ATTENTION

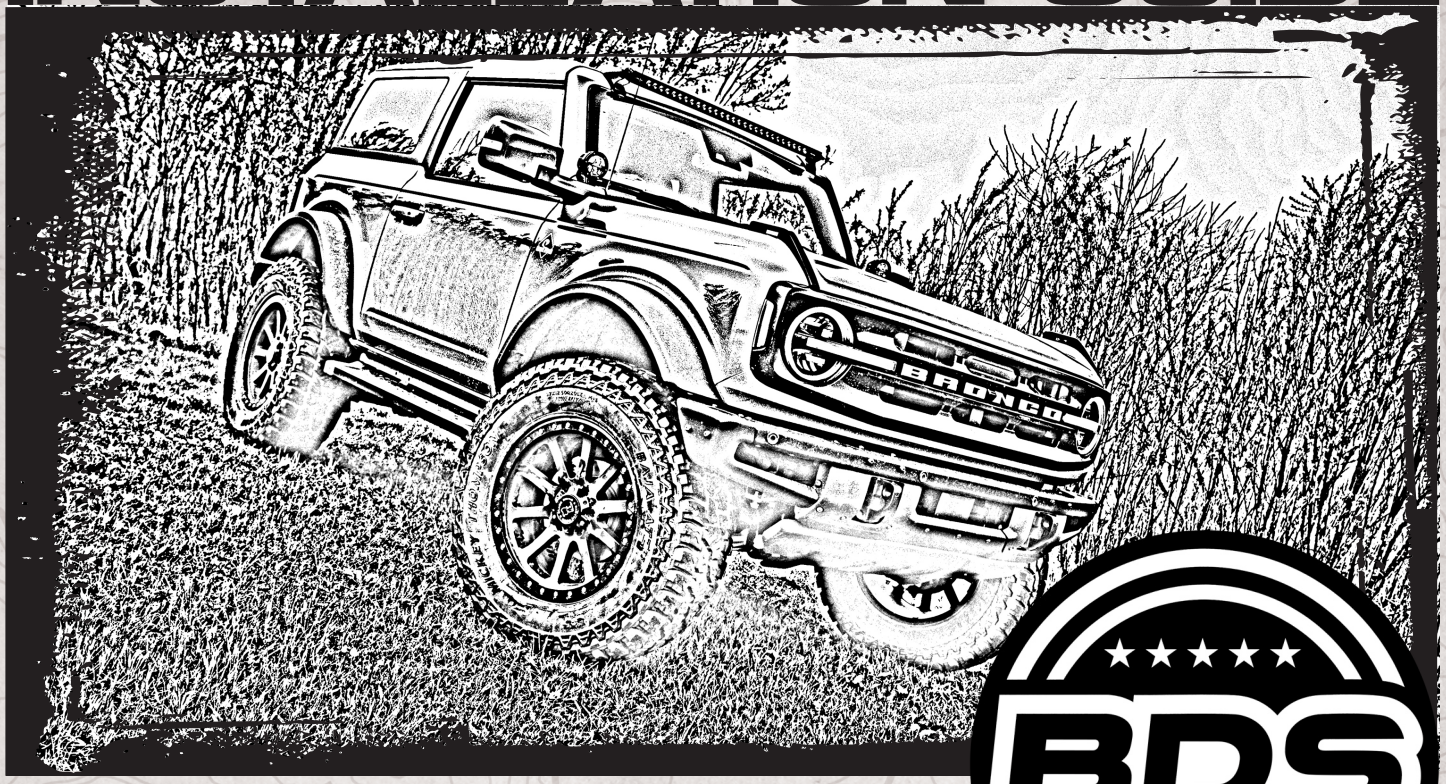
OE STRUT STUD CUTTING WARNING

The factory studs on the top of the struts MUST be trimmed to be flush or below the top surface of the strut spacer part numbers 05113 and 05115.

Failure to trim these studs will result in broken strut top spacers.

Details about the strut stud trimming can be found in the attached instruction sheet.

INSTALLATION GUIDE



Part#: 023410, 023411

HARDCORE LIMITED LIFETIME WARRANTY

4" Suspension Lift

Ford Bronco Base Shock Package Model| 2021-2025

Rev. 021226

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

Web: www.bds-suspension.com • E-mail: 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.

FACTORY PROTECTION PLUS

Visit 560plus.com for more information.

TIRES AND WHEELS

35 x 12.50 on 17x9, 18x9, or 20x9 with 5-1/2" to 5" back spacing recommeneded for clearance through full wheel travel*

37 x 12.50 on 17x9, 18x9, or 20x9 with 5-1/2" to 4-1/2" back spacing* (Will rub front body mount through wheel travel, rear plastic trimming may be required)

*Intrusion beams will need to be removed with both of these wheel / tire combinations

See end of instructions for more detail

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

023410 / 023411 4" Base Shock Package Lift System		
Part #	Qty	Description
05047	2	Bronco Front Strut Spacer
05115	2	Bronco Rear Strut Spacer
05110	2	Bronco Rear 3/8" Strut Spacer (023410 Only)
05068	4	Bronco Tall Preload Spacer - Front & Rear
05156	4	Bronco Tall Bump Stop Spacer - Front & Rear
370	1	Bolt Pack (023410 Only)
	18	10mm-1.50 Prevailing Torque Nut, Clear Zinc
	24	10mm Washer, Clear Zinc
	6	10mm-1.50 x 45mm Bolt, Class 10.9, Clear Zinc
	6	10mm-1.50 x 60mm Bolt, Class 10.9, Clear Zinc
368	1	Bolt Pack (023411 Only)
	18	10mm-1.50 Prevailing Torque Nut, Clear Zinc
	24	10mm Washer, Clear Zinc
	6	10mm-1.50 x 45mm Bolt, Class 10.9, Clear Zinc
	6	10mm-1.50 x 50mm Bolt, Class 10.9, Clear Zinc
05197	2	Bronco Tie Rod End Sleeve
A380	1	Ford Bronco UCA Assembly - Driver
05043	*1*	*Ford Bronco UCA - Driver*
COMH20T	*1*	*1.25" Spherical Bearing*
99142A610	*1*	*2-3/8" Internal Retaining Ring*
AM000000040	*2*	*Rubber Bushing*
BDS222760	*1*	*BDS UCA Decal*
A381	1	Ford Bronco UCA Assembly - Passenger
05044	*1*	*Ford Bronco UCA - Passenger*
COMH20T	*1*	*1.25" Spherical Bearing*
99142A610	*1*	*2-3/8" Internal Retaining Ring*
AM000000040	*2*	*Rubber Bushing*
BDS222760	*1*	*BDS UCA Decal*
05045	2	Spherical Bearing Misalignment Spacer - Lower
05046	2	Spherical Bearing Misalignment Spacer - Upper
05155	2	Ball Joint Cap - Large
365	1	Bolt Pack
	2	12mm-1.75 x 90mm Socket Head Cap Screw
	2	12mm-1.75 Nut
	2	12mm Flat Washer
9452K145	2	O-Ring (#139)
45NA53	1	Grease Packet
BP1044	1	Bolt Pack
	2	14mm-2.00 Nylock Nut
	2	9/16" SAE Flat Washer

TROUBLESHOOTING INFORMATION FOR YOUR VEHICLE

TECH TIPS

1. BDS Suspension recommends to lubricate the COM joints every oil change / 3,000 miles using either Tri-Flow Superior Dry Lubricant (No. TF21013) or CRC Dry PTFE Lube (No. 03044). The COM joints are held in using a large snap ring. Be sure to clear the COMs using a damp cloth to remove any dirt and debris in the cup and on the bottom surface in order to extend the life of the COM joint. When used in salty / a more corrosive environment, more frequent maintenance may be required. When the vehicle is on the ground, turn the steering wheel from steering wheel lock in one direction to steering wheel lock in the other direction to make sure lubricant can cycle into the bearing.
2. Replacement COM joints service kits are available:

   BDS083204 service kit includes (1) COM joint and (1) snap ring.

   BDS083203 service kit includes (1) COM joint, (1) snap ring, (1) upper misalignment, (1) lower misalignment, and (1) cap.

   BDS073201 service kit includes (2) rubber bushings.
3. Do NOT hit the aluminum knuckle with a hammer to separate the ball joint. Use appropriate ball joint separation tool (OTC 204-592).
4. Will not work with models with a height sensor attached to the UCA.
5. A BASE model is considered a Bronco with struts that are BLACK from the factory. Base, Big Bend, Black Diamond, and Outer Banks all come standard with BLACK struts.
6. A BADLANDS model is considered a Bronco with struts that are Yellow from the factory with the resivour pointing upwards. A Badlands is its own specific model with its own specific suspension package.
7. A SASQUATCH model is considered a Bronco with struts that are Yellow from the factory with the resivour pointing downwards. Any model can be OPTIONED to a Sasquatch package. Sasquatch is STANDARD on Wildtrack, Everglades, and First Edition. A Badlands WITH Sasquatch is a SASQUATCH suspension package.

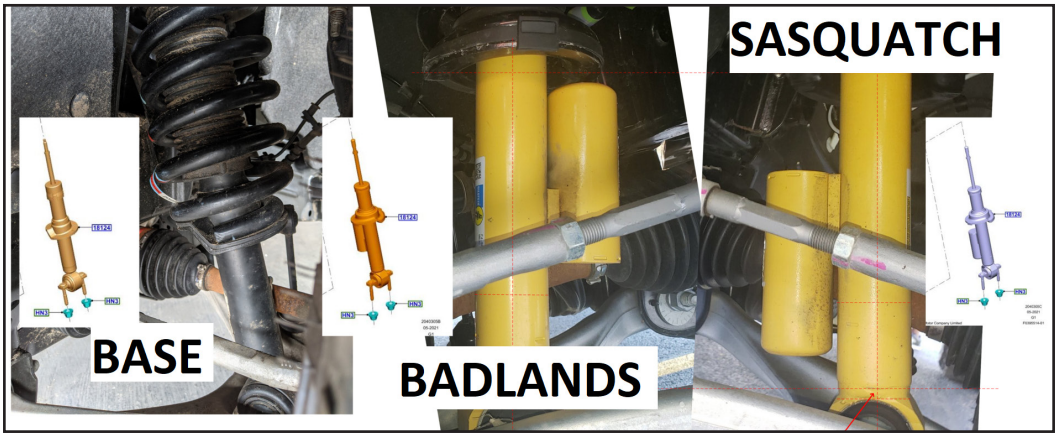


Figure A

8. 023410 & 023411 can be used ONLY with Base Suspension Package vehicles. This kit is designed to lift the front of the vehicle 4" and rear 3".
9. CV axle nut may need to be loosened and tightened on the ground with the weight the vehicle.
10. Although 37" x 12.50" will work at ride height, the tires will still contact the front body mount and possibly rear inner fender through wheel travel and steering lock to lock. If running this size tire and using the full suspension travel, these areas must be addressed.
11. Does not fit Bronco Sport models.
12. Tie rod end sleeve is designed for use on stock inner tie rod ends. Will not work with larger aftermarket inner tie rod ends.
13. The tie rod end sleeve will cover the threads / adjuster section of the inner tie rod to strength a potential weak point of the tie rod. With this the adjustment of the inner tie rod becomes abnormal for a standard alignment shop. To adjust the inner tie rod, depending upon how much of the inner tie rod is showing, remove the clamp on the inner boot and push the boot up towards the steering rack. The inner tie rod can now be turned in order to adjust the toe.

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.*

SPECIAL TOOLS

Torque Wrench

OTC 204-592 Ball Joint Separator

Tie Rod End Separator

35mm Socket

INSTALLATION INSTRUCTIONS

FRONT DISASSEMBLY

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Raise the front of the vehicle and support with jack stands at the frame rails.
3. Remove the front wheels.
4. Disconnect the driver's and passenger's side front sway bar links from the lower control arm. Figure 1A Another option is to remove the 2 bolts and 2 nuts attaching the sway bar to the frame on the driver and passenger while still leaving the sway bar links attached to the lower control arm Figure 1B. Allow the sway bar to rest out of the way for the front end disassembly. Thread locker will be required if disassembled from the mounts to the frame.

   Do not use power tools to remove the stabilizer bar link nut to the lower control arm. Damage to the stabilizer bar link ball joint or boot may occur

FIGURE 1A

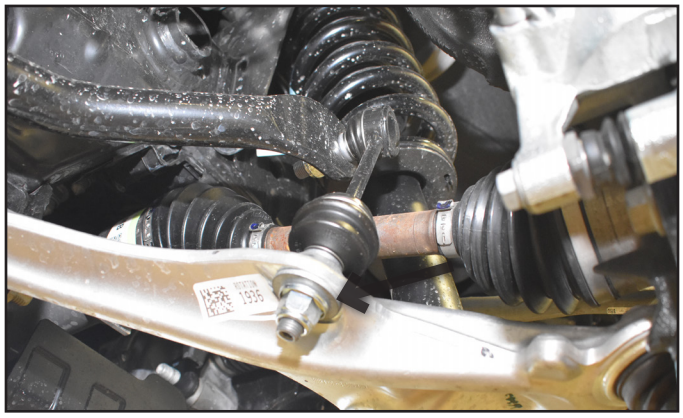
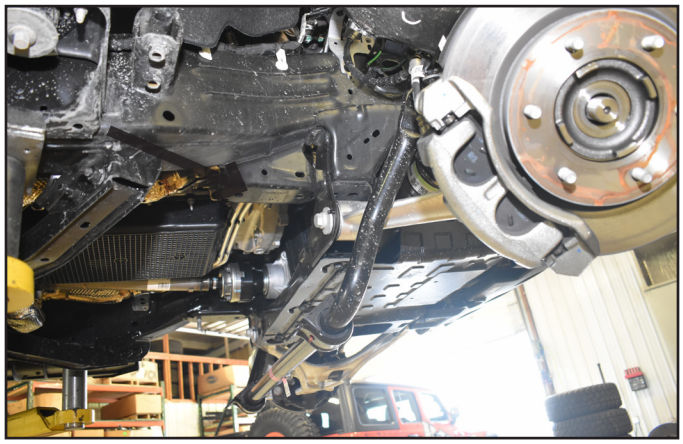


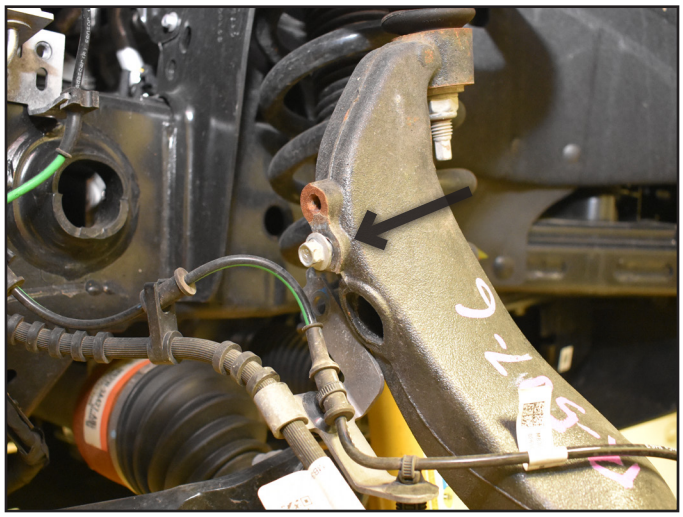
FIGURE 1B



COMPLETE THIS PORTION OF THE INSTALLATION ON ONE SIDE AT A TIME

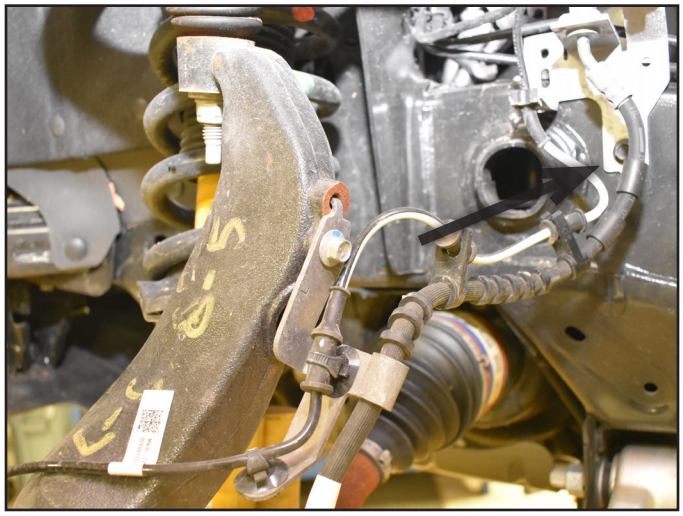
5. Disconnect the front brake line and ABS line from the steering knuckle. See Figure 2

FIGURE 2



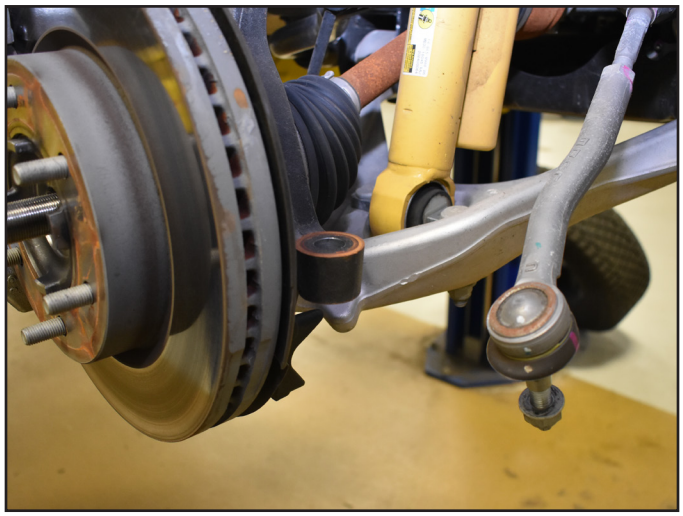
6. Disconnect the front brake line from the frame. See Figure 3

FIGURE 3



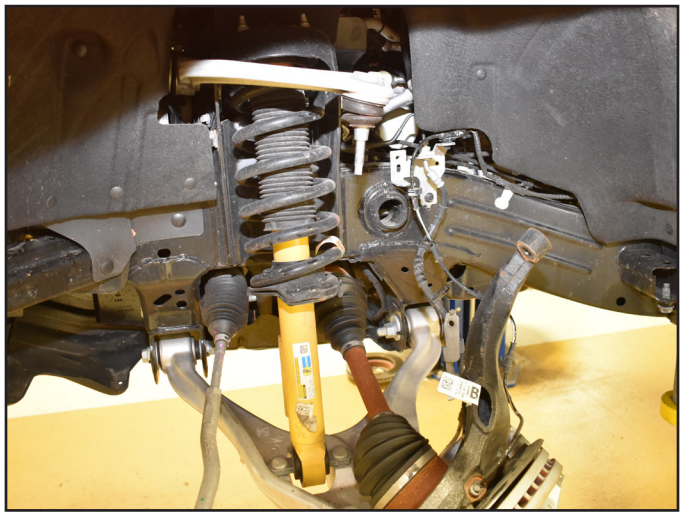
7. Remove the steering tie rod end nut from the tie rod end at the steering knuckle. Use a tie rod end remover to dislodge the tie rod end from the knuckle. Be careful not to damage the boot. See Figure 4 Remove the tie rod end from the knuckle.

FIGURE 4



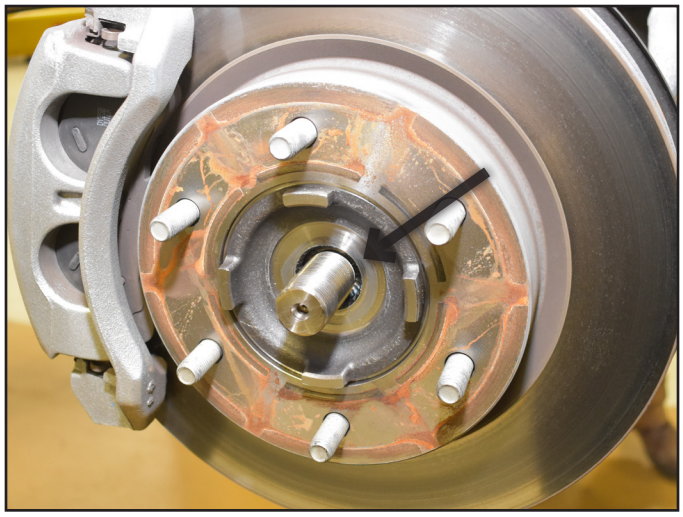
8. Remove the upper ball joint nut and thread back on a couple of turns by hand. Use a ball joint separator tool to dislodge the upper ball joint from the knuckle (204-592 tool recommended). Be careful not to damage the boot. See figure 5 Remove the nut and remove the ball joint from the knuckle. Allow the knuckle to rest back away from the front strut.

FIGURE 5



9. **Optional:** Remove the CV retaining nut. See Figure 6

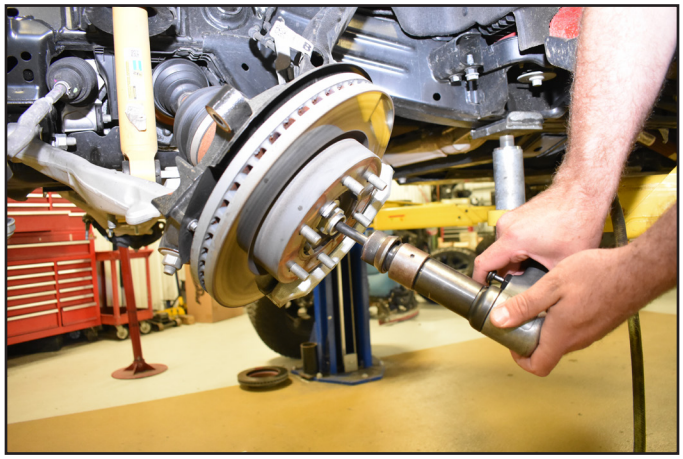
FIGURE 6



10. **Optional:** Use an air hammer to dislodge the CV shaft from the hub See Figure 7. This step is optional, but will make it easier to remove the strut from the vehicle.

    Be careful not to hit the threads on the CV shaft. A punch and hammer can also be used to dislodge the CV shaft from the hub.

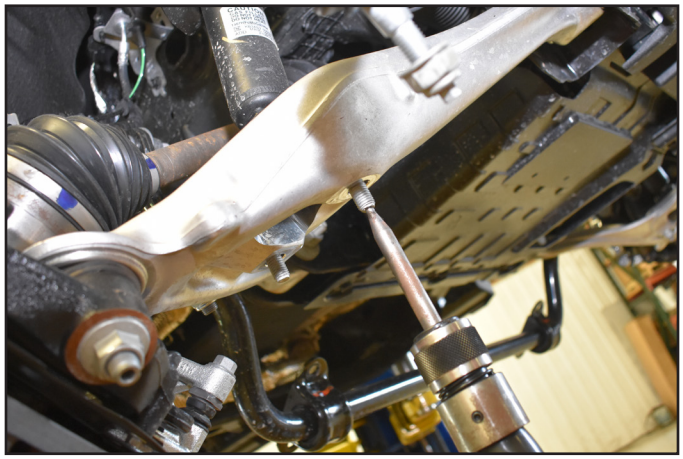
FIGURE 7



11. Support the lower control arm with an appropriate jack. Remove the lower strut mount nuts at the lower control arm. OPTIONAL: This can be done to make the strut easier to be removed. Use an air hammer to dislodge and remove the strut studs in the lower strut mounts Figure 8.

    Be sure to support the lower control arm / knuckle assembly when removing the strut. A punch and hammer can also be used to dislodge the studs from the lower strut mount.

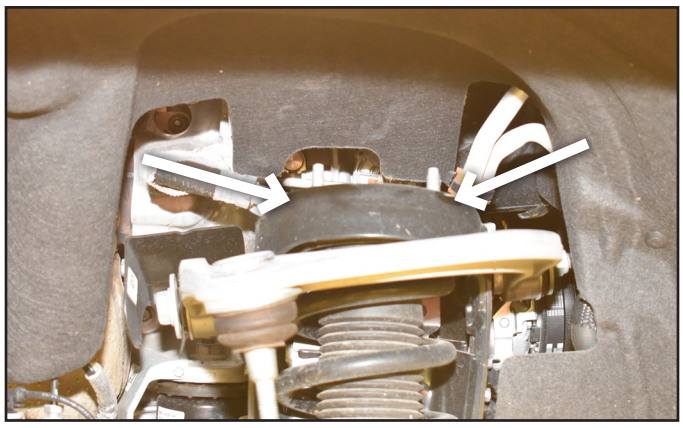
FIGURE 8



12. Remove the three upper strut mounting nuts at the frame. See Figure 9.

    DO NOT remove the center strut rod nut.

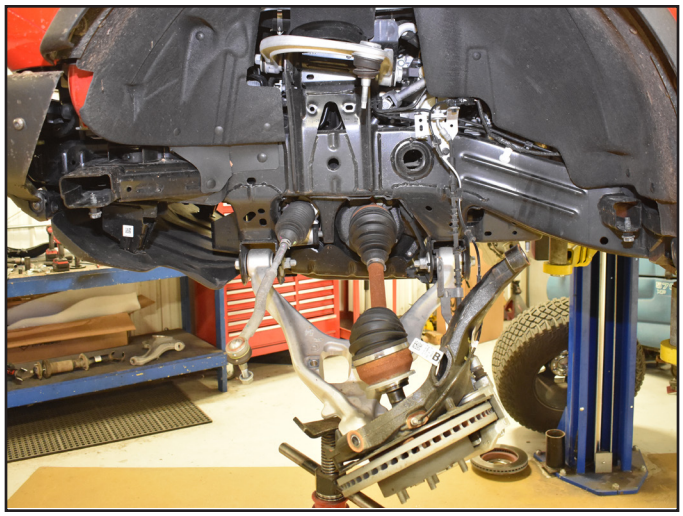
FIGURE 9



13. Using the jack, lower the lower control arm / knuckle assembly and remove the strut from the vehicle, see Figure 10.

Be sure to support the lower control arm / knuckle assembly when removing the strut.

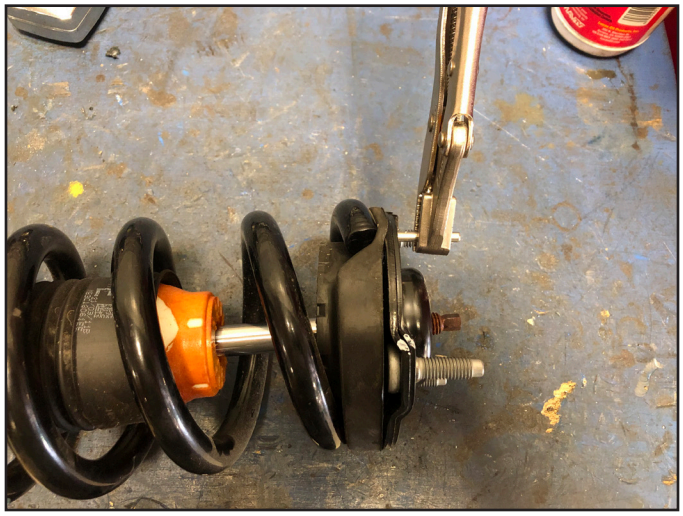
FIGURE 10



STRUT SPACER INSTALLATION

14. Remove the pin in the strut top hat, see Figure 11.

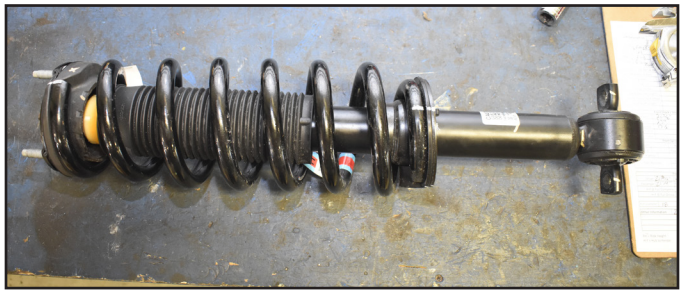
FIGURE 11



15. Place alignment marks on the upper top hat, isolator, spring, strut body and lower coil seat for reference when the strut is assembled see Figure 12.

Spring rotation is critical and the spring position must not change relative to the lower strut body alignment marks, just rotate the metal top hat and not the spring isolator.

FIGURE 12



16. While still using the strut compressor, compress the coil spring and remove the upper strut nut, see Figure 13.

! Caution *Coil Spring is under extreme pressure. Improper removal/installation of coil spring could result in serious injury or death. Use only a high-quality spring compressor and carefully read and follow the manufacturer's instructions.*

FIGURE 13

17. Remove the lower strut assembly from the strut compressor, the top hat and spring can remain in the strut compressor.
18. Remove the strut washer, dust boot, bump stop, plastic or metal cap, and the lower spring seat from the strut body, see Figure 14A & B. After fully disassembled the strut should be the same as Figure 14D for black body struts.

A punch / chisel may be needed to remove the strut washer. See Figure 14C

FIGURE 14A

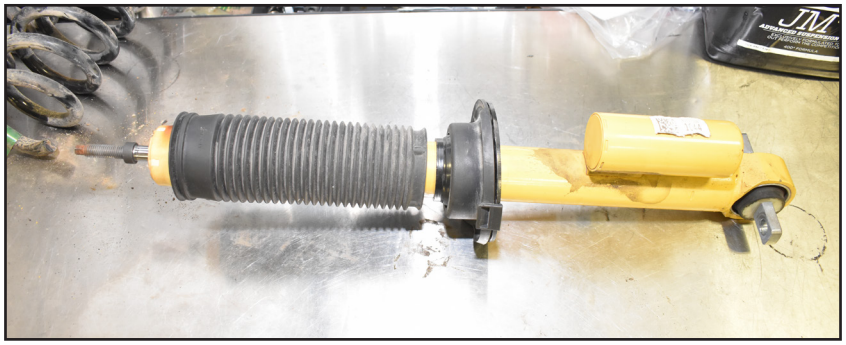
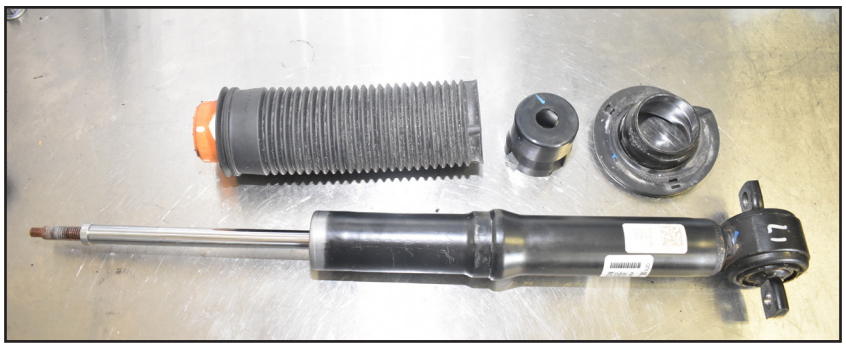


FIGURE 14B

FIGURE 14C

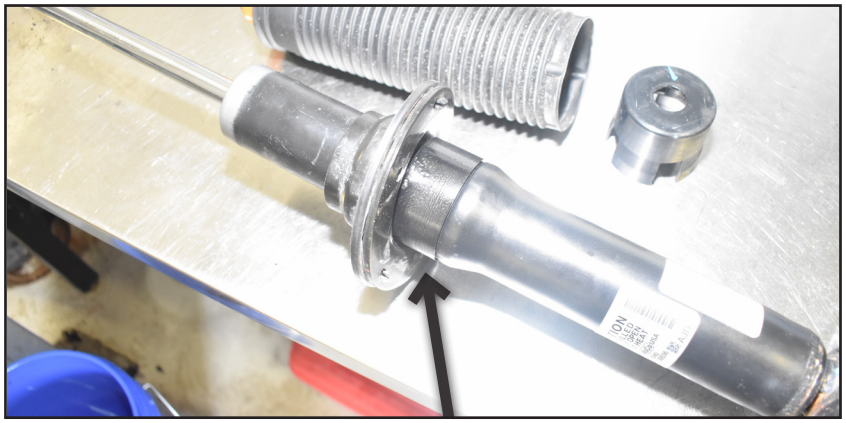
FIGURE 14D



19. Install the provided preload spacer ring on the strut body such that the groove in the preload spacer goes over the bulge in the strut body where the OE lower coil seat mount was, see Figure 15 (All preload spacer heights are the same).

    The preload spacer ring may need to be tapped down the strut body. The lower spring seat can be used to help seat the preload spacer all the way down to the snap ring or bulge.

FIGURE 15



20. Reinstall the lower coil seat, plastic or metal cap, bump stop, and dust boot in reverse order, see Figure 16A & B.

FIGURE 16A

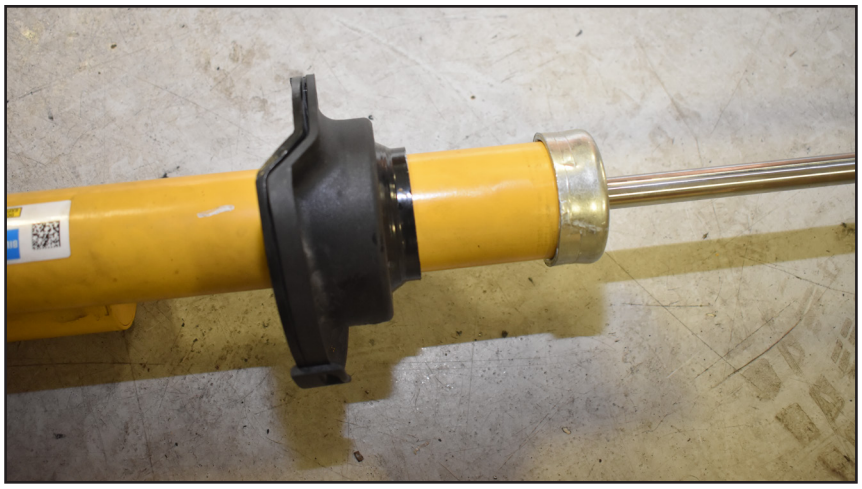
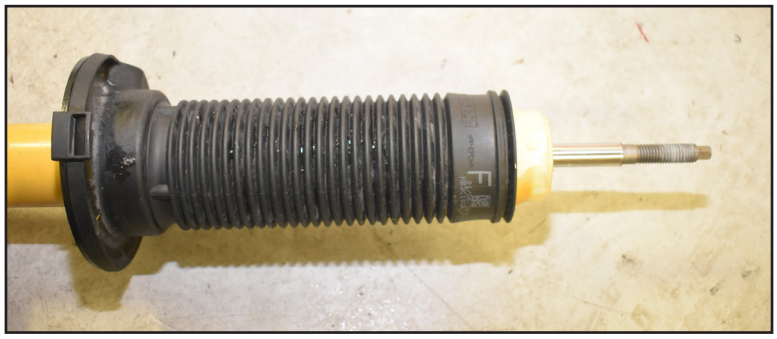
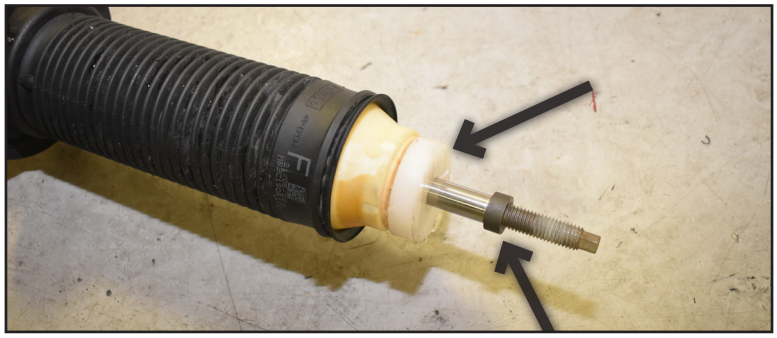


FIGURE 16B



21. Install the provided poly bump stop extension on top of the bump stop followed by the strut washer as shown in Figure 17. (All poly bump stop extensions are the same)

FIGURE 17



22. Reassemble the lower strut assembly with the top hat and spring. Due to lower bar pin angle in the strut, the top plate of the strut assembly must be rotated 180 degrees, seeFigure 18. This will allow the lower bar pin to reassemble in the lower control arm smoothly. Spring rotation is critical and the spring position must not change, just rotate the metal top hat and not the spring isolator.

    More preload will need to be put into the spring to reinstall the strut nut.

FIGURE 18

(Strut on the right has the top hat rotated 180 degrees, strut on the left is stock orientation with the bar pin angle the same)

23. Install the shorter 10mm bolts (45mm long) through the hex holes on the bottom of the front strut spacer. The 05047 strut spacer is used on the front on **2 Door & 4 Door Base Shock Package Models (Black Body Struts)**. The front strut spacer will have a slight taper to it. Attach strut spacer on top of the factory strut with high side of the taper towards the outside of the vehicle.

    Hardware for the strut spacers is in Bolt Pack 368 or 370.

    The "Made in the USA" / 05047 is on the high / thick side of the taper and will face outwards towards the tire when installed.

24. Tighten the strut spacer to the top plate using the provided 10mm washers and OE strut nuts to 35 ft-lbs as shown in Figure 19C. DO NOT EXCEED 35 ft-lbs when tightening the spacer to the strut.

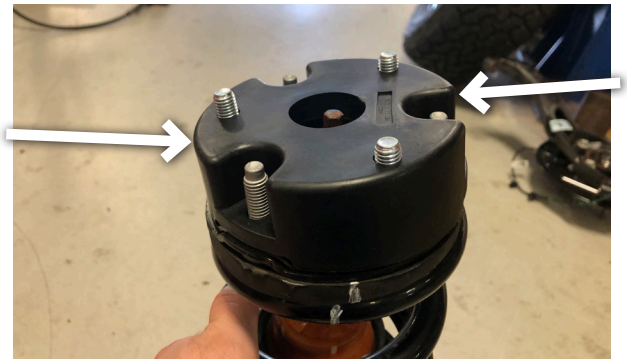
    The thick part of the spacer will be pointing towards the out side of the vehicle as shown in Figure 19D.

    The studs will be just at the surface for the frame mount when installing the strut into the vehicle. A magnet can be used to pull the studs up. This is done to make installation easier when the lower barpin studs are not removed.

FIGURE 19A

FIGURE 19B

In towards frame
(low side of the taper)



Out towards tire (high
side of the taper)

FIGURE 20C , BASE SHOCK PACKAGE MODELS (BLACK BODY STRUTS);

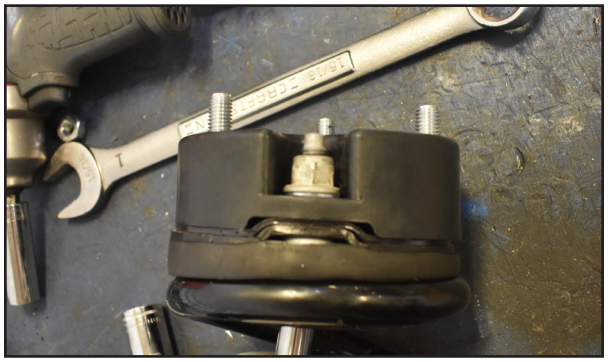
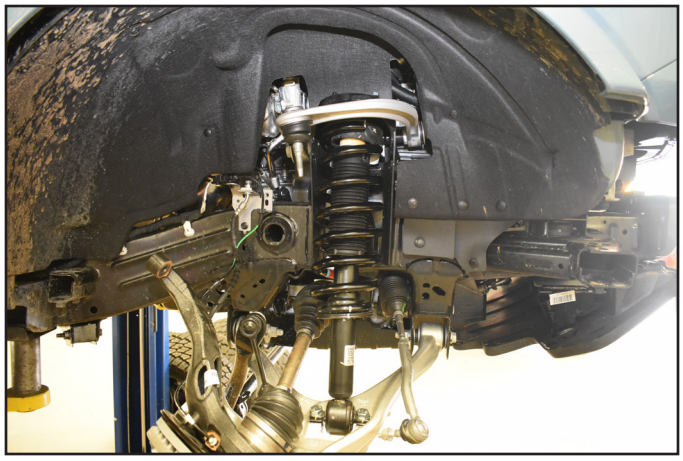


FIGURE 19D

25. Reinstall the strut assembly into the upper frame mount by aligning the studs in the new spacer with the original mounting holes and aligning the lower studs with the mounting holes in the lower control arm, see Figure 20A. It is important to note that the outer winding of the coil spring must face the outside (tire side) of the vehicle, see Figure 20C & D. This is to ensure proper "bowing" of the coil spring. Verify the coil spring position and adjust accordingly using a strut compressor.

FIGURE 20A



Driver Side: The lower end tip faces front of the vehicle. Figure 20B

Passenger Side: The lower end tip faces rear of the vehicle. Figure 20B

FIGURE 20B

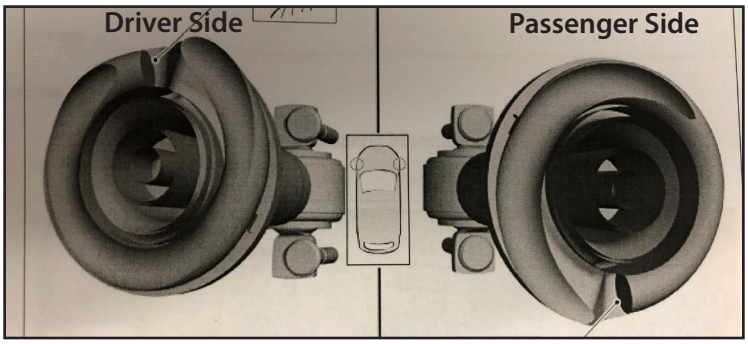


FIGURE 20C (DRIVER SIDE VIEWED FROM THE FRONT)

FIGURE 20D (PASSENGER SIDE VIEWED FROM THE FRONT)

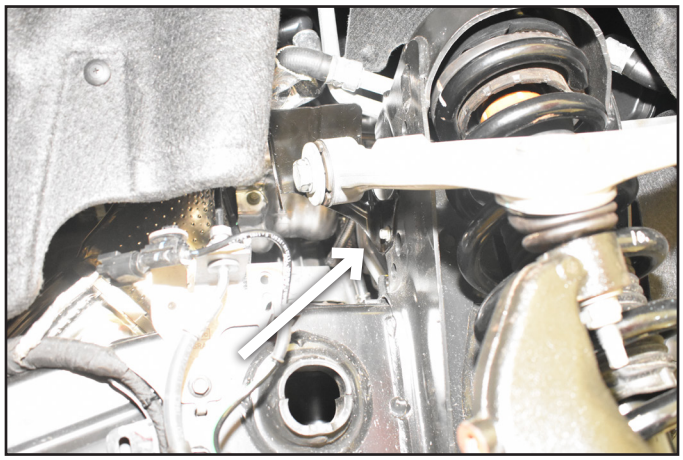
26. Loosely fasten the strut to the upper frame mount with the provided 10mm nuts and 10mm washers.
27. Loosely fasten the strut to the lower control arm replacing the nuts onto the studs. If the studs were removed earlier for ease of removal of the strut, replace the studs and nuts.
28. Tighten the upper frame mount nuts to **35 ft-lbs.** DO NOT EXCEED 35 ft-lbs when tightening the spacer to the strut.
29. Tighten the two lower strut stud / nuts to 66 ft-lbs. If the lower strut studs were removed, ensure that the stud is fully seated into the lower bar pin on the strut after torquing.

CONTROL ARM INSTALLATION

COMPLETE THIS PORTION OF THE INSTALLATION ON ONE SIDE AT A TIME

30. Starting on the passenger side, remove the upper arm shield bolt. Remove the shield from vehicle and save for later installation, see Figure 21.

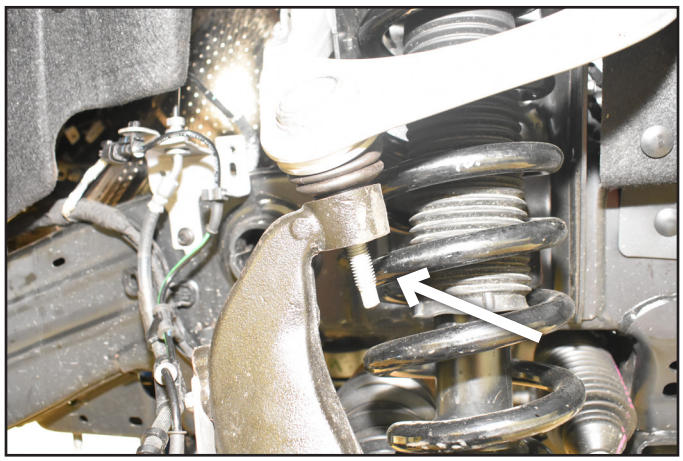
FIGURE 21



31. Support the knuckle assembly so that the CV shaft and ABS / brake lines are not overextended when removing the UCA.
32. Remove the upper ball joint nut, see Figure 22.

Tip *Use the hex holding feature to prevent the stud from turning while removing the nut.*

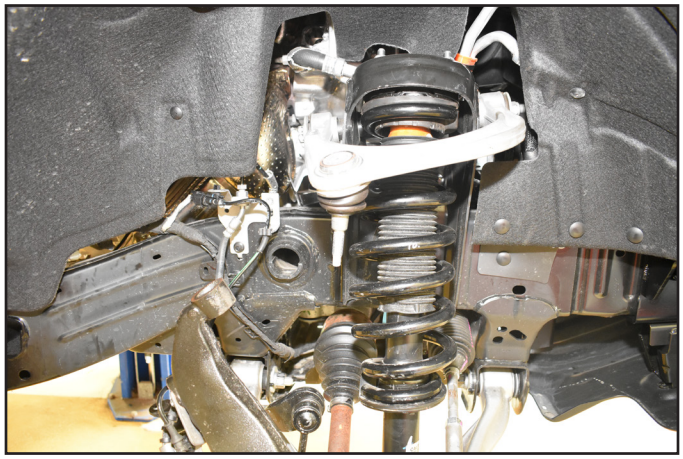
FIGURE 22



33. Using an appropriate separator, dislodge the upper ball joint from the steering knuckle, see Figure 23.

Tip *Special service tool OTC 204-592 is recommended to dislodge the ball joint taper.*

FIGURE 23



34. Remove the long upper control arm bolt attaching the upper control arm to the vehicle, see Figure 24.

Tip *When removing the upper control arm bolt on the driver side the steering linkage most likely will need to be disconnected. Make sure when removing the bolt the steering wheel does not rotate and the joint is connected together at the same position. Damage to the clock spring may result.*

FIGURE 24A

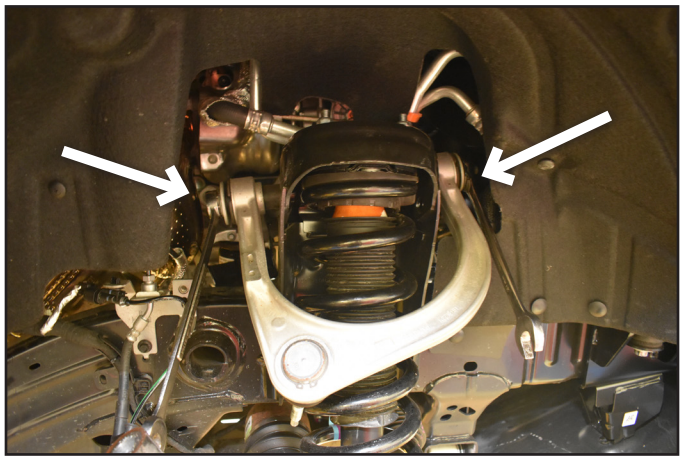
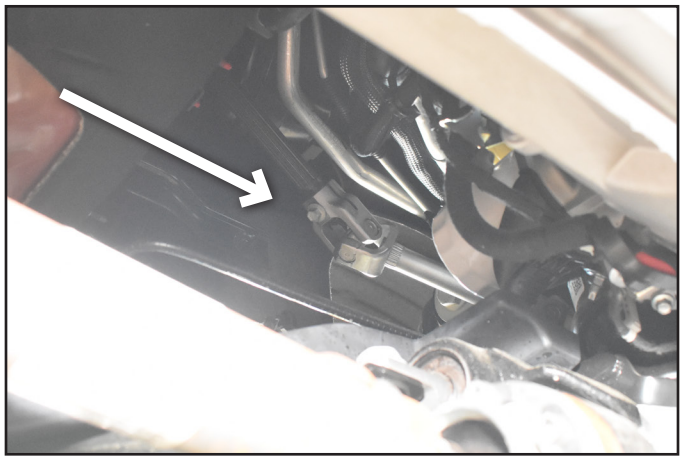


FIGURE 24B



35. Install the misalignment spacers into the BDS upper control arms. The misalignments will be a tight fit to the COM joint and may need to be tapped into the COM joint The bottom misalignment spacer (shown in Figure 25A) will be longer and have a taper to go into the steering knuckle.

FIGURE 25A

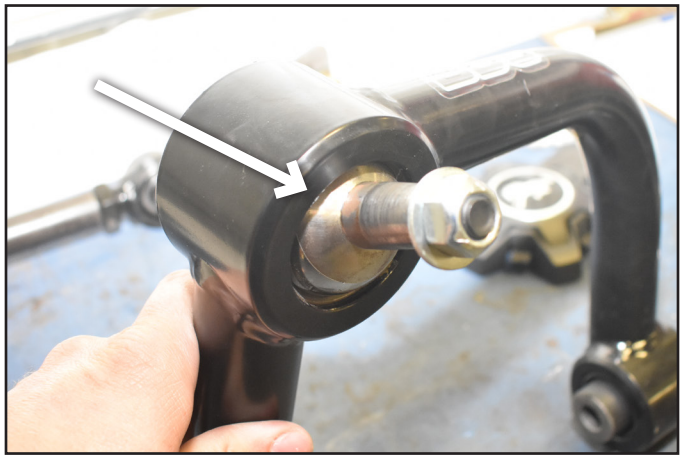


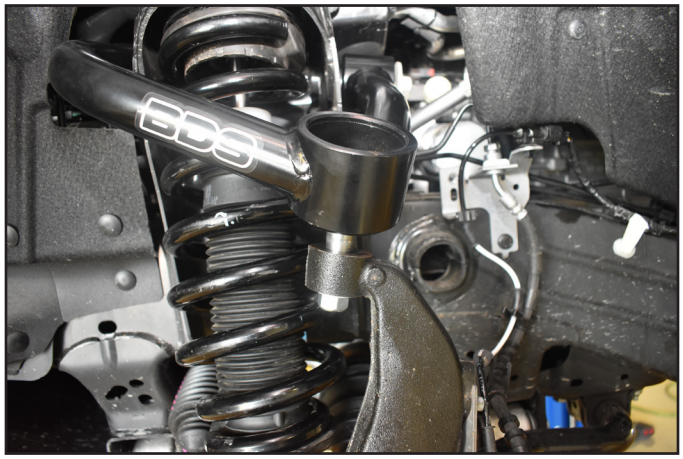
FIGURE 25B

36. Angle the COM joint / misalignments as shown in Figure 26 in order to help attach the BDS upper control arm to the steering knuckle. Initial movement of the COM joint will be stiff until the joint is installed on the vehicle. Inserting the bolt into the misalignment and moving it may help to break free the COM joint from its installed position.
37. BDS recommends to use either a Tri-Flow Super Dry Lubricant (No. TF21013) or CRC Dry PTFE Lube (No. 03044) for lubricating the COM end. Lubricate the COM end at this time using either of these lubricants. When the vehicle is on the ground, cycle the steering wheel from steering wheel lock in one direction to steering wheel lock in the other direction to make sure lubricant can cyle into the bearing. Reminder that BDS Suspension recommends to lubricate the upper control arm COM joints every oil change or 3,000 miles.

FIGURE 26

38. Install the new BDS upper control arm. Reinstall the factory long bolt through the frame and the provided 9/16" washer and 14mm nylock nut from BP1044. Do not tighten the bushing hardware at this time.

FIGURE 27



39. Insert the tapered misalignment spacer into the steering knuckle noting that the misalignment / COM bearing may need to be moved to line up the joint. Using the provided 12mm socket head cap screw, 12mm nut, and washer, torque the joint to 70 ft-lbs. While connecting the upper ball joint, be sure that the CV shaft properly aligns into the hub, see Figure 28B.

FIGURE 28A

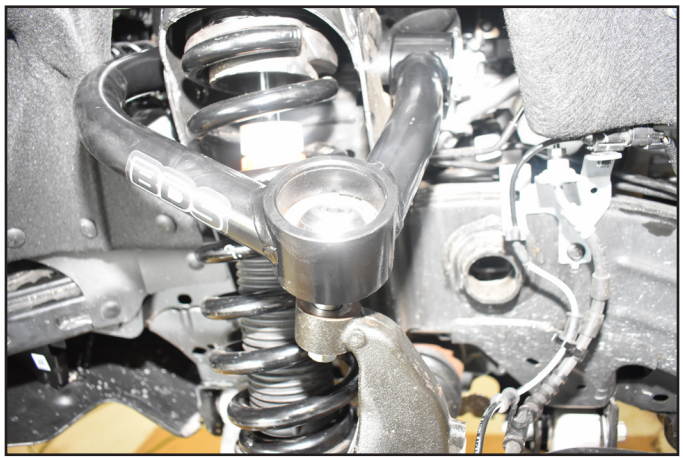
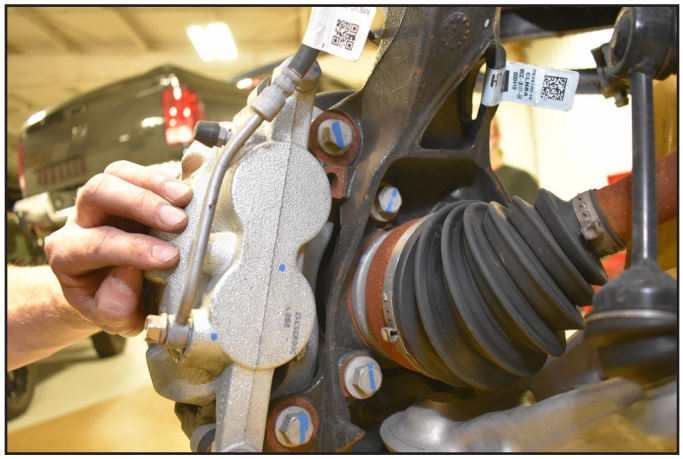
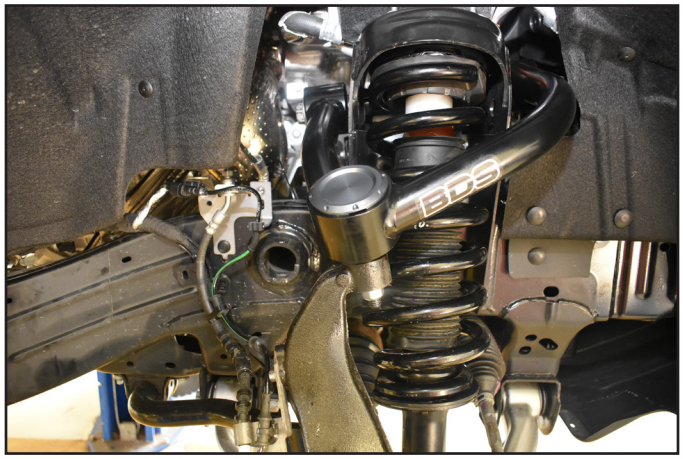


FIGURE 28B



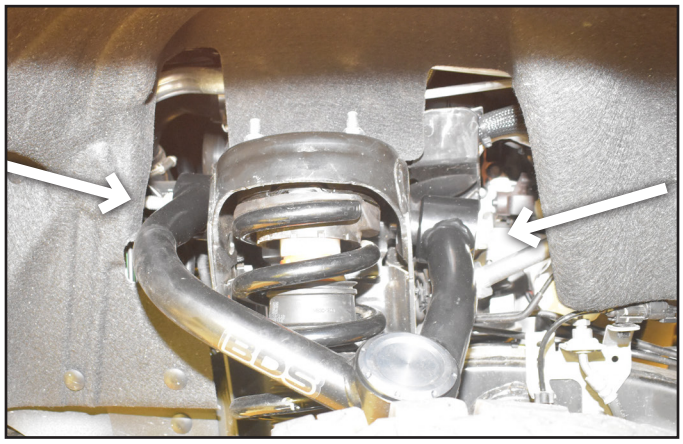
40. Use the included grease packet to lube the o-ring. Install o-ring onto the cap and install cap onto the arm.

FIGURE 29



41. Reinstall the upper arm shield on the passenger side. Replace with a factory bolt and tighten to 80 in-lbs.

FIGURE 30



42. Be sure the CV is properly seated in the hub and replace with the factory CV axle nut. Torque the CV axle nut to 221 ft-lbs.
    CV axle nut may need to be torqued on the ground with the weight of the vehicle.
43. Reconnect the brake line bracket and ABS line to the steering knuckle and frame with the factory bolts. Torque hardware to 159 in-lbs.
44. Attach the steering tie rod end to the steering knuckle and replace with factory nuts. Torque to 46 ft-lbs.
45. Complete installation of strut spacers on both sides of the vehicle.

TIE ROD SLEEVE

DISSASSEMBLY

46. Using a 21mm wrench, break loose the tie rod jam nut, do not unthread it very far from the outer tie rod.

FIGURE 31

47. Remove the outer tie rod from the steering knuckle by removing the nut using a 21mm socket. Using a tie rod end separator, dislodge the outer tie rod end from the steering knuckle.

FIGURE 32

48. Unthread the outer tie rod from the inner tie rod.

FIGURE 33

49. Measure the distance from the end of the inner tie rod to the jam nut. Record the measurement of the inner tie rod length here:

    DRV: _____

    PASS: _____

FIGURE 34

50. Unthread the OE jam nut from the inner tie rod.

INSTALLATION

51. Thread on the tie rod sleeve to the inner tie rod. Using the reference dimension recorded previously, thread the tie rod sleeve on to the same dimension.

FIGURE 35

52. Thread on the outer tie rod up to the tie rod sleeve.
53. Reinstall the outer tie rod into the steering knuckle, using an OE nut to attach it to the steering knuckle.

FIGURE 35

54. Torque the outer tie rod nut to 46 ft-lbs.
55. Using a 7/8" wrench, tighten the tie rod sleeve to the outer tie rod.

FINAL FRONT INSTALLATION

56. With both sides complete, reconnect the sway bar links to the lower control arm and replace with factory hardware. Torque to 111 ft-lbs. If the sway bar was removed from the mounts to the frame, replace the 2 factory bolts and 2 factory nuts to the mounts in the frame. Thread locker must be used on the bolts if removed from the mounts to the frame.
57. Do not use power tools to remove / install the stabilizer bar link nut to the lower control arm. Damage to the stabilizer bar link ball joint or boot may occur
58. Check all brake / ABS lines for proper routing and clearances.
59. Install the wheels and lower the vehicle to the ground. Torque lug nuts to 100 ft-lbs in a crossing pattern.
60. Bounce the front of the vehicle to settle the suspension.
61. Torque upper control arm bushing hardware to 122 ft-lbs.
62. When the vehicle is on the ground, cycle the steering wheel from steering wheel lock in one direction to steering wheel lock in the other direction to make sure lubricant can cycle into the bearing.

TIE ROD SLEEVE - ALIGNMENT PROCEDURE

63. Although the alignment should be very close, it is still recommended to have an alignment performed after installation of the tie rod end sleeve.
64. The tie rod end sleeve will cover the threads / adjuster section of the inner tie rod to strength a potential weak point of the tie rod. With this the adjustment of the inner tie rod becomes abnormal for a standard alignment shop. To adjust the inner tie rod, depending upon how much of the inner tie rod is showing, remove the clamp on the inner boot and push the boot up towards the steering rack. Depending upon where the jam nut was positioned originally the boot may not be needed to be pushed up.

FIGURE 36

FIGURE 37

65. Using pliers, the inner tie rod can now spin to adjust the toe for the front suspension during the alignment. Lock off the tie rod sleeve to the outer tie rod end using a 7/8" wrench.

FIGURE 38

66. If the boot needed to be pushed up, it can now be moved back down into the groove on the inner tie rod end.

REAR DISASSEMBLY

1. Block the front wheels for safety.
2. **Optional:** Disconnect the rear track bar from the rear axle mount. Save hardware.
3. Raise the rear of the vehicle and support with jack stands under the frame rails just ahead of the lower control arm mounts.
4. Support the axle with a hydraulic jack.
5. Remove the wheels.

   Complete this portion of the installation on one side at a time

6. Remove the screws and screw clips attaching the rear inner fenders to the vehicle, see Figure 39A & B. Remove the inner fender from the vehicle. This will allow access to the rear upper strut mounts.

FIGURE 39A

FIGURE 39B

7. Make sure the rear axle is supported. Remove the three upper strut mounting nuts at the frame, see Figure 40.

   DO NOT remove the center strut rod nut.

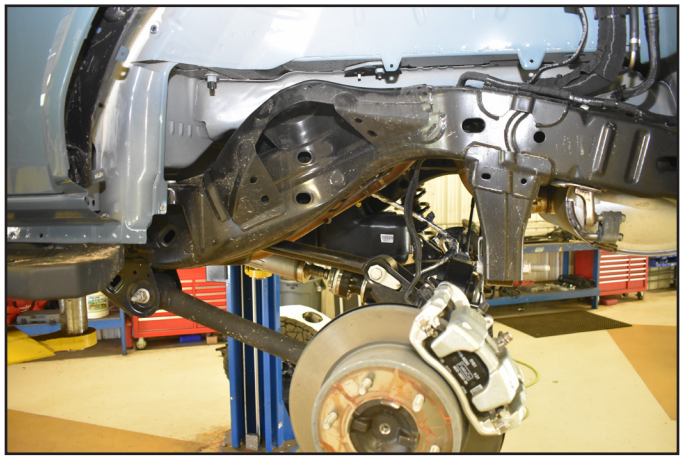
FIGURE 40

8. Remove the lower strut mount bolt from the axle end, see Figure 41.

FIGURE 42

9. Remove the strut assembly from the vehicle, see Figure 43.

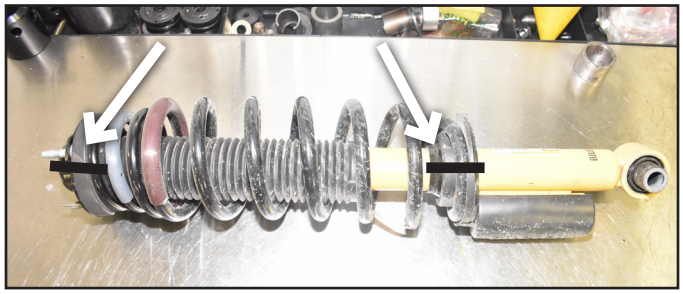
FIGURE 43



REAR INSTALLATION

10. Place alignment marks on the upper strut mount, isolator, spring, strut body and lower coil seat for reference when the strut is assembled, see Figure 44.

FIGURE 44



11. Use a strut compressor to compress the coil spring and remove the upper strut nut, see Figure 45.

! Caution *Coil Spring is under extreme pressure. Improper removal/installation of coil spring could result in serious injury or death. Use only a high-quality spring compressor and carefully read and follow the manufacturer's instructions.*

FIGURE 45

12. Remove the lower strut assembly from the strut compressor, the top hat and spring can remain in the strut compressor.
13. Remove the strut washer, dust boot, bump stop, metal or plastic strut cap, and the lower spring seat from the strut body. After fully disassembled the strut should be the same as Figure 46D.

A punch / chisel may be needed to remove the strut washer. See Figure 46C

FIGURE 46A

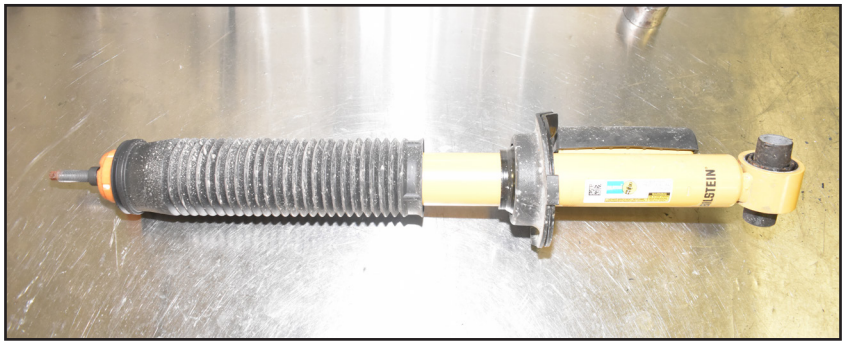
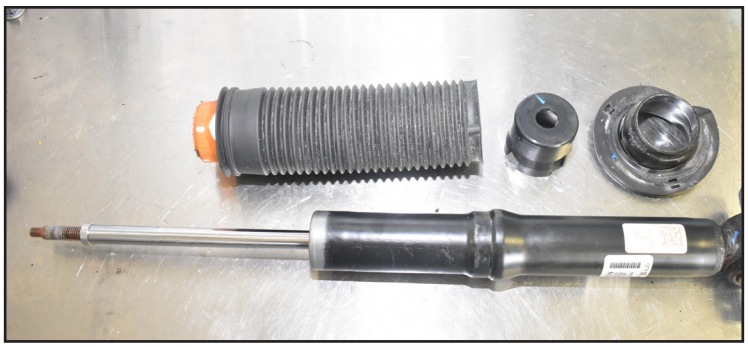


FIGURE 46B

FIGURE 46C

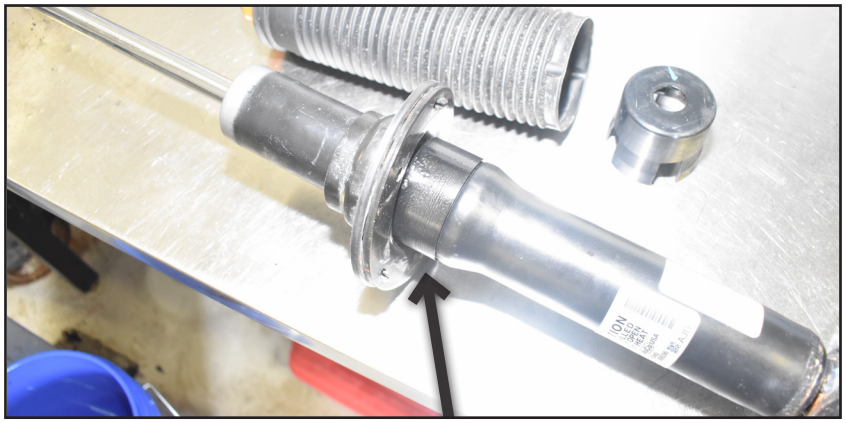
FIGURE 46D



14. Install the provided preload spacer ring on the strut body such that the groove in the preload spacer goes over the bulge in the strut body where the OE lower coil seat mount was, see Figure 47. (All preload spacer heights are the same).

    The preload spacer ring may need to be tapped down the strut body. The lower spring seat can be used to help seat the preload spacer all the way down to the snap ring or bulge.

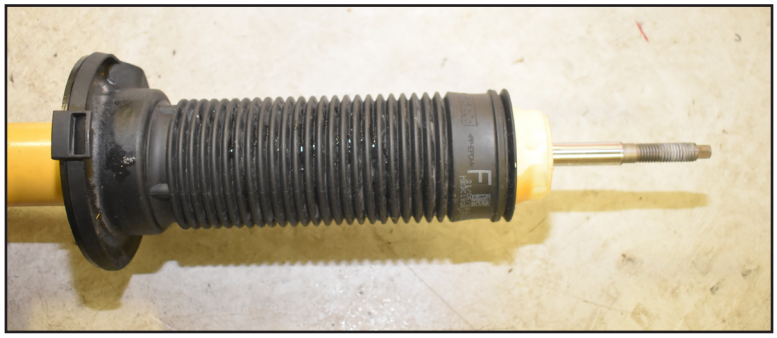
FIGURE 47



15. Reinstall the lower coil seat, metal or plastic strut cap, bump stop, and dust boot in reverse order, see Figure 48A & B.

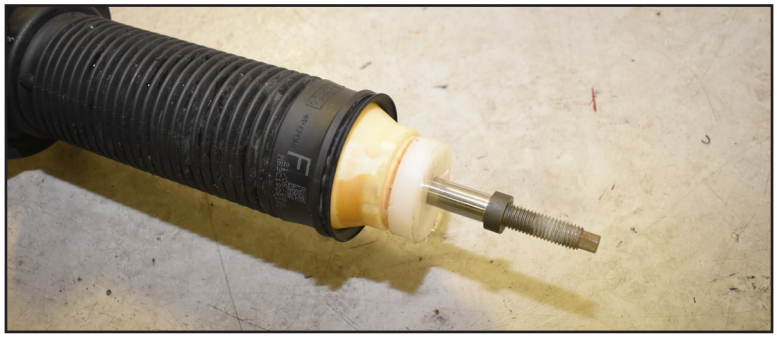
FIGURE 48A

FIGURE 48B



16. Install the provided poly bump stop extension on top of the bump stop followed by the strut washer as shown in Figure 49. (All poly bump stop extensions are the same)

FIGURE 49



STRUT TOP SPACER INSTALLATION

17. Reassemble the lower strut assembly with the top hat and rotate the metal top hat 180 degrees from its initial position. Use the marks made in the previous step as a reference.

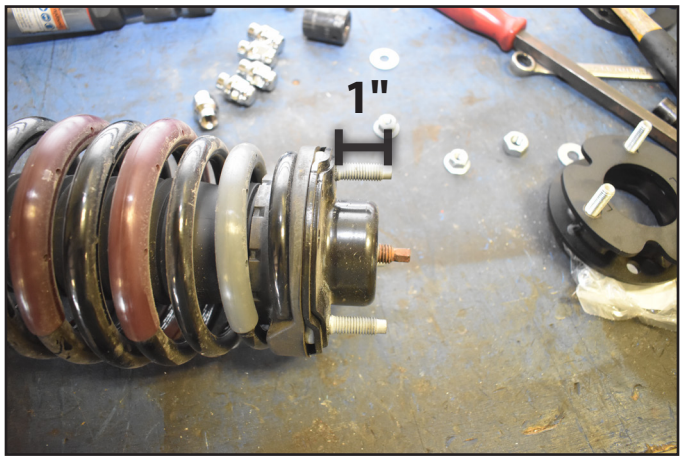
    Spring rotation is critical and the spring position must not change, just rotate the metal top hat and not the spring isolator.

18. The rear studs will need to be trimmed for the strut spacer to be installed. The studs must be 1" tall from the mounting surface, see Figure 50.

FIGURE 50

IMPORTANT

FAILURE TO FOLLOW STUD TRIMMING PROCEDURE IN STEP 18 CAN RESULT IN STRUT SPACER DAMAGE.



19. Install the longer 10mm bolts (50mm long bolts are in the 368 Bolt Pack and 60mm long bolts are in the 370 Bolt Pack) through the hex holes on the bottom of the rear strut spacer (05115), see Figure 51A. Attach strut spacer on top of the factory strut Figure 51B. Tighten to the top plate using the provided 10mm washers and OE strut nuts to **35 ft-lbs, see** Figure 51C. DO NOT EXCEED 35 ft-lbs when tightening the spacer to the strut.

    Make sure the OE studs do not stick past the top of the strut spacer.

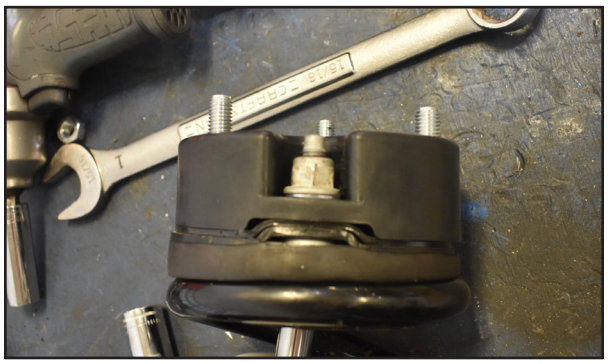
    Hardware for the strut spacers is in Bolt Pack 368 or 370

    The rear strut spacers **are not** *tapered and can be installed any direction on the strut.*

FIGURE 51A

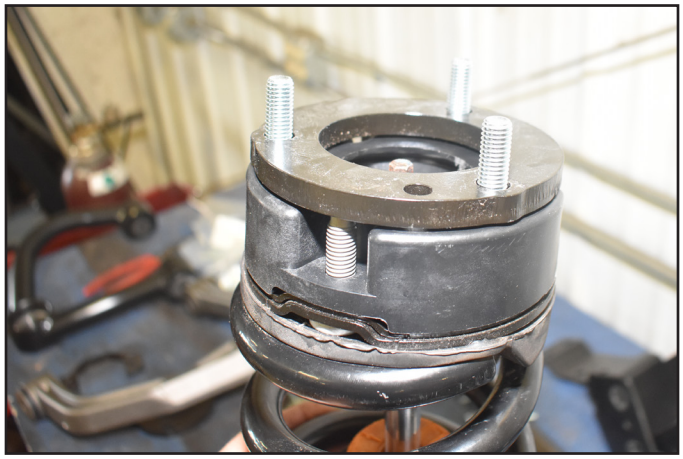
FIGURE 51B

FIGURE 51C



20. Installed the supplied 3/8" taller spacer on top of the poly strut spacer, see Figure 52.

FIGURE 52



21. Reinstall the strut to the vehicle.
22. Use the provided 10mm nuts and 10mm washer to attach the strut to the frame mount, see Figure 53.
    Hardware for the strut spacers is in Bolt Pack 368 or 370.

FIGURE 53

23. Attach the strut to the axle using an OE lower strut mount bolt and nut, see Figure 54.

FIGURE 54

24. Tighten the upper frame mount nuts to **35 ft-lbs.** DO NOT EXCEED 35 ft-lbs when tightening the spacer to the strut.
25. Leave the lower strut bolt / nut loose. Since this is a rubber bushing this will be tighten with the weight of the vehicle on the ground.

FINAL REAR INSTALLATION

26. Reinstall the rear inner fender liners using the clips and screws previously removed. Torque any hardware for the inner fender liner to 18 in-lbs.
27. Check all brake / ABS lines for proper routing and clearances.
28. Install the wheels and lower the vehicle to the ground. Torque lug nuts to 100 ft-lbs in a crossing pattern.
29. Bounce the rear suspension to settle it. Tighten the two lower strut bolts / nuts to 350 ft-lbs
30. If removed, replace track bar bolt and nut. Tighten to 159 ft-lbs.

POST-INSTALLATION

31. Adjust head lights.
32. The vehicle will need a complete front end alignment.
33. Check all hardware for proper torque.
34. Check hardware after 500 miles..
35. Reconnect the positive and negative battery cables if removed.

SERVICE STEPS

Service of COM joints is recommended every 3,000 miles or more frequent when used in salty / a more corrosive environment. Tri-Flow Superior Dry Lubricant (No. TF21013) or CRC Dry PTFE Lube (No. 03044) is recommended. It is easiest to remove a wheel for maintenance of COM joints. Along with removing the wheel and raising the suspension, this will help to allow the lubricant to work into the COM joint when the vehicle is put back on the ground after the service. Raising the vehicle and removing a tire is NOT a requirement. Illustration is shown outside of the vehicle for clarity.

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Raise the front of the vehicle and support with jack stands at the frame rails.
3. Remove the front wheels.
4. Remove the anodized cap from the upper control arm using a flat head screw driver finding the recess in the cap.

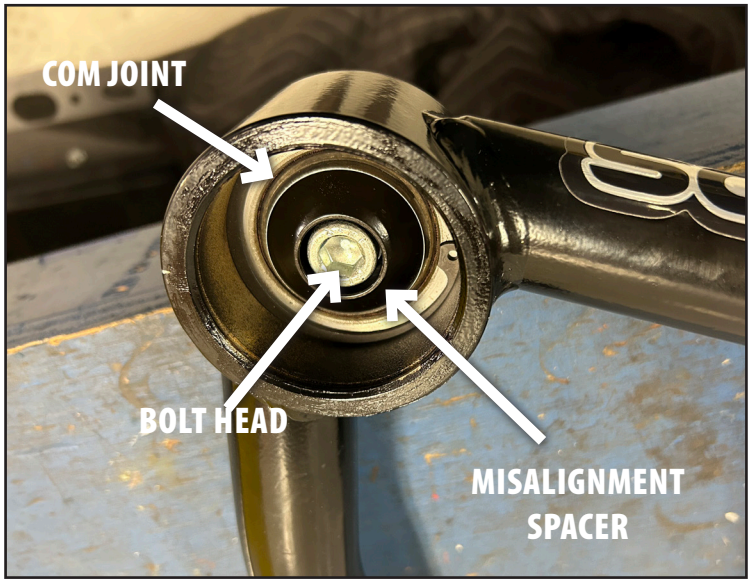
FIGURE 1 - SERVICE

FIGURE 2 - SERVICE

5. Underneath the cap is the COM end with misalignments and the bolt head to attach the upper control arm to the vehicle. Around the diameter edge of the COM joint is where the lubricant should be sprayed all around the joint to make sure it is worked into the joint when driving the vehicle.

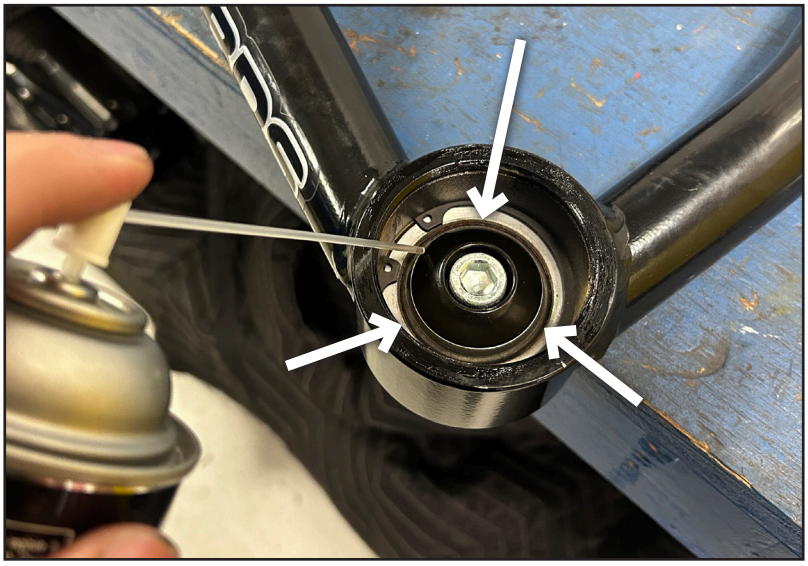
Tip *The COM joint should have a shiny / chrome surface to it, while the misalignment will be a black part.*

FIGURE 3 - SERVICE



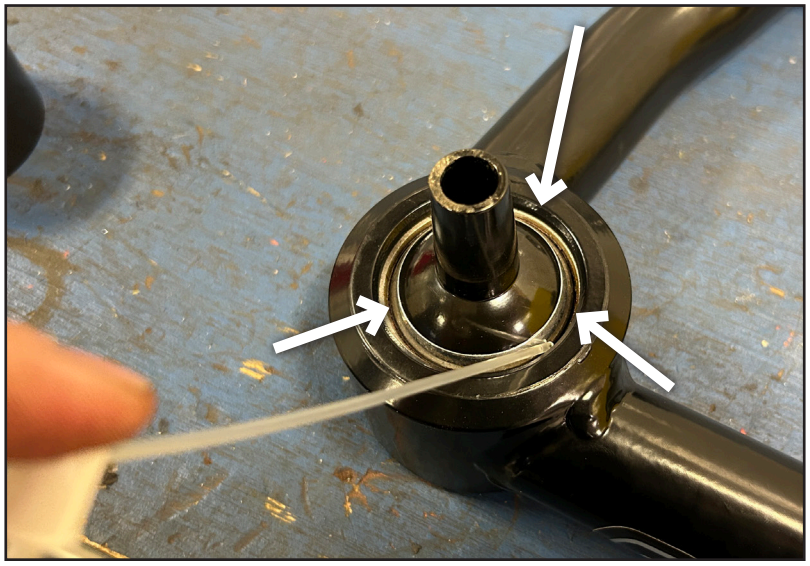
6. Spray lubricant around the whole joint diameter as shown in the Figure below.

FIGURE 4 - SERVICE



7. Spray lubricant around the while joint diameter on the bottom side of the COM joint as well.

FIGURE 5 - SERVICE



8. Cycle the steering from left to right by turning the steering wheel at this time. This will allow the lubricant to get into COM joint and allow proper lubrication.
9. Wipe any excess lubricant from the joint at this time.
10. Grease the O-ring on the cap and reinstall the cap to the upper control arm at this time.

FIGURE 6 - SERVICE

11. If wheels removed, reinstall the wheels, snug up lug nuts, and lower the vehicle to the ground. Torque lug nuts to 100 ft-lbs in a crossing pattern.
12. Bounce the front of the vehicle to settle the suspension.

1”-4” LIFT HEIGHT WHEEL / TIRE FITMENT INFORMATION

All Wheel / Tire fitment information is with the front and rear intrusion beams removed same as how a Sasquatch model has them removed. Tire diameter and width will vary based around tire brands and wheels used. Tire side profile will also affect clearance to the stock UCA and sway bar.

1. Although 37” x 12.50” will work at ride height, the tires will still contact the front body mount (Figure A & B) and possibly rear inner fender (Figure C) through wheel travel and steering lock to lock. If running this size tire and using the full suspension travel, these areas must be addressed.

FIGURE A

FIGURE B

FIGURE C

2. A maximum of 35” x 12.50” tire on a 17x8.5, 17x9, 18x8, 18x9, or 20x9 on 5.5” to 5” back spacing will clear through wheel travel and is recommended for best performance and minimal rubbing Figure D.

FIGURE D

3. A 275/70R18 is recommended on 18" Outer Banks wheels or other wheels with similar back spacing (6.375" BS). Wider tires may rub the sway bar.
4. A 275/80R17 is recommended on 17" Black Diamond wheels or other wheels with similar back spacing (6.5" BS). Wider tires may rub the sway bar.
5. A 285/70R17 is recommended on 17" Badlands wheels or other wheels with similar back spacing (6.75" BS). Wider tires may rub the sway bar.
6. A 315/70R17 is recommended on 17" Sasquatch wheels or other wheels with similar back spacing (6" BS).
7. A maximum of 35" x 11.20" (285mm width tire) tire on a 17x8.5, 17x9, 18x8, 18x9, or 20x9 on 6" back spacing will clear through wheel travel and is recommended for best performance and minimal rubbing. Wider tires / more aggressive sidewall tires than 285mm width (295-315mm widths) will rub the sway bar and / or UCA on a 6" back space wheel.

   20": 285/65R20, 285/60R20

   18": 285/75R18, 285/70R18

   17": 285/75R17, 285/70R17
8. 35" x 12.50" tire on a stock 17" Black Diamond or 18" Outer Banks wheel will clear through wheel travel when combined with the BDS UCA, but will rub on the sway bar. Any other stock wheel or aftermarket wheel with 6.75" to 6" back spacing will have similar rub issues on a 35" x 12.50" tire.

FIGURE E

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 and post them on the BDS Fan Page on Facebook at 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.

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.