TRAIL FORTRESS

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Rough Country 12450 Installation Instructions

3.5-Inch Vertex 2.5 Lift Kit for Cast Steel LCA Silverado 1500

Part number: 12450

trailfortress.com/3-5-inch-vertex-2-5-lift-kit-cast-steel-lca-silverado-1500-rough-country-12450

Scan for fitment, price and install help

ROUGH COUNTRY SUSPENSION SYSTEMS®

199INSTBAG

GM 2007-18 1500 4wd 3.5” Knuckle Lift Kit

Thank you for choosing Rough Country for your suspension needs.

Rough Country recommends a certified technician install 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 instructions before beginning installation. Check the kit hardware against the parts list on the rear cover of these instructions. Be sure you have all needed parts and know where they go. Also please review 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. Seat belts and shoulder harnesses should be worn at all times. Avoid situations where a side rollover may occur. Generally, braking performance and capability are decreased when larger/heavier tires and wheels are used. Take this into consideration while driving. Do not add, alter, or fabricate any factory or after-market parts to increase vehicle height over the intended height of the Rough Country product purchased. Mixing component brands is not recommended.
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. If question exist we will be happy to answer any questions concerning the design, function, and correct use of our products.

⚠NOTICE **The electric power steering must be unplugged before any of the steering components are removed. Failure to do so may cause damage to the electric power steering.**
Trucks with a mass damper on the front diff, the damper will have to be removed.

This kit is packaged as a leveling kit—raising the front 3.5” and the back 1.75”. If you desire a different look or if the vehicle has a tool box or added weight in the rear, please consult with your sales representative about other block and u-bolt options.

This suspension system was developed using a 33 x 11.5 tire with factory wheels. Examples of tire sizes that can be used are 285/75R17, 285/65R18, or 285/55R20. **Note** if wider tires are used, offset wheels will be required and trimming may be required.

⚠NOTICE **NOTICE TO DEALER AND VEHICLE OWNER**

Any vehicle equipped with any Rough Country product should have a “Warning to Driver” decal installed on the inside of the windshield or on the vehicle’s dash. The decal should act as a constant reminder for whoever is operating the vehicle.

Tools Needed:

- 18MM Wrench
- 15MM Wrench
- 21MM Wrench
- 24MM Socket
- 11MM Wrench
- 10MM Socket
- 36mm Socket
- 30Torx
- Floor Jack
- Jack stands
- Die Grinder

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	50ft/lbs	75ft/lbs
14MM	85ft/lbs	120ft/lbs
16MM	130ft/lbs	165ft/lbs
18MM	170ft/lbs	240ft/lbs

⚠NOTICE Note to installer : Before installation begins we recommend that a test drive be performed. While driving
check for uncommon sounds and/or vibrations . What you feel and hear during the test drive will only magnify once
lift kit is installed. Advise you to discuss possible issues identified from drive with customer before proceeding to install this kit.

trailfortress.com/3-5-inch-vertex-2-5-lift-kit-cast-steel-lca-silverado-1500-rough-country-12450

11930	12130	12430
11930Box1 1-Driver Side Knuckle 1-Pass Side Knuckle	**12130Box1** 1-Driver Side Knuckle 1-Pass Side Knuckle	**12430Box1** 1-Driver Side Knuckle 1-Pass Side Knuckle
199.20 4-Diff Spacers 1-Diff Lower Skid Plate 2-Strut Spacers 4-9/16” x 10 1/2” U-bolts 2-3” spacer blocks 2-Rear Shock Absorbers 1-19920BAG1 1-199INSTBAG 1-12130BAG2 1-275BAG3 1-1277BAG6 (NOT USED) 1-9/16BAG	**199.20** 4-Diff Spacers 1-Diff Lower Skid Plate 2-Strut Spacers 4-9/16” x 10 1/2” U-bolts 2-3” spacer blocks 2-Rear Shock Absorbers 1-19920BAG1 1-199INSTBAG 1-12130BAG2 1-275BAG3 1-1277BAG6 (NOT USED) 1-9/16BAG	**199.20** 4-Diff Spacers 1-Diff Lower Skid Plate 2-Strut Spacers 4-9/16” x 10 1/2” U-bolts 2-3” spacer blocks 2-Rear Shock Absorbers 1-19920BAG1 1-199INSTBAG 1-12130bag2 1-275BAG3 1-1277BAG6 (NOT USED) 1-9/16BAG
12130BAG2 4-7/16” x 4.5” Bolts 4-7/16” Lock Washers 4-7/16” Nuts 8-7/16” Flat Washers	**12130BAG2** 4-7/16” x 4.5” Bolts 4-7/16” Lock Washers 4-7/16” Nuts 8-7/16” Flat Washers	**12130BAG2** 4-7/16” x 4.5” Bolts 4-7/16” Lock Washers 4-7/16” Nuts 8-7/16” Flat Washers
275BAG3 4-10mm x 65mm Bolts 8-3/8” Washers 4-10mm Lock Nuts	**275BAG3** 4-10mm x 65mm Bolts 8-3/8” Washers 4-10mm Lock Nuts	**275BAG3** 4-10mm x 65mm Bolts 8-3/8” Washers 4-10mm Lock Nuts
19920BAG1 6-10mm x 70mm Bolts 6-10mm Flange Lock Nuts 6-10mm Flat Washers 6-10mm Hex Lock Nuts	**19920BAG1** 6-10mm x 70mm Bolts 6-10mm Flange Lock Nuts 6-10mm Flat Washers 6-10mm Hex Lock Nuts	**19920BAG1** 6-10mm x 70mm Bolts 6-10mm Flange Lock Nuts 6-10mm Flat Washers 6-10mm Hex Lock Nuts
9/16BAG 8-9/16” Nylock Nuts 8-9/16” Flat Washers	**9/16BAG** 8-9/16” Nylock Nuts 8-9/16” Flat Washers	**9/16BAG** 8-9/16” Nylock Nuts 8-9/16” Flat Washers
1277BAG6 NOT USED	**1277BAG6 NOT USED**	**1277BAG6 NOT USED**

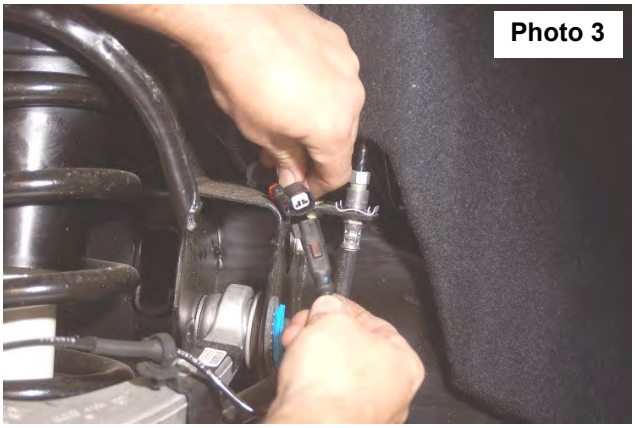
FRONT INSTALLATION

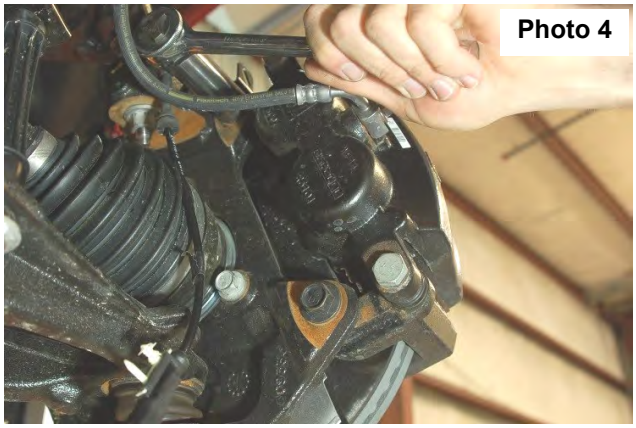
1. Park the vehicle on a level surface and chock the rear wheels.
2. Jack up the front of the vehicle. Place jack stands under the frame rails and lower onto jack stands letting the front suspension hang.
3. Remove the tires and wheels. Remove the 6 bolts holding the factory skid plate using a 15mm socket. Unplug the three connectors going to the electric power steering. **See Photo 1**.
4. Retain factory hardware and front skid plate for reuse.
5. Using a 21mm wrench, remove the tie-rod nut as shown in **Photo 2**. Strike the front of the mount to dislodge the tie rod end. Remove from the knuckle.



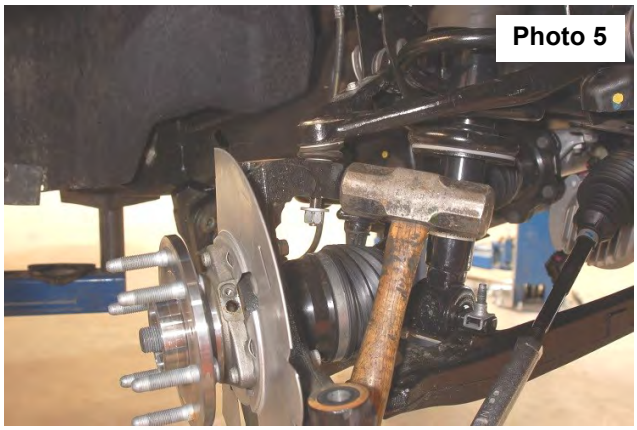


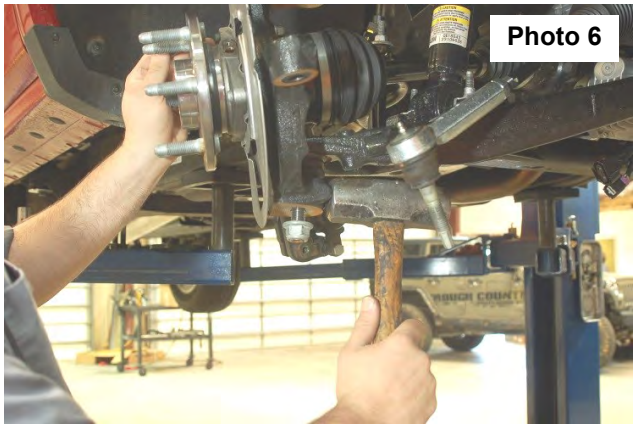
6. Remove and unplug the ABS sensor wire from the frame as shown in **Photo 3**.
7. Remove the brake caliper using a 18mm socket. Hang the caliper out of the way and remove the rotor using a 30 torx socket. **See Photo 4.**





8. Use a 10mm socket to remove the ABS bracket from the top side of the knuckle. Retain hardware for reuse.
9. Remove the dust cap and then remove the axle nut using a 35mm socket. Retain hardware for reuse.
10. Place jack stand under knuckle for support and then loosen the upper ball joint nut, **do not completely remove,** using a 18mm wrench. **See Photo 5**. Strike the knuckle as shown to dislodge the upper ball joint.
11. Loosen the lower ball joint nut, using a 24mm socket. **Do not completely remove the nut.** Strike the knuckle to dislodge the lower ball joint. **Photo 6**. Remove the ball joint nuts and the knuckle. Retain hardware for reuse.





12. Using a 18mm wrench, remove the upper strut nuts as shown in **Photo 7**. Retain factory hardware for reuse.
13. Using a 15mm wrench, remove the 2 bolts securing the lower strut mount to the lower control arm and remove the strut from the vehicle. **See Photo 8.**

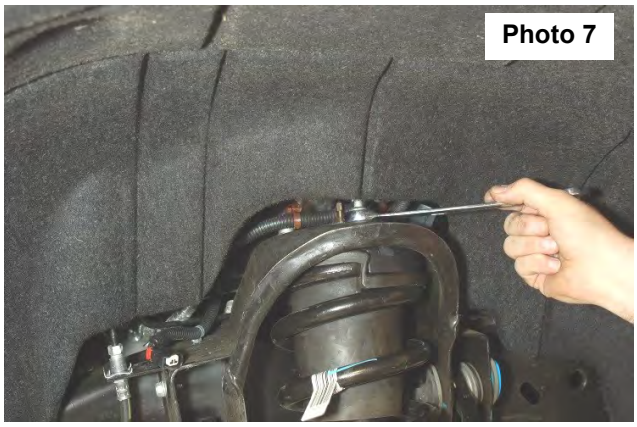


Photo 7

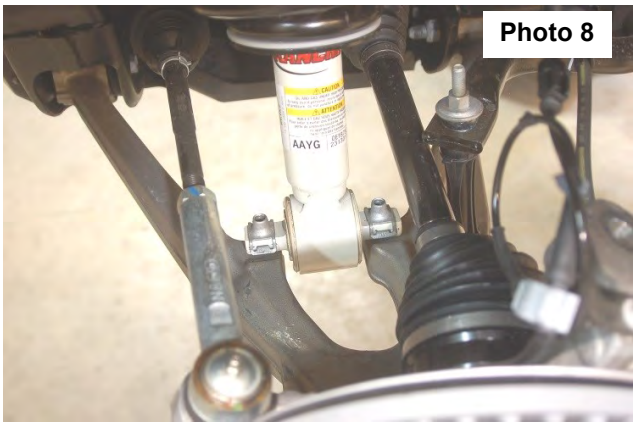


Photo 8

14. Using a 18mm socket and wrench remove the four bolts holding in the factory cross member. Retain factory hardware.
15. Using a die grinder, grind the cooling fins on the diff. Hold the cross member into place and check clearance between the cross member and front diff. **See Photo 9.**
16. Use a jack stand to support the front diff. Remove the 4 bolts holding the diff mounts to the frame with a 15mm and 18mm wrench.
17. Lower the jack stand and pull down on the front of the diff to allow enough room to slide the two 1" diff drop spacers into place. Use the supplied 7/16" x 4.5" bolts, lock washers, and nuts. Install the 1" spacers in the rear diff. mounts. Use supplied hardware from 12130BAG2. Tighten using 16mm and 18mm socket and wrench. Tighten with a 16mm and 18mm socket and wrench. **See Photo 10.**

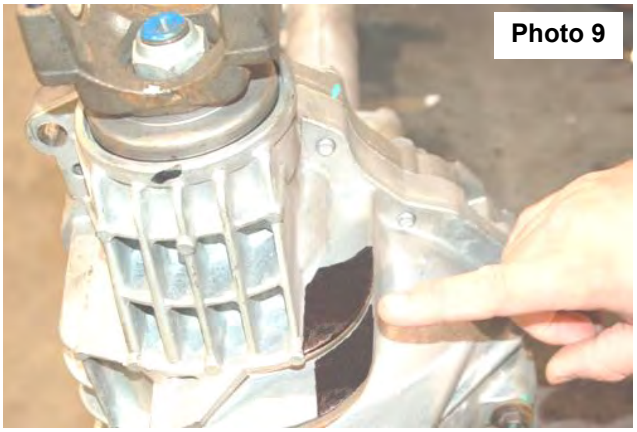


Photo 9

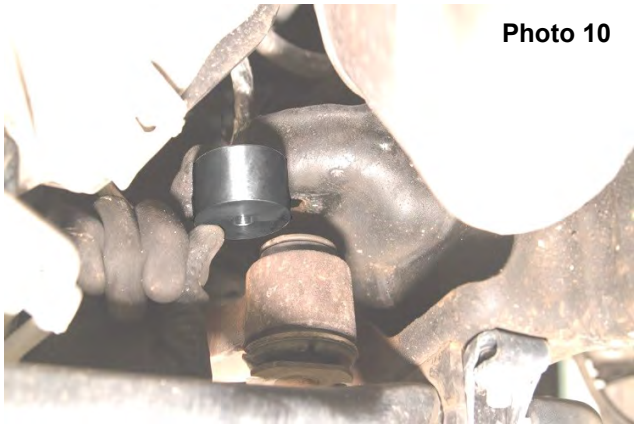


Photo 10

18. On the driver side of the factory cross member measure from the end of the tube and make marks at 4.5" and 8" on the front side as shown in **Photo 11**. Measure 1/4" for the bottom, and 2" from the back side and mark.
19. Using a die grinder and cut across the marks as shown in **Photo 12.**


Photo 11


Photo 12

20. Insert factory hardware into the stock cross member and tighten with a 18mm socket and wrench. **See Photo 13.**
18. Place the supplied 10mm x 70mm bolts into the hex shaped holes in the strut spacer facing upward. **See Photo 14.**

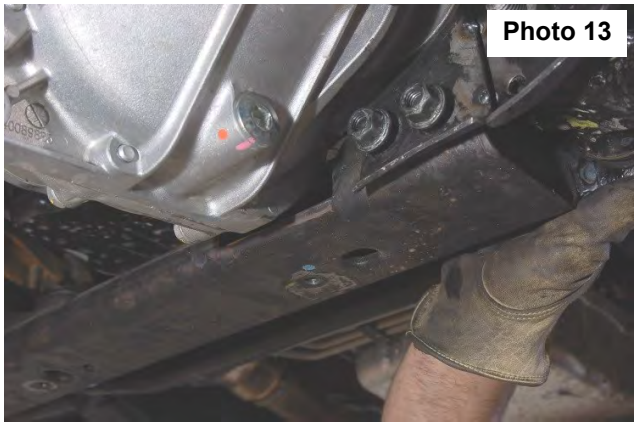


Photo 13

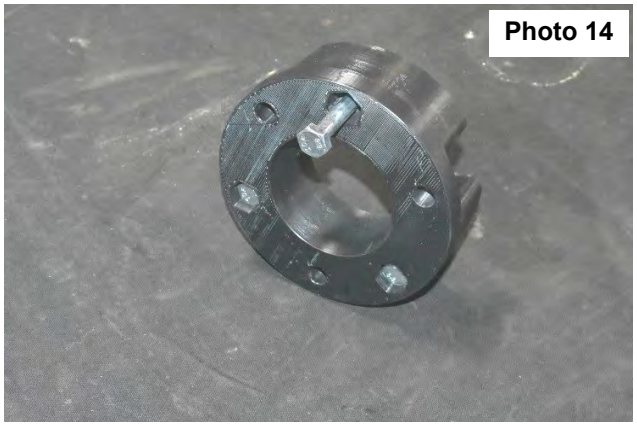


Photo 14

20. Place the strut spacer on top of the strut and tighten with the supplied 10mm lock nuts and flat washers and a 17mm socket. **See Photo 15.**
21. Install the strut assembly in the factory mount with the supplied 10mm flange lock nuts. Tighten using a 17mm wrench. **See Photo 16.**

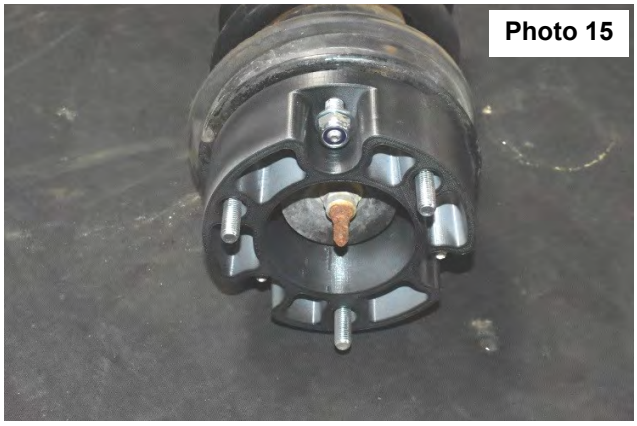


Photo 15

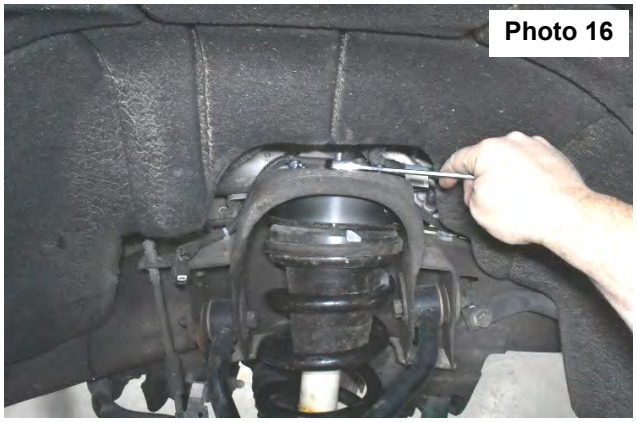


Photo 16

22. Install the strut in the lower control arm using supplied 10mm x 65mm bolts, washers, and nuts. (275BAG3) **See Photo 17.** It may be necessary to jack up the lower control arm with a floor jack to align lower strut holes. **Bolt goes in from top of LCA.**
23. Using a 15mm socket, remove the factory hub from the knuckle. Retain hardware for reuse.
24. Install the hub into the new supplied lift knuckle using the factory hardware. **See Photo 18.**

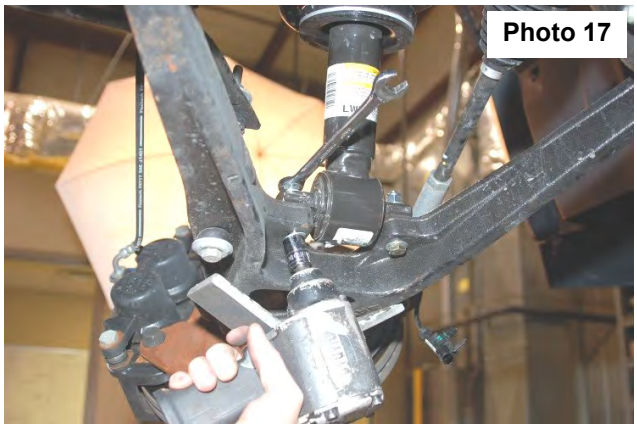


Photo 17

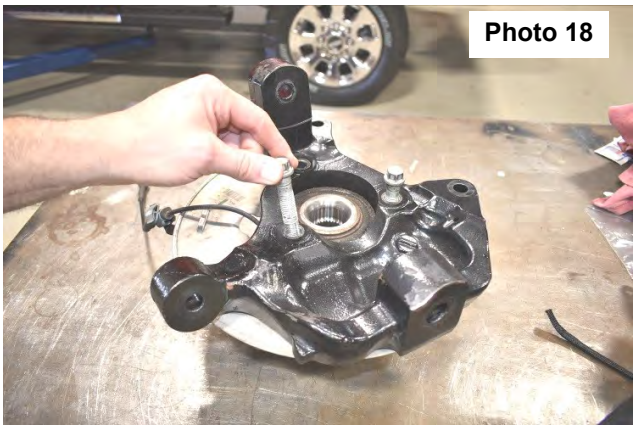
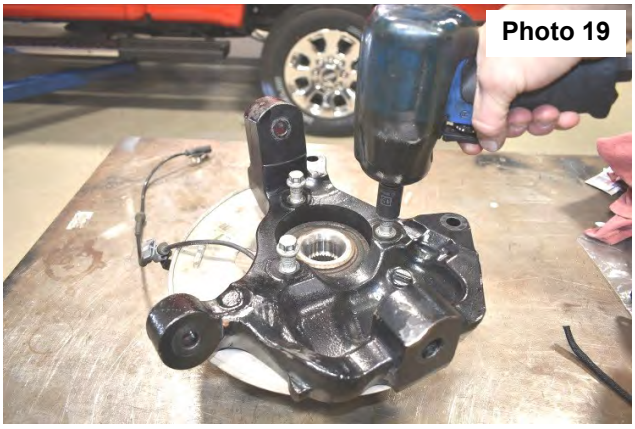
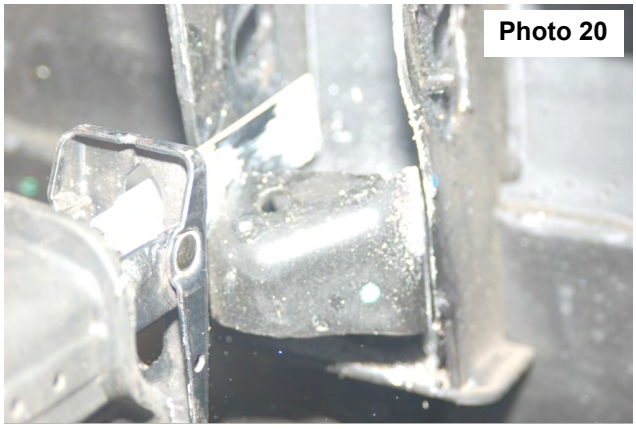


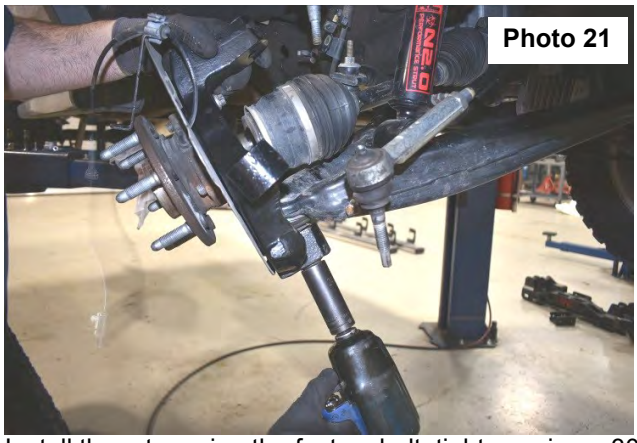
Photo 18

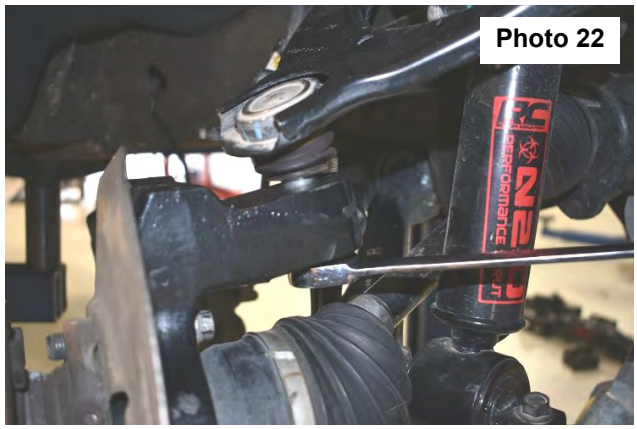
27. Using a 15mm socket torque the hub bolts to factory spec. **See Photo 19.**
28. Using a reciprocating saw, cut the bump stop from the upper control arm mount on the passenger and driver side as shown in **Photo 20**. **Passenger side shown.** After the bump stop has been cut from the control arm mount, grind and apply paint to the cut surface to prevent rusting. **It may be necessary to remove the upper control arm, depending on the type of cutting tool you are using. Make sure to mark the cam bolt locations before removing.**



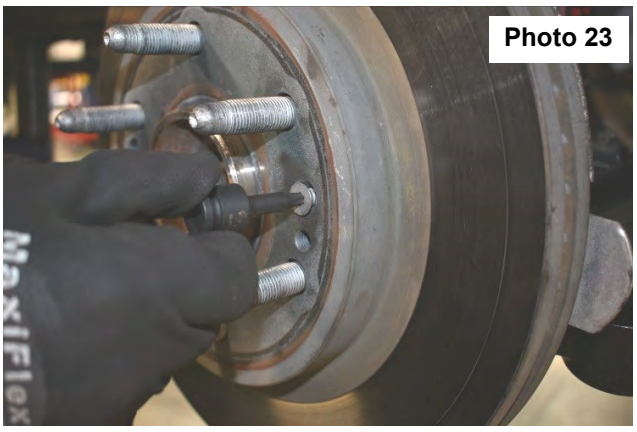


29. Install the knuckle assembly onto the lower ball joint, using a 24mm socket. Torque to factory specs. **See Photo 21.**
30. Attach the upper control arm using the factory nut, tighten using a 18mm wrench. **See Photo 22.**



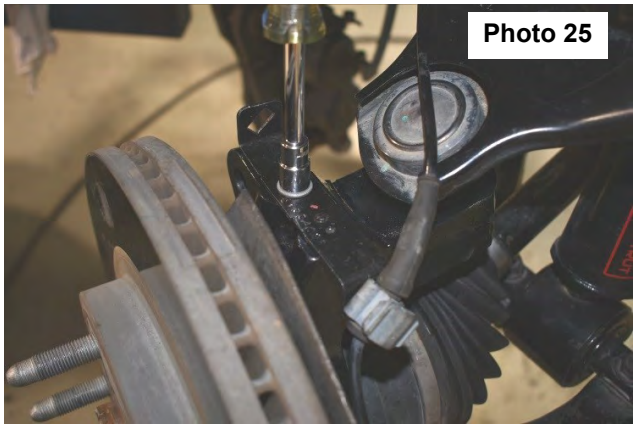


31. Install the rotor using the factory bolt, tighten using a 30 Torx. **See Photo 23.**
32. Install the factory axle nut and washer using a 36mm socket, torque to factory spec. **See Photo 24.**



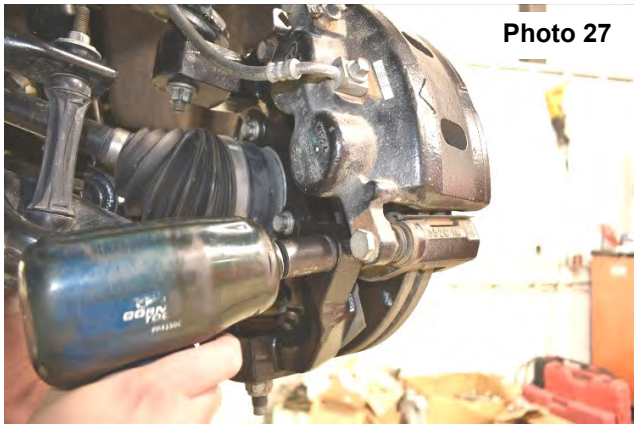


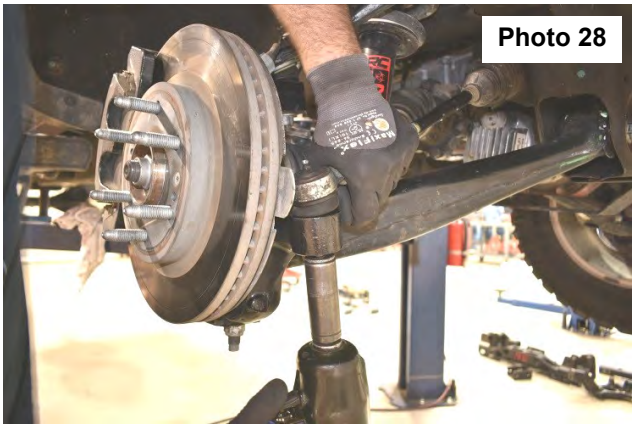
33. Install the ABS bracket on the top of the knuckle using the factory bolt, torque to factory spec using a 10mm socket. **See Photo 25.**



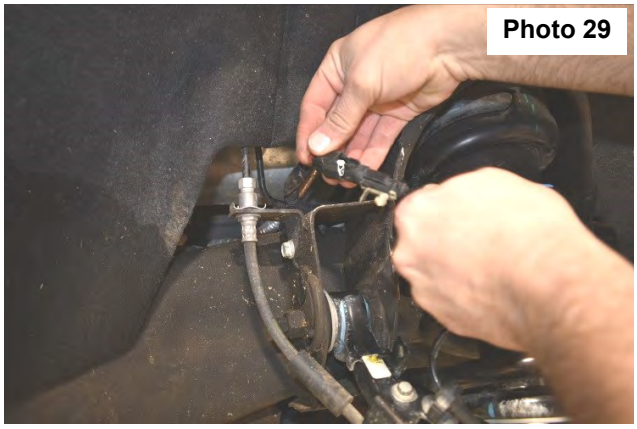


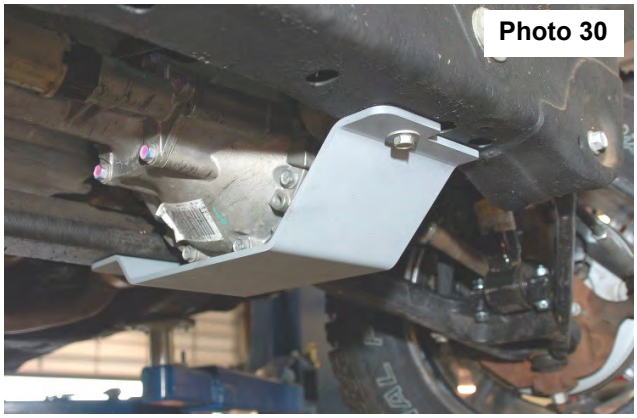
34. Install the brake caliper using the factory hardware, torque to specs using an 18mm socket. **See Photos 26 & 27.**
35. Install the tie rod using the factory hardware, torque to factory specs using a 21mm socket. **See Photo 28.**





36. Reconnect the ABS wire that was disconnected at the frame. **See Photo 29.**
37. Reconnect the three connectors going to the electric power steering.
38. Locate and install the new lower skid plate below the differential in the factory location with the factory hardware, torque to factory specs using a 15mm socket. **See Photo 30.**





39. Reinstall the wheels/tires.
40. Jack up the vehicle and remove the jack stands.
41. Lower the vehicle to the ground.

REAR INSTALLATION

1. Chock the front wheels.
2. Place a floor jack under the differential and jack up the rear of the vehicle.
3. Place jack stands under the frame rails and lower onto the jack stands.
4. Remove the tires/wheels.
5. Remove the factory shock absorbers using a 21mm wrench & socket. Retain the factory hardware for reuse.
6. Remove the factory u-bolts using a 21mm socket, then remove the factory blocks. Lower the axle using the floor jack to allow for the new 3" block to be installed.


Photo 1


Photo 2

7. Install the block on the factory spring pad with the flat part of the block on the spring and the thinner end towards the front. Jack up the axle to meet the springs, making sure to align the center pin. **See Photo 1**
8. With the floor jack applying slight pressure to the rear axle to keep the pin aligned, install the new supplied u-bolts and tighten in a crossing pattern, using a 7/8" socket.
9. Locate the new shock absorbers and install the shock absorbers in the factory mounting locations using the factory hardware. Tighten using a 21mm wrench & socket. **See Photo 2**
10. Install the tires/wheels.
11. Jack up the vehicle to remove the jack stands. Remove the jack stands and lower the vehicle to the ground.

POST INSTALLATION INSTRUCITONS

1. Have a qualified alignment center align the vehicle immediately.
2. Have headlights adjusted to proper settings.
3. Wheels must be retighten at 50 miles.
4. All kit components must be retightened at 500 miles and then every three thousand miles after installation. Periodically check hardware for tightness.
5. Install "Warning to Driver" decal on sun visor.
6. On some vehicles the front lower skirting will need to be trimmed if using certain wheel /tire combinations and with heavy offset wheels. Trim only as needed.

Alignment Specifications

Front			
Total Toe	-0.05°	+0.05°	+0.15°
Front Camber	-0.90°	-0.10°	+0.70°
Caster	+1.40°	+2.40°	+3.40°
King-Pin	———	———	———
Incl. Angle	———	———	———
Rear			
Total Toe	°	°	°
Rear Camber	°	°	°
Thrust Angle	-.025°	+0.00°	+0.25°

KIT CONTENT



Thank you for choosing Rough Country for your suspension needs.

By purchasing any item sold by Rough Country, LLC, the buyer expressly warrants that he/she is in compliance with all applicable , State, and Local laws and regulations regarding the purchase, ownership, and use of the item. It shall be the buyers responsibility to comply with all Federal, State and Local laws governing the sales of any items listed, illustrated or sold. The buyer expressly agrees to indemnify and hold harmless Rough Country, LLC for all claims resulting directly or indirectly from the purchase, ownership, or use of the items.