TRAIL FORTRESS

BUILT FOR THE TRAIL. CHECKED FOR YOUR TRUCK.

Rough Country 16140 Installation Instructions

6-Inch Lift Kit with M1 Shocks for Chevy & GMC 8-Lug

Part number: 16140

trailfortress.com/6-inch-lift-kit-chevy-gmc-8-lug-rough-country-16140

Scan for fitment, price and install help

921161300

ROUGH COUNTRY SUSPENSION SYSTEMS®

16130BAG1

GM 88-00 CLASSIC K2500/3500 8-LUG 6” SUSPENSION KIT

Thank you for choosing Rough Country for your suspension needs.

Rough Country recommends a certified technician installs this system. In addition to these instructions, professional knowledge of disassemble/reassembly procedures as well as post installation checks must be known. Attempts to install this system without this knowledge and expertise may jeopardize the integrity and/or operating safety of the vehicle.

Please read all the instructions before beginning the installation. Check the kit hardware against the parts list. Be sure you have all the needed parts and understand where they go. Also please review the tools needed list and make sure you have needed tools.

PRODUCT USE INFORMATION

⚠WARNING As a general rule, the taller a vehicle is the easier it will roll. We strongly recommend, because of roll-over possibility, that seat belts and shoulder harnesses should be worn at all times. Avoid situations where a side roll-over may occur.

Braking performance and capabilities are decreased when significantly larger/heavier tires and wheels are used. Take this into consideration while driving. Also, speedometer recalibration is necessary when larger tires are installed.

Do not add, alter, or fabricate any factory or after-market parts which increase vehicle height over the intended height of the Rough Country product purchased. Mixing component brands, lifts, and/or combining body lift with suspension lifts voids all warranties. Rough Country makes no claims regarding lifting devices and excludes any and all implied claims. We will not be responsible for any product that is altered.

This kit is packaged as a leveling kit. If you desire a different look or if your truck has a tool box or something else that is going to bring the rear end down, please consult with your sales person about higher block and u-bolt options.

Wheel and Tire info:

TIRE	WHEEL	BACKSPACING	OFFSET
315/75 R16	Factory 16	-	-
315/75 R16	16x8	4.5in	-
315/70 R17	17x9	4.5-5in	-12 to 0mm
315/65 R18	18x9	4.5-5in	-12 to 0mm
315/55 R20	20x9	4.5-5in	-12 to 0mm

Due to differences in manufacturing, dimension and inflated measurements, tire and wheel combinations should be test fit prior to installation.

⚠NOTICE **NOTICE TO DEALER AND VECHICLE OWNER**

Any vehicle equipped with any Rough country product must have the “Warning to Driver” decal installed on the sun visor or dash. The decal is to act as a constant reminder for whoever is operating the vehicle of its unique handling characteristics. **INSTALLING DEALER**—It is your responsibility to install the warning decal and to forward these installation instructions on too the vehicle owner for review and to be kept in the vehicle for its service life.

KIT CONTENTS

Tools Needed

10mm Wrench	1 1/16” Wrench
11mm Wrench	7/8” Socket
13mm Socket	3/8” Allen Head
14mm Wrench	Grinder
15mm Wrench	Saw
15mm Socket	Jack Stands
18mm Wrench	Reciprocating Saw
18mm Socket	
21mm Wrench	
21mm Socket	
24mm Socket	
24mm Wrench	
35mm Socket	

Torque Specs:

Size	Grade 5	Grade 8
5/16”	15 ft/lbs	20 ft/lbs
3/8”	30 ft/lbs	35 ft/lbs
7/16”	45 ft/lbs	60 ft/lbs
1/2”	65 ft/lbs	90 ft/lbs
9/16”	95 ft/lbs	130 ft/lbs
5/8”	135 ft/lbs	175 ft/lbs
3/4”	185 ft/lbs	280 ft/lbs

	Class 8.8	Class 10.9
6MM	5 ft/lbs	9 ft/lbs
8MM	18ft/lbs	23 ft/lbs
10MM	32ft/lbs	45ft/lbs
12MM	55ft/lbs	75ft/lbs
14MM	85ft/lbs	120ft/lbs
16MM	130ft/lbs	165ft/lbs
18MM	170ft/lbs	240ft/lbs



KIT CONTENTS

16130BOX1

Front Cross member
Rear Cross-member
Pass Kicker Bar
Driver Kicker Bar

16130BOX2

Pass Upper Arm Bracket
Driver Upper Arm Bracket
Pass Diff Bracket
Dr Diff Bracket
Frt Brake Line Bracket (2)
RR Brake Line Bracket
Torsion Bar Bracket (2)
RR Skid Plate Spacer
RR Trans Damper Bracket
1274BAG1
1274BAG4
1274BAG7
16130BAG1
16130BAG3
16130BAG4
16130BAG5

16130BOX3

Steering Link

16130BOX4

Front and Rear Shock Absorbers
Rear U-bolts (4)
Rear Blocks (2)
5/8BAG
7549BAG9
16130BAG2

16130BOX5

Front Skid Plate
Diff Skid Plate
Skid Plate Spacer
16130BAG6

16130BAG1

Instructions
4– Shock Decals

16130BAG2

4-Steering Link Spacer Sleeves
2-Steering Links
4-Heims Joints
2-1/2” Lock Washers
4-1/2” Jam Nuts
2-1/2” x 2.50” Bolts
2-1/2” Top Lock Nuts
2-1/2” Flat Washers
2-1/2” x 1.5” Bolts

16130BAG3

3-5/16 Flat Washers
3-5/16” x 1” Bolts
3-5/16” Flange Lock Nuts
4-Cotter Pins

16130BAG4

1-5/16” Vent Hose Coupler
4”- 5/16” Vent Hose
1-9/16” Nuts
2-9/16” Flat Washers
1-9/16” x 4” Bolts
2-5/8” x 1.5” Bolts
2-5/8” Flat Washers
2-5/8” Nylock Nuts

16130BAG5

2-Low Profile Bump Stops
2-Bump Stops
2-5/8” x 5.5” Bolts
2-5/8” Top Lock Nuts
4-5/8” Flat Washers
4-3/8” Lock Washers
4-3/8” Flat Washers
4-3/8” Nuts
4-Black Cable Ties

1274BAG1

2-5/8” x 4.5” Bolts
2-5/8” Top Lock Nuts
4-5/8” Flat Washers

1274BAG4

12-7/16” Flat Washers
6-7/16” x 1.25” Bolts
6-7/16” Top Lock Nuts

1274BAG7

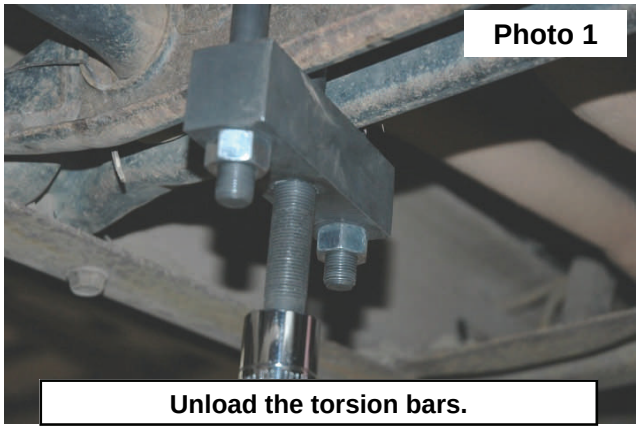
4-Square Washers
2-Brake Line Clips
2-1/2” Flat Washers
2-5/16” Flange Lock Nuts
2-1/2” x 1.5” Bolts
2-5/16” x 1” Bolts
2-1/2” Top Lock Nuts
4-9/16” Flat Washers
4-9/16” x 3.5” Bolts
4-9/16” Nuts
2-1/2” x 5.5” Bolts
2-7/8” OD Sleeves
2-5/16” Flat Washers
2-1/2”-20 Nuts
2-1/2” Flat Washers

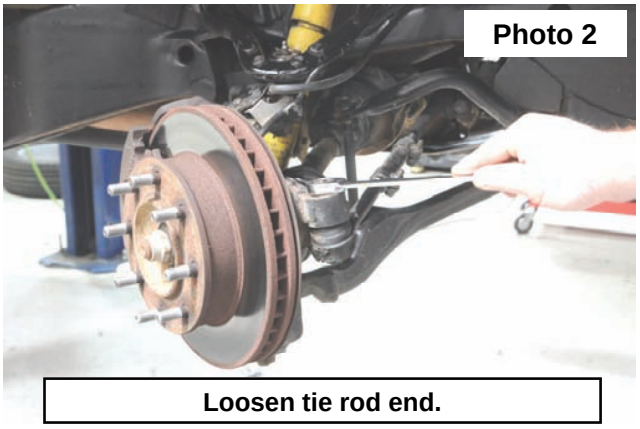
16130BAG6

5-3/8” Flat Washers
5-3/8” x 1.25” Bolts
5-3/8” Nylock Nuts

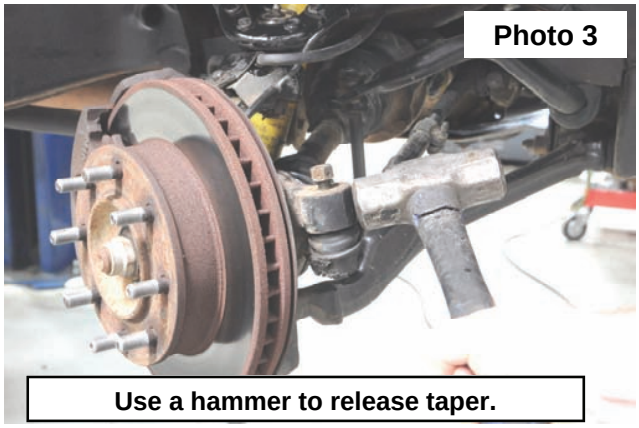
FRONT INSTALLTION INSTRUCTIONS

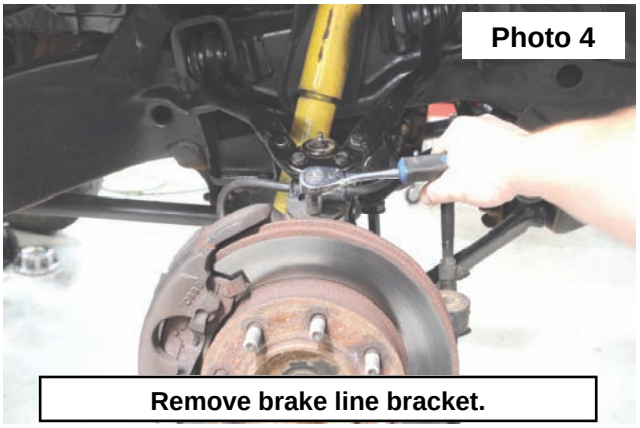
1. Chock the rear wheels to prevent movement. Place a jack under the lower control arm and jack the vehicle up. Place jack stands on the frame rails to support the vehicle. Remove tires and wheels using a 22mm socket.
2. **⚠WARNING The torsion bar is under extreme load. Substituting a tool for an actual torsion bar tool may result in injury.**
3. Measure and record the torsion bar adjusting bolts for both sides.
4. On either side of the vehicle, position unloading tool on cross member. Apply light lubricating grease to tool threads. Be sure to leave adequate clearance to remove the adjuster bolt from the cross member. Tighten the adjuster bolt on the cross member and tighten tool on adjuster arm to relieve tension on the bolt. Loosen the adjuster bolt and remove the bolt and threaded block from cross member. Loosen torsion bar tool until adjuster arm is loose. Slide the bar forward and the adjuster arm will fall free. In the event the bar seems lodged, use a punch and hammer routed through the hole in the back of the cross member to drive it forward. Repeat on opposite side. **See Photo 1.**
5. Using a 19mm socket, loosen the tie rod end nut. **See Photo 2.**





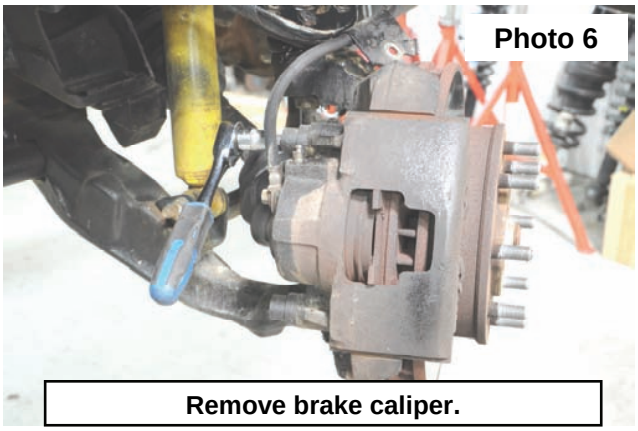
6. Using a hammer, strike the knuckle at the tie rod end to release the taper of the tie rod end in the steering knuckle. Remove the nut and retain for reuse. **See Photo 3.**
7. Using a 13mm socket, remove the brake line from the top of the knuckle. Retain hardware for reuse. **See Photo 4.**



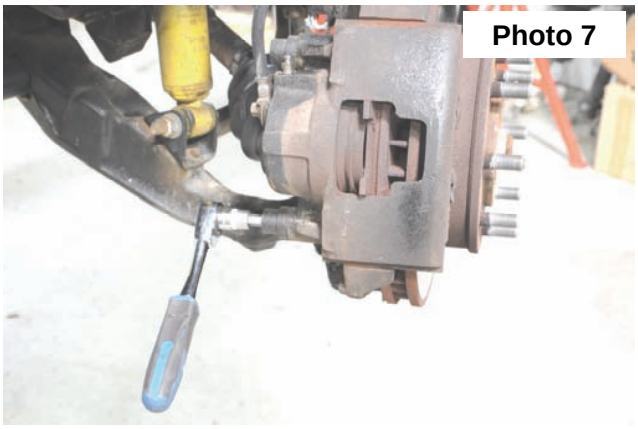


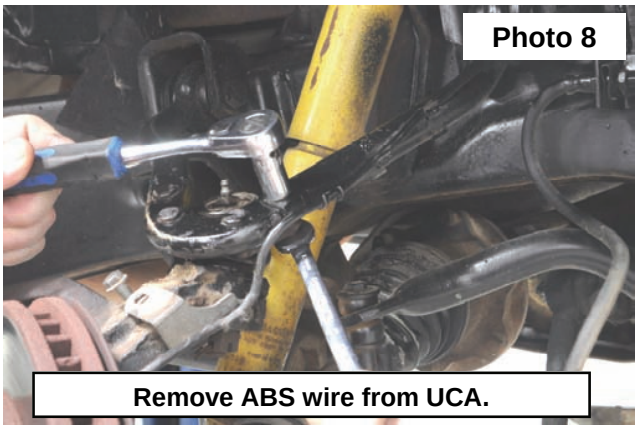
8. **Photo 5** shows the brake line loose from the steering knuckle.
9. Using a 3/8" Allen, remove the brake caliper from the knuckle. Retain hardware for reuse. Hang caliper out of the way. **Do not hang the caliper by the brake line. See Photos 6 & 7.**



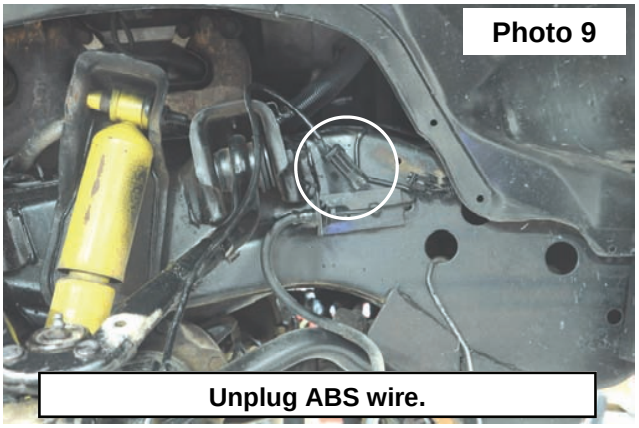


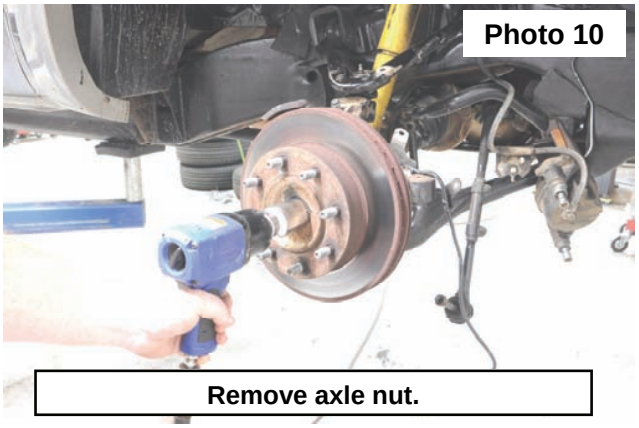
10. Using a 13mm socket and wrench, remove the bolt in the upper control arm holding the ABS wire. Reinstall bolt into the upper control arm. **See Photo 8.**



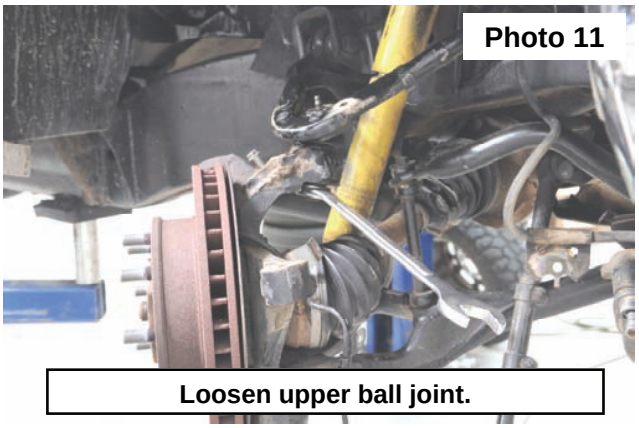


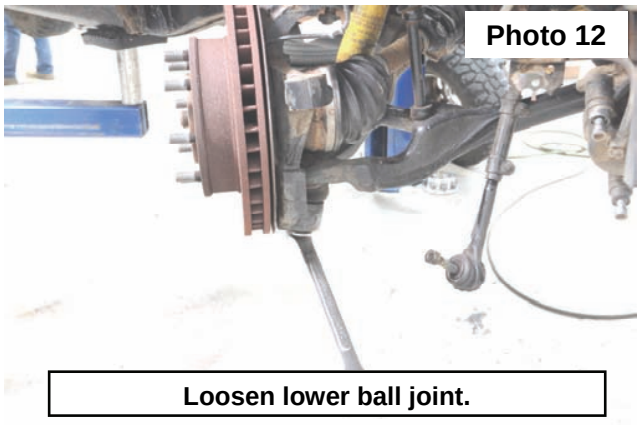
11. Unplug the ABS wire at the frame and remove from the clips securing the ABS wire to the upper control arm. **See Photo 9.**
12. Using a 36mm socket, remove the axle nut. Retain hardware for reuse. **See Photo 10**.



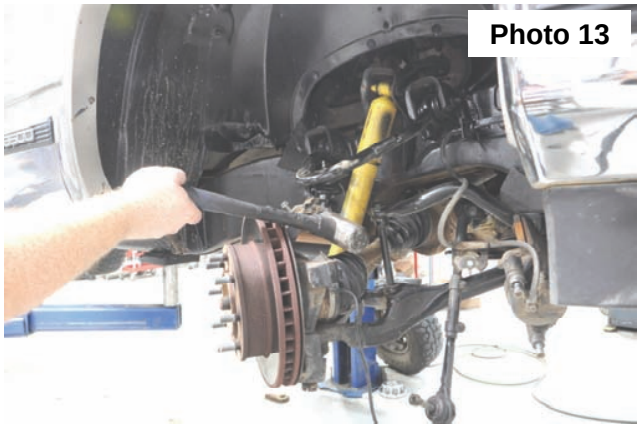


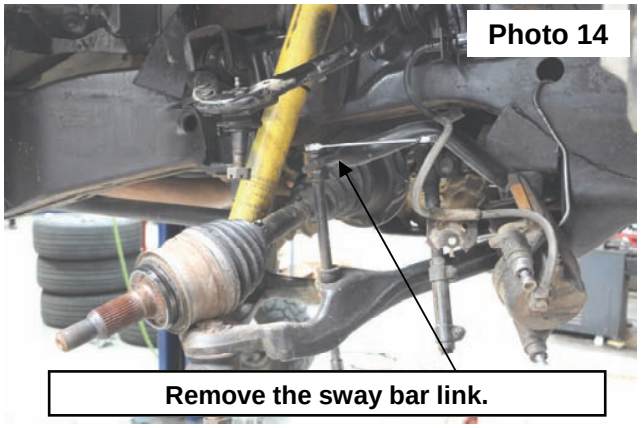
13. Remove the cotter pins from the upper and lower ball joints and discard.
14. Using a 27mm wrench, loosen the upper ball joint. **Do not completely remove the nut. See Photo 11.**
15. Using a 27mm wrench, loosen the lower ball joint. **Do not completely remove the nut. See Photo 12.**



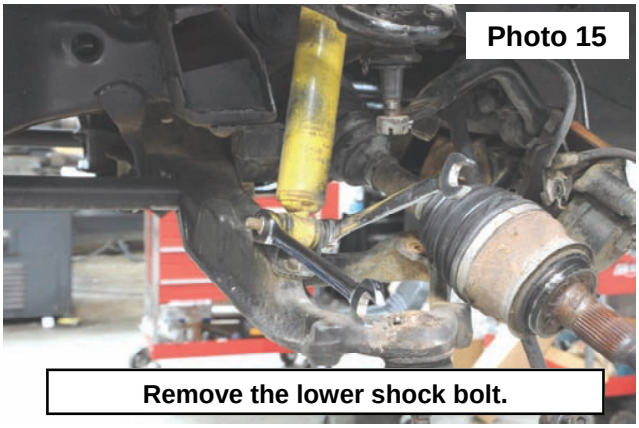


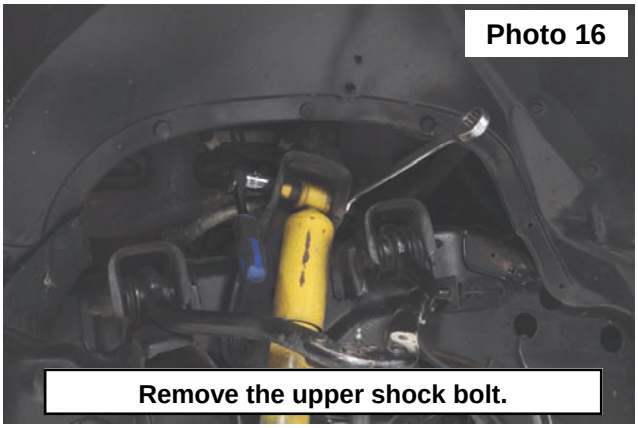
16. Using a hammer, strike the knuckle at the upper ball joint to release the ball joint from the knuckle. Remove the ball joint hardware and retain for reuse. **See Photo 13.**
17. Remove the knuckle assembly from the truck, taking care to not pull the CV shaft out of socket at the differential.
18. Using a 13mm socket and wrench, remove the sway link. Retain hardware for reuse. **See Photo 14**.



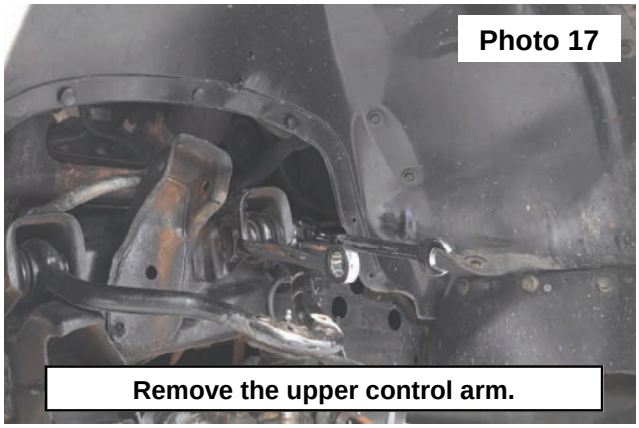


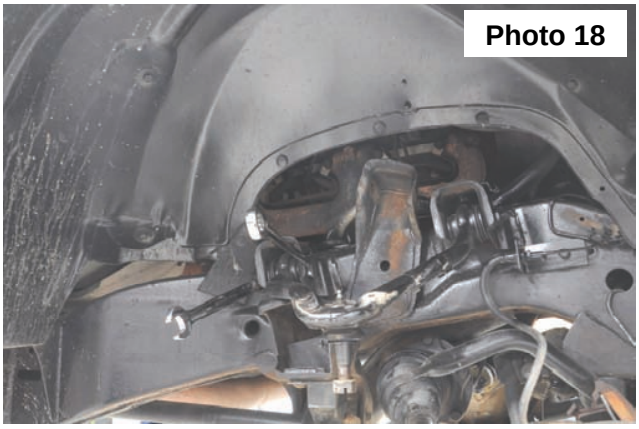
19. Using 18mm wrenches, remove the lower shock mounting bolt. Retain hardware for reuse. **See Photo 15**.
20. Using 18mm wrenches, remove the upper shock mounting bolt. Retain hardware for reuse. **See Photo 16.**



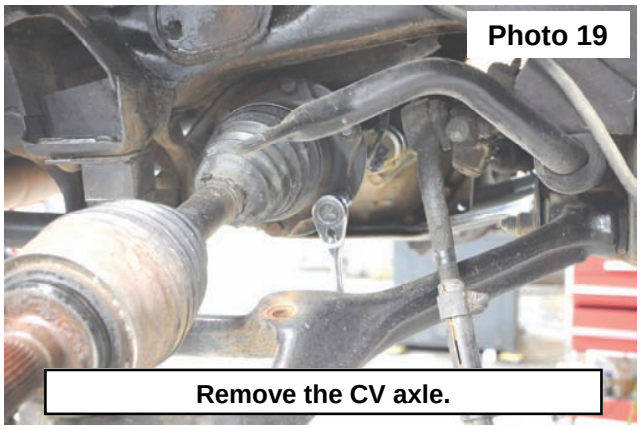


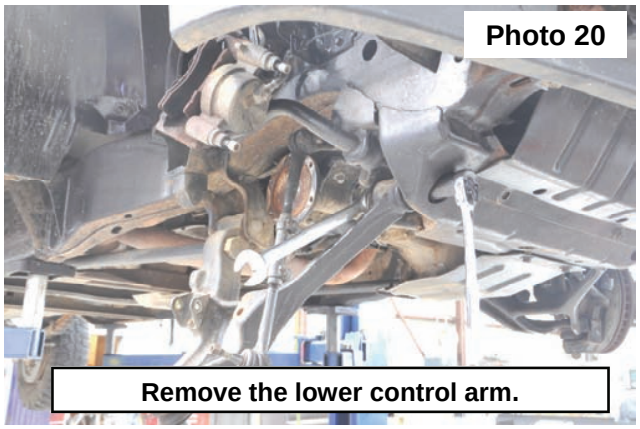
21. Using 21mm wrenches, remove the upper control arm. Retain hardware for reuse. **See Photos 17 & 18.**





22. Using a 15mm socket, remove the CV axle from the differential. Retain hardware for reuse. **See Photo 19.**
23. Using a 24mm socket and wrench, remove the lower control arm and torsion bar together. **See Photo 20.**

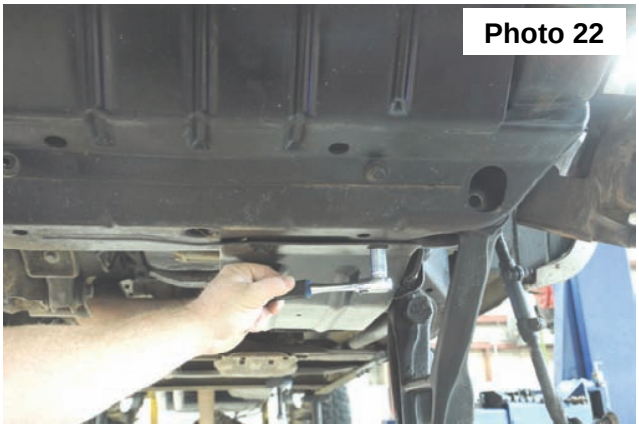


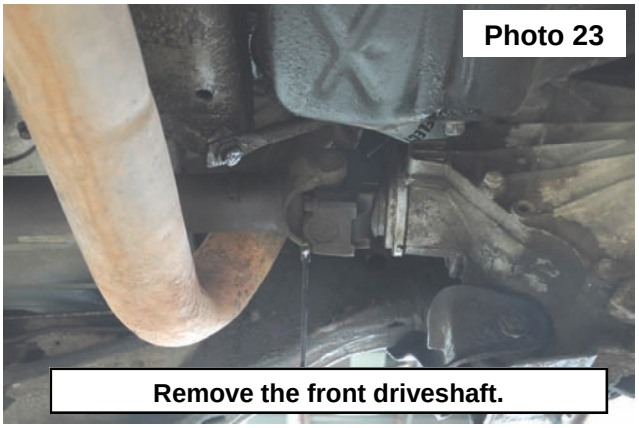


24. Using a 15mm socket, remove the front skid plate. Retain hardware for reuse. **See Photo 21.**

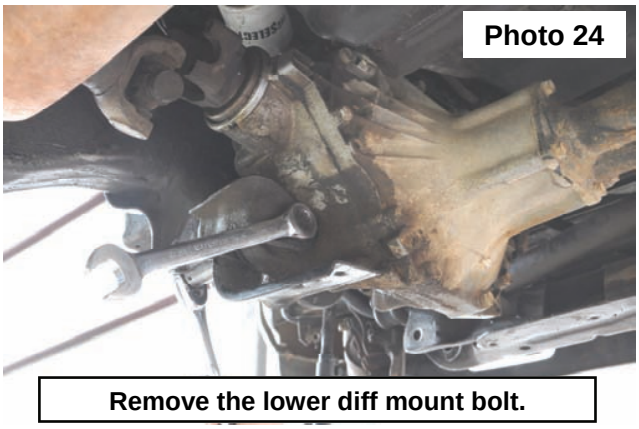


25. Using a 15mm socket, remove the differential skid plate. Retain hardware for reuse. **See Photo 22**.
26. Using an 11mm wrench, remove the front driveshaft from the differential. Retain hardware for reuse. **See Photo 23**.



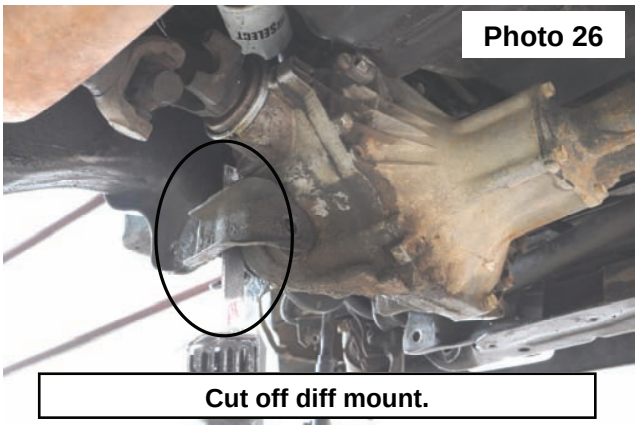


27. Using a 21mm socket and wrench, remove the lower diff mounting bolt. Retain hardware for reuse. **See Photo 24**.
28. Remove the skid plate mounting bracket. **See Photo 25**.

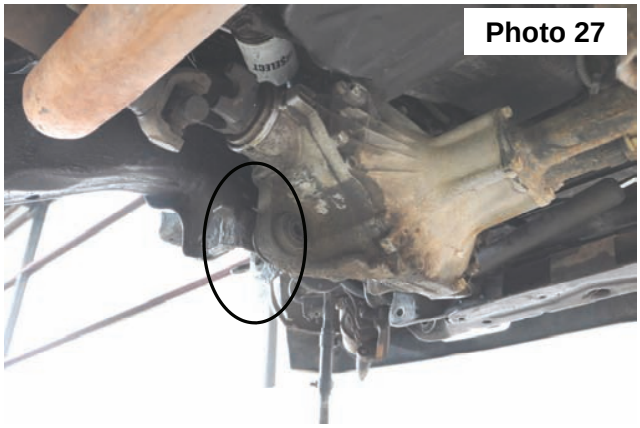


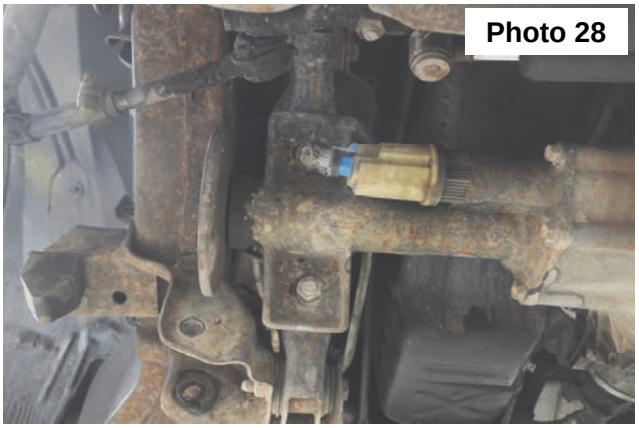


29. Using a reciprocating saw, cut the rear diff mount off flush with the lower control arm pocket. **See Photo 26.**

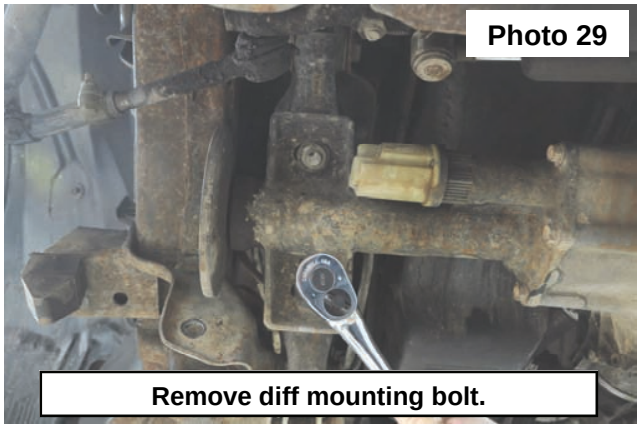


30. Sand and paint cut area. **See Photo 27**.
31. Unplug the 4x4 actuator and the diff vent tube. **See Photo 28.**

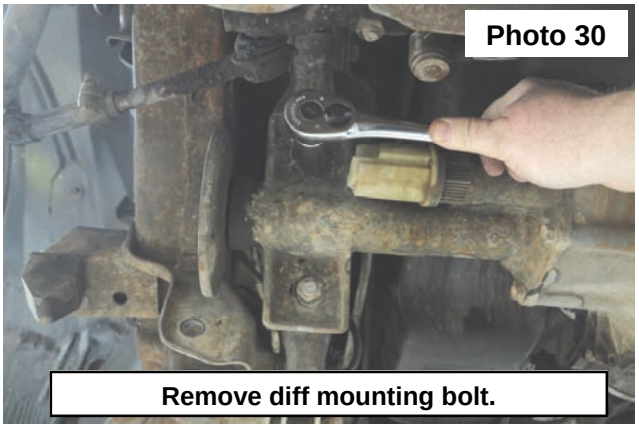

Photo 27


Photo 28

32. Using two 24mm sockets, remove the passenger side diff bolts. Retain hardware for reuse. **See Photos 29 & 30.**

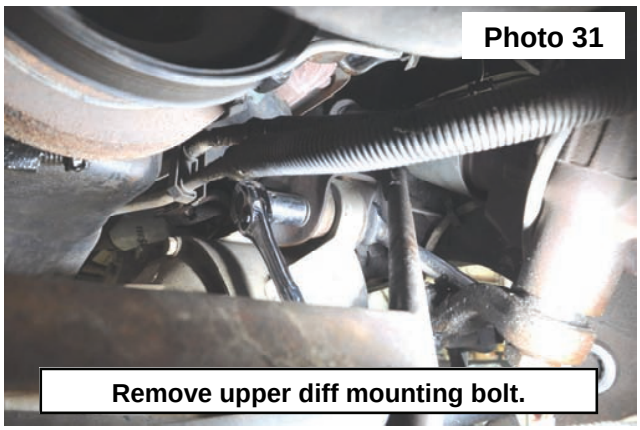

Photo 29

Remove diff mounting bolt.

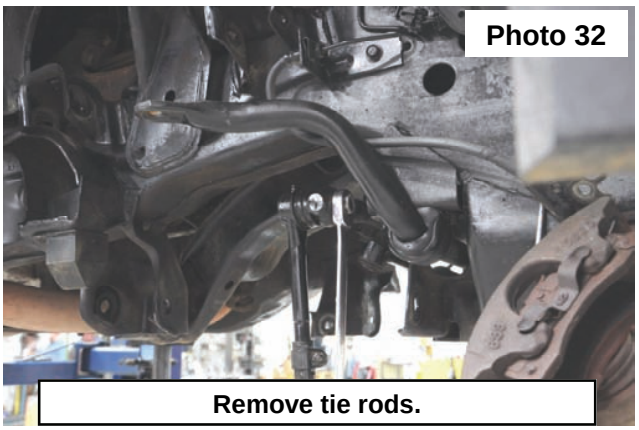

Photo 30

Remove diff mounting bolt.

33. Support the differential using a jack or transmission jack.
34. Using a 21mm socket and wrench, remove the upper diff mounting bolt. Remove the diff from the truck. Retain hardware for reuse. **See Photo 31.**
35. Using an 18mm wrench, remove the tie rods from the center link. Retain hardware for reuse. **See Photo 32.**

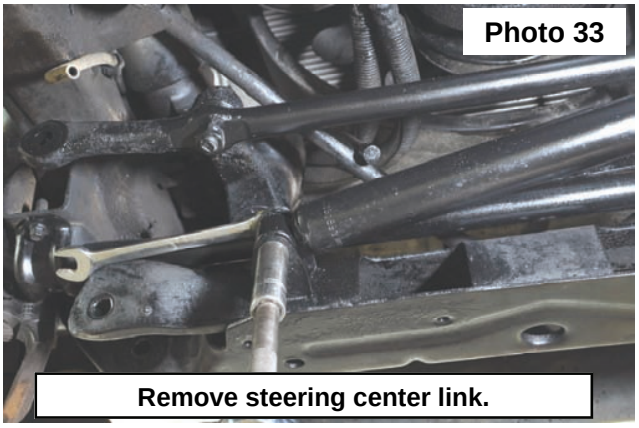

Photo 31

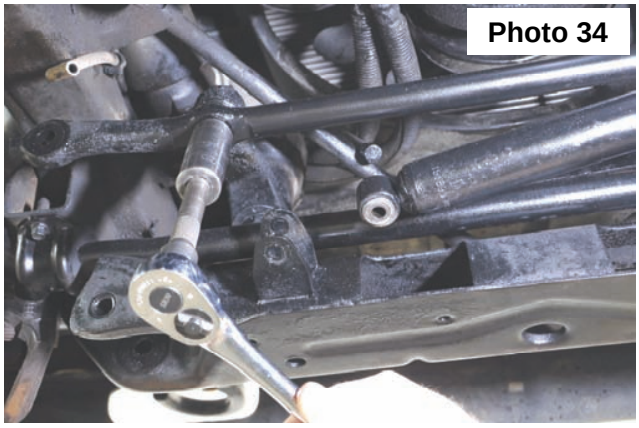
Remove upper diff mounting bolt.


Photo 32

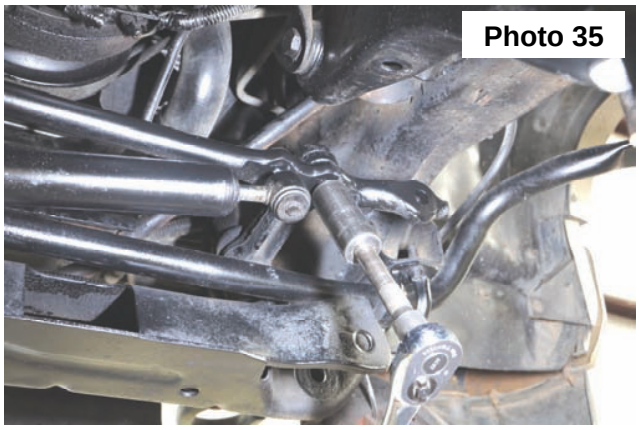
Remove tie rods.

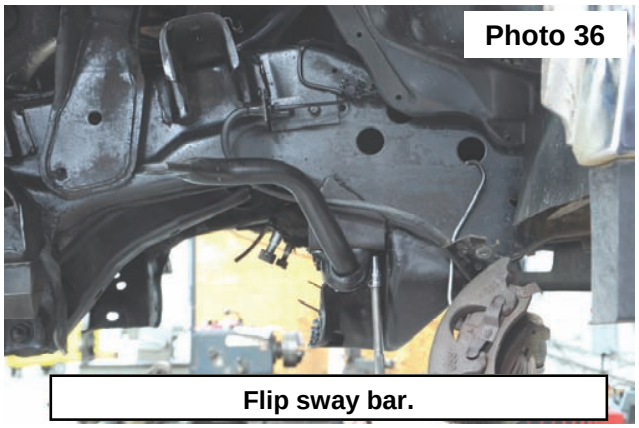
36. If equipped with a factory steering stabilizer. Using a 15mm socket & wrench, remove the steering stabilizer from the frame bracket. Retain hardware for reuse. **See Photo 33.**
37. Using a 21mm socket, remove the center link from the idler and pitman arm. Dislodge the center link and remove it from the truck. **See Photos 34 & 35.**


Photo 33
Remove steering center link.

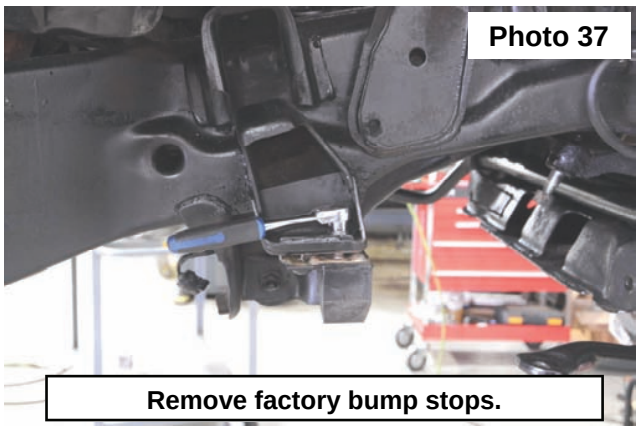

Photo 34

38. Using a 10mm socket, remove the sway bar from the frame. Flip the sway bar from right to left, so the sway bar bends down, and reattach using the factory hardware. Torque to factory specs using a 10mm socket. **See Photo 36.**

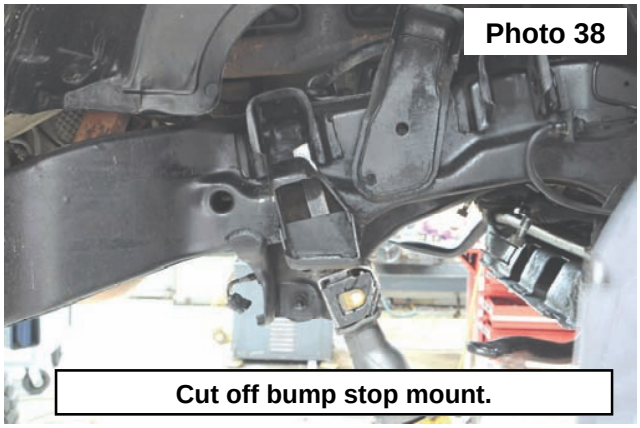

Photo 35

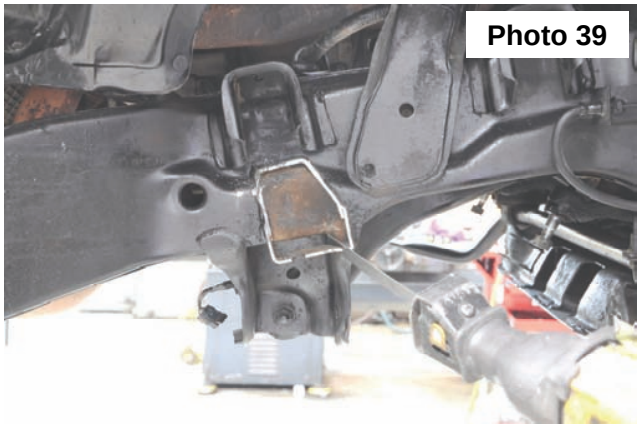

Photo 36
Flip sway bar.

39. Using a 15mm socket, remove the factory bump stop. **See Photo 37**.

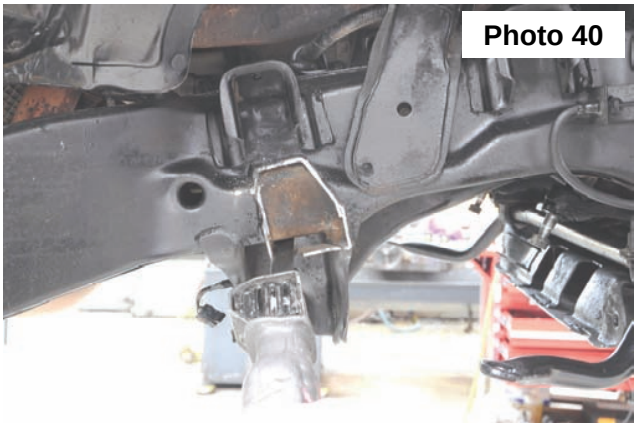

Photo 37
Remove factory bump stops.

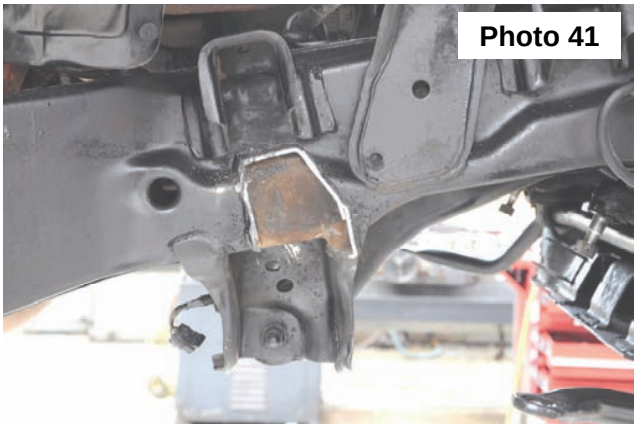
40. Using a reciprocating saw, cut the bump stop mount off at the frame. **See Photo 38.**
41. Also, remove the part of the bump stop mount that protrudes into the control arm pocket. **See Photos 39 & 40**.



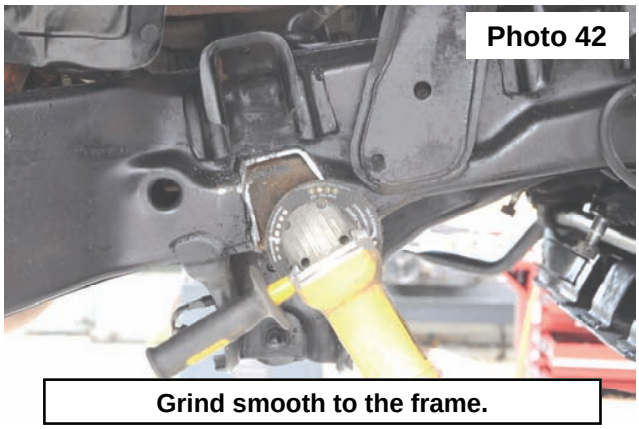


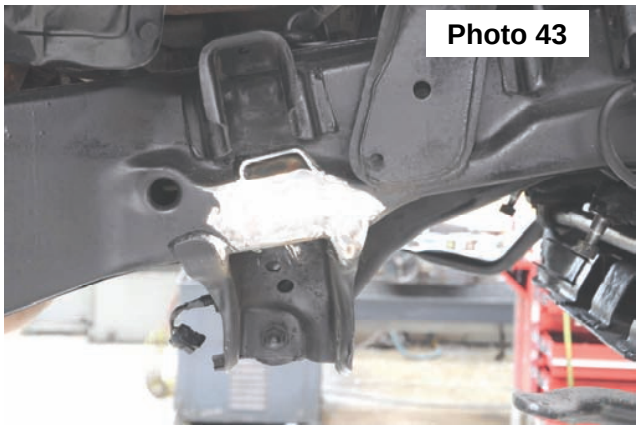
42. Factory bump stop mount removed from frame and control arm pocket. **See Photo 41**.



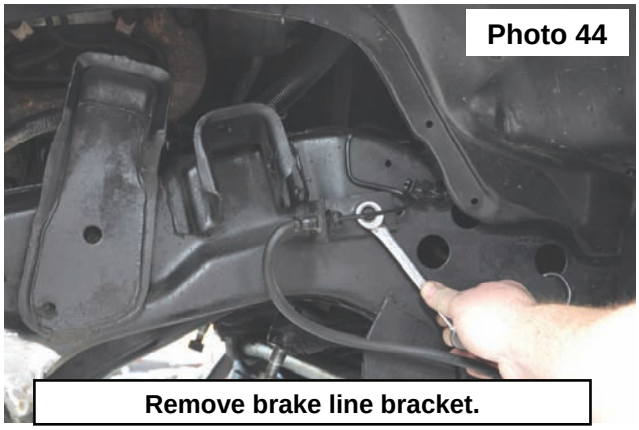


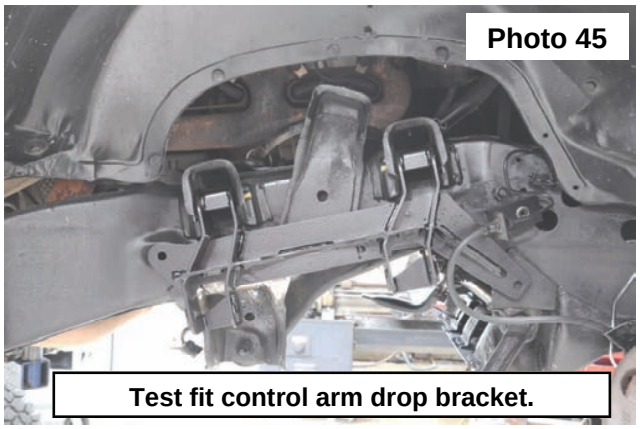
43. Using an angle grinder, grind the remaining bump stop mount smooth with the frame. **See Photos 42 & 43**.



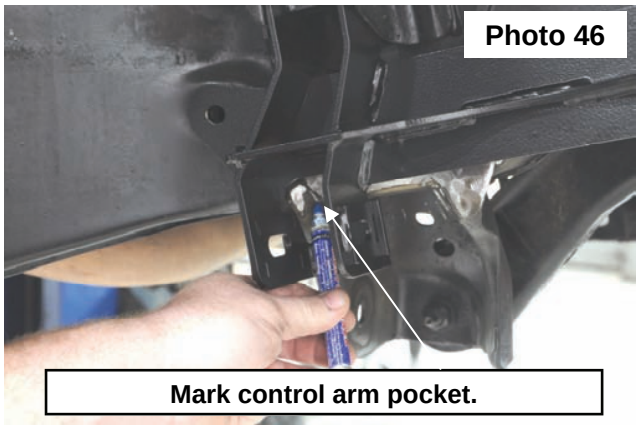


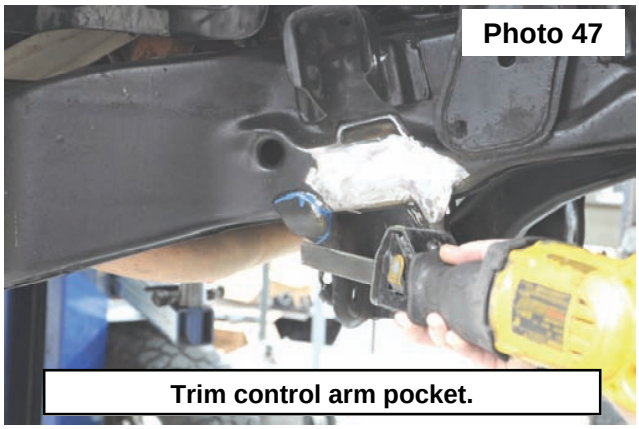
44. Using a 13mm wrench, remove the brake line bracket from the frame. Retain hardware for reuse. **See Photo 44**.
45. Test fit the upper control arm drop bracket. **See Photo 45**.



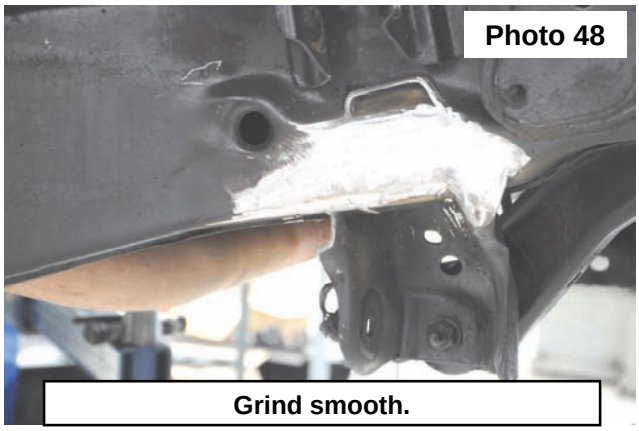


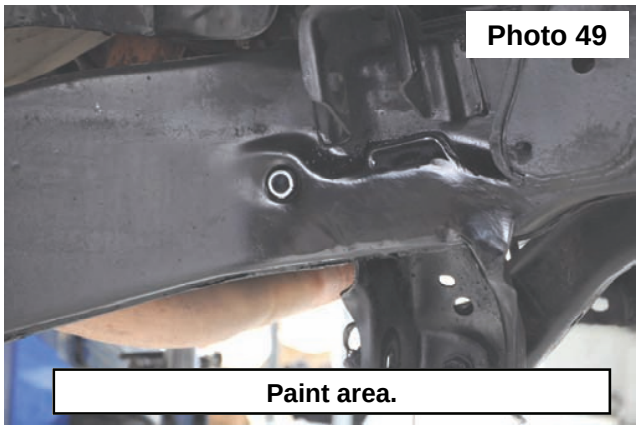
46. Using the upper control arm drop bracket as a template, mark the rear lower control arm pocket for cutting. **See Photo 46.**
47. Remove the upper control arm drop bracket and cut along the mark made in step 46. **See Photo 47.**



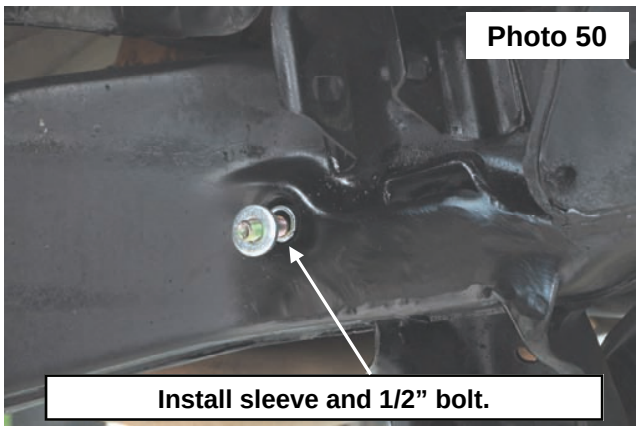


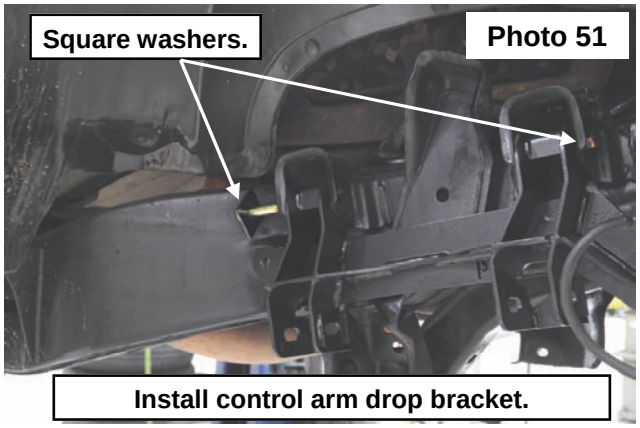
48. Grind this area smooth with the frame and test fit the upper control arm drop bracket to make sure the drop bracket **does not contact** the control arm pocket. **See Photo 48.**
49. Clean and paint all bare surfaces to prevent rust. **See Photo 49.**





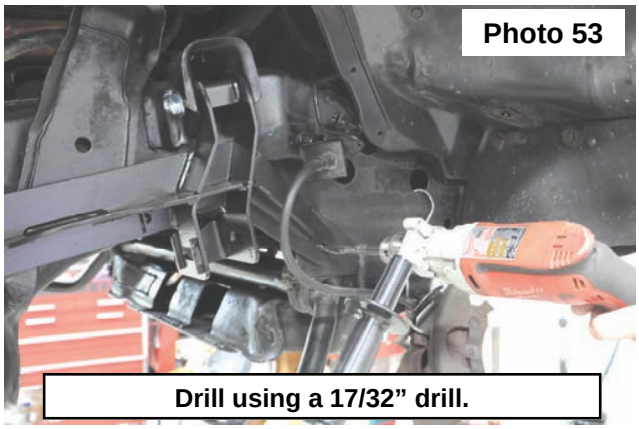
50. Install the supplied 7/8” od sleeve, 1/2” x 5.5” bolt, and 1/2” washer (1274BAG7) into the hole in the frame. **See Photo 50**.
51. Install the upper control arm drop bracket using the supplied 9/16” x 3.5” bolts, square washers, and 9/16” nuts (1274BAG7). **See Photo 51**.





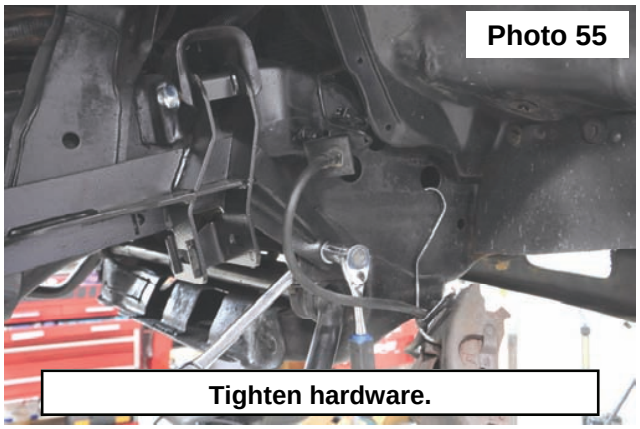
52. Attach the bracket to the rear of the frame using the 1/2” bolt from step 50 and 1/2” washer and 1/2” nut (1274BAG7). **See Photo 52.**
53. Using the control arm drop bracket as a guide, drill the front mounting hole through the frame using a 17/32” drill. **See Photo 53.**



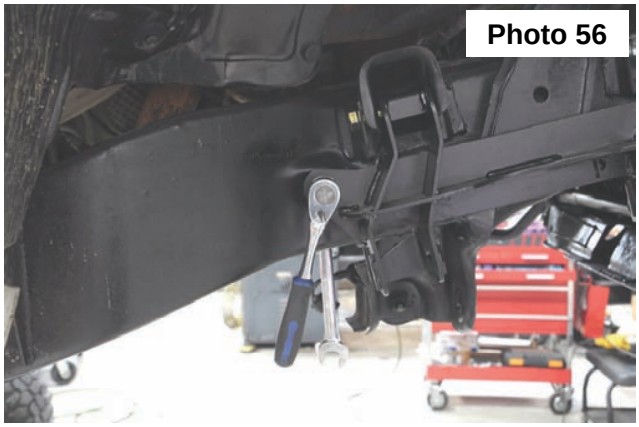


54. Install the supplied 1/2” x 1.5” bolt, washer and nut (1297BAG7). **The supplied thick washer goes between the control arm drop bracket and the frame. See Photo 54.**
55. Tighten the front mounting bolt using a 3/4” socket and wrench. Torque to 65ft/lbs. **See Photo 55.**



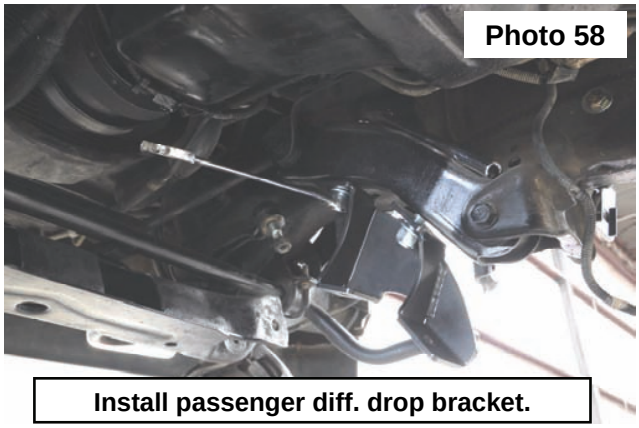


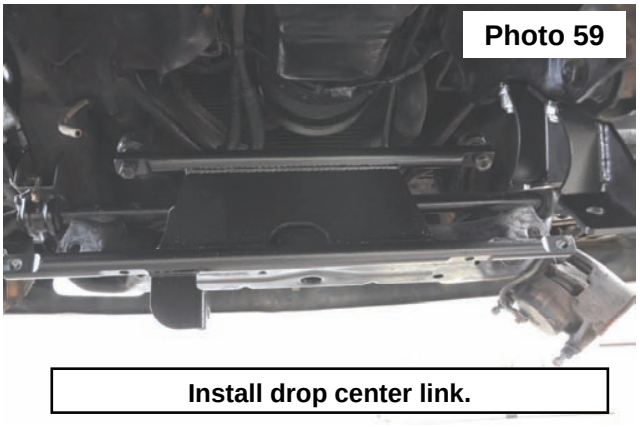
56. Tighten the rear mounting bolt using a 3/4” socket and wrench. Torque to 65ft/lbs. . **See Photo 56**.
57. Tighten the control arm pocket mounting bolts using a 13/16” socket and wrench. Torque to 130ft/lbs. **See Photo 57.**



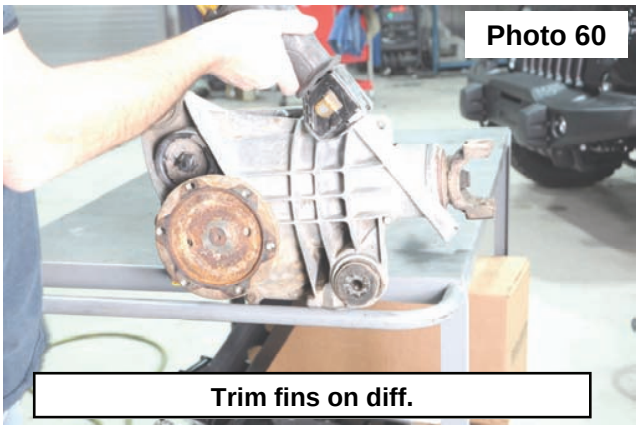


58. Install the supplied passenger differential drop bracket using the supplied 5/8” X 1.5” bolts, washers, and nuts. (16130BAG4). Torque to 135ft/lbs using a 15/16” socket and wrench. **See Photo 58.**
59. Using a reciprocating saw, cut the factory steering stabilizer mount off of the frame. Grind smooth and paint.
60. Install the supplied drop steering center link using the factory hardware. Tighten using a 21mm socket. **See Photo 59.**

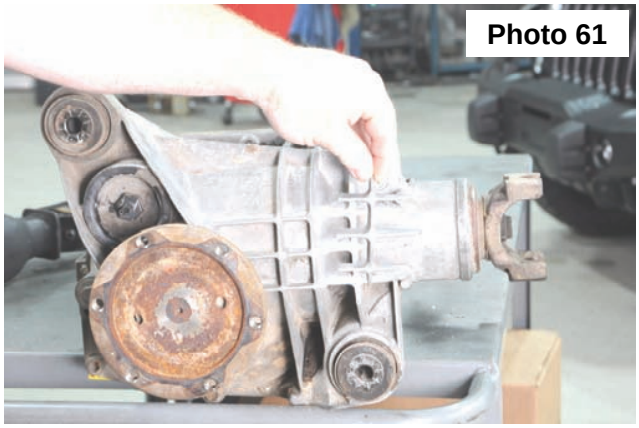


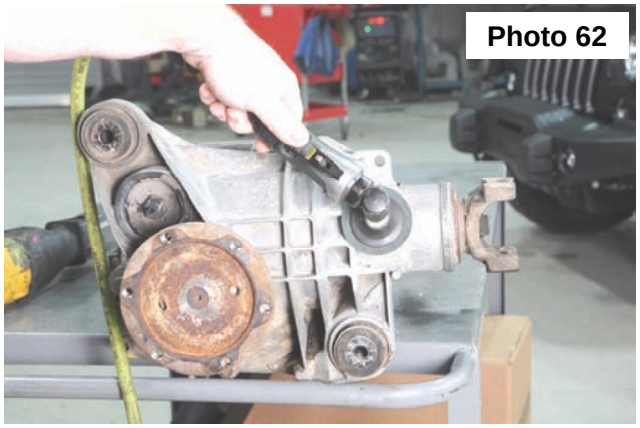


61. Using a reciprocating saw, cut the fins off of the front differential. **See Photo 60.**

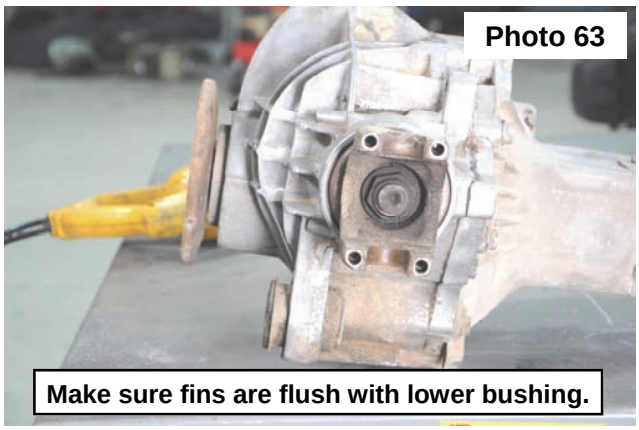


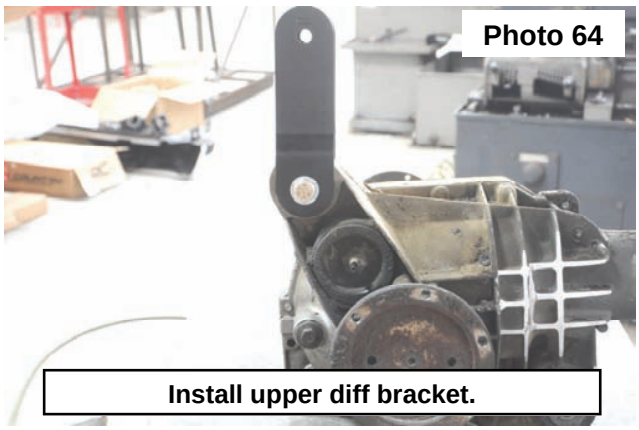
62. Fins cut from differential. **See Photo 61**.
63. Use a grinder or sander to get the fins flush with the lower mounting bushing. **See Photos 62 & 63.**



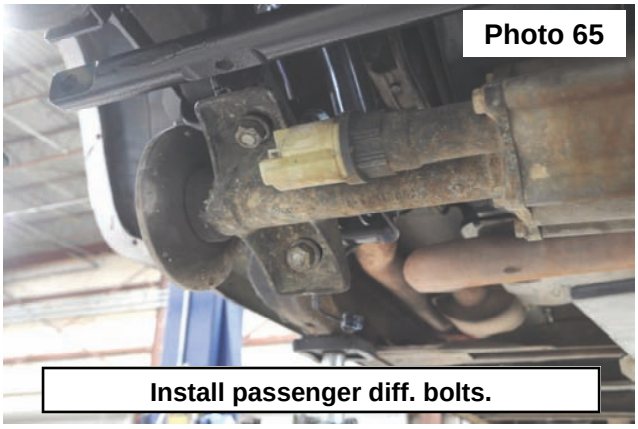


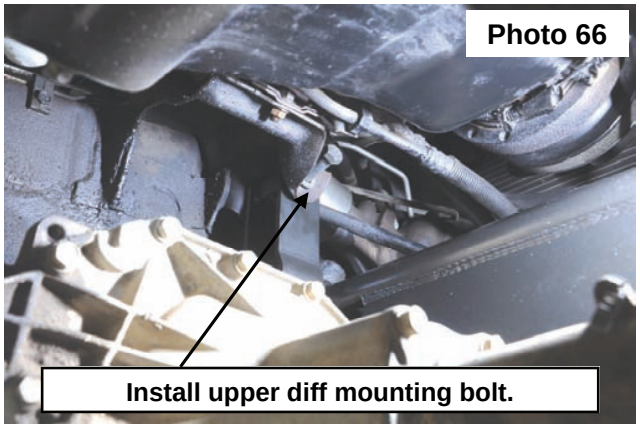
64. Install the supplied driver upper diff mount using the supplied 9/16" x 4" bolt, washers, and nut (16130BAG4). Torque to 130ft/lbs using a 13/16" socket and wrench. **See Photo 64.**





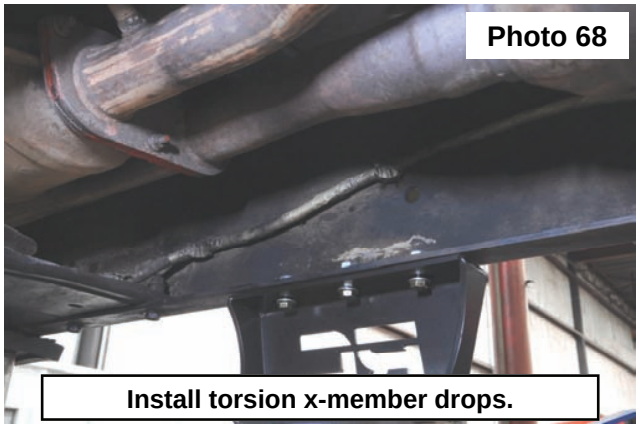
65. Install the differential into the truck using the factory hardware on the upper driver and passenger side mounts. **Do not tighten at this time. See Photos 65 & 66.**



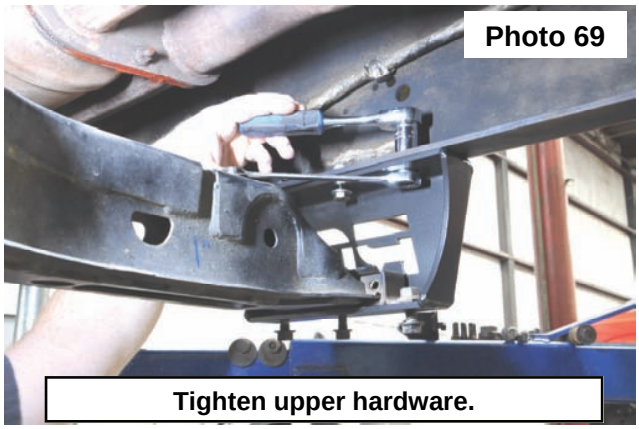


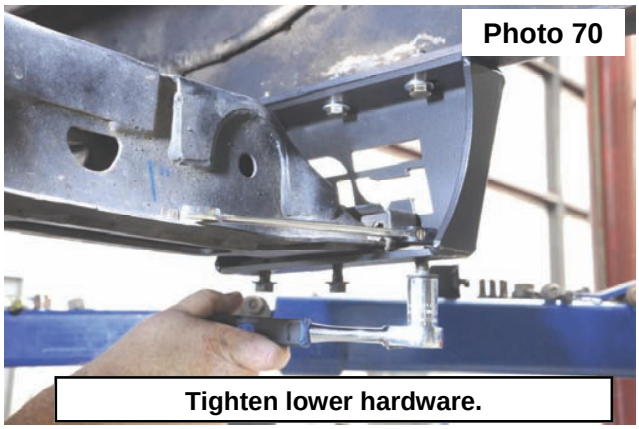
66. Using a15mm socket and 18mm wrench, remove the torsion bar crossmember. Retain hardware for reuse. **See Photo 67**.
67. Install the supplied torsion bar crossmember drop brackets using the supplied 7/16" x 1.25" bolts, washers, and nuts. (1274BAG4) **See Photo 68.**



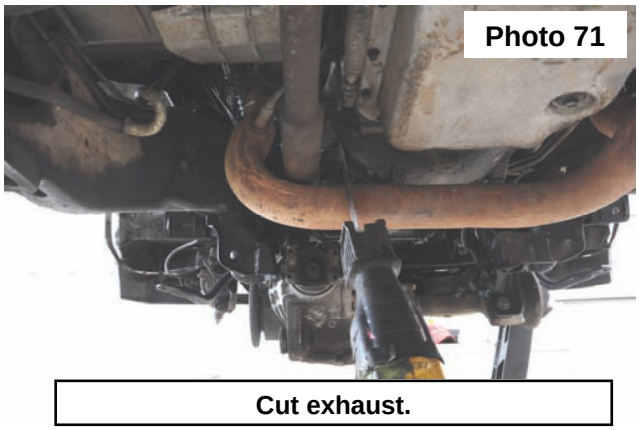


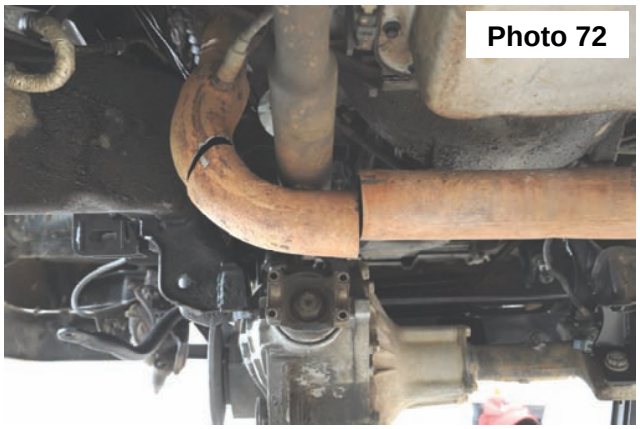
68. Tighten using a 5/8" socket and wrench. Torque to 60ft/lbs. **See Photo 69.**
69. Attach the crossmember to the drop brackets using the factory hardware. Torque to factory specs using a 15mm socket and 18mm wrench. **See Photo 70.**



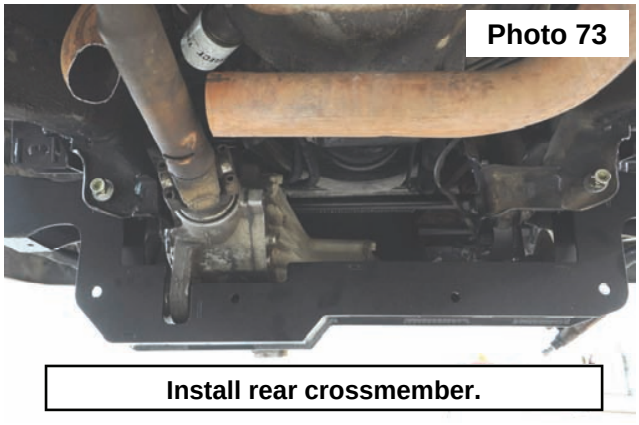


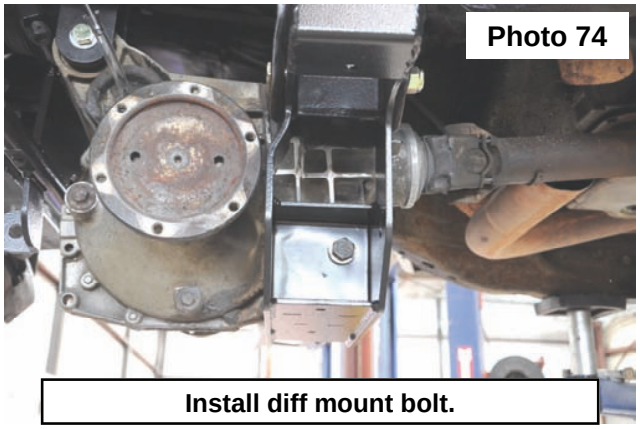
70. Using a reciprocating saw, cut the exhaust crossover pipe to allow for the front driveshaft. You will need to have an exhaust shop fab a piece to clear the driveshaft once the install is complete. **See Photo 71 & 72.**



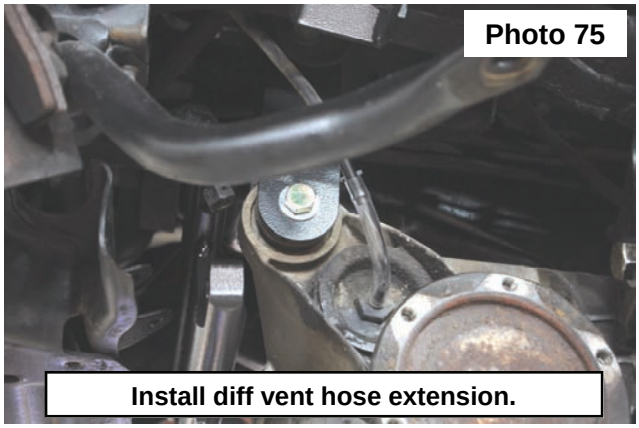


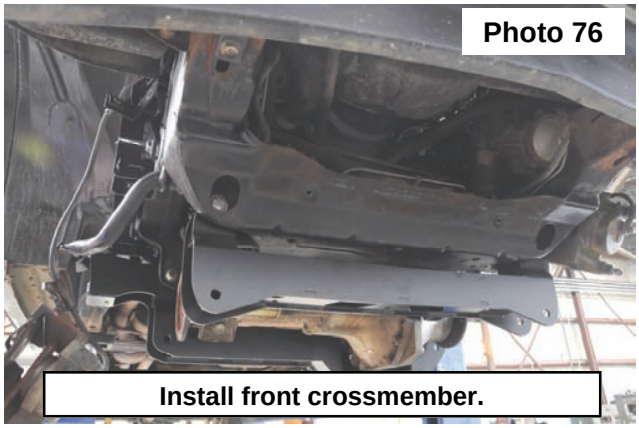
71. Install the rear crossmember using the supplied 5/8” x 5.5” bolts, washers, and nuts (16130BAG5). **Do not tighten hardware at this time. See Photo 73**.
72. Using the factory hardware attach the lower diff mount to the rear crossmember. **Do not tighten hardware at this time. See Photo 74.**





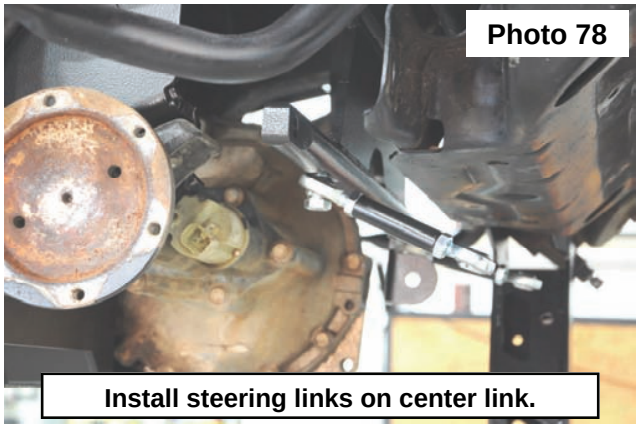
73. Install the differential vent tube extension. (16130BAG4). **See Photo 75.**
74. Plug in the 4x4 actuator.
75. Install the front crossmember using the supplied 5/8” x 4.5” bolts, washers, and nuts. (1274BAG1) **Do not tighten at this time. See Photo 76.**



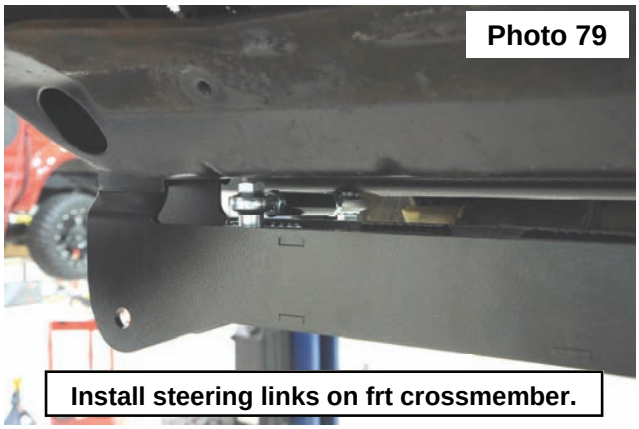


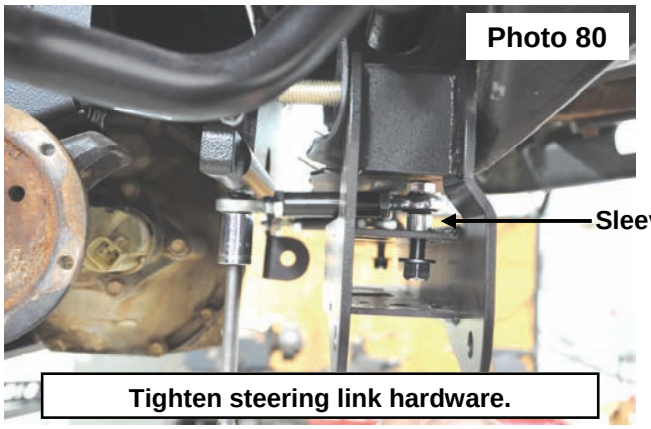
76. Assemble the steering links and adjust to an overall length of 6.625”. **See Photo 77.**
77. Install the steering links on the center link using the supplied 1/2” x 1.5” bolts (16130BAG2) and thread locker. **See Photo 78.**



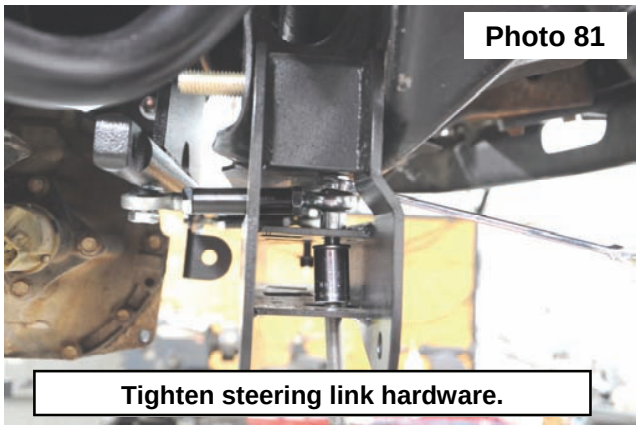


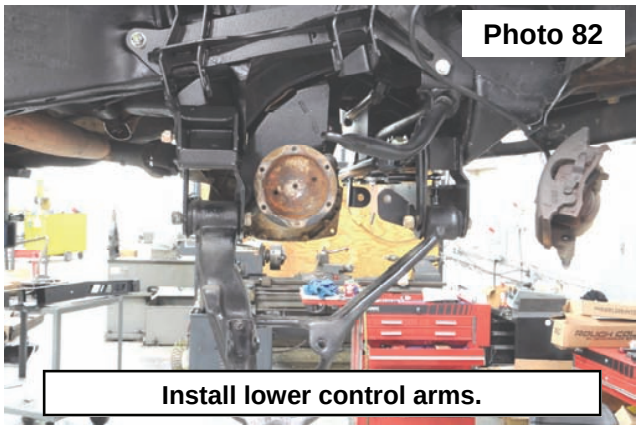
78. Install the supplied 1/2” x 2.50” bolts, sleeves, washers, and nuts (16130BAG2) onto the front crossmember. **See Photo 79**.
79. Using a 3/4” socket, torque the bolts in the center link to 65ft/lbs. **See Photo 80.**



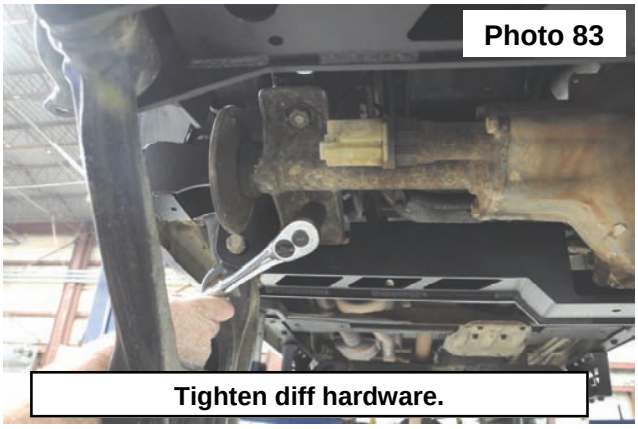


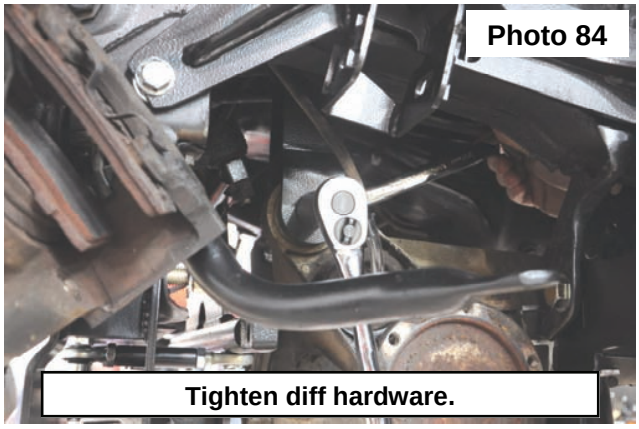
80. Using a 3/4” socket and wrench, torque the steering link bolts in the front crossmember to 65ft/lbs. **See Photo 81.**
81. Install the lower control arms using the stock hardware. Install the steering stabilizer mount on the passenger side lower control arm mount. **Do not tighten at this time. See Photo 82.**



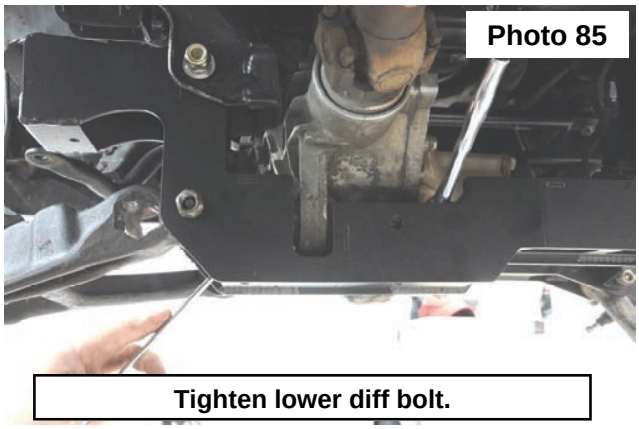


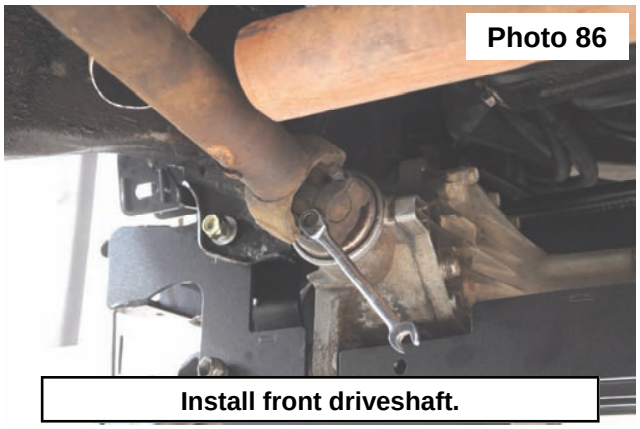
82. Torque the passenger diff mounts to factory specs using a 21mm socket. **See Photo 83.**
83. Torque the upper driver diff mount to factory specs using a 24mm socket. **See Photo 84.**



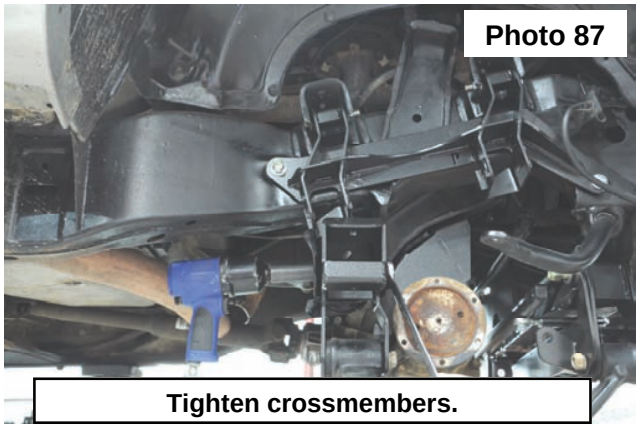


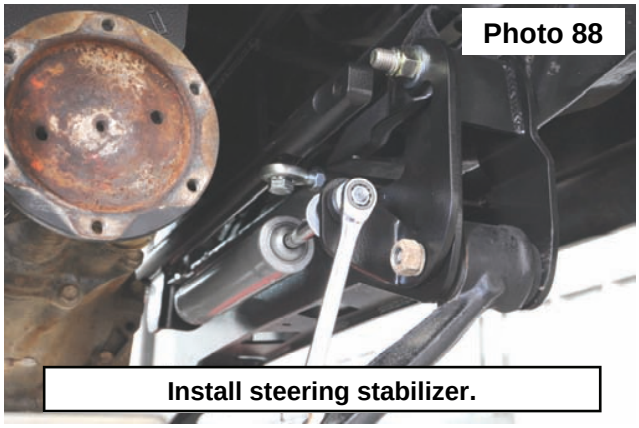
84. Torque the driver rear lower diff mount to factory specs using a 21mm socket and wrench. **See Photo 85**.
85. Attach the front driveshaft to the differential using the factory hardware. Tighten using an 11mm wrench. **See Photo 86.**



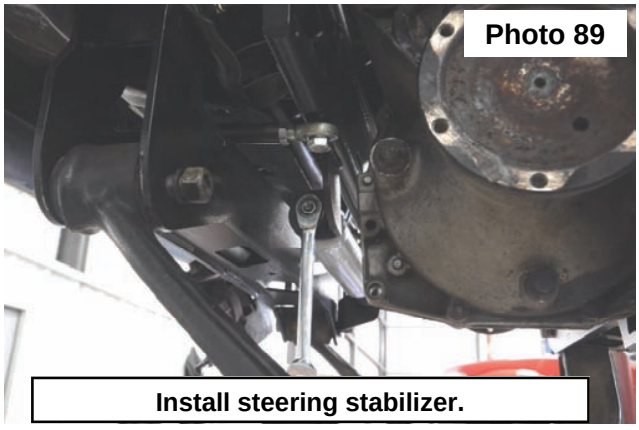


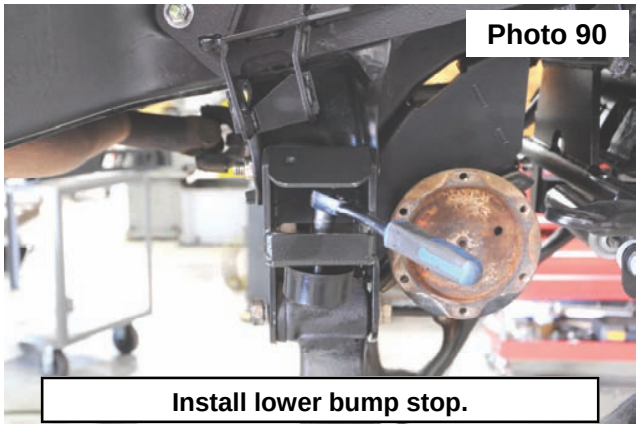
86. Torque the crossmember bolts to 175ft/lbs using a 15/16" socket and wrench. **See Photo 87.**
87. Install steering stabilizer at this time if one has been purchased. **See Photos 88 & 89.**



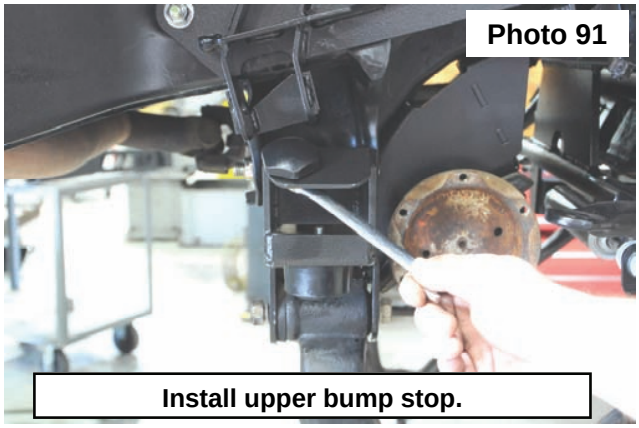


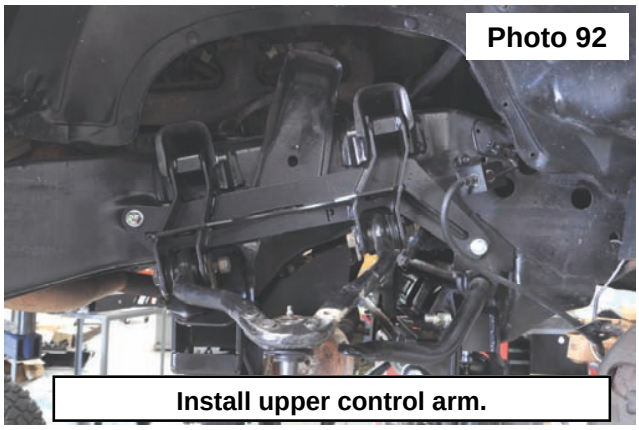
88. Install the lower bump stops (16130BAG5) on the rear crossmember using the supplied 3/8" flat washer, lock washer, and nut (16130BAG5). Tighten using a 9/16" socket. **See Photo 90.**



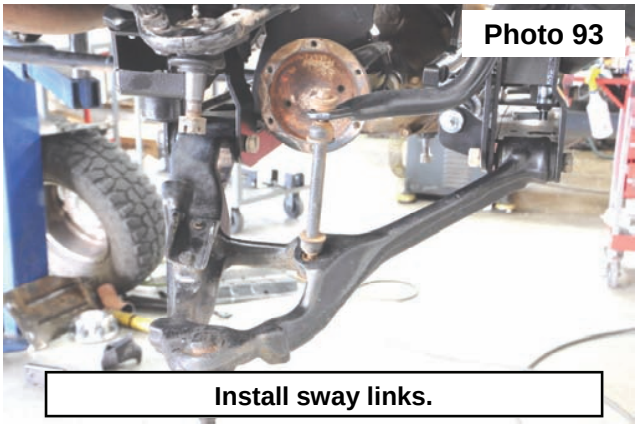


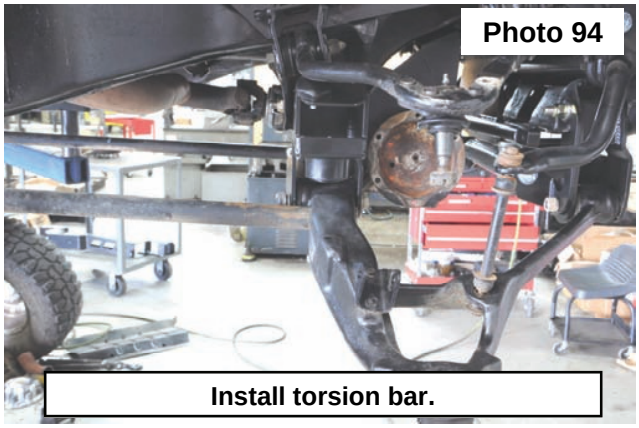
89. Install the upper bump stops (16130BAG5) on the rear crossmember using the supplied 3/8" flat washer, lock washer, and nut (16130BAG5). Tighten using a 9/16" socket. **See Photo 91.**
90. Install the upper control arm using the stock hardware. **Do not tighten at this time. See Photo 92.**



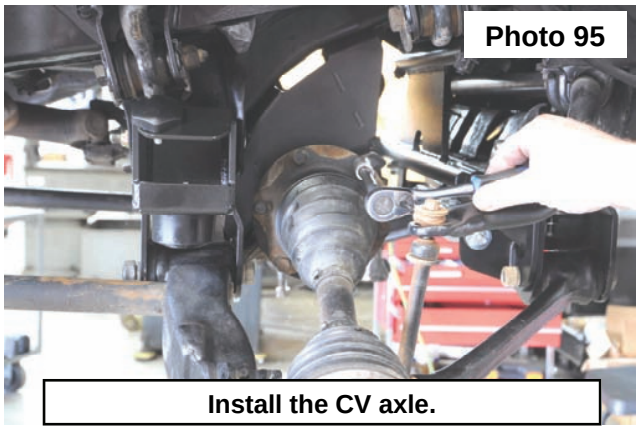


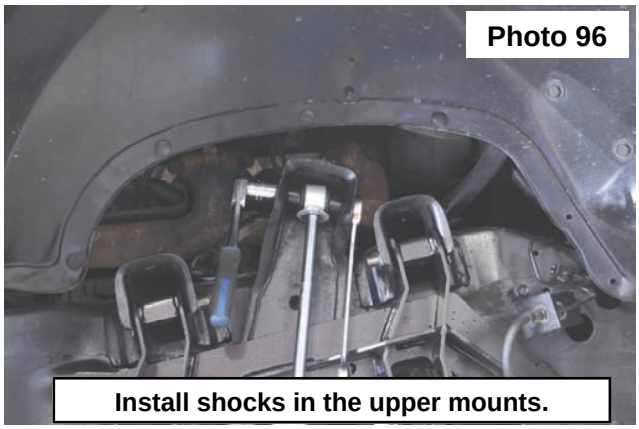
91. Install the factory sway link using the factory hardware. **See Photo 93.**
92. Install the torsion bar into the lower control arm and torsion bar cross member. **See Photo 94.**



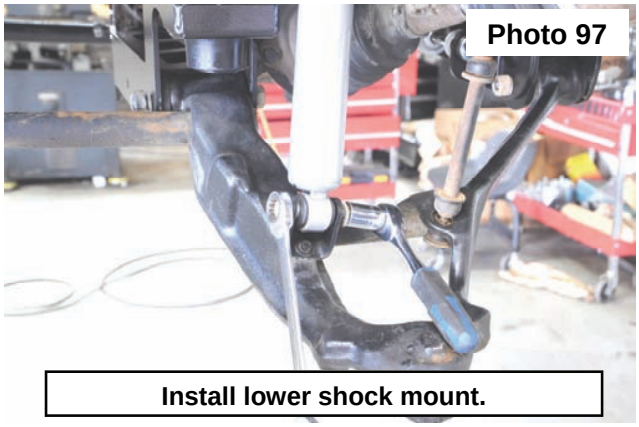


93. Install the CV axle using the factory hardware. Torque to factory specs using a 15mm socket. **See Photo 95.**
94. Install the supplied shocks, sleeve and bushings, in the upper mounts using the factory hardware. Torque to factory specs using an 18mm socket and wrench. **See Photo 96.**

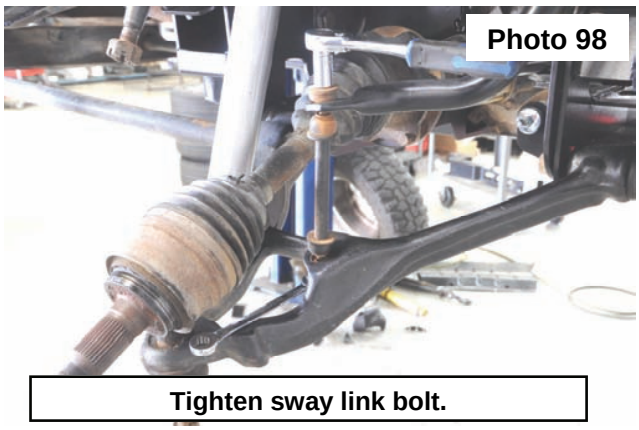




95. Install the shock in the lower mount using the factory hardware. Torque to factory specs using an 18mm socket and wrench. **See Photo 97.**
96. Torque the sway link to factory specs using a 13mm socket and wrench. **See Photo 98.**

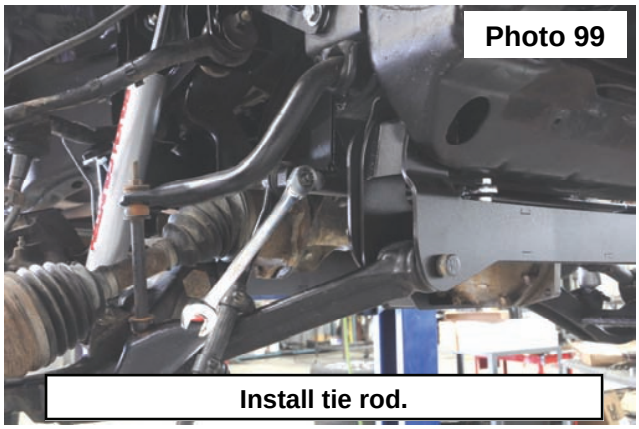


Install lower shock mount.

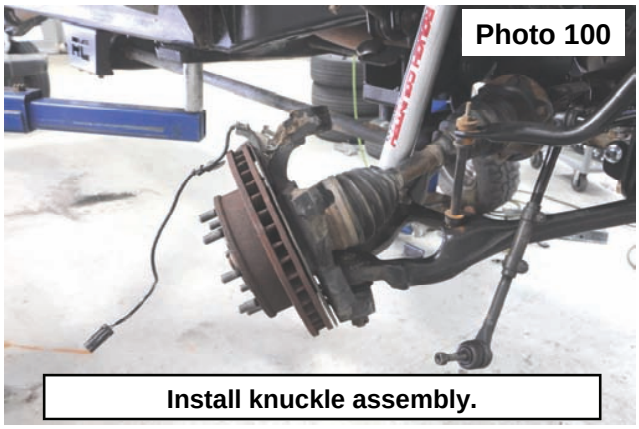


Tighten sway link bolt.

97. Install the tie rod onto to the steering center link using the factory hardware. Torque to factory specs using an 18mm socket. **See Photo 99.**
98. Install the knuckle onto the upper and lower ball joints. **See Photo 100 & 101.**

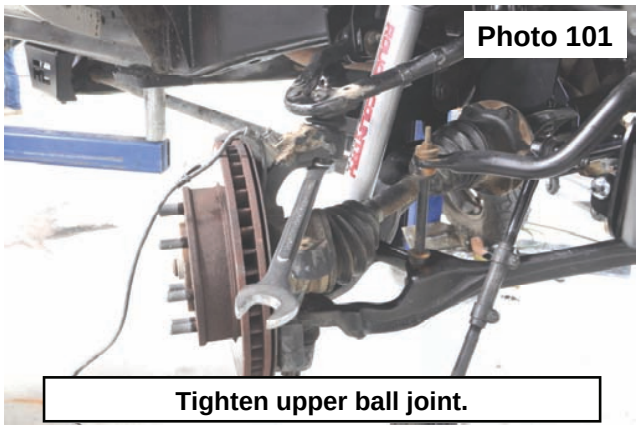


Install tie rod.

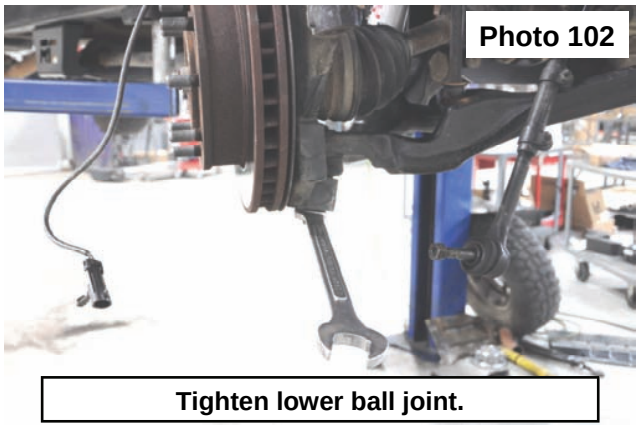


Install knuckle assembly.

99. Tighten the upper and lower ball joints using a 27mm wrench. **See Photos 101 & 102.**

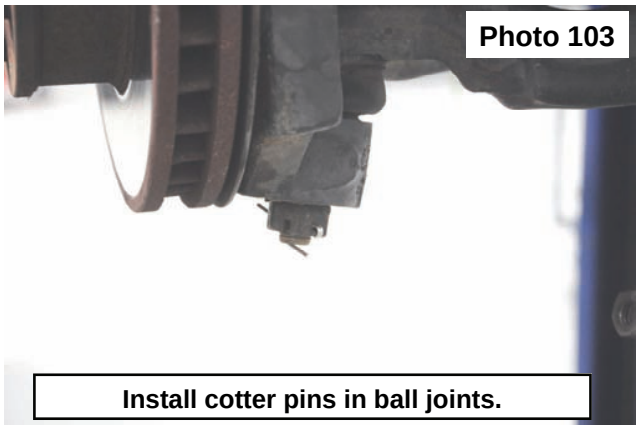


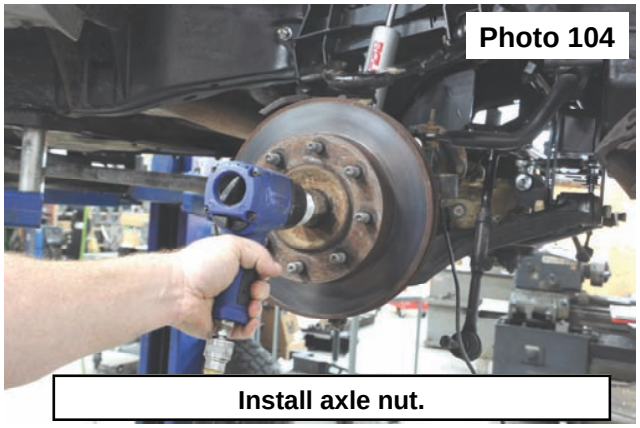
Tighten upper ball joint.



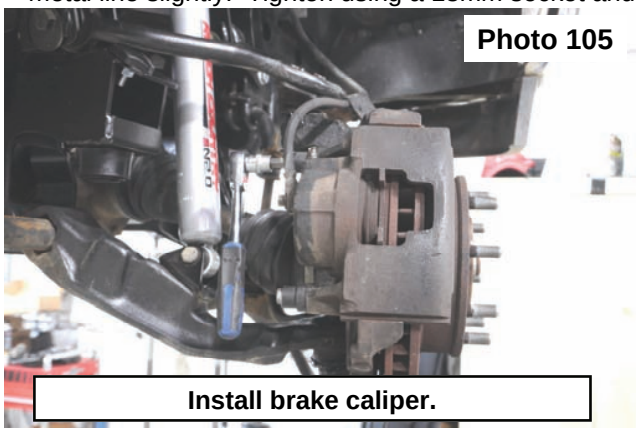
Tighten lower ball joint.

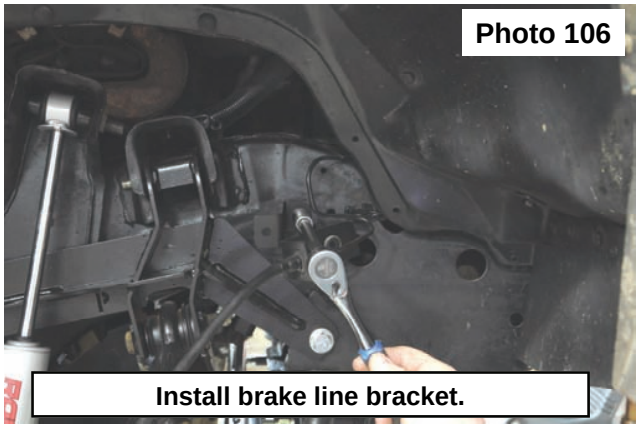
100. Install supplied cotter pins (16130BAG3) in the upper and lower ball joints. **See Photo 103**.
101. Torque the factory axle nut to factory specs using a 36mm socket. **See Photo 104.**



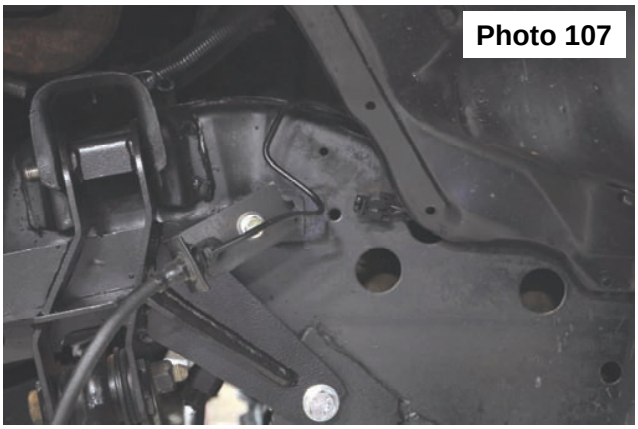


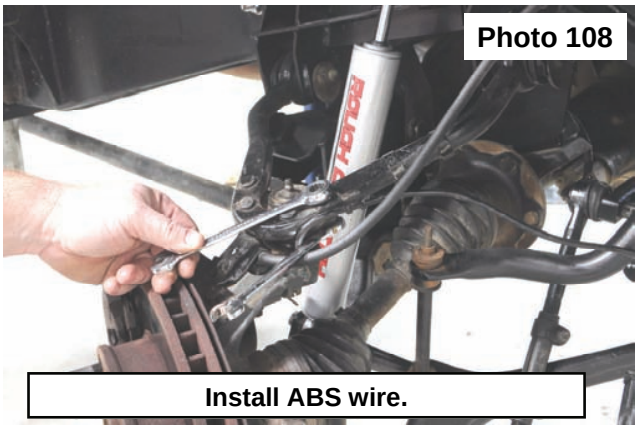
102. Install the brake caliper using the factory hardware. Torque to factory specs using a 3/8" Allen. **See Photo 105.**
103. Install the supplied brake line bracket using the the factory bolt to attach the bracket to the frame and the supplied 5/16" x 1" bolt, washer, and nut (16130BAG3) to attach the brake line to the bracket. You will have to unbend the metal line slightly. Tighten using a 13mm socket and a 1/2" socket and wrench. **See Photos 106 & 107.**



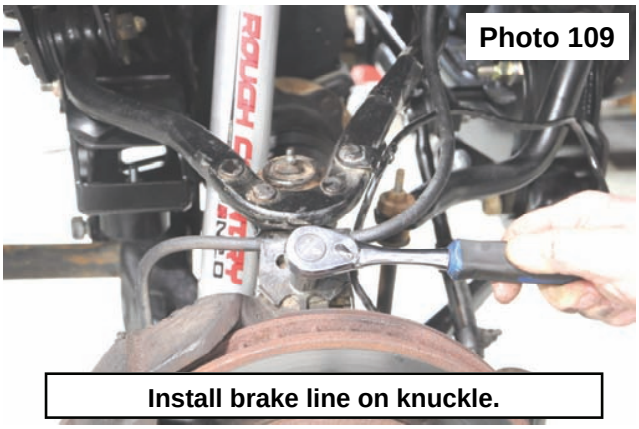


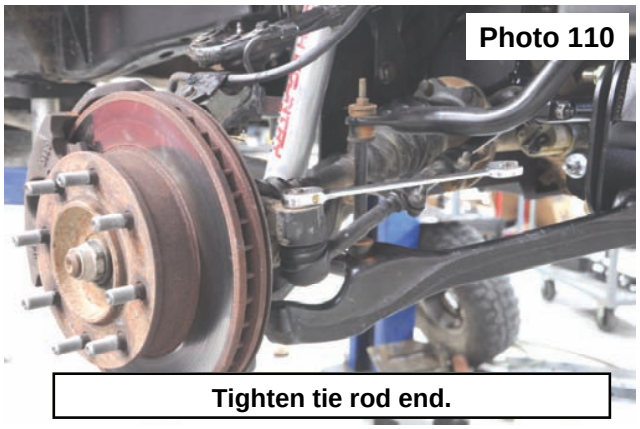
104. Install the ABS line onto the upper control arm, tighten using a 13mm socket and wrench. **See Photo 108.**



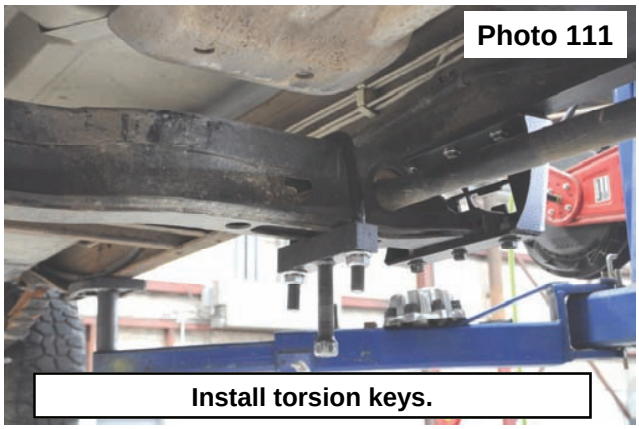


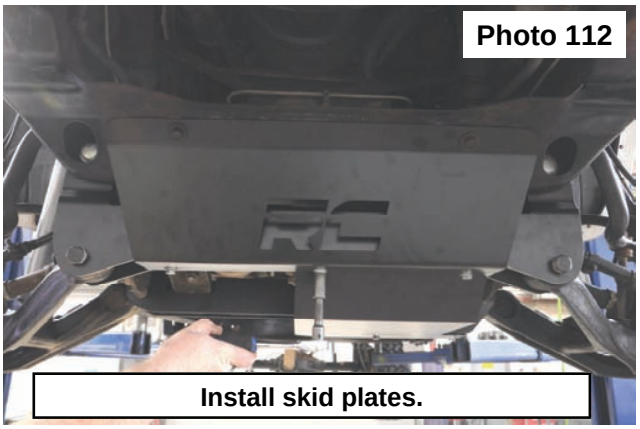
105. Install the brake line on the steering knuckle using the factory hardware. Tighten using a 13mm socket. **See Photo 109**.
106. Install the tie rod end in the knuckle. Tighten using an 18mm wrench. **See Photo 110.**





107. Some trucks will require the use of the supplied transmission damper bracket. Install onto the transmission and the torsion bar crossmember.
108. Install the torsion keys using a torsion bar loading/unloading tool. Adjust the torsion key adjuster bolts to the original measurements from step 3. **See Photo 111.**
109. Install the front skid plate, diff skid plate and spacer (between the diff skid and the rear crossmember) using the factory hardware for the 2 upper mounts and the supplied 3/8" x 1.25" bolts, flat washers and nylock nuts (16130BAG6). Tighten using a 9/16" socket and wrench. **See Photo 112.**

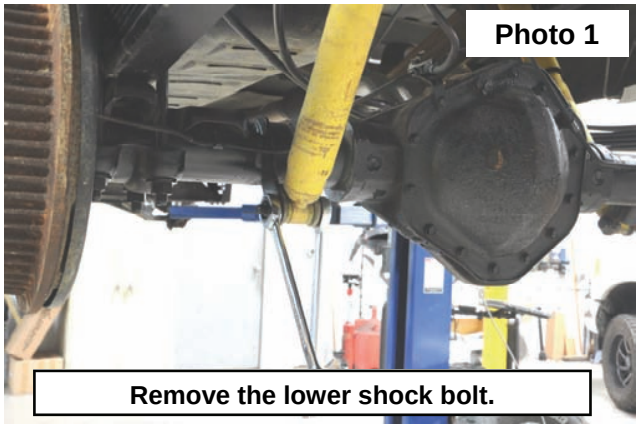


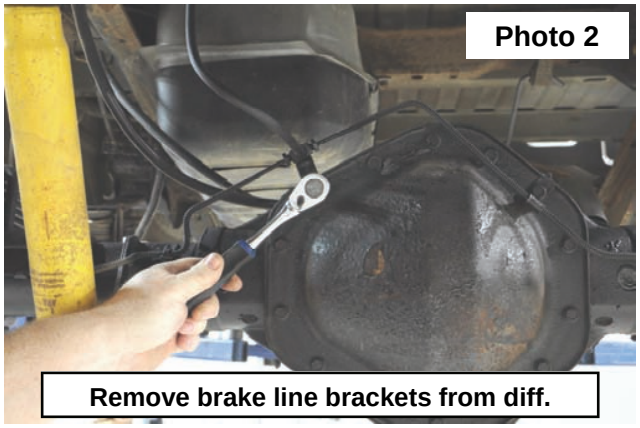


110. Reinstall the tires and wheels. Lower the vehicle to the ground.
111. Torque the upper and lower control arms to 175 ft/lbs using a 24mm socket and wrench. Recheck all fasteners.

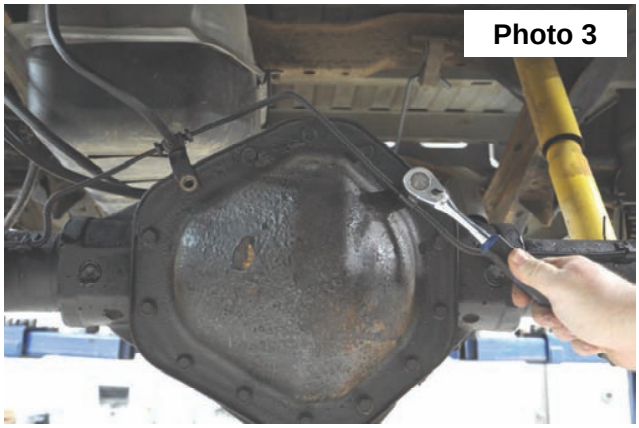
REAR INSTALLTION

1. Chock front wheels and jack up the rear of the vehicle. Secure with jack stands on the frame rail.
2. Place a floor jack under the rear differential on the rear axle.
3. Using a 21mm and 22mm wrench, remove the lower shock hardware. Retain hardware for reuse. **See Photo 1**.



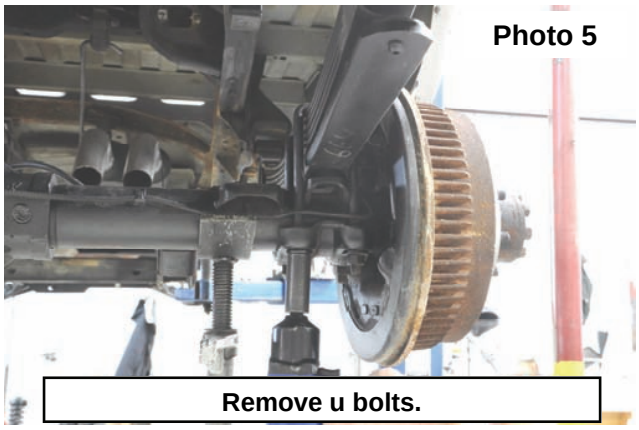


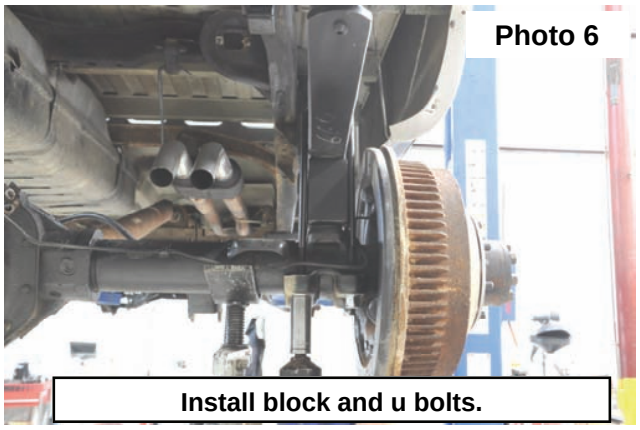
4. Using a 13mm socket, remove the brake line brackets from the rear diff housing. **See Photos 2 & 3.**
5. Using a 13mm socket and wrench, remove the upper shock bolts and remove the shocks. Retain hardware for reuse. **See Photo 4.**





6. Using a 24mm socket, remove the u bolts and hardware. **See Photo 5.**
7. Install the supplied blocks (**larger end toward the rear of the truck**), u bolts, and 5/8" hardware (5/8BAG). Torque to 120ft/lbs. **See Photo 6.**



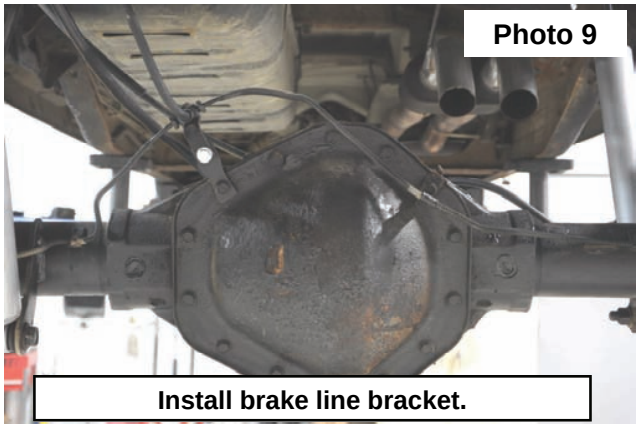


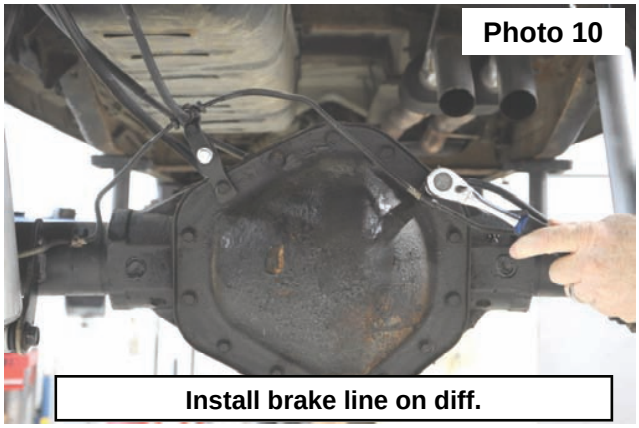
8. Install the supplied shocks into the upper mount using the factory hardware. Tighten using a 13mm socket. **See Photo 7**.
9. Install the supplied shocks into the lower mount using the factory hardware. Tighten using 21mm and 22mm wrenches. **See Photo 8.**



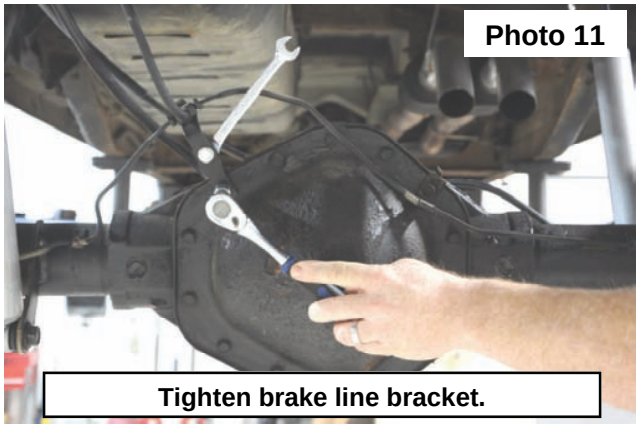


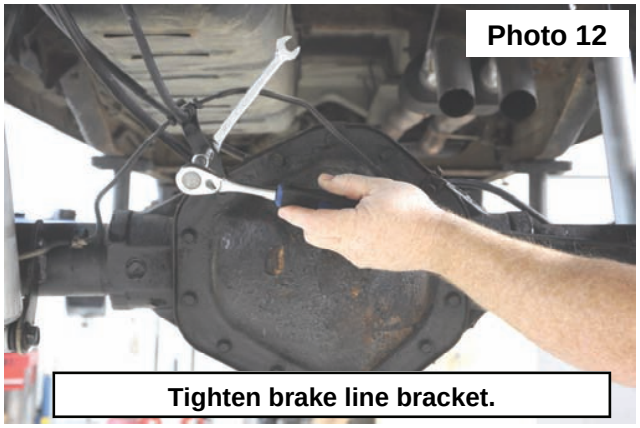
10. Install the supplied brake line bracket using the factory bolt to connect the bracket to the differential and the supplied 5/16" x 1" bolt, washer, and nut (16130BAG3) to attach the supplied bracket to the factory bracket. **See Photo 9.**
11. Slightly bend the brake line to allow the brake line to be attached to the diff on the passenger side using the factory bracket. Tighten using a 13mm socket. **See Photo 10.**





12. Tighten the factory diff bolt using a 13mm socket. **See Photo 11.**
13. Tighten the supplied 5/16" hardware using a 1/2" socket and wrench. **See Photo 12.**





14. Install the tires and wheels
15. Jack up the rear of the vehicle and remove the jack stands. Lower the vehicle to the floor
16. Adjust torsion bars so that the truck sets level.

POST INSTALLATION INSTRUCTIONS

1. Have a qualified alignment center realign front end to factory specs.
2. Install Warning to Driver decal on sun visor.
3. All components must be retightened after 500 miles, and every three thousand miles after installation
4. Adjust headlights to proper settings.
5. Have an exhaust shop modify the crossover pipe to clear the driveshaft.

Thank you for purchasing a Rough Country Suspension System.

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