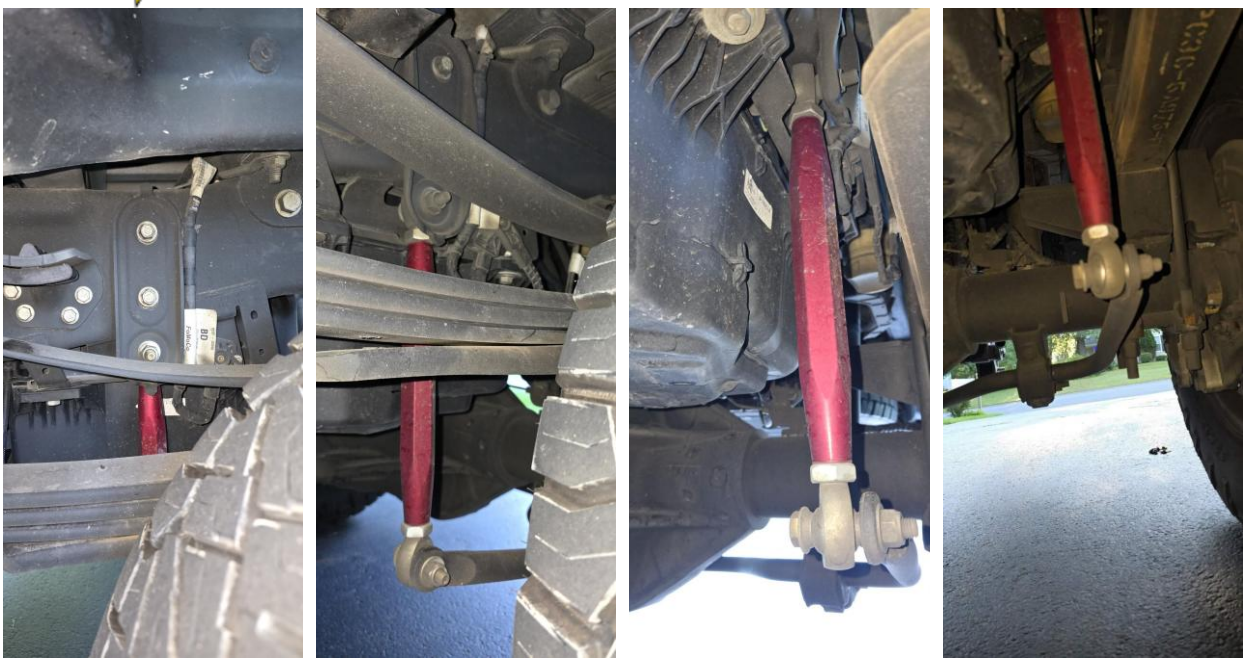
4. Remove "U"-bolts retaining axle to the rear springs and move axle several inches away from springs.

5. Inspect the spring pads/springs and repair/replace as needed.

6. Install the supplied sheet metal lift blocks under the factory lift block. Secure the leaf springs, new blocks and the factory block to the axle with the supplied "U"-Bolts. Evenly torque the "U"-Bolts using an "X" tightening sequence to 85 ft/lbs. The bump stop pad goes to the inside of the vehicle just like the OEM cast blocks. Please note: for 17 and ups if you have top overload springs there are different u bolts for those applications versus the standard u bolts. Please be sure to specify when ordering your systems.

Fabbed Block w/ Multiple Centering Pins to Center the Rear Axle

7. If equipped, remove the OEM rear Sway Bar Links. Please note: on some models there may be retaining brackets that must be removed first to gain access to the rear sway bar link removal. Install the newly supplied PB+J Rear Sway Bar Links setting them to the OEM Length +3.5" or approximately 14 11/16" center to center. Reinstall the retaining brackets if so equipped. The new PB+J Sway Bar Links bolt in using all the OEM hardware. No extra hardware is needed.



Rear PB+J Billet Sway Bar Links Installed

8. Install the new shocks of your choice with the OEM hardware.

Please note the following:

If you are installing Rock Krawler 2 5/8 RRD Racing Shocks, we supply a custom nut for the frame connection. Be sure to apply red Loctite when torqueing accordingly as shown below.

Custom Rear Upper Shock Nut Shown

When Installing Reservoir, the reservoir attaches to the body as shown and away from the axle tubes. Otherwise the reservoir can contact the axle tube and cause damage to the shock.

9. Reinstall the rims and tires. Remove the vehicle from the jack stands and get ready for the front end.

It is time to do the front suspension.

1. Block the rear wheels and make sure the parking brake is applied.

2. Jack up the front end at least 4.5", place jack stands under the front of the frame as far forward as possible.

3. Remove the front rims and tires.

4. Remove the following items;

a) Remove the front shocks, front coil springs and discard them since they will not be reused.
b) For **Adventure Systems**: Unbolt the factory radius arm from the chassis and save the hardware for reuse.

For **X Factor** and **X Factor Pro Elite Systems**: remove front radius arms and retain the factory hardware.

c) Remove the OEM Track Bar. Save the Frame Side Mounting Bolt for Reuse.
d) Remove the OEM Sway Bar Link entirely.

6. Grab the newly supplied radius arm drop brackets or dropped four link mounts. Follow the instructions below based on the year of your application.

For 2011 – 2016 Models:

Support the transmission cross member. Do one side at a time. Remove the nuts that hold the cross member in place. While having one mounting bolt holding the front of the bracket in place, swing the long arm mount up to the factory cross member studs and re use the factory nuts to fasten the new long arm mount to the cross member. Make sure all the hardware is loosely installed before tightening anything down.

Please note: the 4 link mount uses the supplied 18mm x 130mm bolt, washers and nylok nut to position the 4 link mount in place. For the radius arm drop bracket it does not matter which bolt you use (OEM Radius Arm Drop Bracket Bolt or supplied 18mm x 130mm)

2011-2016 4 Link Mount Installed

For 2017 – 2022 Models:

Trim the pinch seam in front of the tranny cross member mounting bolts on both sides as shown below so the supplied mounts will fit in place properly.

2017 – Pres. Pinch Weld Seem Trimming Operation

If you have the ability, weld the seam back together, if not, not a big deal. Then apply a durable finish of your choice to prevent rust. While supporting the tranny cross member, remove the tranny cross member nuts one side at a time and slide on the radius arm drop bracket (or 4 link mounts) in place. Please note: there is a specific driver side and passenger side for this so be sure to fit them in place prior to securing tightly. Once the mounts are moched into position, put one mounting bolt through the front hole, but tighten the cross member bolts first.

Please note: the 4 link mount uses the supplied 18mm x 130mm bolt, washers and nylok nut to position the 4 link mount in place. For the radius arm drop bracket it does not matter which bolt you use (OEM Radius Arm Drop Bracket Bolt or supplied 18mm x 130mm)

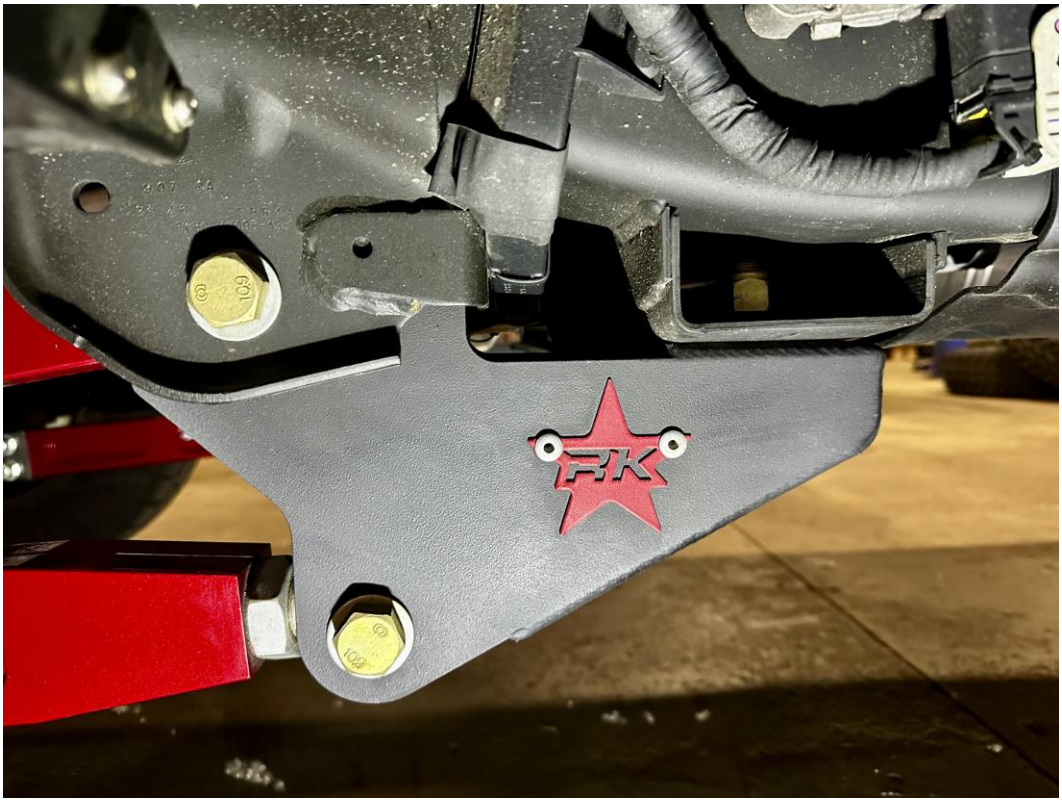
2017 – 2022 4 Links Installed

For 2023 – Present Models:

Please note: There is a specific driver side and passenger side mount to match up to the angle of the cross member contact point.

Install the mount loosely with the OEM Radius Arm Mounting Bolt in the front hole. Insert the small ¼" thick doubler plate on top of the cross member as shown and attach the back side of the Radius Arm Drop Bracket or 4 Link Mount with the ¾ x 1.75 Bolt, Washers and Nylok nut. The top washer and nylok nut go on top of the Doubler Plate inside the cross member. Tighten the ¾" bolt first.

Please note: the 4 link mount uses the supplied 18mm x 130mm bolt, washers and nylok nut to position the 4 link mount in place. For the radius arm drop bracket it does not matter which bolt you use (OEM Radius Arm Drop Bracket Bolt or supplied 18mm x 130mm)



2023 – Present 4 Link Mount Installed

2023 – Present Doubler Plate Inside the Cross Member Shown

7. For all **Adventure Systems**, reattach the OEM radius arm to the newly supplied radius arm drop brackets with the OEM radius arm with the supplied 18mm x 130 mm bolt, washers and nylok nut. All **X Factor and X Factor Pro Elite** Systems – Skip this step.

8. For **X Factor and X Factor Pro Elite Systems** Set the 4 Link Arms to their initial starting lengths:

Front Upper Control Arms

2011 – 2022

32 5/16" from mounting hole to mounting hole

2023 – Present

34 7/8” from mounting hole to mounting hole

Front Lower Control Arms

2011 – 2016

37 1/2” from mounting hole to mounting hole

2017 – 2022

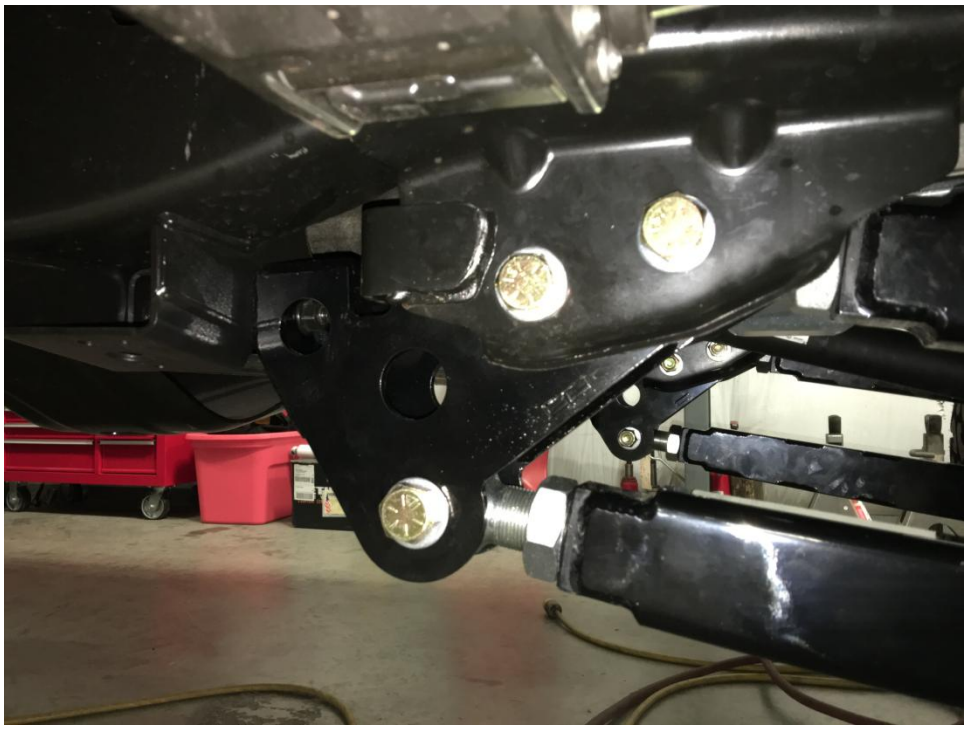
37 3/4” from mounting hole to mounting hole

2023 – Present

37 3/8” from mounting hole to mounting hole

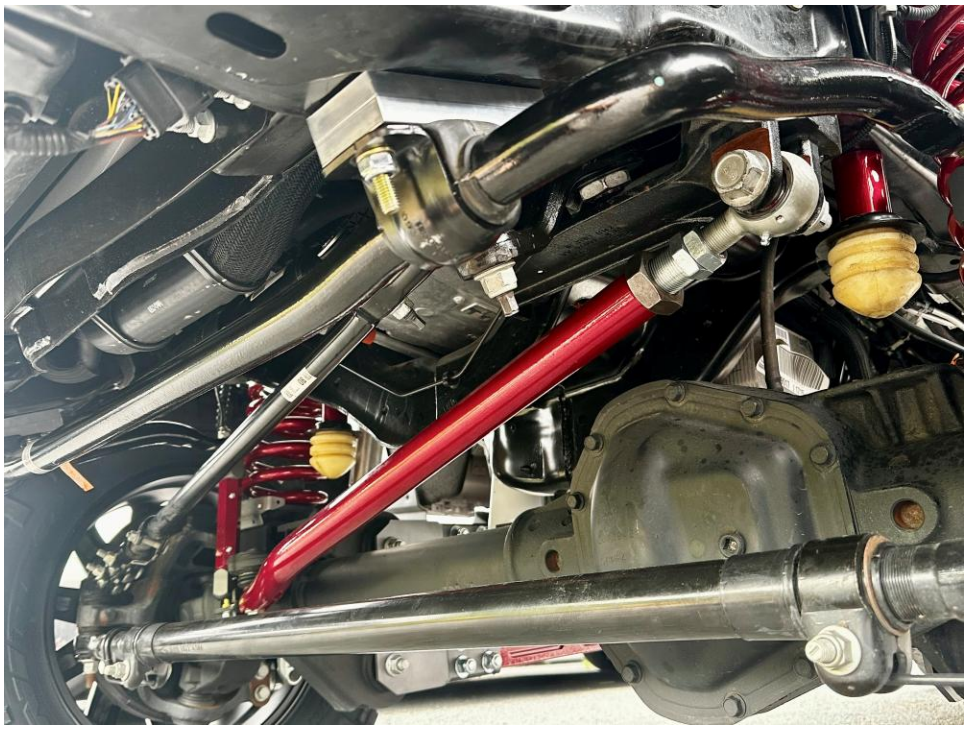
9. Install the front upper control arms. Insert the Joint into the new 4 Link Mount in the upper most hole and secure it using the supplied 18mm x 130mm bolt, washers and nylok nuts. Attach the front upper control arm to the axle using the OEM hardware.

10. Install the front lower control arms. Insert the Joint into the new 4 Link Mount in the upper most hole and secure it using the supplied 18mm x 120mm bolt, washers and nylok nuts. Attach the front lower control arm to the axle using the OEM hardware. Please note: The nut for the lower control arm bolt at the axle will come from the OEM radius arm mounting bolt at the frame.



4 Link Long Arm Mounts, 2017-2022 Model Shown

11. Install the supplied Adjustable front track bar. Set the front track bar to 37 9/16 mounting hole to mounting hole to start. Install the ball joint taper end at the axle and the Spherical Joint at the frame connection using the OEM hardware. The quick adjuster will allow you to dial in the front axle side to side without having to remove the track bar from the vehicle. Torquing the jam nuts on the quick adjuster is critical for structural integrity. Please see image below for proper installation.



Front Track Bar Installed

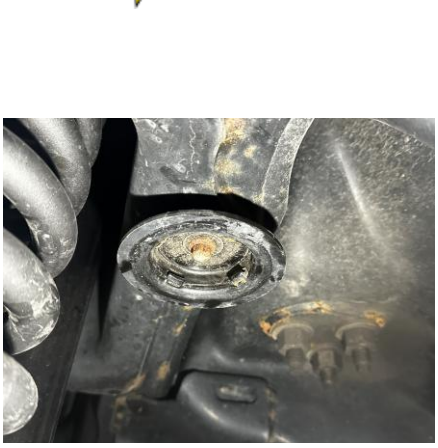
15. If installing RRD 2.625 Shocks, put the Ressy Mount Up and Under the OEM Spring Isolator on the frame as shown and install.

Front Ressy Mount Under the Coil Spring Isolator

16. Install the new Rock Krawler front Multi Rate Coil springs in the factory orientation.

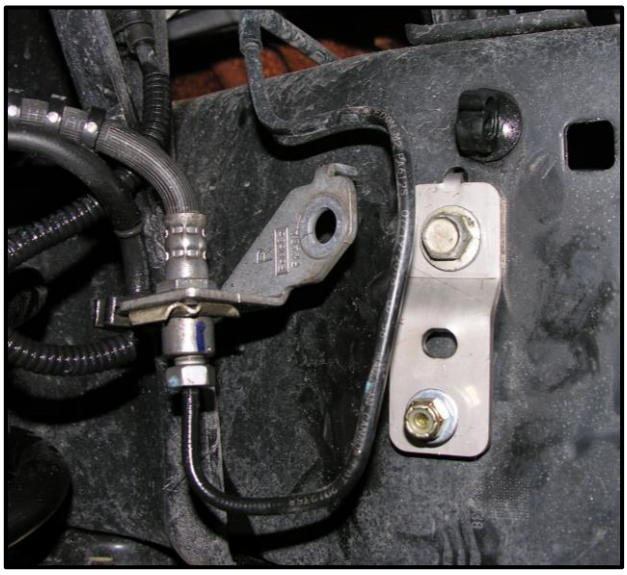
17. Install the supplied billet aluminum bump stop extensions between the OEM bump stop steel cup and the frame with the supplied hardware. ***Please note:*** you may have to flatten the tab in the steel cup so it fits flush against the billet aluminum extension.

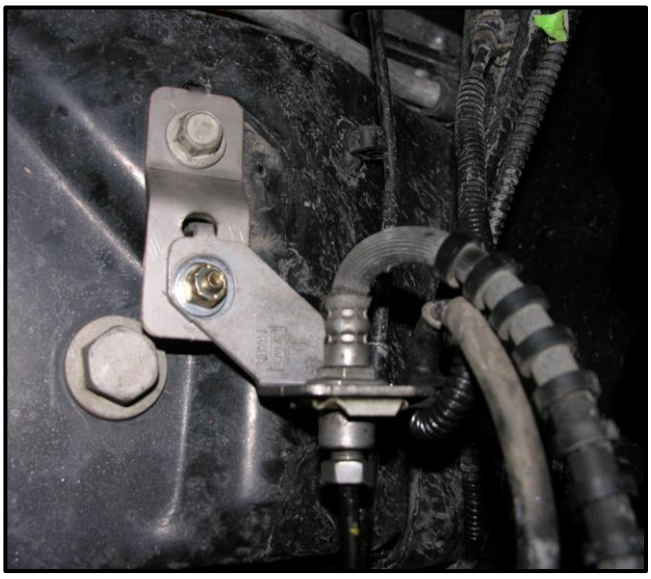
a) Remove the OEM Jounce Bumper from the Cup as shown below.
b) Remove the 8MM Screw holding the steel cup to the frame.
c) Install the Billet Bump Stop Extension under the steel cup using the supplied 8MM x 90MM Bolt and Washer as shown below.
d) Reinstall the factory Jounce Bumper into the Steel Cup as shown below.



Bump Stop Cup Removal **Billet Bump Stop Extension Installed** **Jounce Bump Reinstalled**

18. , Install your brake line drop brackets and bolt them to the frame as shown. Gently straighten out the OEM brake line until the stock bracket reached the new bracket's holes. *Note: Use the OEM bolt to attach these brackets to the frame. Then use the supplied ¼"-20 bolt, two washers, and lock nut to secure the factory bracket to your new bracket.*





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19. Tighten all connections and orient all the joints using the specs below and put the front wheels and tires on.

20. Install the front PB+J Front Sway Bar Link Kit.

1. In order to fit massive links like our PB+J Front Sway Bar Links we have to slide the front sway bar slightly forward. This is done with our billet machined nut plate. It bolts up to the factory holes in the frame, hides the tops of the fasteners so you can bolt up the front sway bar forward of its original position.

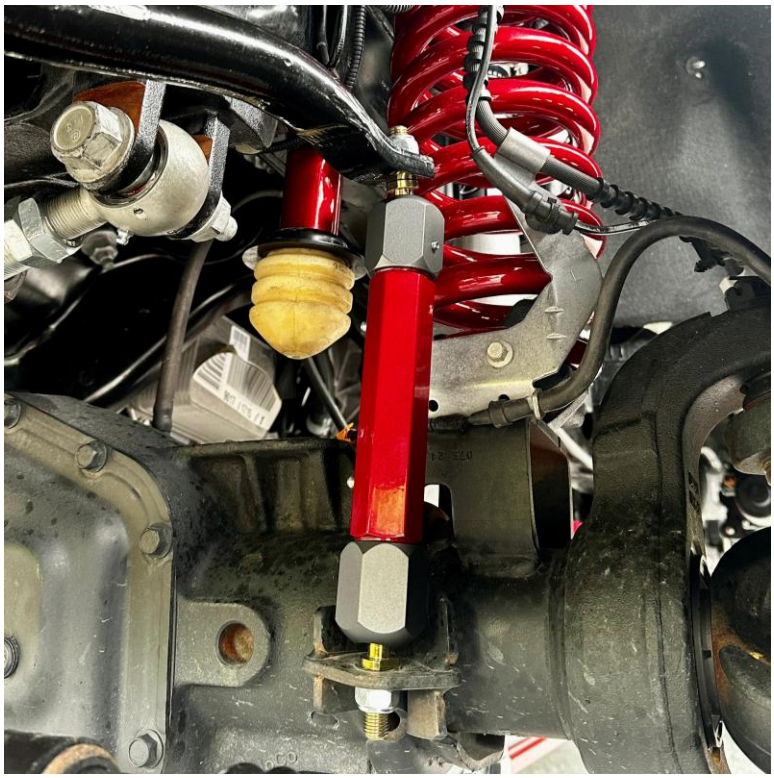
    a. Install the Sway Bar Offset Billet Mount using the OEM studs and nuts. Install the supplied 10mm x 50mm bolts in the billet mount prior to bolting it up so they are captured prior to securing the block so you can bolt up the sway bar afterwards. Once the block is secured with the OEM fasteners, trim the excess stud with a cut off wheel so the OEM sway bar will sit flush to the block as shown below. (You can trim off both studs for a nice clean appearance).

PB+J Sway Bar Link Relocation Block Installed

    b. Secure the OEM Sway Bar to the offset billet aluminum sway bar mounting block with the supplied 10mm washers and nuts.

2. Install the Billet PB+J Sway Bar End Links. Please take care when orienting them properly. There is a slot in the top and bottom of the sway bar end links and the elongated slots must face front to back of the vehicle so they do not bind during normal operation on road and offroad and snap the stud.

    a. Secure them to the sway bar and the OEM mounting location at the axle with the supplied 12mm washer and nylok nuts as shown below.



PB+J Sway Bar Links Installed

*Please note: the PB+J Front Sway Bar Links feature Adjustable Preload. All you have to do is back the set screw out of the end cap and tighten it up as the ball stud wears. When doing so, just like installation, the elongated slots must be in phase and facing forward and aft in the vehicle for proper operation.

20. Remove the vehicle from the jack stands and you are DONE!!!

21. Take the vehicle to a professional alignment shop and have the front end aligned.

22. Retorque all Hardware after 500 miles.

Final Assembly Setup Instructions:

Note: ***For final assembly the weight of the vehicle must be on the tires and wheels.***

1) Tighten all Suspension Connections or Pivot Bolts at this time.

The front track bar bolt at the frame should be torqued to 350-375 ft-lbs.

General Torque Values unless otherwise specified above in the instructions are as follows;

Torque for all 3/8"/10mm bolts (10.9) is 28 to 32 ft-lbs.
Torque for all ½"/12mm bolts (10.9) is 65 to 75 ft-lbs.
Torque for all 9/16"/14mm (10.9) is 90 to 100 ft-lbs.
Torque for all 5/8"/16mm bolts (GR 8/ 10.9) is 130 to 150 ft-lbs.
Torque for all 5/8" Jam Nuts is 75 to 85 ft-lbs.
Torque for all ¾"/18mm bolts (GR 8/10.9) is 200-220 ft-lbs
Torque for all 7/8" bolts (GR 8/10.9) is 250-275 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. *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.*
All 1 1/4" Jam Nuts are to be torqued to 275-325 ft-lbs. *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.*

2) Servicing of any Rock Krawler Joints with Grease should be done with Mobilux EP1.

3) Typical alignment specs for your Super Duty.

Caster 3.5 to 4.5 degrees with .2 degrees caster on the passenger side than the driver's side to account for road crown. *Please note; some tire treads and steering stabilizers may cause a pull or push that needs to be accounting for.*

Tow – factory specification – zero preferred

Camber – You have no adjustment unless you purchase caster/camber shims separately.

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 Super Duty are based on stock tire and wheel construction. 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 D or E rated tire to an F rated tires also amplifies this effect. Increasing wheel diameters cuts down on the sidewall size of the tire; for example, going from a 17"/18"/20" wheel to a 20"/22"/24"/26" 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 stock wheel combination. **Choose pressures wisely and safely! This is one part of your suspension tuning you can do on your own.**

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

<u>Common Service Parts (2017 and Newer *Older Models it is best to contact tech support and send in pictures for validation):</u>

4 Link Arm Krawler Joints (Maintenance Joints) – RK05068K (each)

4 Link Arm Krawler Joints (Maintenance Joints) – Rebuild Kit – RK04034K (each)

- **Requires Large Krawler Joint Tool – RK04484K**

4 Link Arm Adventure Series Joints (Maintenance Free Joints) – RK09148K (each)

4 Link Arm Adventure Series Joints (Maintenance Free Joints) Rebuild Kits – RK09148A (each)

No Limits Sway Bar Links Ball Studs – RK08510K (each)

Rear No Limits Link Rod Ends – RK07138R and RK07138L (Right and Left Hand Respectively)

Front Track Bar Frame Side Joint – RK05201K