Rough Country 509.20 Installation Instructions

3-Inch Lift Kit with N3 Shocks for Ford Super Duty 4WD

Part number: 509.20

trailfortress.com/rough-country-3-inch-lift-kit-509-20

Scan for fitment, price and install help

921502200F

ROUGH COUNTRY
SUSPENSION SYSTEMS®

2017-22 F250 SUPERDUTY 3” LIFT 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. Seat belts and shoulder harnesses should be worn at all times. Avoid situations where a side rollover may occur.

Braking performance and capabilities are decreased when significantly larger/heaver 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 3” suspension system was developed for **35x12.50x17** tire on an 8” wheel.

This 3” system comes standard with a 4” block and u-bolt set-up for the rear to give the truck a level look. Personal preference, OE options, and aftermarket add-ons may require additional lifting options. **On vehicles with dual rear wheels the use of blocks and longer u-bolts is not recommended and should not be installed.**

⚠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 / 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.

Tools Needed:

10mm Socket
18mm Socket
18mm Wrench
19mm Socket
19mm Wrench
21mm Socket
21mm Wrench
23mm Socket
24mm Socket
30mm Socket
Jack Stands
Floor Jack
Wheel Chocks
1 1/8” Socket
1 1/8” Wrench
Reciprocating Saw
Tap Measure

Torque Specs:

Size	Grade 5	Grade 8	Size	Class 8.8	Class 10.9
5/16”	15 ft/lbs	20ft/lbs	6MM	5ft/lbs	9ft/lbs
3/8”	30 ft/lbs	35ft/lbs	8MM	18ft/lbs	23ft/lbs
7/16”	45 ft/lbs	60ft/lbs	10MM	32ft/lbs	45ft/lbs
1/2”	65 ft/lbs	90ft/lbs	12MM	55ft/lbs	75ft/lbs
9/16”	95 ft/lbs	130ft/lbs	14MM	85ft/lbs	120ft/lbs
5/8”	135ft/lbs	175ft/lbs	16MM	130ft/lbs	165ft/lbs
3/4”	185ft/lbs	280ft/lbs	18MM	170ft/lbs	240ft/lbs

trailfortress.com/rough-country-3-inch-lift-kit-509-20

2022 Tremor - 41370 Kit Contents:

Kit Boxes Containing:

1502BOX8:
- 2-Front Coil Spacers
- 2-760839 Front Shock
- 2-760804 Rear Shock
- 1-Dr Brake Line Bracket
- 1-Pass Brake Line Bracket
- 2-3in Aluminum Spacer
- 1-81052BAG
- 1-1502BAG2
- 1-1486BAG1

1502BOX2:
- 2-4” Blocks
- 4-5/8” x 3 1/8” x 13 1/2” U-Bolts

50220BOX1:
- 1-Track Bar Bracket
- 4-5/8” x 3 5/8” x 13 1/2” U-Bolts
- 1-5/8BAG
- 1-50220BAG

41370991 Kit Box:
- 1-41370BAG
- 1-Track Rod Bracket
- 4-Tremor Rear Leaf Plate

Kit Bags Containing:

81052BAG:
- 2-1/2” Washers

1502BAG2:
- 2-14mm x 130mm Bolts

1486BAG1:
- 4-3/4” x 5” Bolts
- 4-3/4” Nuts
- 8-3/4” Washers
- 4-Crush Sleeves

5/8BAG x 2:
- 8-5/8” Nylock Nuts
- 8-5/8” Flat Washers

41370BAG
- 2-Cam Plates For Track Bar Bracket
- 2-7/16 x 6” Blot
- 2-7/16-20 Nut

2017-2020 Models - 50220 Kit Contents:

Kit Boxes Containing:

1502BOX6:
- 2-Front Coil Spacers
- 2-Radius Arm Drop Brackets
- 2-660839 Front Shock
- 2-660804 Rear Shock
- 2-142731 Front Shock Mounting Kit
- 1-Dr Brake Line Bracket
- 1-Pass Brake Line Bracket
- 1-1502BAG2
- 1-1502BAG7
- 1-1486BAG1

1502BOX2:
- 2-4” Blocks
- 4-5/8” x 3 1/8” x 13 1/2” U-Bolts

50220BOX1:
- 1-Track Bar Bracket
- 4-5/8” x 3 5/8” x 13 1/2” U-Bolts
- 1-5/8BAG
- 1-50220BAG

Kit Bags Containing:

1502BAG7:
- Instructions

1502BAG2:
- 2-14mm x 130mm Bolts

1486BAG1:
- 4-3/4” x 5” Bolts
- 4-3/4” Nuts
- 8-3/4” Washers
- 4-Crush Sleeves

5/8BAG x 2:
- 8-5/8” Nylock Nuts
- 8-5/8” Flat Washers

50220BAG:
- 2-Cam Plates for track bar bracket

2011-2016 Models - 561.20 Kit Contents:

Kit Boxes Containing:

1502BOX7:
- 2-Front Coil Spacers
- 2-Radius Arm Drop Brackets
- 2-660839 Front Shock
- 2-660789 Rear Shock
- 2-142731 Front Shock Mounting Kit
- 1-Dr Brake Line Bracket
- 1-Pass Brake Line Bracket
- 1-1502BAG2
- 1-1502BAG7
- 1-1486BAG1

6582:
- 2-2” Blocks
- 4-5/8” x 3 1/8” x 15 1/4” U-Bolts
- 1-5/8BAG

1516BOX2:
- 1-Track Bar Bracket
- 4-5/8” x 3 5/8” x 13 1/2” U-Bolts
- 1-5/8BAG
- 1-1486BAG3

Kit Bags Containing:

1502BAG7:
- Instructions

1502BAG2:
- 2-14mm x 130mm Bolts

1486BAG1:
- 4-3/4” x 5” Bolts
- 4-3/4” Nuts
- 8-3/4” Washers
- 4-Crush Sleeves

5/8BAG x 2:
- 8-5/8” Nylock Nuts
- 8-5/8” Flat Washers

1486BAG3:
- 2-Cam Plates for track bar bracket

2008-2010 Models - 516.20 Kit Contents:

Kit Boxes Containing:

1502BOX7:
- 2-Front Coil Spacers
- 2-Radius Arm Drop Brackets
- 2-660839 Front Shock
- 2-660789 Rear Shock
- 2-142731 Front Shock Mounting Kit
- 1-Dr Brake Line Bracket
- 1-Pass Brake Line Bracket
- 1-1502BAG2
- 1-1502BAG7
- 1-1486BAG1

6557:
- 2-2” Blocks
- 4-5/8” x 3 5/8” x 16 1/2” U-Bolts
- 1-5/8BAG

1516BOX2:
- 1-Track Bar Bracket
- 4-5/8” x 3 5/8” x 13 1/2” U-Bolts
- 1-5/8BAG
- 1-1486BAG3

Kit Bags Containing:

1502BAG7:
- Instructions

1502BAG2:
- 2-14mm x 130mm Bolts

1486BAG1:
- 4-3/4” x 5” Bolts
- 4-3/4” Nuts
- 8-3/4” Washers
- 4-Crush Sleeves

5/8BAG x 2:
- 8-5/8” Nylock Nuts
- 8-5/8” Flat Washers

1486BAG3:
- 2-Cam Plates for track bar bracket

2005-2007 Models - 509.20 Kit Contents:

Kit Boxes Containing:

1502BOX7:
- 2-Front Coil Spacers
- 2-Radius Arm Drop Brackets
- 2-660839 Front Shock
- 2-660789 Rear Shock
- 2-142731 Front Shock Mounting Kit
- 1-Dr Brake Line Bracket
- 1-Pass Brake Line Bracket
- 1-1502BAG2
- 1-1502BAG7
- 1-1486BAG1

6557:
- 2-2” Blocks
- 4-5/8” x 3 5/8” x 16 1/2” U-Bolts
- 1-5/8BAG

1486BOX2:
- 1-Track Bar Bracket
- 4-5/8” x 3 5/8” x 13 1/2” U-Bolts
- 1-5/8BAG
- 1-1486BAG3

Kit Bags Containing:

1502BAG7:
- Instructions

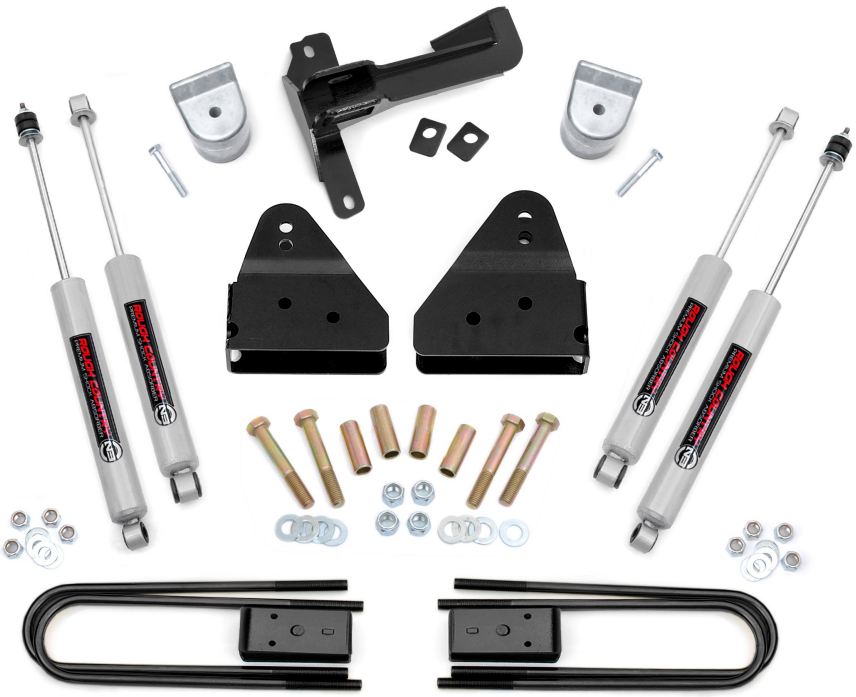
1502BAG2:
- 2-14mm x 130mm Bolts

1486BAG1:
- 4-3/4” x 5” Bolts
- 4-3/4” Nuts
- 8-3/4” Washers
- 4-Crush Sleeves

5/8BAG x 2:
- 8-5/8” Nylock Nuts
- 8-5/8” Flat Washers

1486BAG3:
- 2-Cam Plates for track bar bracket

50220 Kit Picture

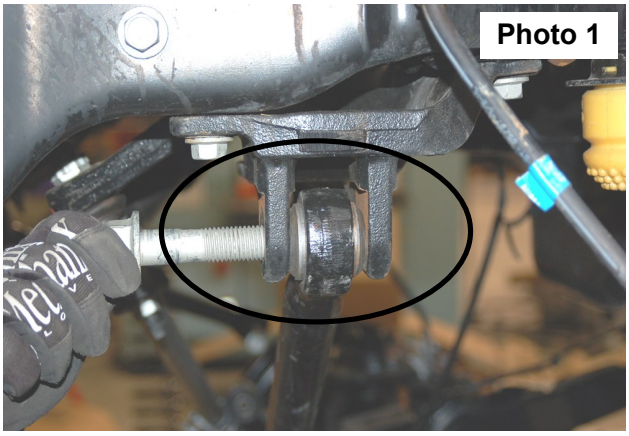


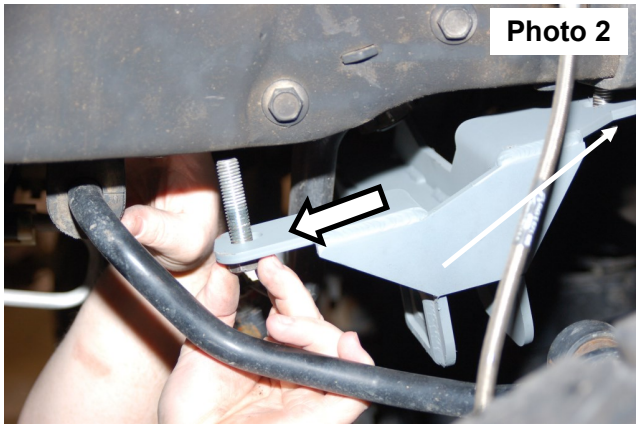
41370 Tremor Kit Picture



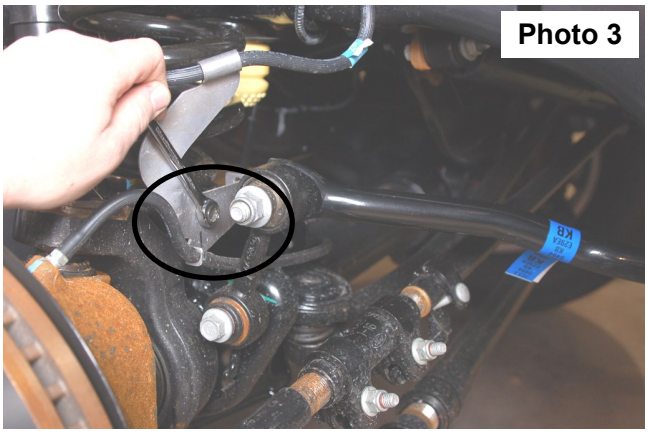
FRONT INSTALLATION INSTRUCTIONS

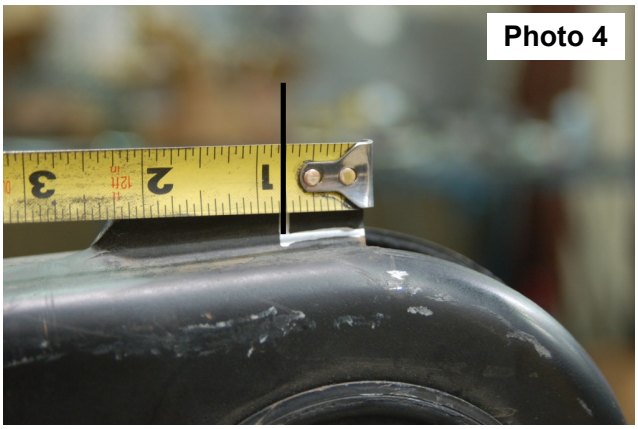
1. Place the vehicle on a level surface and chock the rear wheels.
2. Jack up the front of the vehicle and support with jack stands on the frame rail.
3. Remove the front wheels and tires. Support the axle with a floor jack.
4. Remove the stock shock absorber from the upper mount using a 19mm wrench and the lower mount using a 18mm wrench. Retain the lower shock mounting bolt for reuse.
5. Remove the track bar from the frame as shown in **Photo 1** using a 21mm and 30mm socket / wrench and retain the factory hardware. Remove the factory track rod bracket using a 21mm socket and install the new track rod bracket in the factory location using the factory hardware. **See Photo 2.** Torque to 120 ft-lbs. using a 21mm socket.



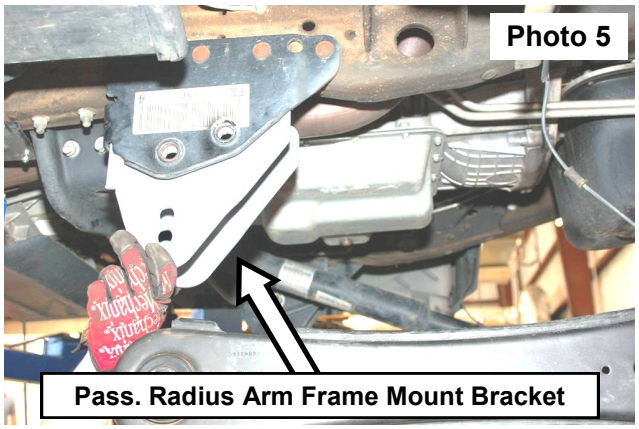


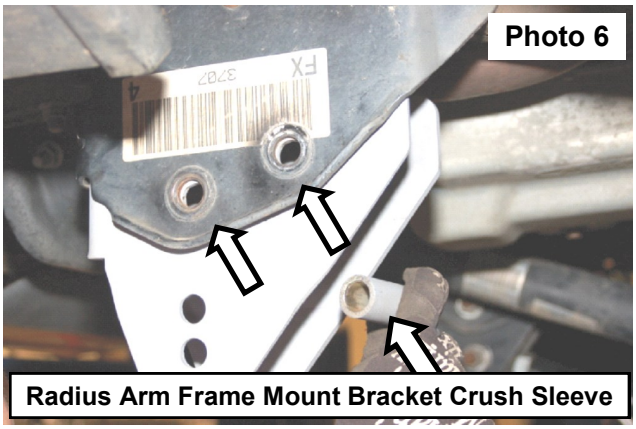
6. Remove lower sway bar nut on the axle using a 21mm wrench to allow the axle to move downward for the installation of the new coil.
7. Using the floor jack, lower the axle to allow for the coil spring to be removed from the coil mount. Take notice of the position of the coil wraps on the top and bottom spring in the mount. The coil will be reinstalled in the same position.
8. Remove the brake line bracket as shown using a 10mm wrench. **See Photo 3.**
9. Using a 1 1/8" wrench, and socket remove the bolt holding the radius arm to the frame.
10. Using a measuring tape, mark 3/4" from the end of the factory radius arm as shown and trim using a reciprocating saw. This area is trimmed for clearance on the crush sleeve. **See Photo 4.**



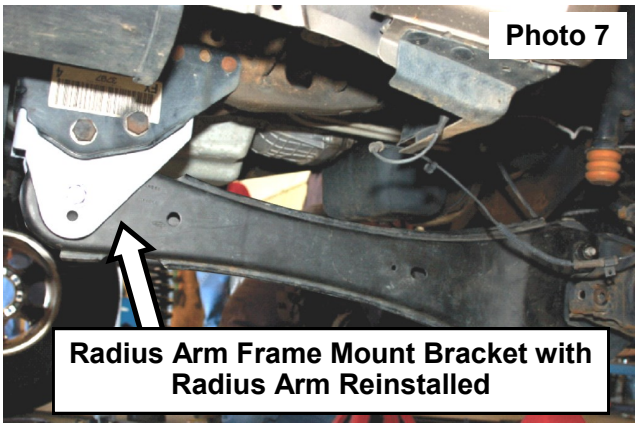


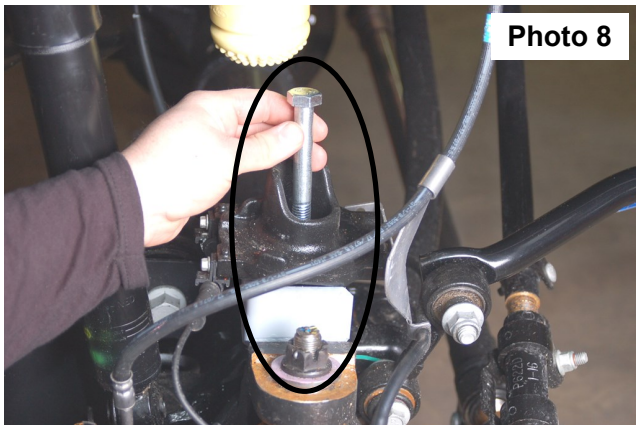
11. Insert the radius arm drop bracket into the stock location. **See Photo 5.**





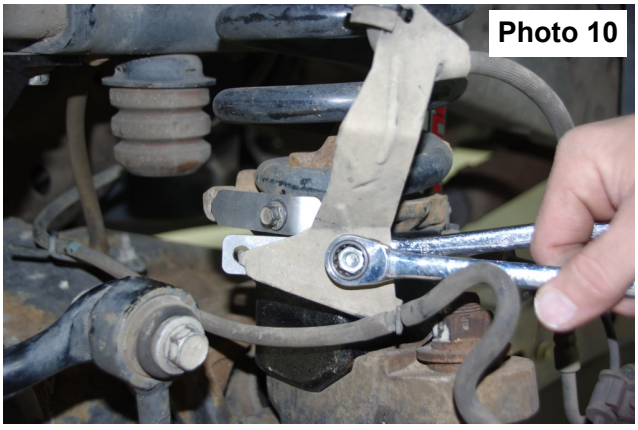
13. Reinstall the stock radius arm in the new bracket in the upper hole with stock hardware. **See Photo 7.** Leave loose. Do not tighten the radius arm to bracket at this time.
14. Remove the lower coil seat using a 21mm socket and install the supplied spring spacer in between the axle and the coil seat with the supplied 14mm x 130mm bolt. Torque to 85 ft-lbs. with a 22mm socket. **See Photo 8**.



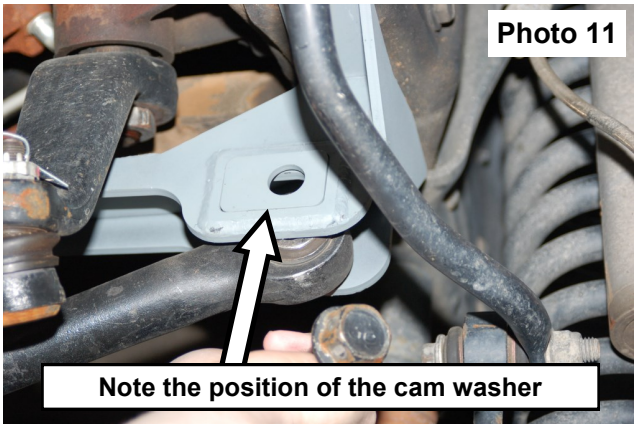


15. Reinstall the stock coil springs and slightly compress the coils springs in the mount using the floor jack. Reinstall the sway bar nut using a 21mm wrench & socket.
16. Using the factory hardware install the supplied brake line relocation bracket on the coil seat. Torque to 15 ft-lbs. using a 13mm socket. **See Photo 9.**
17. Install the factory brake line bracket on the supplied relocation bracket using the supplied 5/16" x .75" bolt washer and flange nut. Torque to 15 ft-lbs. using 1/2" wrench and socket. **See Photo 10.**





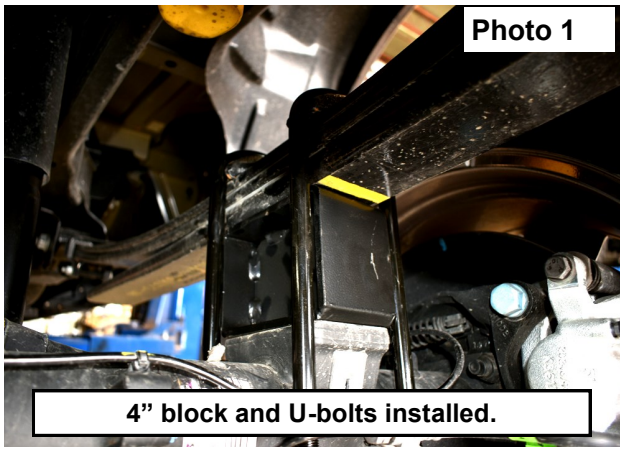
18. Install the front shock**,** use stock hardware on the lower mount and use the supplied bushing kit on the upper mount. Torque the lower bolt to 88 ft-lbs. using a 18mm socket, tighten the top until the bushing bulges, using a 19mm wrench.
19. Install the wheels/tires. Jack up the vehicle and remove jack stands. Lower the vehicle to the ground
20. Position the cam washer as shown in **Photo 11** and swing up the frame end of the track rod. Install in the frame mount using the stock hardware, Torque to 270 ft-lbs. using a 30mm socket and wrench. **Note: It may be necessary to have another person turn the vehicle as it sits still to align the track rod with the mount.**
21. Torque the radius arm in the new bracket to 270 ft-lbs. using a 1 1/8" wrench & socket.



Note the position of the cam washer

50220 - REAR INSTALLATION

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. Using a 18mm wrench for the upper, and 19mm and 15mm wrench for the lower, remove the stock shock absorbers, retain the stock hardware for reuse.
3. Remove the stock u-bolts using a 24mm socket. Use the floor jack to lower the axle assembly to allow for the lifted block installation
4. Install the Rough Country block in between the leaf spring pack and the axle. The block being installed has a taper, the short end of the block should be towards the center of the truck. **Photo 1** shows proper block placement. Jack up the axle and align the pins in the blocks and axle seat.
5. **Only install the 4" block, the stock block will not be used.**
6. Secure with the new u-bolts and torque evenly to 120ft lbs using a 24mm socket using a "X" pattern.
7. Locate shock number **660804**. Install using factory mounting pin on upper and factory bolt on lower shock mount. Tighten using a 18mm wrench for the upper and a 18mm & 15mm wrench for the bottom.
8. Install the wheels and tires. Jack up the vehicle with the floor jack to remove the jack stands.
9. Lower the vehicle to the floor.



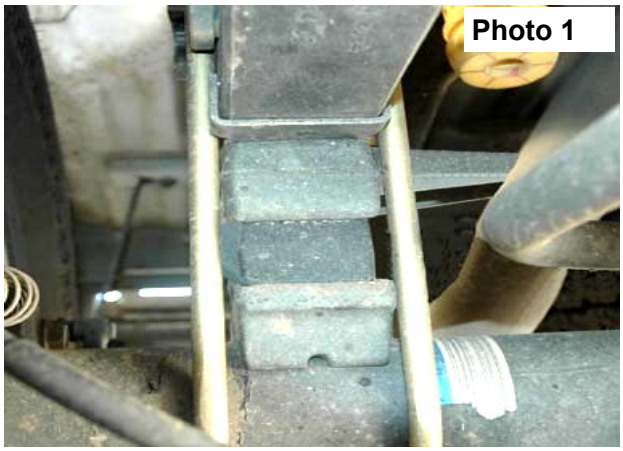
4" block and U-bolts installed.

POST INSTALLATION INSTRUCTIONS

1. Check all fasteners for proper torque. Check to ensure there is adequate clearance between all rotating, mobile, fixed and heated members. Check steering gear for interference and proper working order. Test brake system
2. Perform steering sweep. Check to ensure brake hoses have sufficient slack and will not contact rotating, mobile, or fixed members, adjust lines/brackets to eliminate interference and maintain proper working order. Failure to perform inspections may result in component failure
3. Readjust headlights to factory settings
4. Have vehicle aligned by a certified alignment professional.
5. All components must be retightened after 500 miles, and every three thousand miles after installation

561.20, 516.20, and 509.20 - REAR INSTALLATION

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. Using a 18mm wrench for the upper, and 19mm and 15mm wrench for the lower, remove the stock shock absorbers, retain the stock hardware for reuse.
3. Remove the stock u-bolts using a 24mm socket. Use the floor jack to lower the axle assembly to allow for the lifted block installation
4. Install the Rough Country block in between the factory block and the axle. The block being installed has a taper, the short end of the block should be towards the center of the truck. **Photo 1** shows proper block placement. Jack up the axle and align the pins in the blocks and axle seat.
5. Secure with the new u-bolts and torque evenly to 120ft lbs using a 24mm socket using a “X” pattern.
6. Locate shock number **660789**. Install using factory mounting pin on upper and factory bolt on lower shock mount. Tighten using a 18mm wrench for the upper and a 18mm & 15mm wrench for the bottom.Install the wheels and tires. Jack up the vehicle with the floor jack to remove the jack stands.
7. Lower the vehicle to the floor.

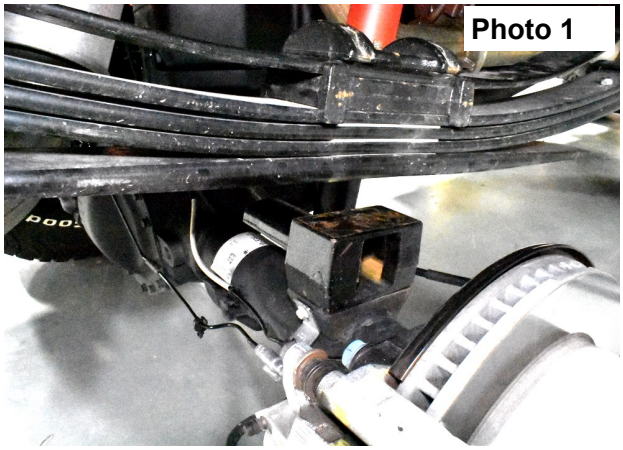


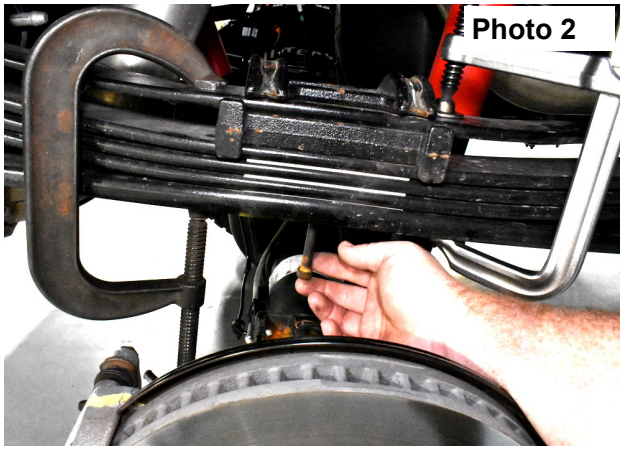
POST INSTALLATION INSTRUCTIONS

1. Check all fasteners for proper torque. Check to ensure there is adequate clearance between all rotating, mobile, fixed and heated members. Check steering gear for interference and proper working order. Test brake system
2. Perform steering sweep. Check to ensure brake hoses have sufficient slack and will not contact rotating, mobile, or fixed members, adjust lines/brackets to eliminate interference and maintain proper working order. Failure to perform inspections may result in component failure
3. Readjust headlights to factory settings
4. Have vehicle aligned by a certified alignment professional.
5. All components must be retightened after 500 miles, and every three thousand miles after installation

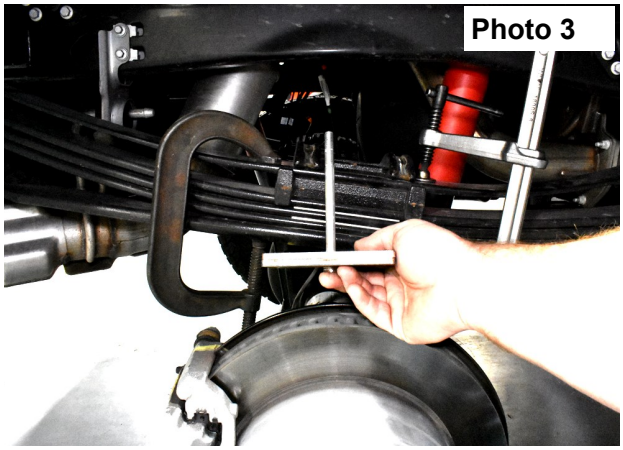
41370 Tremor - REAR INSTALLATION

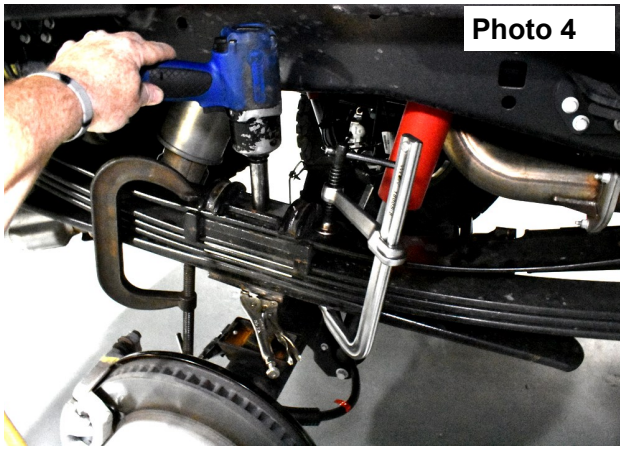
1. Chock front wheels and jack up the rear of the vehicle. Secure with jack stands on the frame rail.
2. Place a floor jack under the rear differential. Using a 18mm wrench for the upper, and 19mm and 15mm wrench for the lower, remove the stock shock absorbers, retain the stock hardware for reuse.
3. Remove the stock u-bolts using a 24mm socket. Use the floor jack to lower the axle. **See Photo 1.**
4. Place clamps on each side of the leaf spring. Then remove the center pin from the leaf pack using Vice grips on the pin and a Socket on the nut. **See Photo 2.**





5. Place the new center pin and (2) lower plates through and the plates on the bottom of the leaf pack. **See Photo 3.**
6. Tighten the new bolts using Vice grips and socket on the nut. **See Photo 4.** Repeat this process on the opposite side of the vehicle. Then, Jack up the axle and align the pins and seat the axle .





7. Secure with the u-bolts and torque evenly to 120ft lbs using a 24mm socket using a “X” pattern.
6. Locate shock number **760804**. Install using factory mounting pin on upper and factory bolt on lower shock mount. Tighten using a 18mm wrench for the upper and a 18mm & 15mm wrench for the bottom.
7. Install the wheels and tires. Jack up the vehicle with the floor jack to remove the jack stands.
8. Lower the vehicle to the floor.

POST INSTALLATION INSTRUCTIONS

1. Check all fasteners for proper torque. Check to ensure there is adequate clearance between all rotating, mobile, fixed and heated members. Check steering gear for interference and proper working order. Test brake system
2. Perform steering sweep. Check to ensure brake hoses have sufficient slack and will not contact rotating, mobile, or fixed members, adjust lines/brackets to eliminate interference and maintain proper working order. Failure to perform inspections may result in component failure
3. Readjust headlights to factory settings
4. Have vehicle aligned by a certified alignment professional.
5. All components must be retightened after 500 miles, and every three thousand miles after installation

By purchasing any item sold by Rough Country, LLC, the buyer expressly warrants that he/she is in compliance with all applicable Federal, 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.