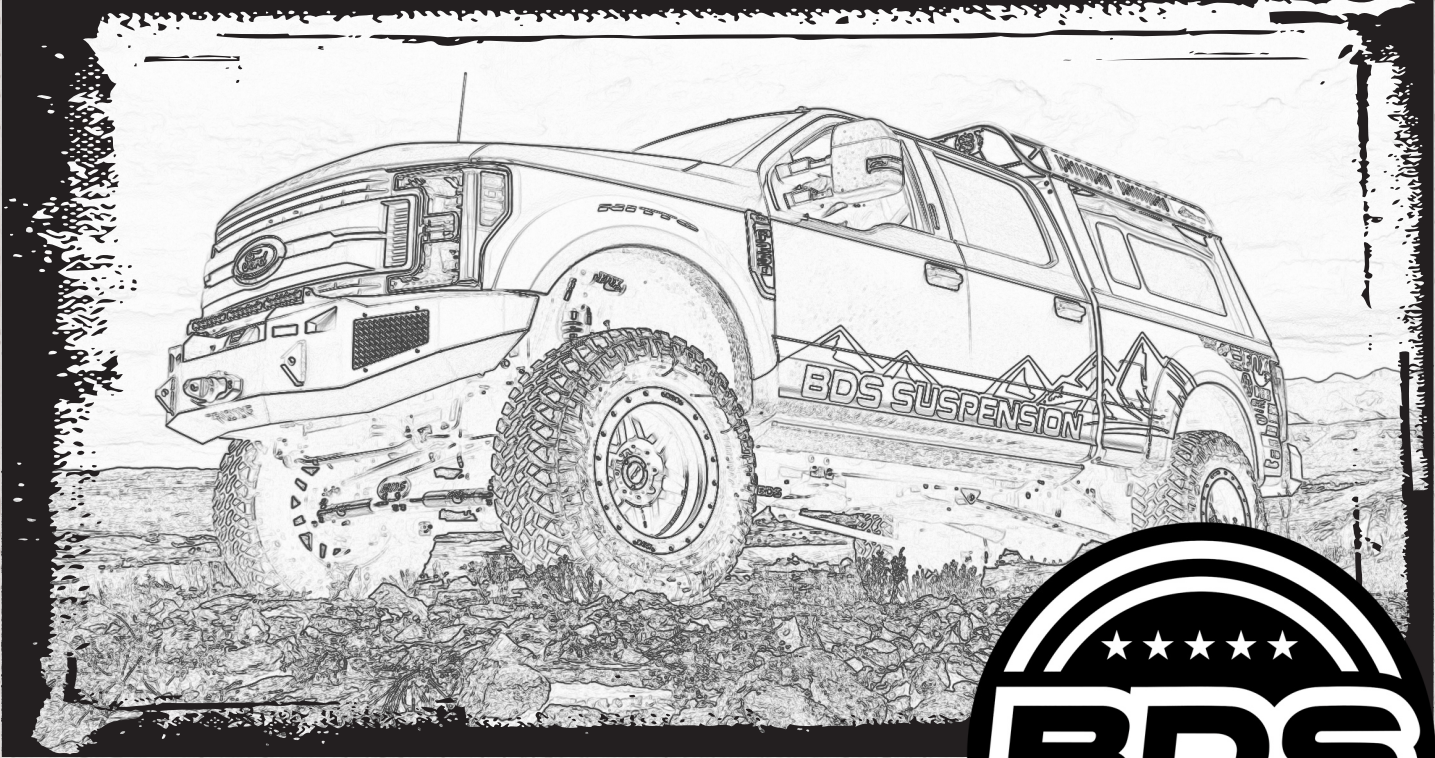


# INSTALLATION GUIDE



Part#: 013421



**HARDCORE LIMITED LIFETIME WARRANTY**

## 4" Four Link Suspension System

**Ford F450 Super Duty 4WD | 2017-2022**

Rev. 102023

491 W. Garfield Ave., Coldwater, MI 49036 • Phone: 517-279-2135

E-mail: [tech-bds@ridefox.com](mailto:tech-bds@ridefox.com)

# Read And Understand All Instructions And Warnings Prior To Installation Of System And Operation Of Vehicle.



## THANK YOU

Your truck is about to be fitted with the best suspension system on the market today. That means you will be driving the baddest looking truck in the neighborhood, and you'll have the warranty to ensure that it stays that way for years to come.

Thank you for choosing BDS Suspension!

### BEFORE YOU START

BDS Suspension Co. recommends this system be installed by a professional technician. In addition to these instructions, professional knowledge of disassembly/ reassembly procedures and post installation checks must be known.

### FOR YOUR SAFETY

Certain BDS Suspension products are intended to improve off-road performance. Modifying your vehicle for off-road use may result in the vehicle handling differently than a factory equipped vehicle. Extreme care must be used to prevent loss of control or vehicle rollover. Failure to drive your modified vehicle safely may result in serious injury or death. BDS Suspension Co. does not recommend the combined use of suspension lifts, body lifts, or other lifting devices. You should never operate your modified vehicle under the influence of alcohol or drugs. Always drive your modified vehicle at reduced speeds to ensure your ability to control your vehicle under all driving conditions. Always wear your seat belt.

### BEFORE INSTALLATION

- Special literature required: OE Service Manual for model/year of vehicle. Refer to manual for proper disassembly/reassembly procedures of OE and related components.
- Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the OE manual.
- Larger rim and tire combinations may increase leverage on suspension, steering, and related components. When selecting combinations larger than OE, consider the additional stress you could be inducing on the OE and related components.
- Post suspension system vehicles may experience drive line vibrations. Angles may require tuning, slider on shaft may require replacement, shafts may need to be lengthened or trued, and U-joints may need to be replaced.
- Secure and properly block vehicle prior to installation of BDS Suspension components. Always wear safety glasses when using power tools.
- If installation is to be performed without a hoist, BDS Suspension Co. recommends rear alterations first.
- Due to payload options and initial ride height variances, the amount of lift is a base figure. Final ride height dimensions may vary in accordance to original vehicle attitude. Always measure the attitude prior to beginning installation.



Visit [560plus.com](http://560plus.com) for more information.

### TIRES AND WHEELS

Tire: 38x12.50 (6")  
37x12.50 (4")  
Wheel: 9" wide wheel with 4-1/2" Backspacing



### BEFORE YOU DRIVE

Check all fasteners for proper torque. Check to ensure for adequate clearance between all rotating, mobile, fixed, and heated members. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering gear for clearance. Test and inspect brake system.

Perform steering sweep to ensure front brake hoses have adequate slack and do not contact any rotating, mobile or heated members. Inspect rear brake hoses at full extension for adequate slack. Failure to perform hose check/ replacement may result in component failure. Longer replacement hoses, if needed can be purchased from a local parts supplier.

Perform head light check and adjustment.

Re-torque all fasteners after 500 miles. Always inspect fasteners and components during routine servicing.

# CONTENTS OF YOUR KIT

## BDS013601 4 Link Box Kit

Part #	Qty	Description
03420	2	Upper 4-Link Arm
03421	2	Lower 4-Link Arm
985	1	Bolt Pack - 4-link Arm Hardware
	2	M18-2.5 Prevailing Torque Nut - Clear Zinc
	16	3/4 SAE Thru Hard Flat Washer - Clear Zinc
	2	M18-2.5 x 150 Bolt - Class 10.9 - Clear Zinc
	6	3/4"-10 x 5" Bolt - Grade 8 - Clear Zinc
	6	3/4"-10 Prevailing Torque Nut - Clear Zinc
B1198	1	Bag Kit - Upper Arm
60107	2	90 degree grease fitting
7	2	1.0 x 0.120 x 3.25 DOM Sleeve
3527BK	4	Bushing
B1199	1	Bag Kit - Lower Arm
60107	2	90 degree grease fitting
7	2	1.0 x 0.120 x 3.25 DOM Sleeve
3527BK	4	Bushing
03422	4	Cam Lock Plate

## BDS033411 Diesel Coil Spring Box Kit

Part #	Qty	Description
033411R	2	4" Coil Spring - Diesel

## BDS123808 Rear Sway Bar Link Box Kit

Part #	Qty	Description
911125	2	16" Sway Bar Link
807	1	Bolt Pack -Sway Bar Link Hardware
B956	1	Bag Kit - Sway Bar Link
62147	4	5/8" x 1-3/8" Sleeve
SB58BK	4	5/8" Hourglass Bushing

## SPECIAL TOOLS

Large Pitman Arm Puller  
 Small Pitman Arm Puller  
 30mm (1-3/16") Socket  
 46mm (1-13/16") Socket  
 Large Torque Wrench, ability to torque to 405 ft-lbs.  
 CV Boot Clamp Pliers  
 Rivet Gun

## BDS013421 4" 4 Link Front Box Kit

Part #	Qty	Description
083405R	1	Pitman Arm
01001	2	Front Bump Stop Extension
05698	1	Track Bar Bracket
BP1107	1	Track Bar Hardware
01044B	1	Sway Bar Drop - Driver
01045B	1	Sway Bar Drop - Passenger
03967	1	4-Link Bracket - Driver
03968	1	4-Link Bracket - Passenger
02449	2	BDS Badge
360	2	Rivet Bolt Packs
02019	2	Track Bar Cam Washer
03970	4	4-Link Bracket Shim
02998	1	Front Brake Line Bracket - Driver
02999	1	Front Brake Line Bracket - Passenger
03419	2	4-Link Bracket Nut Tab
B8130G5	2	M8-1.25 x 130mm Bolt
W56SAE	2	5/16" SAE Flat Washer
099000	4	Zip Tie
6865833	1	Drive Shaft Boot Clamp
65077	1	1/8" x 1-1/4" Cotter Pin
986	1	Bolt Pack - 4-Link Bracket
341	1	Bolt Pack - ABS Wire Clamp
422	1	Bolt Pack - Sway Bar Drop Bracket
B1711	1	Bag Kit - OE Stabilizer Mounting
03472	1	Frame Side U-Mounting Plate
561140200RB	2	5/16" x 1-1/4" x 2" Round U-Bolt
01504	1	Drag Link Side U-Mounting Plate
45313	1	5/8" x 1-3/8" Sleeve
BP1110	1	Bolt Pack - OE Stabilizer Mounting

## BDS063408 Rear Box Kit

Part #	Qty	Description
05735	2	3-1/2" Rear Lift Block
583181900S	4	5/8" x 3-1/8" x 19" Semi-Round U-bolt
01025	2	3/8" Carrier Bearing Drop
01024	2	1/4" Carrier Bearing Drop
405	1	Bolt Pack - Carrier Bearing Drop Hardware
B1203	1	Bag Kit - 5/8" U Bolts
W58SB	8	5/8 washer
N58FHB	8	5/8 high nut
03428	1	E-Brake Relocation Bracket
03429	1	E-Brake Clamp Bracket
989	1	Bolt Pack - E-Brake Relocation Hardware

# TECH TIPS

## TROUBLESHOOTING INFORMATION FOR YOUR VEHICLE

1. Ford recommends replacement of the pitman arm nut once it has been removed due to degradation of the pre-applied dry thread adhesive. BDS supplies new thread locker for use with the original nut. Care must be taken to ensure the sector shaft and nut threads are clean for proper adhesion. The nut requires 350 ft-lbs of torque, ensure the tools used are adequate to hit this specification.
2. Use a small pitman arm puller to remove the drag link joint and steering stabilizer taper.
3. Larger tires on stock wheels are not recommended due to brake line clearance required. Use recommended specifications listed in tire and wheel fitment section.
4. The factory front track bar bolt requires 405 ft-lbs of torque to be installed properly. Be sure you have the means of removing and installing this hardware properly. It is possible to install the hardware and torque to a more modest range (**200 ft-lbs or so**) and take the vehicle to a shop with the means to torque the hardware properly immediately after the installation is complete.
5. As a result of the location of the long radius arm suspension, support locations are limited. Use your best judgment while supporting the vehicle with sufficient strength stands at appropriate locations. The radius arms will need to move freely during this installation. Recommended to lift the front of the vehicle from the front body mount (**An extension may be needed**).
6. Due to taller factory ride height, Tremor models will not net full advertised lift height. Final ride height will be same as standard models.

## PRE INSTALLATION

### IMPORTANT

It is required that ride height measurements be taken before and after installation. Measure from the **WHEEL AXLE CENTER** up to the **FENDER LIP** of the wheel opening. Do this for all 4 wheels. Record measurements below.\*\*

#### BEFORE

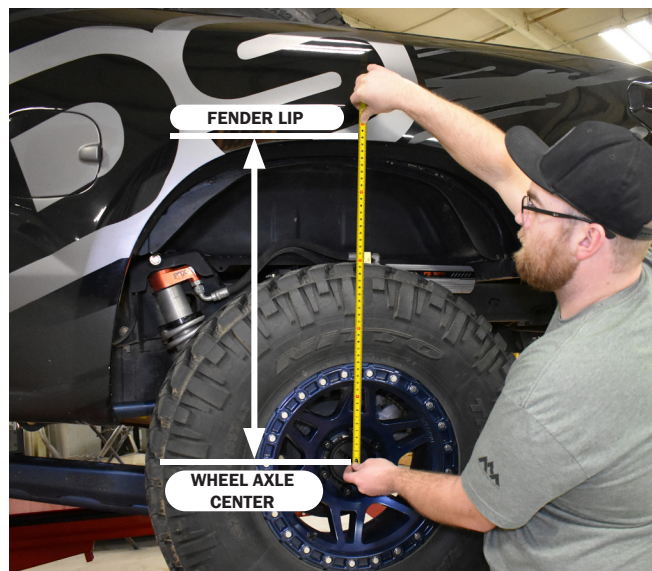
Left Front \_\_\_\_\_ Right Front \_\_\_\_\_

Left Rear \_\_\_\_\_ Right Rear \_\_\_\_\_

#### AFTER

Left Front \_\_\_\_\_ Right Front \_\_\_\_\_

Left Rear \_\_\_\_\_ Right Rear \_\_\_\_\_



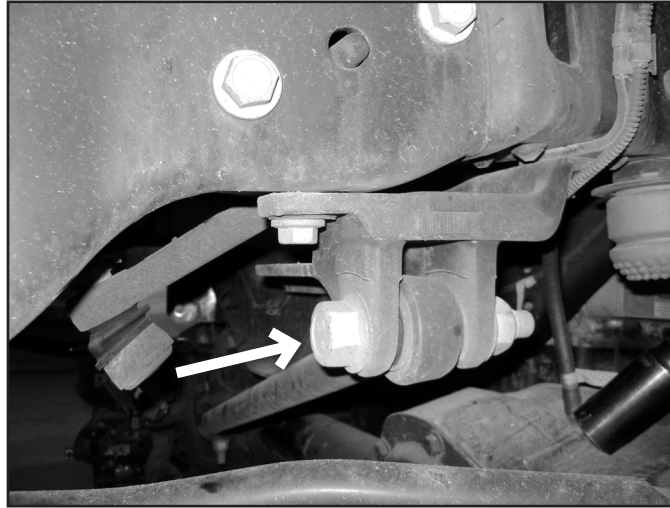
**\*\*These ride heights will be required if you have any ride height concerns after installation. Please be prepared to provide these to Technical Support.**

# INSTALLATION INSTRUCTIONS

## FRONT INSTALLATION

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Disconnect the front track bar from the frame mount. Retain hardware. (**Fig. 1**)

**FIGURE 1**



3. Raise the front of the vehicle and support under the frame rails with jack stands.



**Tip** As a result of the location of the long radius arm suspension, support locations are limited. Use your best judgment while supporting the vehicle with sufficient strength stands at appropriate locations. The radius arms will need to move freely during this installation.

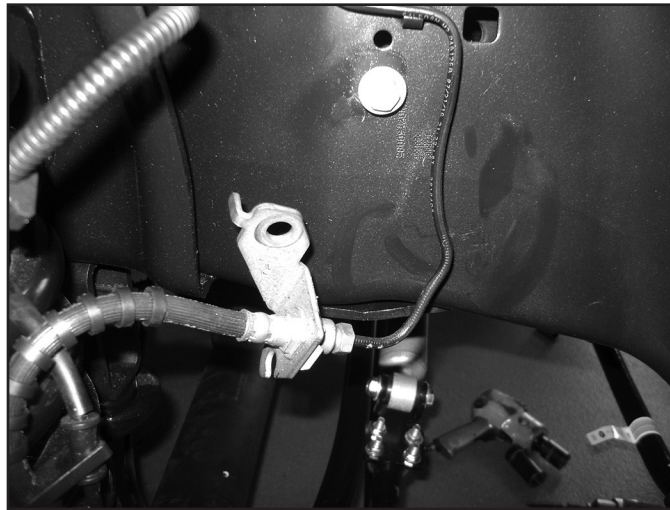
4. Remove the front wheels.
5. Support the front axle with a hydraulic jack.
6. Disconnect the front brake line brackets from the axle (**Fig 2**). Retain hardware.

**FIGURE 2**



7. Remove the bolts attaching the front brake lines brackets to the frame and save the hardware (**Fig. 3**). Attempt to not bend the brake lines as much as possible. Remove the ABS line from the brake line bracket.

**FIGURE 3**



8. Free the hub vacuum lines from the axle/ radius arm to allow for adequate droop (**Fig. 4A & B**).

**FIGURE 4A**



**FIGURE 4B**



9. Disconnect the upper sway bar end links from the sway bar. Push the sway bar up out of the way. Retain hardware.  
10. Remove the lower OE shock hardware at this time (**leave upper attached**). Retain lower mounting hardware.  
11. Lower the axle until the OE coil springs are free and remove the springs from the vehicle. Retain the upper spring isolator for use with the new springs. Once coils are removed, reattach the axle to the shocks.

**! Caution** *Do not over extend the brake lines. Once the coil springs are removed, hook the front shocks back up by reinstalling the bolt, do not install the nut. This is a safety measure to hold the axle in place while the replacement radius arms are installed.*

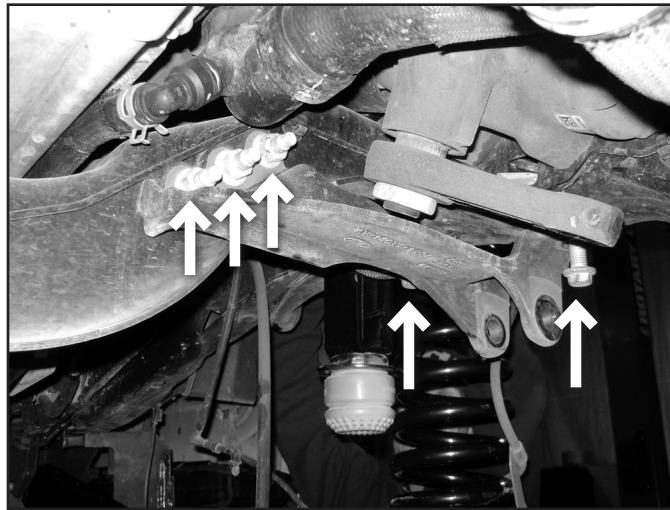
## STEERING

12. Disconnect the OE steering stabilizer from the frame mount. Disconnect the stabilizer from the factory drag link.

**💡 Tip** *It is easiest to get the taper to break free from the drag link by using a small pitman arm puller. Stock stabilizer will not be reused.*

13. Disconnect the (**5**) bolts mounting the OE track bar bracket to the frame (**Fig. 5**). Remove bracket and retain hardware.

**FIGURE 5**



14. Disconnect the steering drag link from the pitman arm. Remove the cotter pin and castellated nut cap. Remove the nut and thread back on by hand a couple turns. Strike the end of the pitman arm near the drag link end to dislodge the taper from the pitman arm (**Fig. 6**). Remove the nut and the drag link from the pitman arm. Retain hardware.

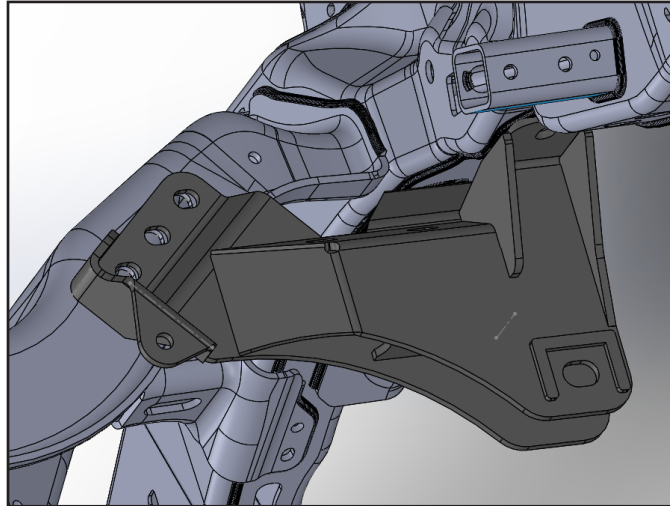
**FIGURE 6**



 **Tip** *The same small pitman arm puller works well.*

15. Remove the pitman arm nut. Note the indexing of the pitman arm in relation to the steering sector shaft and remove the pitman arm from the steering box using the appropriate puller.
16. Remove all of the dry-lock compound on the threads of the pitman arm nut and steering sector shafts. This is important to ensure that the new thread lock compound will adhere properly.
17. Apply a bead of the supplied thread lock all the way around the threads of the pitman arm nut.
18. Install the new pitman arm (**indexed the same as the OE**) and fasten with the pitman arm nut. Torque the nut to 350 ft-lbs.
19. Install the new track bar bracket (**05698**) using the stock mounting hardware as it was removed. Torque all (**5**) mounting bolts to 129 ft-lbs. It may be necessary to form the stock hard line slightly to clear the new track bar bracket. Do not install track bar at this time, it will be installed once the vehicle is on the ground.

**FIGURE 7**



**BUMP STOP MODIFICATION**

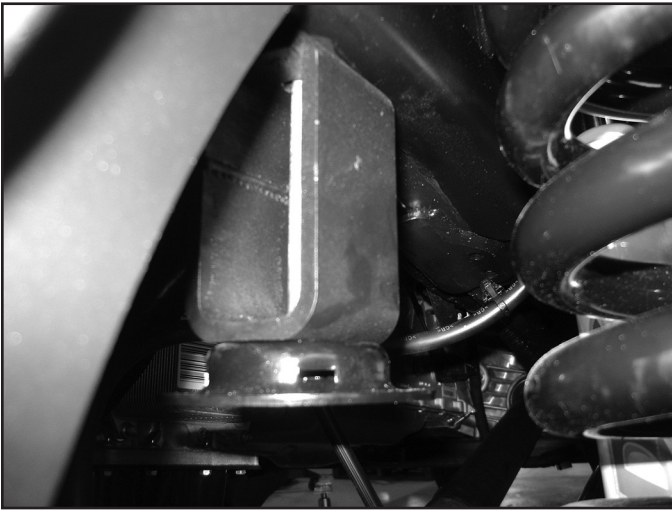
20. Pull the OE front bump stops free from the bump stop cups and remove the bolt mounting the cup to the frame.

**FIGURE 8**



21. Position the cup on the provided bump stop extension. **(01001)** The alignment tab on the bump stop cup will fit in the second hole in the extension
22. Install a provided 8mm x 130mm bolt and 5/16" SAE washer through the cup extension and attach to the frame in the original hole. Use Thread locker on the threads and torque to 20 ft-lbs **(Fig 9 A & B)**.

**FIGURE 9A**



**FIGURE 9B**



**INDEXING RING INSTALLATION (OPTIONAL ON 4" LIFT)**

23. Refer to the provided instructions in the Indexing Ring Box Kit at this time.

**FOUR LINK INSTALLATION:**

24. Working on one side of the vehicle at a time, loosen the four radius arm-to-axle mounting bolts but do not remove. Once again, ensure that the front axle is well supported and the front drive shaft is disconnected. Failure to disconnect the front drive shaft will damage the front drive shaft CV joint at the transfer case output.
25. Starting with the driver's side, remove the radius arm hardware and save hardware. Remove the radius arm from the vehicle. It may be necessary to remove one of the passenger's side axle bolts to allow the axle to rotate to hook up the four link arm completely.
26. Support the new transfer case cross member and remove the factory 12mm bolts on the driver's side used to support it.  
*Note: If the four link brackets are installed with the factory transfer case cross member on a 4" kit, the transfer case cross member will have to be removed to install the four link brackets. Support the transmission with a jack and block of wood to not damage the oil pan. Remove the (4) 12mm bolts and the center (2) nuts attaching the transfer case isolator.*
27. 2020+ Models only: The wiring harness near the radius arm mount will need to be re-routed up and over the frame. the plastic support bracket can be removed. The harness can be secured in place using the provided zip ties (**Fig 10 A & B**).

**FIGURE 10A**



**FIGURE 10B**



28. Install the four link bracket to the factory radius arm bracket on the frame and around the transfer case cross member mounts on the frame. The bracket will mount into the same hole as the factory radius arm. Insert a 3/4" bolt and washer from Bolt Pack 985 through the same hole in the radius arm bracket on the frame and through the four link bracket. Attach using the 3/4" nut and washer, leave hardware loose. *Note: The factory hole for the radius arm on the frame may need clearance to fit the 3/4" hardware.*

**FIGURE 11**



29. Install the provided 12mm x 150mm bolts and washer from Bolt Pack 986 through the four link bracket, frame mounts, and the new cross member running the bolts back to front. Attach using the provided 12mm prevailing torque nut and washer to the 12mm bolt. Leave all hardware loose (**Fig. 12**). Use the provided shims (**03970**) in between the 4-link bracket and crossmember mount as needed. This will help take up any factory variation of the crossmember mount brackets on the frame.

*Note: If the four link brackets are installed with the factory transfer case cross member on a 4" kit, install the factory cross member along with the (4) new 12mm hardware.*

**FIGURE 12**

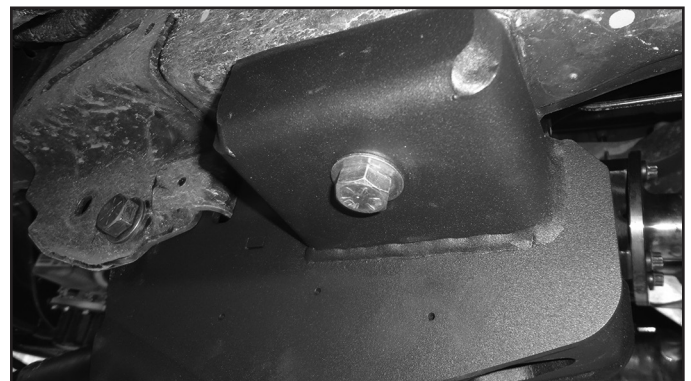


30. Drill a 9/16" hole in the frame through the hole in the side of the four link bracket. Insert the 9/16" x 1-1/2" bolt and washer from Bolt Pack 986 through the hole and attach using the provided 9/16" nut tab. Leave hardware loose. (**Fig. 13A, 13B**)

**FIGURE 13A**



**FIGURE 13B**

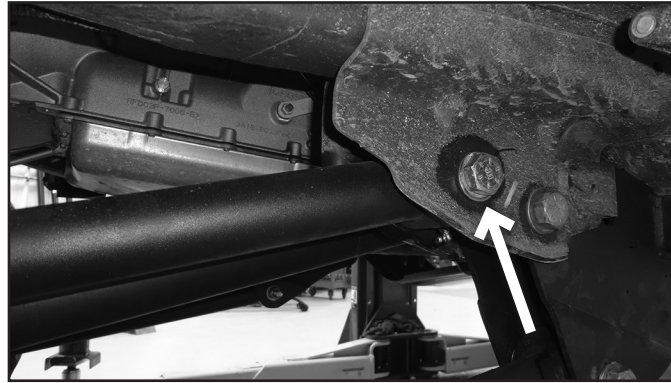


31. Lightly grease and install the provided bushings (**3527**) and sleeves (**7**) in the four new control arms.

32. Install the provided 90° grease fittings in the threaded holes at the bushing end of the control arms. When installed the fittings should point toward the body of the control arm.
33. Using a 3/4" x 5" bolt and hardware from Bolt Pack 985, install the assembled upper control arm (**shorter of the two arms**) into the front hole on the factory radius arm bracket (**Fig. 14**). Install the arm so that the grease fitting is down. *Note: The factory hole for the radius arm on the frame may need clearance to fit the 3/4" hardware.* Attach the upper control arm to the axle using a factory 18mm bolt along with a factory 18mm nut. Leave hardware loose.

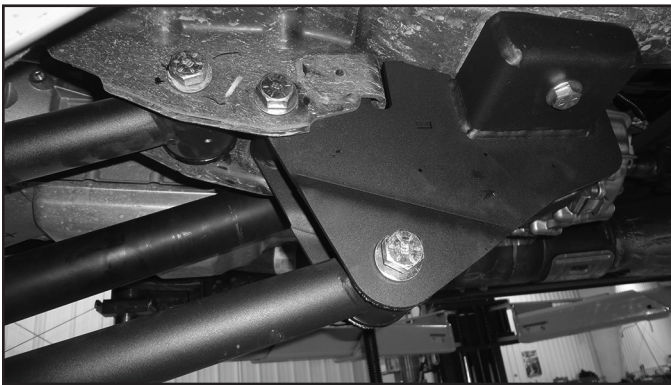
*Note: The upper mount on the driver's side factory radius arm will have a captive nut. Use one of the left-over 18mm lower factory nuts for the upper bolt. (Fig. 14)*

**FIGURE 14**



34. Using a 3/4" x 5" bolt and hardware from Bolt Pack 985, install the lower control arm into the lower hole on the four link bracket. Install the arm so that the grease fitting is up (**Fig 15A**). Attach the lower control arm to the axle using the provided 18mm x 150mm bolt, 3/4" SAE washer, 18mm prevailing torque nut and cam plates. Index the cam plates so they are facing towards the rear of the vehicle in the cam slot on the lower control arm. Leave hardware loose (**Fig 15B**).

**FIGURE 15A**



**FIGURE 15B**



35. Tighten the hardware for **only** the four link bracket (**do not tighten the control arms at this time**) in the following order: 12mm hardware to 50 ft-lbs, 9/16" hardware to 90 ft-lbs, 3/4" hardware to 150 ft-lbs. The control arm bolts at the frame and axle will be tightened when the vehicle is on the ground.
36. Repeat the frame bracket and control arm installation procedure on the passenger's side of the vehicle.

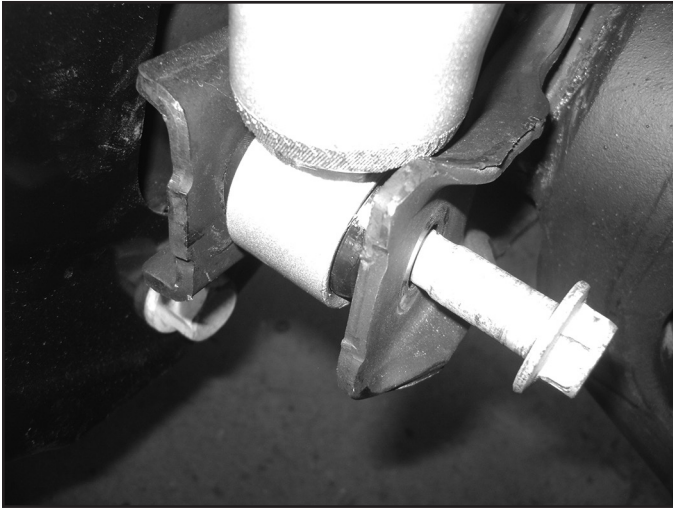
*Note: If the nuts for the center mounted transfer case isolator are still disconnected from the transfer case cross member, reattach them now and torque to factory specifications.*

## **COIL SPRING INSTALLATION (COILOVER INSTALLATION SEE SEPARATE INSTRUCTION SHEET)**

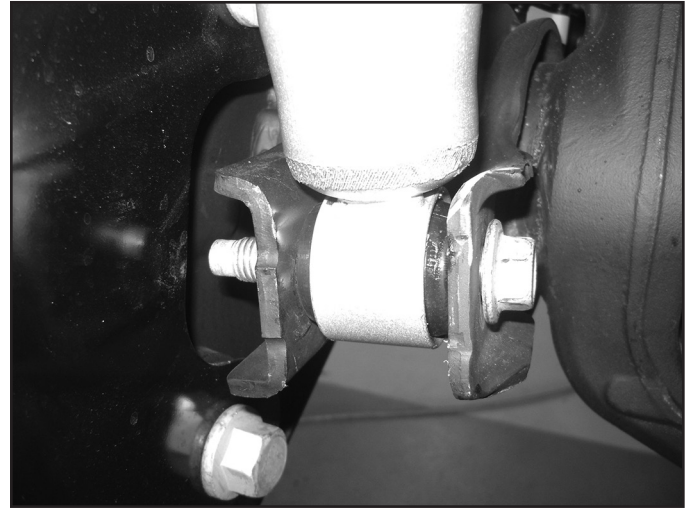
37. Remove the front shocks from the vehicle completely at this time.
38. Lower the axle enough to allow the coils to be installed. Do not over extend the brake lines. Check ABS, brake, and vacuum lines to ensure they are not overstretched.
39. Install new coils with factory isolators. Rotate the springs so that they seat in the bottom coil perch properly. Raise the axle to seat the coil springs into the correct mounts.
40. Grease and install sleeves and bushings into the shocks.

41. BDS (**Silver / non-Fox**) shocks will require the lower mount to be modified. The sharp, non-formed edge will need to be ground to match the formed profile. Grind this and coat with paint. (**Fig 16a, 16b**)

**FIGURE 16A**



**FIGURE 16B**

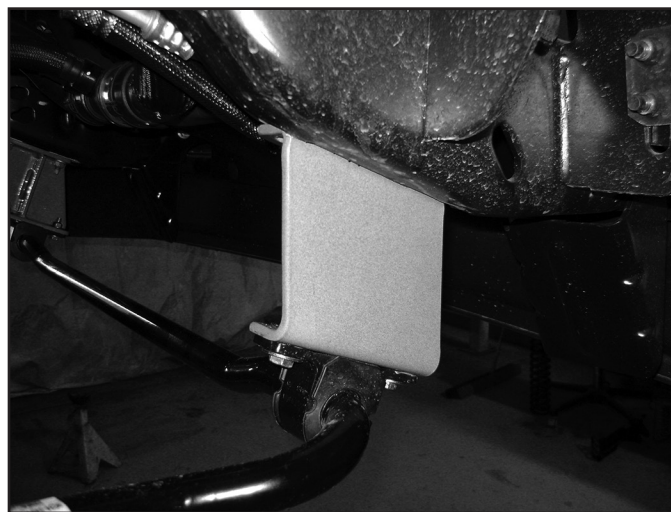


42. Compress the coils slightly by using a hydraulic jack on the axle. Install new shocks with factory lower hardware and stem washers, bushings, and 1/2" fine thread nut on the upper mount. Tighten the upper mount until the bushings begin to swell. Tighten lower mount to 50 ft-lbs.
43. Reattach the factory brake line brackets to the lower coil seat with factory hardware and thread locker at this time.

### **SWAY BAR**

44. Note the orientation of the front sway bar (**top versus bottom**). Disconnect the sway bar from the frame and remove from the vehicle. Retain hardware.
45. Install the provided sway bar drop bracket to the original sway bar frame mounting locations with the original hardware. Mount the drop bracket with the open face toward the inside of the vehicle and the bracket offset toward the front. Leave hardware loose.
46. Attach the sway bar to the new drop brackets in the correct orientation with the 3/8" hardware from Bolt Pack #422. Torque the 3/8" and factory hardware to 30 ft-lbs (**Fig 17**). Center the bolts in the slots in the sway bar drop bracket. The position of the bracket may need to be adjusted for sway bar link to drag link clearance.

**FIGURE 17**



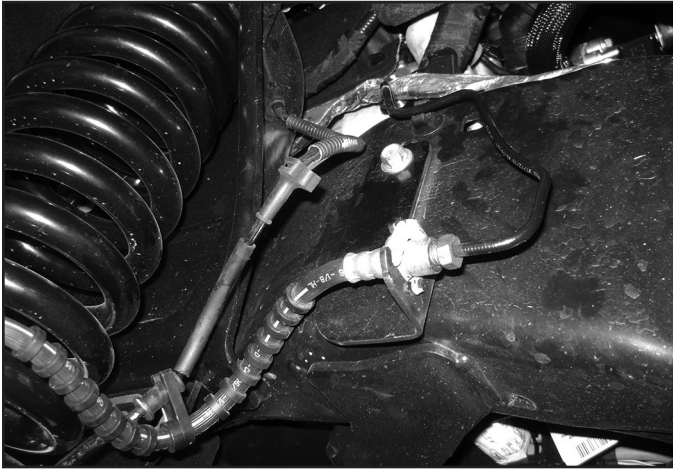
47. Install the sway bar link ends to the sway bar and secure with the OE hardware. Torque to 90 ft-lbs.

### **BRAKE LINE / ABS / VACUUM**

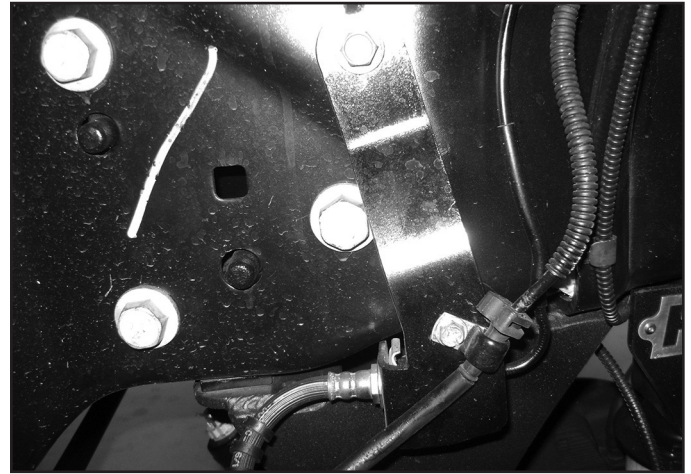
48. Reattach all vacuum lines. Use provided zip ties where needed.

49. Install the new brake line brackets, the brackets are side specific. Brake lines will need to be reformed to reach the new mounting position. It may be necessary to slightly twist the brake line fittings in relation to the hard line to get adequate clearance to the frame / wheel and tire. Attach the ABS wire to the driver's side with 1/4" hardware and cable clamp in Bolt Pack 341 (Fig 18A, 18B)

**FIGURE 18A**



**FIGURE 18B**



**STEERING STABILIZER INSTALLATION - SKIP THIS STEP IF A DUAL STEERING STABILIZER WILL BE USED.**

50. Reattach the steering drag link to the pitman arm. The drag link adjuster will need to be loosened on the passenger side in order to flip the drag link upside down to install into the pitman arm. Torque nut to 148 ft-lbs. Install the original castellated nut cap and new 1/8" cotter pin.
51. Using the OE steering stabilizer, cut off the washer from the stud side and press out the stud. Note, if the bushing presses out as well, reinstall the bushing and center it between the faces of the eyelet. (Fig. 19A, 19B, 19C)

**FIGURE 19A**



**FIGURE 19B**



**FIGURE 19C**



52. Install the provided 45313 sleeve from Bag Kit B1711 into the bushing eyelet. (**Fig. 20A, 20B**)



**Tip** Use silicon spray and a tapered socket to help the sleeve install into the bushing. Ensure the bushings faces are centered after install.

**FIGURE 20A**

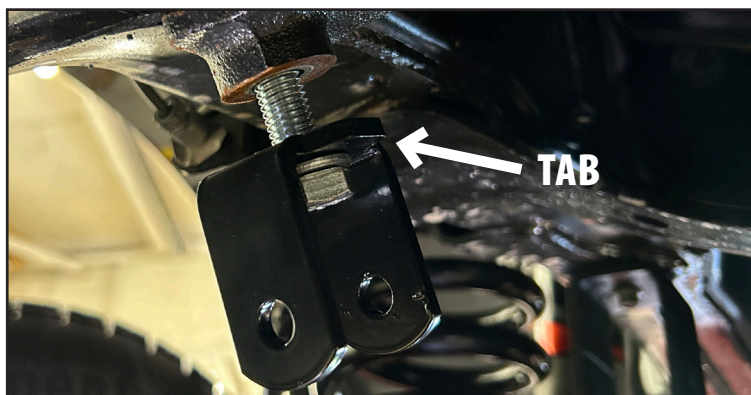


**FIGURE 20B**



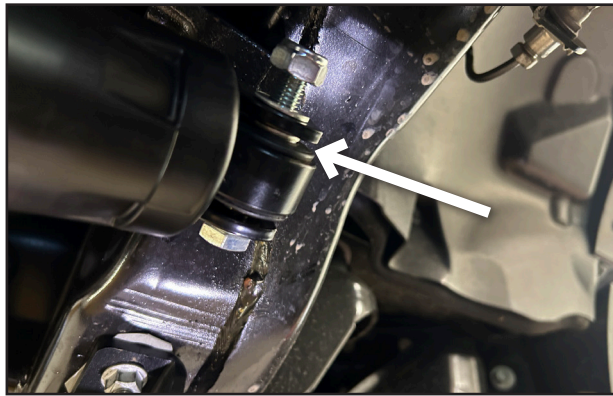
53. Install the provided U-Bracket at the OE stabilizer frame mount on the passenger side with thread locker and the 12mm bolt and 1/2" washer from Bolt Pack BP1110. The "tab" on the bracket will face towards the inside of the frame. Torque this 12mm hardware to 69 ft-lbs. (**Fig. 21**)

**FIGURE 21**



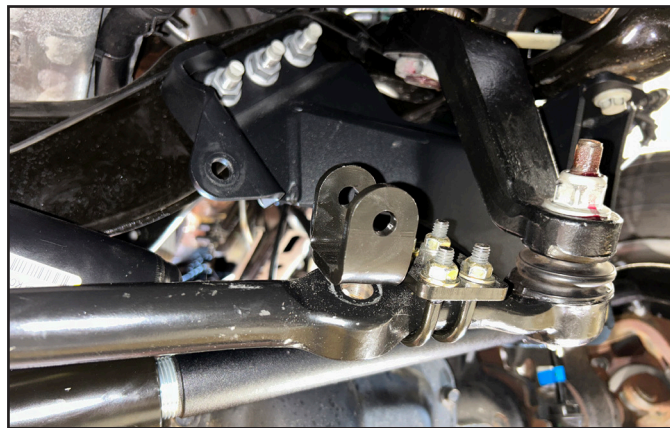
54. Attach the OE stabilizer "shaft end" (**with the plastic boot**) to the frame side mount using the provided 10mm x 70mm bolt, 10mm washers, and 10mm nut and an additional 10mm washer as a spacer as shown in the figure below from Bolt Pack BP1110. Torque this 10mm hardware to 39 ft-lbs. (**Fig. 22**)

**FIGURE 22**



55. Loosely attach the stabilizer bracket to the drag link using the provided 5/16" u-bolts, 1/4" USS washers, and 5/16" nuts. Leave hardware loose. (Fig. 23)

**FIGURE 23**



56. Install a provided 5/8" SAE washer on each side of the bushing. With the washers on each side of the bushing, attach stabilizer bracket to the stabilizer "body end" using the 3/8" x 2-1/2" bolt, 3/8" SAE washers, and 3/8" nut. Torque this hardware to 35 ft-lbs. The bracket should be facing "away" from the stabilizer (Fig. 24A, 24B).

**FIGURE 24A**



**FIGURE 24B**



57. Center the steering wheel. Extend the steering stabilizer 23-1/8" (+/- 1/8" on length). Tighten the 5/16" U-bolt hardware to 15 ft-lbs. (Fig. 25A, 25B)

**FIGURE 25A**



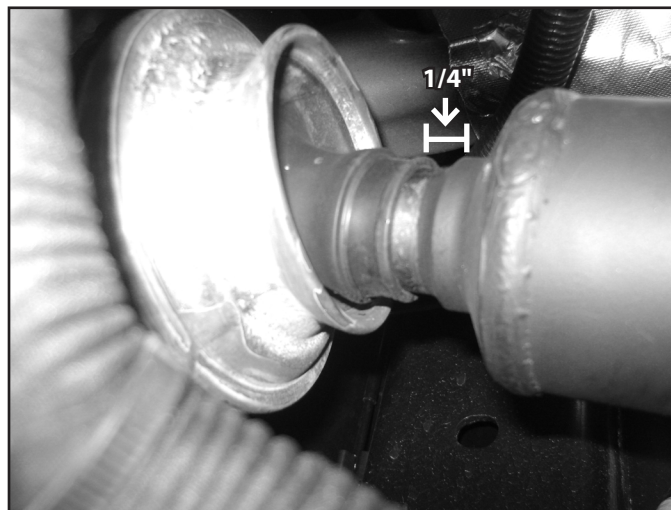
**FIGURE 25B**



**FRONT INSTALLATION CONTINUED**

58. If needed: properly bleed the brake system of air and top off the brake fluid reservoir with the proper type of fluid (**see owners manual**).
59. Remove the factory CV joint clamp at the front transfer case output on the drive shaft. Slide the end of the boot up approximately 1/4" and re-clamp with new CV joint boot clamp. Use the CV Boot Clamp Pliers to compress the CV joint boot clamp to the front drive shaft (**Fig 26**).
60. Reattach the front drive shaft to the front differential with factory hardware. Tighten to 26 ft-lbs.

**FIGURE 26**

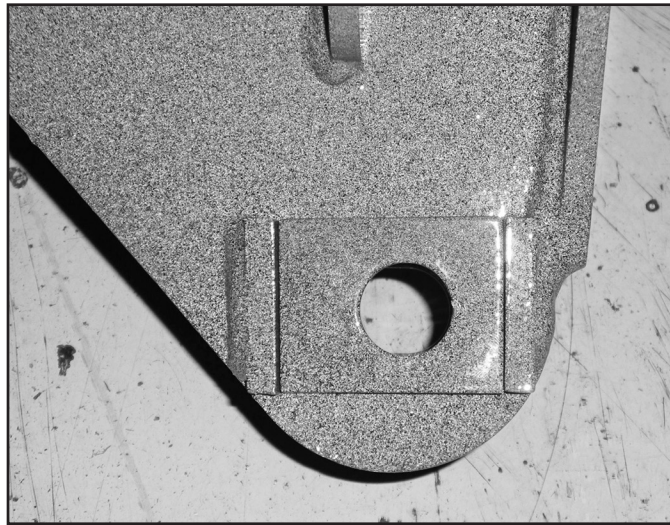


61. Install the front wheels and lower the vehicle to the ground. Torque lug nuts to 165 ft-lbs.
62. **Attach the track bar to the new bracket with the provided 20mm hardware from bolt pack BP1107 in place of the OE track bar bolt. Run the hardware from front to back. Do NOT install the 3/4" washer on the front side of the bolt. Use the 3/4" washer and nut from BP1107 on the back side.** Turn the steering wheels to aid in aligning the track bar in the bracket. Install the provided cam washers between the alignment tabs on the bracket. Position the cam washers so that the hole is closer to the driver's side (**Fig 27**) for 4" kits. Torque hardware to 405 ft-lbs.



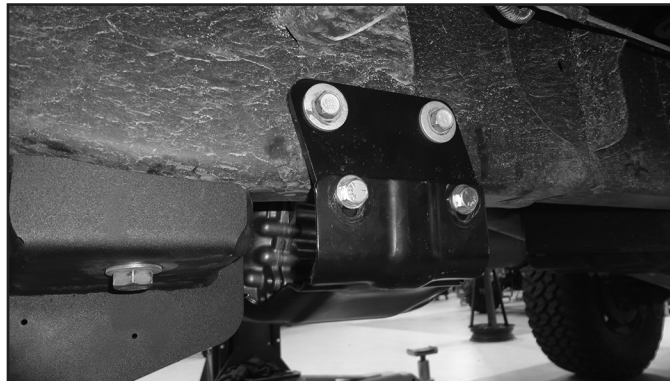
**Tip** *Due to variations in trucks, it may be necessary to rotate the cams 180 degrees to have the axle more centered.*

**FIGURE 27 - 4" OFFSET TOWARDS DRIVER'S SIDE**



63. 2017-2019 Models Only: If an indexing ring was installed, follow these instructions for the transfer case skid plate installation. Install the transfer case skid plate drop bracket on the driver side using the factory hardware into the J-nut in the frame. The bracket should be slanted towards the rear of the vehicle. Attach the transfer case skid plate to the J-nuts in the frame on the passenger side using the factory hardware. Attach the transfer case skid plate to the drop bracket on the driver's side using the 3/8" hardware from Bolt Pack 987 in the Indexing Ring kit. Torque to 20 ft-lbs (**Fig. 28**).

**FIGURE 28**



64. Bounce the front of the vehicle to settle the suspension. Torque all four link hardware to 220 ft-lbs.
65. The badge can now be riveted on to the 4-link brackets using the provided 1/8" rivets. Any residue on the badge can be cleaned up using alcohol or brake cleaner before install. With the badge not installed it can be painted to what ever color you desire, or left raw as a stainless steel badge.
66. Check all hardware for proper torque.

## **REAR INSTALLATION**

67. Raise the rear of the vehicle and support with jack stands under the frame rails just ahead of the spring hangers.
68. Remove the wheels.
69. Support the axle with a hydraulic jack.
70. Remove the OE shocks. Retain all mounting hardware.
71. Disconnect the sway bar links from frame and sway bar. Discard the sway bar links and hardware, they will not be reused. (**Fig. 29**)

**FIGURE 29**



**BLOCK KITS ONLY**

72. Support the rear axle with a hydraulic jack. Disconnect the passenger's side spring u-bolts. Loosen the driver's side to allow the axle to droop out.
73. Lower the axle and remove the factory lift block. It will not be reused.
74. Lower the axle enough to place the provided lift block between the axle and the leaf spring. Position the block so the bump stop wing faces inward. Install the leaf spring pin into the rearward hole on the lift block in order to position the axle forward. **(Fig 30)**


**FIGURE 30**



75. Raise the axle to engage the block spring alignment pins. Fasten the entire assembly with the provided u-bolts, washers, and nuts. Snug but do not torque the u-bolts at this time. **(Fig 31)**

**FIGURE 31**



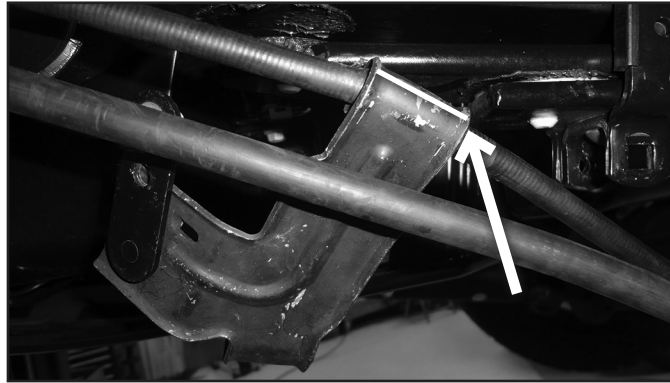
 **Tip** *Ensure all u-bolts have equal thread exposed below the nut.*

76. Repeat block installation of the driver's side. Take care not to over extend the brake lines.
77. If more parking brake cable slack is needed, remove the cable from the rear-most retaining bracket on the frame.

### **E-BRAKE CABLE RELOCATION (IF EQUIPPED) - WILL PROVIDE ADDITIONAL CLEARANCE TO THE WHEELS / TIRES**

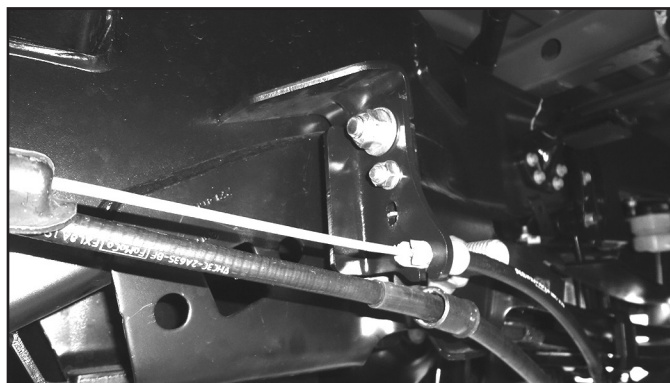
78. Gain slack from the E-Brake cable on the driver's side. It is easiest to pull on the cable and use a pair of vise grips to hold the cable, be careful not to damage the cable.
79. Cut the bracket for the E-brake cable that is going to the passenger side of the vehicle in order to release the cable from the bracket. See Figure 18 for which bracket and where to cut. It is easiest to cut most of the way through the steel and then bend the flange up to release the cable from the bracket. Be careful not to cut the E-brake cable! (**Fig. 32**)

**FIGURE 32**



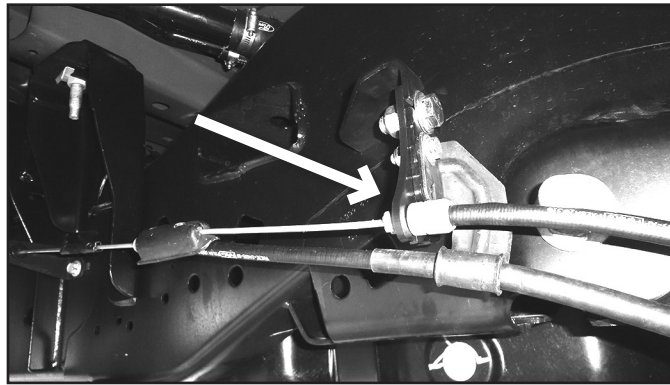
80. Depress the tabs and remove the passenger side E-brake cable from the mount on the frame.
81. Once the passenger side E-brake cable is free, remove the bolt and J-nut attaching the bracket to the frame.
82. Remove the driver side E-brake cable from the bracket and discard the bracket and hardware.
83. Remove the bolt and J-nut for smaller E-brake cable bracket. The E-brake cable relocation bracket will be reinstalled after the new leaf
84. Install the new E-brake cable bracket with the provided 1/2" hardware and 5/16" hardware from bolt pack 989 as shown in Figure 39. The smaller driver side E-brake cable bracket will be installed in the same position as it was from the factory, but attached with the 5/16" hardware (**Figure 33**).

**FIGURE 33**



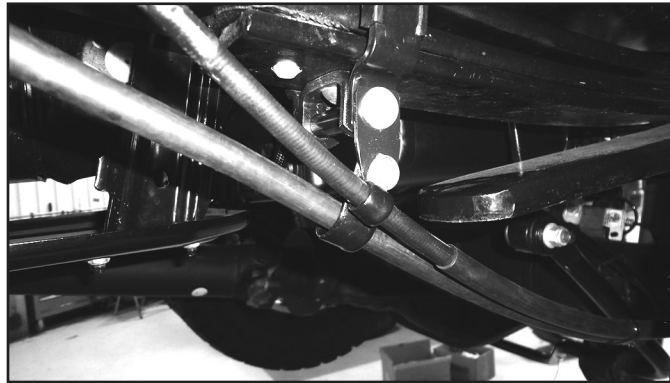
85. Install the passenger side E-brake cable into the bracket, make sure the tabs on the cable lock the cable into place. (**Fig. 34**)

**FIGURE 34**



86. Remove the 3/8" bolt on the front leaf springs clamp. Install the E-brake clamp bracket with the new provided 3/8" bolt and nut from bolt pack 998 through the leaf spring clamp. Make sure the E-brake clamp bracket is towards the outside of the leaf spring. Tighten the 3/8" hardware with the spacer tube in between to 25 ft-lbs. (**Fig. 35**)

**FIGURE 35**



87. Use the two provided wire clips from bolt pack 989 to secure both E-brake cables to the E-brake clamp bracket with the provided 5/16" hardware from bolt pack 989 .

## **ALL REAR KITS**

88. Install the new shocks with the original mounting hardware.

## **SWAY BAR LINK INSTALL**

89. Lightly grease and install bushings and sleeves into the new sway bar links.
90. Install the sway bar links with new 12mm hardware from Bolt Pack 807 in the factory frame mount and sway bar.
91. Tighten 12mm sway bar link hardware to 40 ft-lbs

## **CARRIER BEARING DROP**

92. Remove the two bolts that secure the center drive shaft bearing. Lower bearing and install 3/4" of shim thickness total (**X2 3/8" shims**). Use new 7/16" bolts from bolt pack 405 and torque to 55 ft/lbs. Two additional 1/4" shims are included in case they are needed for finer adjustments or additional drop..

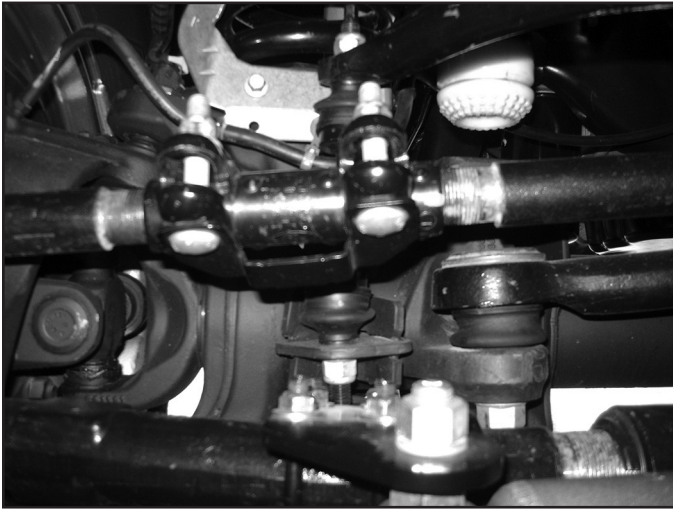
**Note:** *Driving the vehicle and adding and removing shims is the only way to truly eliminate the problem. Any vibration occurring only during take off is caused by axle wrap and this product will not eliminate that problem. This product is only for eliminating high speed vibration.*

## **REAR INSTALLATION CONTINUED**

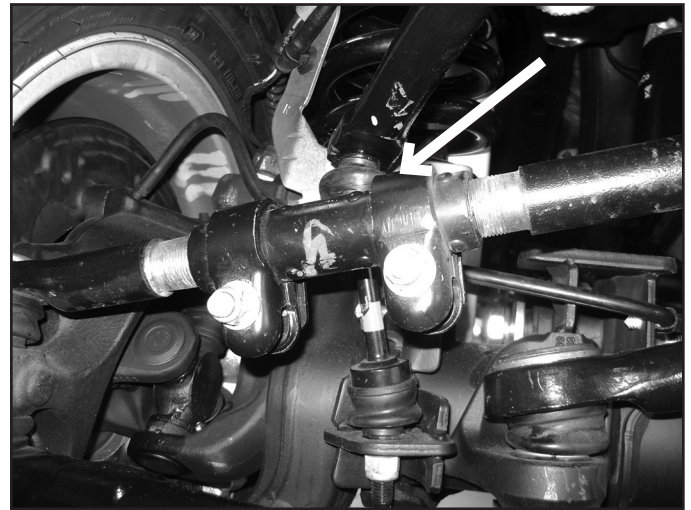
93. Retain ABS wires and vacuum lines with included zip ties. Ensure there is adequate slack at droop and no interference.
94. Install wheels, cycle steering to check for brake line, ABS wire, ETC to tire clearance. With clearance verified lower the vehicle to the ground.
95. With the weight of the vehicle on the axle, torque the u-bolts to 130-150 ft-lbs.
96. Check all hardware for proper torque.

97. Cycle steering to check for brake line, ABS wire, ETC to tire clearance, rotate the driver's side brake line on the hard line if necessary.
98. Adjust steering wheel with adjustment on the drag link, do NOT drive the vehicle with the steering wheel off-center or adverse traction control affects may arise. Rotate the clamps once the steering wheel is straight as shown. (**Fig 36A - incorrect, clamps will interfere with sway bar, Fig 36B - correct clearance**)

**FIGURE 36A \*INCORRECT\***



**FIGURE 36B \*CORRECT\***



99. An alignment is recommended, but not necessary. BDS recommends running caster at or above the maximum specification for improved handling / driving purposes.
100. Adjust headlights
101. Check hardware after 500 miles.



## **WE WANT TO SEE YOUR RIDE!**

Grab photos of your BDS-equipped truck in action and send them in for a chance to be featured. Send it in to our Bad Ass Rides customer gallery at [bds-suspension.com/bar](http://bds-suspension.com/bar) and post them on the BDS Fan Page on Facebook at [facebook.com/BDSSuspensions](https://facebook.com/BDSSuspensions). Don't forget about your BDS swag! BDS offers t-shirts, hoodies, decals and more available on the BDS website or through your local BDS distributor.

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## **TIME TO HAVE SOME FUN**

**Thank you for choosing BDS Suspension.**

For questions, technical support and warranty issues relating to this BDS Suspension product, please contact your distributor/installer before contacting BDS Suspension directly.