



Installation manual

3" suspension system w/uniball upper arms

2009 - 2013 Ford F150

Part # 23005

SS03022016

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3" suspension system w/ uniball upper arms

Part #	Description	Qty.
20930-01	Driver side upper control arm	1
20930-02	Passenger side upper control arm	1
23000-03	Driver side strut spacer	1
23000-04	Passenger side strut spacer	1
23000-05	DS & PS pre load spacer	2
BL303	Rear block	2
5U-2510S	9/16" x 3" x 10 1/2" square u-bolt	4
916NW	Hardware bag	1
D2PNB	Hardware bag	1
23005NB	Hardware bag	1
23005INST	Instruction manual	1
MIRRORHANGER	Rear view mirror hanger	1
WARNINGDECAL	Warning decal	1

Congratulations on your selection to purchase a Tuff Country EZ-Ride Suspension System. We at Tuff Country EZ-Ride Suspension are proud to offer a high quality product at the industries most competitive pricing. Thank you for your confidence in us and our product.

If you desire to return your vehicle to stock, it is the customers responsibility to save all stock hardware and components.

The Tuff Country EZ-Ride Suspension product safety label that is included in your kit box must be installed inside the cab in plain view of all occupants.

Special note: Before installation begins, it is the customers/installers responsibility to make sure that all parts are on hand. If any parts are missing, please feel free to call one of our customer service representatives @ (801) 280-2777.

Important customer information:

Tuff Country EZ-Ride Suspension highly recommends that a qualified or a certified mechanic performs this installation.

It is the responsibility of the customer/installer to wear safety glasses at all times when performing this installation.

It is the customers/installers responsibility to read and

understand all steps before installation begins. If you have any questions or concerns, please contact our technical department @ (801) 280-2777. Also, the OEM manual should be used as a reference guide.

This vehicles reaction and handling characteristics may differ from standard cars and/or trucks. Modifications to improve and/or enhance off road performance may raise the intended center of gravity. Extreme caution must be utilized when encountering driving conditions which may cause vehicle imbalance or loss of control. DRIVE SAFELY! Avoid abrupt maneuvers: such as sudden sharp turns which could cause a roll over, resulting in serious injury or death.

It is the customers responsibility to make sure that a re-torque is performed on all hardware associated with this suspension system after the first 100 miles of installation. It is also the customers responsibility to do a complete re-torque after every 3000 miles or after every off road use.

After the original installation, Tuff Country EZ-Ride Suspension also recommends having the alignment checked every 6 months to ensure proper tracking, proper wear on tires and front end components. Tuff Country EZ-Ride Suspension takes no responsibility for abuse, improper installation or improper suspension maintenance.

Limited lifetime warranty

Notice to all Tuff Country EZ-Ride Suspension customers: It is your responsibility to keep your original sales receipt! If failure should occur on any Tuff Country EZ-Ride Suspension component, your original sales receipt must accompany the warranted unit to receive warranty. Warranty will be void if the customer can not provide the original sales receipt. Do not install a body lift in conjunction with a suspension system. If a body lift is used in conjunction with any Tuff Country EZ-Ride Suspension product, your Tuff Country EZ-Ride Suspension WARRANTY WILL BE VOID. Tuff Country Inc. ("Tuff Country") suspension products are warranted to be free from defects in material and workmanship for life if purchased, installed and maintained on a non-commercial vehicle; otherwise, for a period of twelve (12) months, from the date of purchase and installation on a commercial vehicle, or twelve thousand (12,000) miles (which ever occurs

first). Tuff Country does not warrant or make any representations concerning Tuff Country Products when not installed and used strictly in accordance with the manufacturer's instructions for such installation and operation and accordance with good installation and maintenance practices of the automotive industry. This warranty does not apply to the cosmetic finish of Tuff Country products nor to Tuff Country products which have been altered, improperly installed, maintained, used or repaired, or damaged by accident, negligence, misuse or racing. ("Racing is used in its broadest sense, and, for example, without regards to formalities in relation to prizes, competition, etc.) This warranty is void if the product is removed from the original vehicle and re-installed on that or any other vehicle. This warranty is exclusive and is in lieu of any implied warranty of merchantability, fitness for a particular purpose or other warranty of quality, whether express or implied, except the warranty of title. All implied warranties are limited to the duration of this warranty. The remedies set forth in this warranty are exclusive. This warranty excludes all labor charges or other incidental consequential damages. Any part or product returned for warranty claim must be returned through the dealer of the distributor from whom it was purchased. Tuff Country reserves the right to examine all parts returned to it for warranty claim to determine whether or not any such part has failed because of defect in material or workmanship. The obligation of Tuff Country under this warranty shall be limited to repairing, replacing or crediting, at its option, any part or product found to be so defective. Regardless of whether any part is repaired, replaced or credited under this warranty, shipping and/or transportation charges on the return of such product must be prepaid by the customer under this warranty. Important information that needs to be read before installation begins:

Tuff Country recommends a 33" x 12.50" tire with a wheel that has a back spacing of 5.5" or less. The stock tires and wheels can be used in conjunction with this lift kit. If a wider tire is installed on the stock wheel, contact with the upper control arm will occur, and is not recommended.

This Suspension kit comes with (1) installation manual and some post installation procedure literature and it is the installers responsibility to make sure that the customer receives the post installation procedure literature. If a customer would like a copy of the installation manual, please have them visit our website at www.tuffcountry.com. Have them go to the customer care section to download these instructions. If you have any questions, please feel free to call us at (801) 280-2777.

The OE shocks will be long enough once this suspension system has been installed but Tuff Country highly recommends replacing the rear shocks. If you have not already ordered your rear shocks, please contact Tuff Country or your local Tuff Country dealer and order your new rear shocks. Tuff Country recommends install a 30" fully

extended nitrogen gas shock.

Before installation begins, Tuff Country EZ-Ride Suspension highly recommends that the installer performs a test drive on the vehicle. During the test drive, check to see if there are any uncommon sounds or vibrations. If uncommon sounds or vibrations occur on the test drive, uncommon sounds or vibrations will be enhanced once the suspension system has been installed. Tuff Country EZ-Ride Suspension highly recommends notifying the customer prior to installation to inform the customer of these issues if they exist.

Make sure to use loctite on all new and stock hardware associated with the installation of this suspension system.

Tuff Country EZ-Ride Suspension recommends a wall mounted strut compressor be used when performing the steps that talk about installing the pre-load spacer into the strut. If you do not have a wall mounted strut compressor, please have these steps performed by your local Ford Dealership

Recommended tools selection:

Wall mounted strut compressor
Torque wrench
Standard socket set
Standard wrench set
Metric socket set
Metric wrench set
Tape measure
Hydraulic floor jacks
Air chisel

Hardware bag 23005NB includes:

Description	Quantity
TC-002 poly bushing	8
S10246 uniball sleeve	2
S10236 (.750" x .563" x 2.400" sleeve)	4
S10259 tapered uniball sleeve	2
SERT04 (sert fitting)	4
9165B 9/16" x 5" bolt	2
916UN 9/16" unitorque nut	2
12WA 1/2" flat washer	4

Hardware bag 916NW includes:

Description	Quantity
916HN (9/16" u-bolt high nut)	8
SUW-916 (9/16" u-bolt washer)	8

Hardware bag D2PNB includes:

Description	Quantity
38NLN (3/8" nylon nut)	6
516WA (5/16" USS flat washer)	6

Please follow instructions carefully:

Before installation begins, measure from the center of the hub, to the bottom of the fender well, and record measurements below.

Pre-installation measurements:

Driver side front: _____
Passenger side front: _____
Driver side rear: _____
Passenger side rear: _____

At the end of the installation take the same measurements and compare to the pre-installation measurements.

Post-installation measurements:

Driver side front: _____
Passenger side front: _____
Driver side rear: _____
Passenger side rear: _____

Front end installation:

1. To begin installation, block the rear tires of the vehicle so that the vehicle is stable and can't roll backwards. Safely lift the front of the vehicle and support the vehicle with a pair of jack stands. Place a jack stand on both the driver and the passenger side. Next, remove the front wheels and tires from both sides.

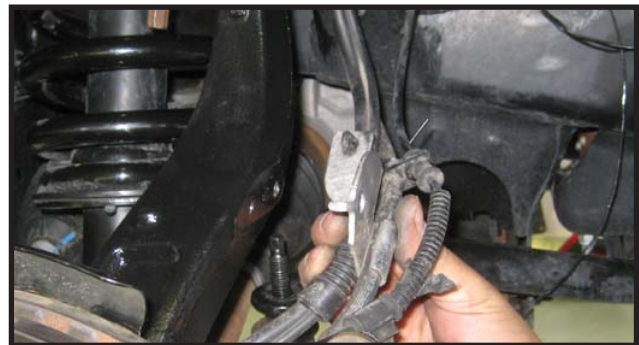
2. Remove the wire harness from the rack and pinion and let hang.



3. Working on the driver side, remove the hardware connecting the sway bar to the sway bar end link. Save the hardware. Repeat procedure on the passenger side.



4. Working on the driver side, remove the brake line bracket from the knuckle. Save the hardware. Repeat procedure on the passenger side.



5. Working on the driver side, remove the outer tie rod from the OE knuckle. Save the hardware. **Special note: Using a hammer and striking the knuckle will help break the taper. Take special care not to damage the outer tie rod dust boot during removal.** Repeat procedure on the passenger side.





6. Working on the driver side, remove and discard the nut holding the upper control arm ball joint to the knuckle. Remove the upper control arm from the knuckle. **Special note: Using a hammer and striking the knuckle will help break the taper.** Repeat procedure on the passenger side.



7. Working on the driver side, place a hydraulic floor jack under the lower control arm and carefully raise up on it until it makes contact with lower control arm. Repeat procedure on the passenger side.

8. Working on the driver side, remove the lower bolt holding the lower eyelet of the coil over to the lower control arm. Save the hardware. Repeat procedure on the passenger side.

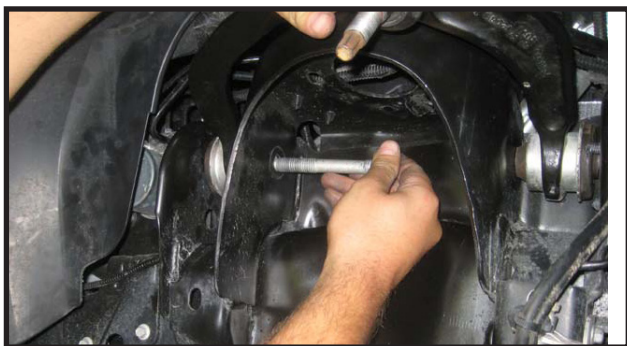
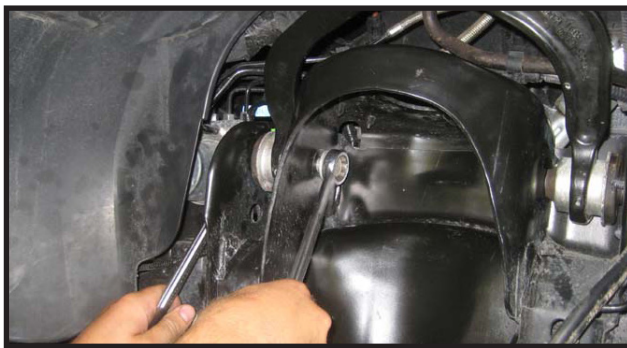


9. Working on the driver side, remove and save the (3) upper nuts securing the coil over into the upper location. Remove and set aside the coil over. Repeat procedure on the passenger side. **Special note: Using a pry bar will help removal of the coil over easier.**



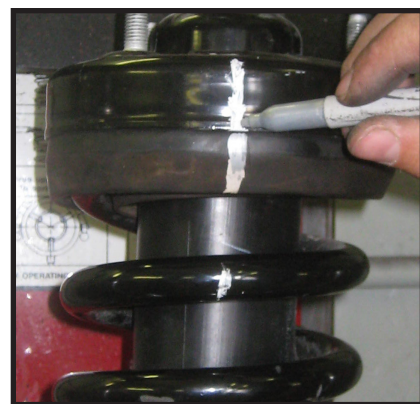


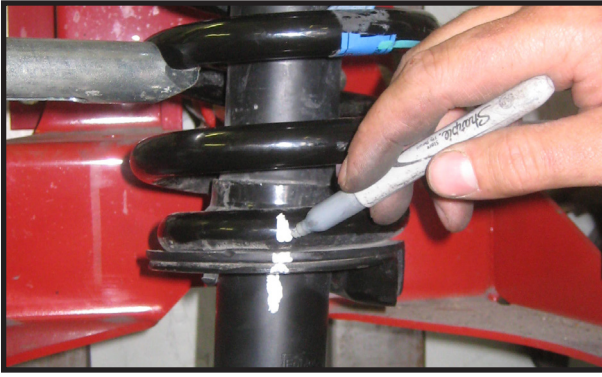
10. Working on the driver side, remove the upper control arm from the upper control arm location. The upper control arm may be discarded but save the upper control arm hardware. Repeat procedure on the passenger side.



Tuff Country EZ-Ride Suspension recommends a wall mounted strut compressor be used when performing the steps that talk about installing the pre-load spacer into the strut. If you do not have a wall mounted strut compressor, please have these steps performed by your local Ford Dealership

11. Place the driver side strut into a wall mounted strut compressor. Scribe a line on the bearing plate, rubber isolator, the top coil of the strut, the bottom coil of the strut and bottom strut plate. **Special note: If these steps are not performed properly re-installing the strut back into the vehicle will be difficult.**





12. Place a clamp on the bottom coil portion of the coil spring and strut plate. This will help keep the coil spring in the proper location.

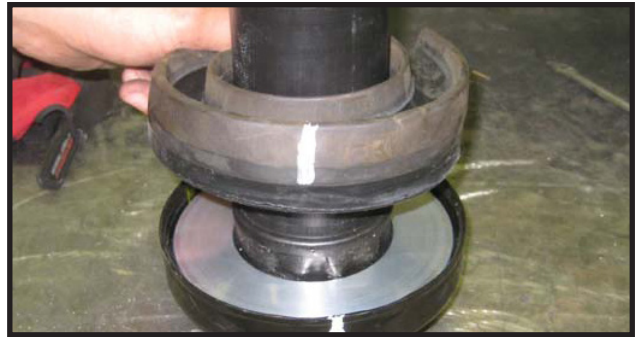
13. Carefully compress the driver side strut until the upper bearing plate can be removed. Remove the nut and hardware from the upper bearing plate and save the hardware for later re-installation.



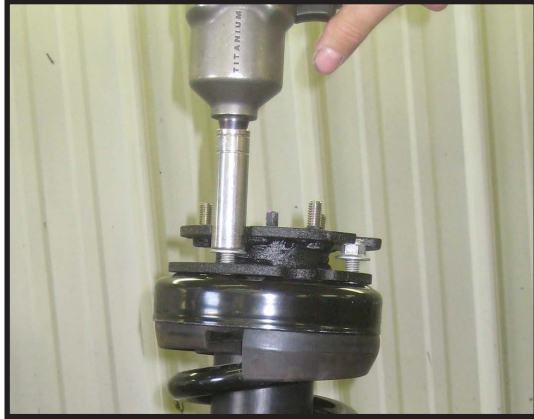
14. Locate the new pre-load spacer. Place the driver side bearing plate on a work bench upside down. Remove the isolator from the bearing plate and install the pre-load spacer to the bearing plate then re-install the isolator. Make sure that the lines that were scribed earlier in the installation match up with each other.



15. Install the modified bearing plate back to the strut using the OE hardware. Make sure to use loctite and torque to **55 ft lbs**. **Special note: make sure that the lines scribed earlier in the installation line up with each other.**

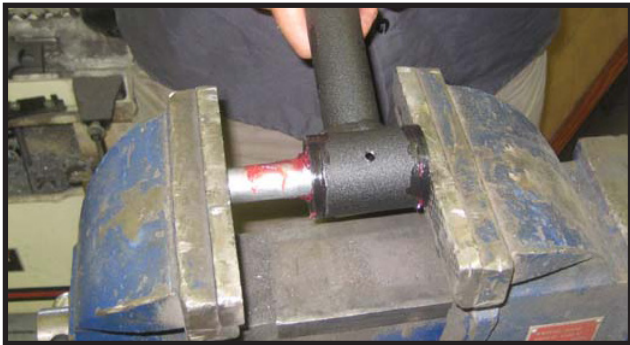


16. Locate the new driver side strut spacer. Install the driver side strut spacer on the newly modified strut and secure using the stock hardware. Make sure to use loctite and torque to **45 ft. lbs**. Place the driver side strut aside for later installation into the vehicle.



17. Repeat steps # 11 - 16 on the passenger side strut.

18. Locate the new upper control arms. Locate (8) TC-002 poly bushings and (4) S10236 sleeves from hardware bag 23005NB. Install the new bushings and sleeves into the new upper control arms. **Special note: Make sure to use a fair amount of lithium or moly base grease before installing the new bushings and sleeves into the control arms. This will increase the life of the bushing as well as help prevent squeaking.**



19. Locate the new sert fittings from hardware bag 23005NB. Install the new sert fittings into the new upper control arms. **Special note: Make sure not to over tighten and also make sure that the sert fitting is facing towards the outside of the vehicle. This will make for easier access when lubing them with a grease gun.**



20. Working on the driver side, install the new driver side upper control arm into the OE pockets using the OE hardware. Make sure to use loctite and torque to **95 ft lbs.** Repeat procedure on the passenger side.

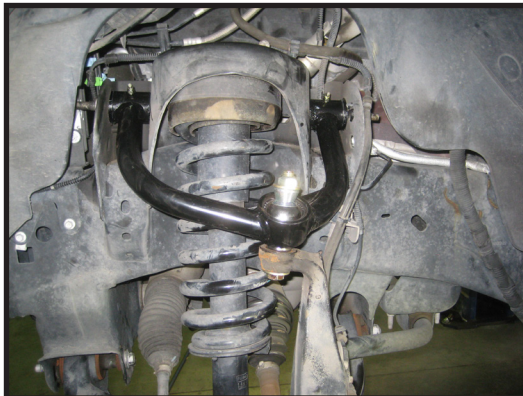


21. Locate (6) 3/8" nylon nuts and (6) 5/16" USS flat washers from hardware bag D2P-NB. Working on the driver side, install the newly modified strut into the upper location and secure using the new hardware. **Do not tighten at this point.** Repeat procedure on the passenger side.



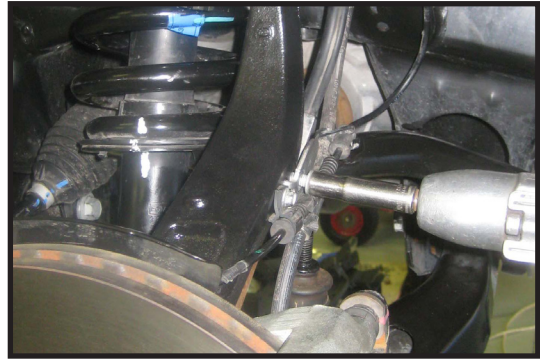
22. Working on the driver side, install the lower modified strut into the lower control arm and secure using the OE hardware. **Do not tighten at this point.** Repeat procedure on the passenger side. **Special note: The use of a pry bar may help installation easier.**

23. Locate (2) S10246 sleeves, (2) S10259 sleeves, (2) 9165B, (2) 916UN, and (4) 12WA from hardware bag 23005NB. Using this new hardware, install the uniball to the steering knuckle and torque to **95 ft lbs.**

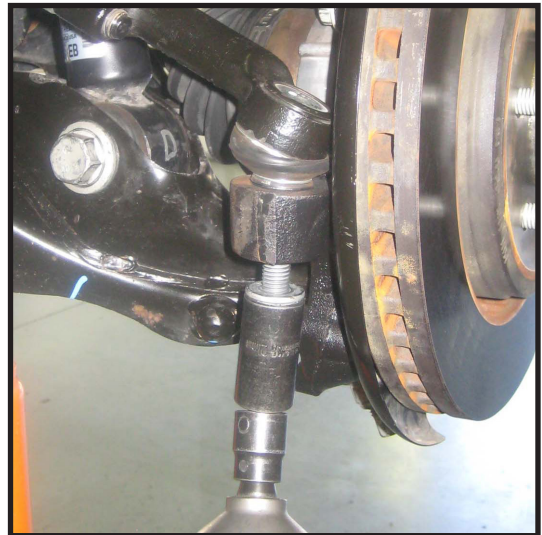
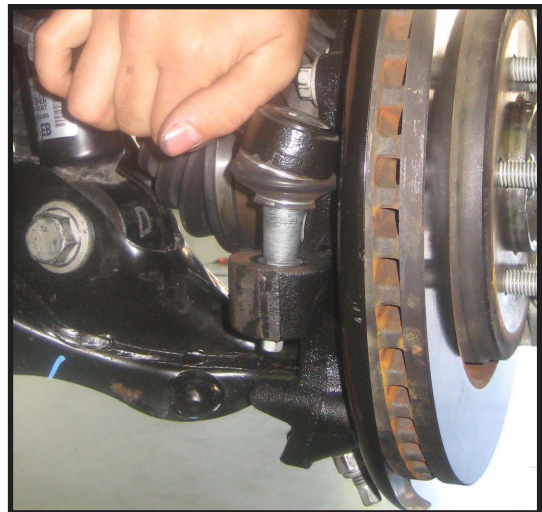


24. Working on the driver side, install the brake line back to the knuckle using the OE hardware. Make sure to use loctite

and torque to **5 ft lbs.** Repeat procedure on the passenger side.



25. Working on the driver side, install the outer tie rod to the knuckle using the OE hardware. Make sure to use loctite and torque to **85 ft lbs.** Repeat procedure on the passenger side.



26. Working on the driver side, add some loctite to the lower strut bolt holding the strut to the lower control arm and torque to **150 ft lbs.** Repeat procedure on the passenger side.



27. Move back to the hardware attaching the strut into the upper location and add some loctite and torque to **35 ft lbs.** Repeat procedure on the passenger side.



28. Working on the driver side, install the sway bar to the sway bar end link. Make sure to use loctite and torque to **45 ft lbs.** Repeat procedure on the passenger side.



29. Working on the driver side, use a grease gun to grease the newly installed upper control arm bushings. Repeat procedure on the passenger side. **Special note: It is highly recommended to grease these bushings every time you have the oil changed in your vehicle. This will increase the life of the bushing along with helping eliminate squeaking.**



30. Re-install the wire harness to the rack and pinion. Next, remove the hydraulic floor jacks from under the lower control arms on the driver and passenger side of the vehicle.

31. Check and double check and check again to make sure all steps have been performed properly with the front end.

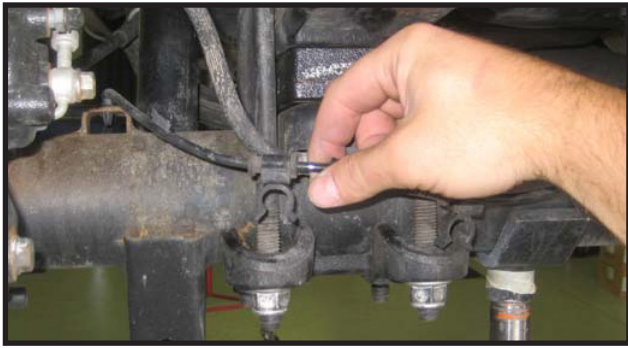
32. Install the tires and wheels and carefully lower the vehicle to the ground.

33. To begin installation, carefully block the front tires and wheels so that the vehicle can not roll forward. Safely lift the rear of the vehicle and support the vehicle with a pair of jack stands. Place a jack stand on both the driver and the passenger side. Next, remove the rear wheels and tires from both sides.

34. Place a hydraulic floor jack under the driver and passenger side of the rear axle.

35. Working on the driver side, remove and save the shock hardware. **Special note: The OE shocks will be long enough once this suspension system has been installed but Tuff Country highly recommends replacing the rear shocks. If you have not already ordered your rear shocks, please contact Tuff Country or your local Tuff Country dealer and order your new rear shocks. Tuff Country recommends install a 30" fully extended nitrogen gas shock.** Repeat procedure on the passenger side.





36. Working on the driver side, carefully remove the ABS line clips that are attached to the u-bolts. **Special note: Take special care not to damage the clips during removal.** Repeat procedure on the passenger side.



37. Working on the driver side, remove the u-bolts from the OE location and discard the u-bolts and hardware. Set the upper and lower u-bolt plates aside for later re-installation. Repeat procedure on passenger side.

38. Carefully lower down on both hydraulic floor jacks at the same time approximately 3". **Special note: Take special care not to over extend any brake lines and/or hoses.** Working on the driver side, remove and discard the stock rear block. Repeat procedure on the passenger side.



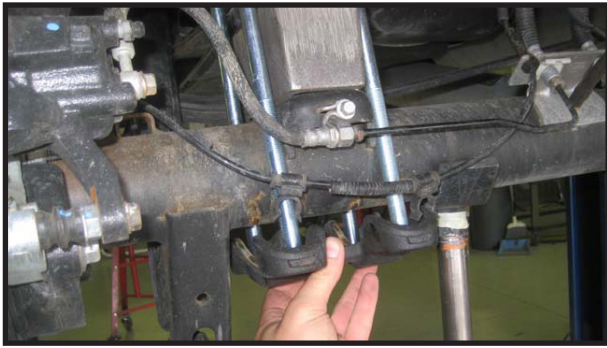
39. Locate (2) new 3" lifted blocks. Working on the driver side, install the new 3" lifted block into the stock location. Repeat procedure on the passenger side.



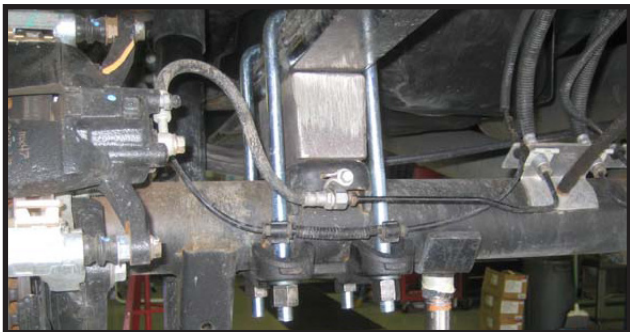
40. Carefully raise up on both hydraulic floor jacks at the same time until the spring assembly sits flush with the newly installed 3" lifted block.

41. Locate (4) 9/16" x 3" x 10 1/2" square u-bolts. Locate (8) 9/16" u-bolt high nuts and (8) u-bolt washers from hardware bag 916NW. Also, locate the upper and lower u-bolt plates. Working on the driver side, install the new u-bolts into the stock location and secure using the new 9/16" high nuts and washers. **Special note: Make sure to re-install the upper and lower u-bolt plates into the stock location. If needed, cut off the excess threads off each leg of the newly installed u-bolts.** Torque to 120 ft lbs. Repeat procedure on passenger side.





42. Working on the driver side, carefully re-install the ABS line clips to the u-bolts. **Special note: Take special care not to damage the clips during removal.** Repeat procedure on the passenger side.



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43. Working on the driver side, install the shock into the

upper and lower location using the OE hardware. Make sure to use loctite and torque to **85 ft lbs.** Repeat procedure on the passenger side.

44. Carefully remove the (2) hydraulic floor jacks from under the rear differential.

45. Check and double check and check again to make sure all steps have been performed properly with the rear end.

46. Install the tires and wheels and carefully lower the vehicle to the ground.

Congratulations, installation complete!

Special note: After the completion of the installation, Tuff Country EZ-Ride Suspension recommends taking the vehicle to an alignment shop and having a proper front end alignment performed.

Tuff Country EZ-Ride Suspension recommends that a complete re-torque is done on all bolts associated with this suspension system. It is the customers responsibility to make sure that a re-torque is performed on all hardware associated with this suspension system after the first 100 miles of installation. It is also the customers responsibility to do a complete re-torque after every 3000 miles or after every off road use. Neglect of following these steps could cause brackets to come loose and cause serious damage to the suspension system and to the vehicle.

Tuff Country EZ-Ride Suspension packages (2) sets of instruction sheets with this box kit. (1) is for the installer and (1) is for the customer. The (1) for the customer has some post installation procedure literature and it is the installers responsibility to make sure that the customer receives a copy of the installation manual along with the literature.

If you have any questions or concerns, please feel free to contact Tuff Country or your local Tuff Country dealer.



20930-01 / Qty (1)
Driver side Upper Control Arm



20930-02 / Qty (1)
Pass. side Upper Control Arm



23000-03 / Qty (1)
Driver side Strut Spacer



23000-04 / Qty (1)
Passenger side Strut Spacer



23000-05 / Qty (2)
Pre-Load Spacer



BL303 / Qty (2)
Rear lifted block



S10246 / Qty (2)



S10259 / Qty (2)