



## Installation manual

### 6" suspension system

2001 -- 2010

**Chevy or GMC Silverado 2500HD**

**Part # 16985**

sj03062012rev.05

#### Part # 16985

2001 - 2010 Chevy or GMC Silverado 2500HD  
6" suspension system

#### Parts contained in Box 1 of 3

<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
16985-04	Sub frame	1
16985-12	Lateral compression arms	2
16985NB	Hardware bag	1

#### Parts contained in Box 2 of 3

<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
HDDIFF-01	DS differential relocation bracket	1
16985-23	PS differential relocation bracket	1
TBD99-01	Torsion bar relocation brackets	2
16985-10	Rear carrier bearing relocation bracket	1
16985-11	Lateral compression mounts	2
22SW	Square washers	8
BL402	4" rear lifted blocks	2
5U-9296S	5/8" x 2 3/4" x 14" square u-bolts	4
58NW	Hardware bag	1
16985PL	Hardware bag	1
16985SL	Hardware bag	1
9802	Axle spacers	2
16985INST	Instruction manual	2
MIRRORHANGER	Rear view mirror hanger	1
WARNINGDECAL	Warning decal	1

#### Parts contained in Box 3 of 3

<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
16985-01M	DS knuckle	1
16985-02M	PS knuckle	1
16985NB6	Hardware bag	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.

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.

Please see the end of the installation manual for a picture of the hard parts that are included in this suspension system.

#### 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.

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

### 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 of 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:

The stock tires and wheels will work in conjunction with part # 16985 but a larger sized tire and the stock wheels will not work in conjunction with part # 16985. Once part # 16985 has been installed with larger tires, new wheels with a 4.5" back spacing or less is required. Tuff Country recommends a 35x12.50 tire package. If larger than a 35x12.50 tire is installed on your vehicle in conjunction with part # 16985; Tuff Country assumes no liability and the warranty will be VOID.

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.

After installation, some vehicles may encounter a front drive line vibration. If this is the case on the vehicle that you are working on, the stock front drive line may need to be rebalanced. If the stock front drive line is rebalanced and the vibration still occurs, a new front drive line may be needed.

New longer front and rear shocks are needed after this suspension system has been installed and the front and rear shocks need to be ordered as a separate part #. If you have not already ordered your front and rear shocks, please feel free to contact Tuff Country or your local Tuff Country dealer and order your front and rear shocks. Tuff Country recommends installing a 23" fully extended nitrogen gas shock in the front and a 30" fully extended nitrogen gas shock in the rear.

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.

Torque settings:

5/16"	15—18 ft lbs.
3/8"	28—32 ft lbs.
7/16"	30—35 ft lbs.
1/2"	65—85 ft lbs.
9/16"	85—120 ft lbs.
5/8"	95—130 ft lbs.
3/4"	100—140 ft lbs.

**Hardware bag 16985SL includes:**

<u>Description</u>	<u>Quantity</u>
S10007 (.500" x .380" x 1.700")	2
S10058 (.875" x .500" x 2.080")	4
S10067 (.500" x .380" x 2.610")	2
S10073 (.687" x .563" x 1.320")	2
S10074 (.687" x .558" x 1.500")	4
S10082 (.875" x .563" x 2.080")	1
S10120 (.750" x .510" x 1.000")	1

**Hardware bag 16985PL includes:**

<u>Description</u>	<u>Quantity</u>
PB6199 (short bump stop)	4
PB6052 (tall bump stop)	2
PB2408 (poly bushing)	10
MO2220 (poly bushing)	4
PB8016 (sway bar end link bushing)	8
S10049 (sway bar end link washer)	8
LUBE (poly lube pack)	2
SHOCKTIE (zip tie)	10

**Hardware bag 16985NB includes:****Bag # 1**

<u>Description</u>	<u>Quantity</u>
3/8" x 7" bolts	2
3/8" x 3 1/2" bolts	2
3/8" x 1 1/2" self threading bolts	2
3/8" unitorque nuts	10
5/16" USS flat washers	12
10 mm x 35 mm bolts	12
10 mm x 60 mm bolts	4
10 mm lock washers	17
1/4" x 1" self threading bolt	1

**Bag # 2**

<u>Description</u>	<u>Quantity</u>
7/16" x 3" bolt	1
7/16" x 1 1/2" bolts	10
7/16" unitorque nuts	11
3/8" USS flat washers	22

**Bag # 3**

<u>Description</u>	<u>Quantity</u>
1/2" x 2" bolts	4
1/2" x 3 1/2" bolts	4
1/2" unitorque nuts	8
7/16" USS flat washers	16

**Bag # 4**

<u>Description</u>	<u>Quantity</u>
9/16" x 1 3/4" bolts	2
9/16" unitorque nuts	2
1/2" USS flat washers	4

**Bag # 5**

<u>Description</u>	<u>Quantity</u>
5/8" x 4 1/2" bolts	2
5/8" x 5 1/2" bolts	2
5/8" unitorque nuts	4
9/16" USS flat washers	8

**Hardware bag 58NW includes:**

<u>Description</u>	<u>Quantity</u>
5/8" u-bolt high nuts	8
5/8" u-bolt harden washers	8

**Hardware bag 16985NB6 includes:**

<u>Description</u>	<u>Quantity</u>
BLR11 (brake line bracket)	2
1/4" x 3/4" bolt	4
1/4" flat washer	6
1/4" unitorque nut	2
1/4" lock washer	2

**Special post installation procedure: Tuff Country EZ-Ride Suspension highly recommends adding a minimum of 1 pint, but no more that 1 1/2 pints, of proper front differential fluid into the front differential. To achieve this, you may have to fill the differential with it on its side or you may have to insert the fluid through the vent tube opening. On occasion, the customer may find burping of fluid coming out of the front vent tube.**

**Recommended tools selection:**

Torsion bar puller  
(Part # 7822A / LSP code: 769 006 21)  
Cut off wheel  
Sawzall  
Torque wrench  
Standard socket set  
Standard wrench set  
Metric socket set  
Metric wrench set  
Tape measure  
Hydraulic floor jacks

**Special note: Some of the pictures in this installation manual are used from a 1/2 ton vehicle. The concept of the installation is the same on the 1/2 tons as the 3/4 ton vehicles.**

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: \_\_\_\_\_

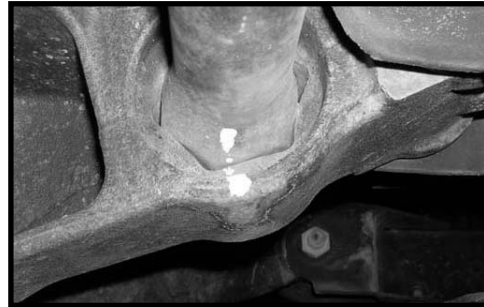
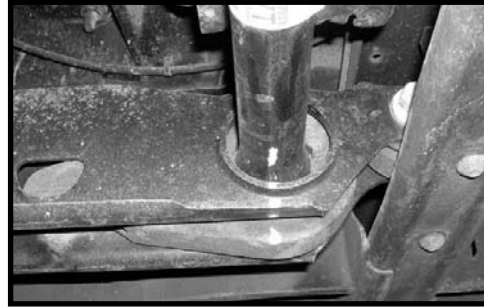
Front end installation:

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 frame 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. Working on the driver side, attach the torsion bar removing tool to the torsion bar cross member, making sure that the unloading bolt in the center of the torsion bar removing tool is in the small divot of the torsion bar key. Adjust the torsion bar key up high enough so that the stock small metal adjusting block and bolt can be removed. Set the torsion bar block and hardware aside for later re-installation. Repeat procedure on passenger side.



3. Mark both torsion bars before removal so that they can be re-installed back into the same location. **Example: Driver vs. Passenger and front vs. rear.** Tap the torsion bars forward until the torsion bar cross member can be removed. Once you tap the torsion bar out of the torsion bar cross member, the torsion bar key will fall out. Set the torsion bar key aside for later re-installation. Repeat procedure on the passenger side.



4. Working on the driver side, remove the hardware that connects the torsion bar cross member to the mounting point. Set the stock hardware aside for later re-installation. **Special note: The stock mounting point is on the inside of the frame rail.** Repeat procedure on the passenger side. Remove the torsion bar cross member and set aside for later re-installation.



5. Working on the driver side, slide the torsion bar out of the rear lower control arm and set aside for later re-installation. Repeat procedure on passenger side.

6. Remove the stock lower skid plate and discard the stock lower skid plate and the stock hardware.

7. Remove the upper skid plate. Save the skid plate and the upper hardware. The lower hardware may be discarded.



8. Working on the driver side, remove the hardware on the top of the shock. The upper hardware may be discarded. Remove the hardware on the lower shock mount and save the hardware for later re-installation. The shock may be discarded. **Special note: New longer front shocks are needed, if you have not already ordered shocks, please contact Tuff Country or your local Tuff Country dealer and order the proper shocks. Tuff Country recommends using a 23" fully extended nitrogen gas shock.** Repeat procedure on the passenger side.

9. Working on the driver side, remove the sway bar end link from the sway bar and lower control arm. The end link and hardware may be discarded. Repeat procedure on the passenger side. **Special note: At this time, invert the sway bar.**

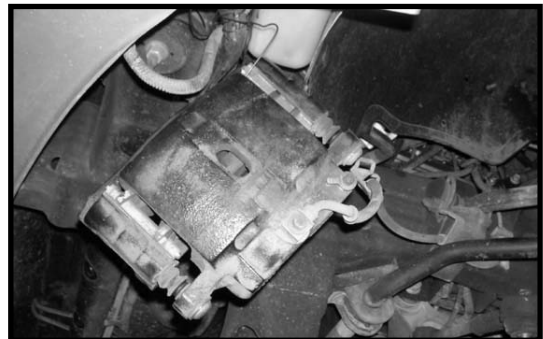
10. Working on the driver side, remove the nut that connects the outer tie rod ball joint to the steering knuckle. Set the nut aside for later re-installation. Carefully break the taper on the outer tie rod ball joint and remove the outer tie rod from the knuckle. **Special note: Hitting the knuckle with a hammer will make removal of the outer tie rod easier. Take special care not to rip or tear the outer tie rod ball joint dust boot.** Repeat procedure on the passenger side.



11. Working on the driver side, remove the brake line bracket that connects to the steering knuckle and discard the hardware. Next, remove the brake line mounting point that connects to the upper control arm. Save the hardware for later re-installation. Also, remove any other brake line mounting points on the steering knuckle and upper control arm and save the hardware for later re-installation. Repeat procedure on the passenger side.

12. Working on the driver side, locate the ABS line quick disconnect located above the upper control arm. Disconnect the ABS lines from each other. Also, disconnect the ABS line from any other mounting points on the frame rail. Repeat procedure on the passenger side.

13. Working on the driver side, remove the (2) bolts that connect the brake caliper to the knuckle. Save the hardware for later re-installation. Using a bungee cord, carefully tie the brake caliper up and out of the way in the fender well. **Special note: Take special care not to kink or over extend the brake line.** Repeat procedure on the passenger side.



14. Working on the driver side, remove the rotor and set aside for later re-installation. Repeat procedure on the passenger side.



15. Working on the driver side, remove the cap right in the middle of the hub assembly. Set the cap aside for later re-installation. Repeat procedure on the passenger side.



16. Working on the driver side, remove the hardware that connects the axle to the hub assembly. Save the hardware for later re-installation. Repeat procedure on the passenger side.



17. Working on the driver side, scribe a mark on the CV plate and another directly across to the differential. This will allow you to re-install the CV back into the OE location. Repeat procedure on the passenger side.



18. Working on the driver side, remove the (6) bolts holding the inner CV axle to the front differential. Discard the hardware. Carefully remove the CV axle from the vehicle and set the CV axle aside for later re-installation. **Special note: During the removal of the CV axle, take special care not to damage the threads of the CV axle or the CV axle dust boot.** Repeat procedure on the passenger side.



19. Working on the driver side, loosen but do not remove the nut that connects the upper control arm ball joint to the steering knuckle. Carefully break the taper by striking the knuckle with a hammer. **Special note: Take special care not to damage the upper control arm ball joint or rip the upper control arm ball joint dust boot.** For now, leave the upper control arm attached to the knuckle. We want to just break the stock taper for now. Repeat procedure on the passenger side.



20. Working on the driver side, loosen but do not remove the nut that connects the lower control arm ball joint to the steering knuckle. Carefully break the taper by striking the knuckle with a hammer. **Special note: Take special care not to damage the lower control arm ball joint or rip the lower control arm ball joint dust boot.** For now, leave the lower control arm attached to the knuckle. We want to just break the taper for now. Repeat procedure on the passenger side.



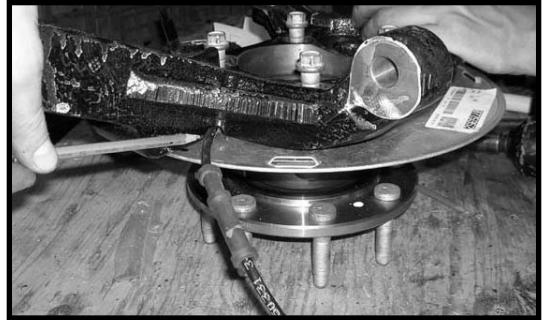


21. Working on the driver side, move back to the nuts holding the upper control arm ball joint and the lower control arm ball joint to the steering knuckle and remove completely. Save the hardware for later re-installation. Carefully remove the hub assembly and the steering knuckle from the location and set aside for later re-installation. Repeat procedure on the passenger side.

22. Working on the driver side hub assembly, remove the (4) bolts that connect the hub assembly to the steering knuckle. Save the hardware and hub assembly for later re-installation. Also, carefully remove the rubber "O" ring located in the steering knuckle and save for later re-installation. The steering knuckle can be discarded. Repeat procedure on the passenger side knuckle.

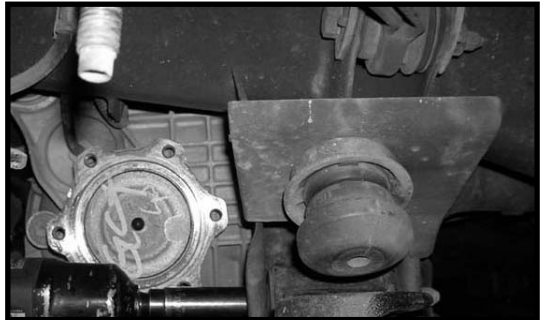


23. Locate the new driver side steering knuckle. Using the rubber "O" ring, carefully re-install the rubber "O" ring into the new driver side knuckle. Using the OE hardware to secure the new driver side steering knuckle to the hub assembly. **Special note: Make sure that the ABS line fits in the groove of the new steering knuckle once the hub assembly has been torqued down.** Make sure to use loctite and torque to **133 ft lbs**. Repeat procedure on the passenger side knuckle.



24. Set the new driver side and passenger side steering knuckle and hub assembly aside for later re-installation.

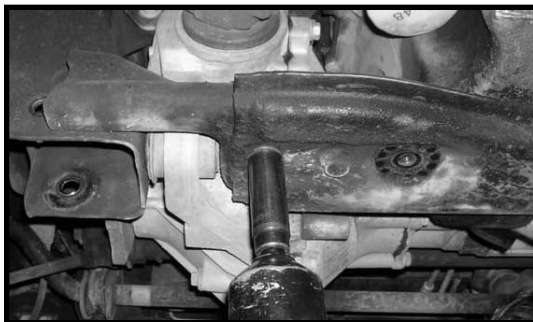
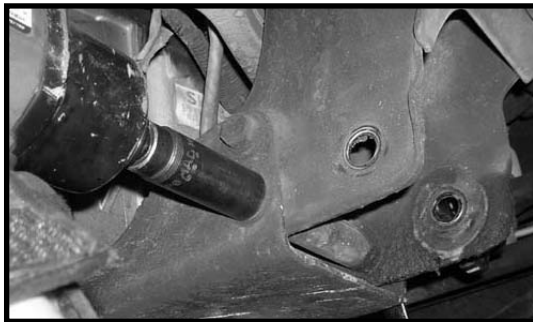
25. Working on the driver side, remove the front and rear hardware that connects the lower control arm to the OE location. Set the hardware and the lower control arm aside for later re-installation. Repeat procedure on the passenger side.



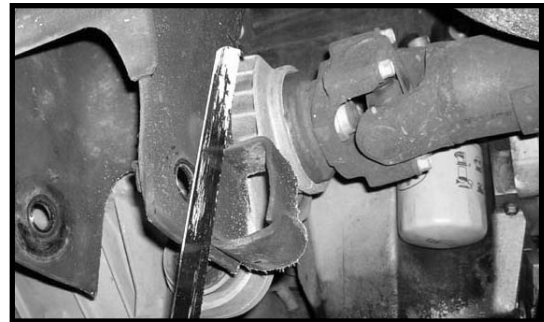
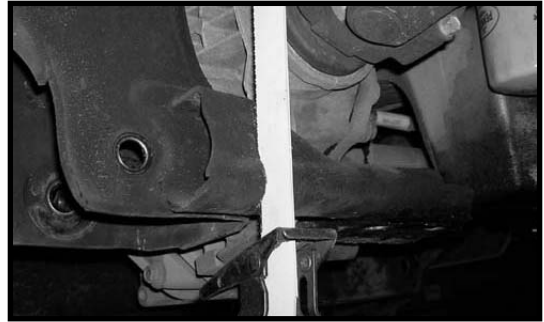
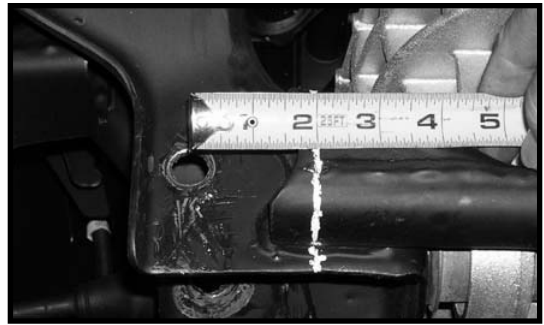
26. Working on the driver side, remove the bolt that connects the lower rear portion of the front differential to the rear cross member. Save the hardware for later re-installation.



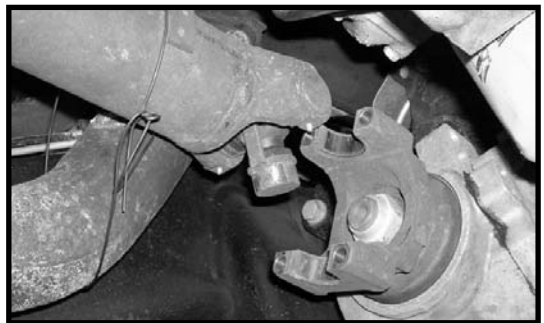
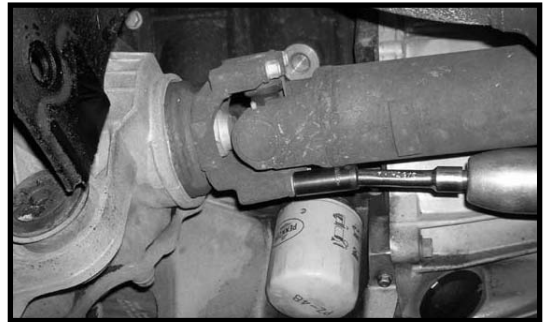
27. Working on the passenger side, remove the (2) bolts that connect the rear cross member to the passenger side rear lower control arm mounting point. The (2) bolts may be discarded. Working on the driver side, remove the (2) bolts holding the rear cross member to the bracket that is welded to the rear lower control arm pocket. The (2) bolts and the rear cross member may be discarded.



28. Working on the driver side, measure 2" towards the inside of the vehicle from the rear lower control arm mounting point, scribe a mark on the rear cross member. Using a hacksaw or suitable cutting tool, carefully cut off the rear cross member along the line that was scribed earlier in this step. The rear cross member may be discarded. **Special note: When making this cut, make sure that you cut all the way through the rear lower control arm mounting pocket. If this cut is not performed properly, the front differential will not seat properly when the front differential is lowered into the new sub frame.** Also, at this time, cut the rest of the bracket off the rear lower control arm pocket. Take special care not to cut into the rear lower control arm pocket. **Special note: Tuff Country EZ-Ride highly recommends not using a cutting torch when performing step. Clean and dress up any exposed metal.**



29. Remove the front drive line from the front differential. Carefully tie the front drive line up and out of the way. Save the hardware for later re-installation.



30. Working on the passenger side of the front differential, locate the wiring harness that connects the 4WD control panel to the front differential. Disconnect the 4WD wiring harness from the front differential. Tie the 4WD wiring harness up and out of the way. **Special Note: Take special**



care not to kink wiring. Also, disconnect the 4WD wire harness from any other attaching points of the front differential.



31. Working on the driver side of the front differential, locate and pull the vent tube off of the differential.



32. Place a pair of hydraulic floor jacks under the front differential, and carefully raise up on both hydraulic floor jacks at the same time, until they come into contact with the front differential.

33. Working on the driver side, remove and save the hardware that connects the upper driver side tab of the front differential to the OE location.

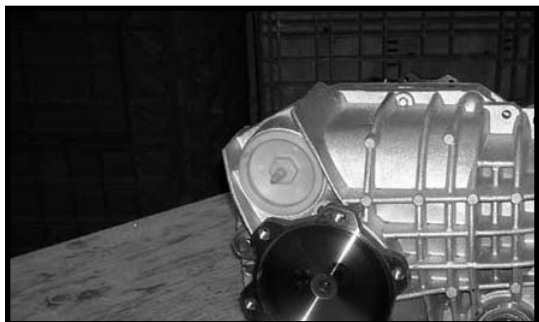
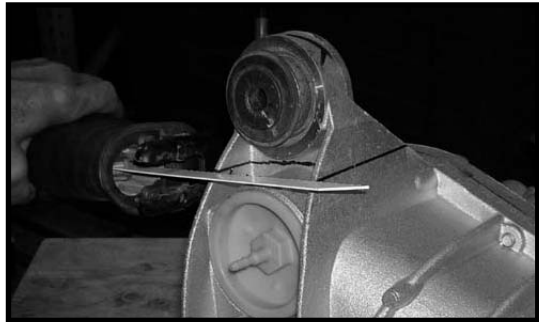
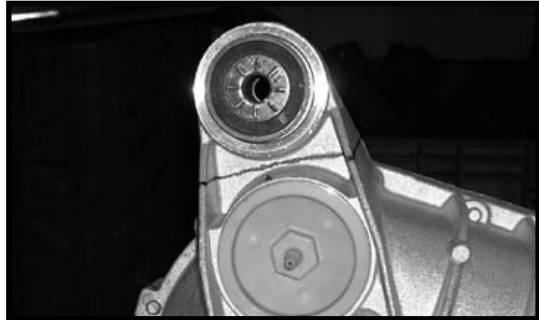


34. Working on the passenger side, remove the (2) nuts that connect the passenger side of the front differential to the OE location and save the hardware for later re-installation.



35. Carefully lower down on both hydraulic floor jacks at the same time allowing enough room to remove the front differential completely from the vehicle. With the help from a buddy, carefully remove the front differential completely from underneath the vehicle and set the front differential on the ground or on a work bench.

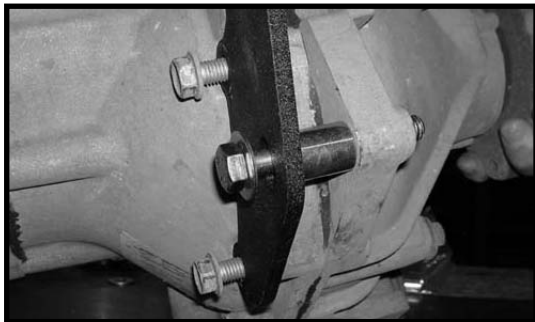
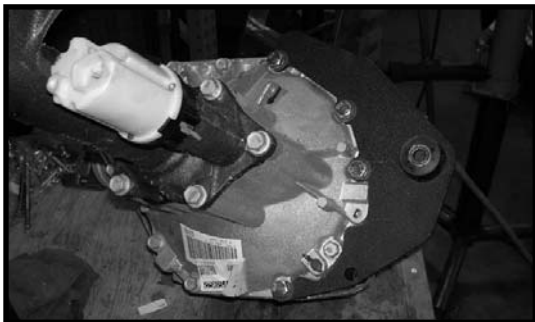
36. Working on the driver side of the front differential upper tab, measure 2" from the mounting point and scribe a mark on the front differential. Using a sawzall, carefully cut the upper tab off of the front differential and discard.



37. Locate the new driver side differential relocation bracket. Locate (2) PB2408 poly bushings from hardware bag 16985PL and (1) S10082 crush sleeve from hardware bag 16985SL. Install the new poly bushings and crush sleeve into the new driver side differential relocation bracket. **Special note: Make sure to use a lithium or moly base grease prior to inserting the new bushings into the new driver side differential relocation bracket. This will increase the life of the bushing as well as prevent squeaking.**

38. Locate (1) 7/16" X 3" bolt, (1) 7/16" unitorque nut and (2) 3/8" USS flat washers from hardware bag 16985NB2. Locate (4) 10 mm x 60 mm bolts and (4) 10 mm lock washers from hardware bag 16985NB1. Also, locate (1) S10120 from hardware bag 16985SL. Working on the front differential, remove the (4) stock differential mounting bolts

that connect to two halves of the front differential together. The hardware may be discarded. Secure the new driver side differential relocation bracket to the stock front differential using the new 10 mm x 60 mm bolts and hardware. **Special note: Get all (4) new 10 mm x 60 mm bolts started but do not tighten at this point.** Secure the lower portion of the new driver side differential relocation bracket to the stock front differential using the new 7/16" x 3" bolt and hardware and new spacer sleeve. Add some loctite and torque to **34 ft. lbs.** Move back to the (4) new 10 mm x 60 mm bolts and add some loctite and torque to **34 ft lbs.** **Special note: Make sure not to over tighten the new hardware associated with the front differential. If bolts are over tightened, the front differential could crack. Also, Tuff Country EZ-Ride Suspension highly recommends adding a minimum of 1 pint, but no more than 1 1/2 pints, of proper front differential fluid into the front differential. To achieve this, you may have to fill the differential with it on its side or you may have to insert the fluid through the vent tube opening. On occasion, the customer may find burping of fluid coming out of the front vent tube.**



39. Locate the new passenger side differential relocation bracket. Working on the passenger side, install the new passenger side differential relocation bracket into the upper location and secure using the OE hardware. Do not tighten at this point. **Special note: There is a "6F" cut out in this bracket, the "6F" will go towards the front of the vehicle and also if you are standing on the passenger side**

**wheel well looking at the new passenger side differential relocation bracket, you should not be able to see the mounting hardware. This will help you make sure that the bracket is installed properly.**

40. With the help from a buddy, carefully lift the modified front differential back onto a pair of hydraulic floor jacks and move the hydraulic floor jacks back underneath the vehicle so that the newly modified front differential can be re-installed.

41. Locate (2) 9/16" x 1 3/4" bolts, (4) 1/2" USS flat washers and (2) 9/16" unitorque nuts from hardware bag 16985NB4. Carefully install the passenger side of the front differential to the previously installed passenger side differential drop bracket. Secure using the new 9/16" x 1 3/4" bolts and hardware. **Do not tighten at this point.** Also at this time, use a tie down strap and tie the driver side of the front differential up and out of the way so that the hydraulic floor jacks can be removed. Remove both hydraulic floor jacks from under the front differential.



42. Locate (2) 7/16" x 1 1/2" bolts and (2) 3/8" USS flat washers from hardware bag 16985NB2. Working on the driver side, install (1) 7/16" x 1 1/2" bolt and hardware through the stock cross member and let hang. Repeat procedure on the passenger side.



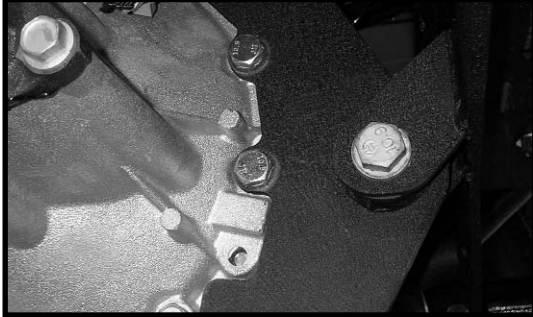
43. Locate the new sub frame and install the sub frame into the front and rear lower control arm pockets on the driver and passenger side and secure using the stock lower control arm hardware. **Do not tighten at this point.**

44. Place a hydraulic floor jack on the driver side of the front differential and carefully raise up until it makes contact with the front differential. Remove the tie down strap that is holding the driver side of the front differential.

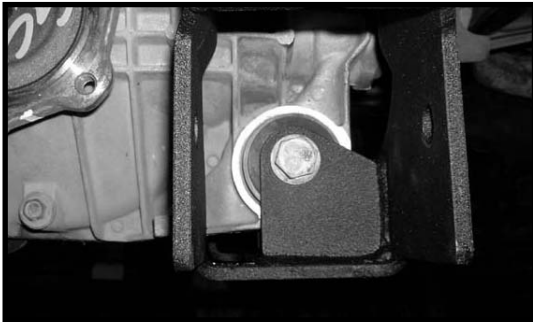
45. Carefully lower down on the hydraulic floor jack holding the driver side of the front differential until the front differ-

ential seats properly into the rear portion of the sub frame and the newly installed driver side differential relocation bracket can be installed to the front portion of the sub frame.

46. Locate the driver side front differential mounting hardware. Secure the newly installed front differential relocation bracket to the front portion of the sub frame. Secure using the stock hardware. **Do not tighten at this point.**



47. Install the rear portion of the front differential into the tab on the newly installed rear cross member. Secure using the OE hardware. **Do not tighten at this point.**

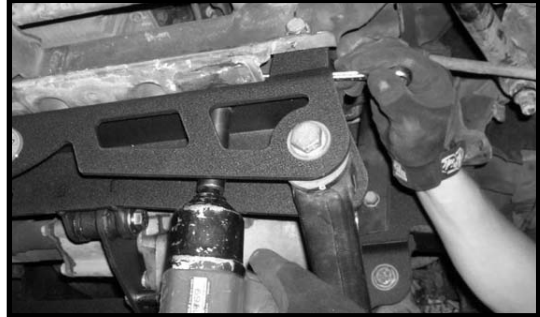


48. Locate (2) 5/8" x 4 1/2" bolts, (2) 5/8" x 5 1/2" bolts, (8) 9/16" USS flat washers and (4) 5/8" unitorque nuts from hardware bag 16985NB5. Working on the driver side, install the lower control arm into the newly installed front cross member and secure using the new 5/8" x 4 1/2" bolt and hardware. **Do not tighten at this point.** Install the lower control arm into the newly installed rear cross member and secure using the new 5/8" x 5 1/2" bolt and hardware. **Do not tighten at this point.** Repeat procedure on the passenger side.



49. Using a hydraulic floor jack, carefully raise up on the front portion on the newly installed sub frame until it sits flush with the stock front cross member.

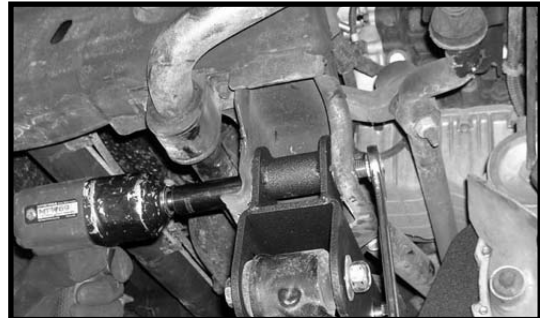
50. Locate (2) 3/8" USS flat washers and (2) 7/16" unitorque nuts from hardware bag 16985NB2. Working on the driver side, secure the front portion of the newly installed sub frame to the stock front cross member using the new 7/16" x 1 1/2" bolts that were installed earlier and the new hardware. **Torque to 38 ft lbs. Special note: Make sure to use loctite.** Repeat procedure on the passenger side. Carefully remove the hydraulic floor jack from under the front cross member.



51. Move back to the stock and new hardware that is attaching the new passenger side differential relocation bracket to the OE location and the differential and add some loctite and torque the stock hardware to **75 ft lbs.** and the new 9/16" hardware to **85 ft lbs.**



52. Working on the driver side, move back to the hardware attaching the front portion of the sub frame into the stock lower control arm pockets and add some loctite and torque to **105 ft lbs.** Repeat procedure on the passenger side.

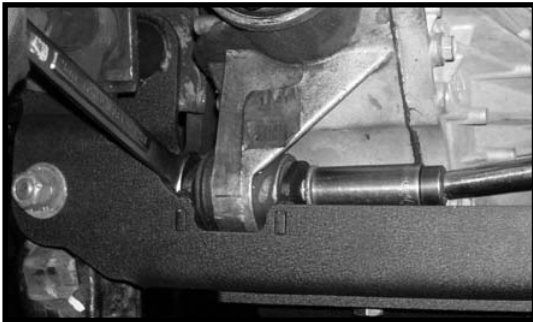


53. Working on the driver side, move back to the hardware attaching the rear portion of the sub frame into the stock lower control arm pockets and add some loctite and torque to **105 ft lbs.** Repeat procedure on the passenger side.

54. Working on the driver side, move back to the hardware attaching the newly installed driver side differential relocation bracket to the newly installed front portion of the sub frame and add some loctite and torque to **75 ft lbs.**



55. Working on the driver side, move back to the hardware attaching the rear portion of the front differential to the newly installed rear portion of the sub frame and add some loctite and torque to **75 ft lbs.**



56. Reconnect the 4WD wiring to the front differential. Also, reconnect any other vent hoses and/or wiring that was connected to the stock front differential.

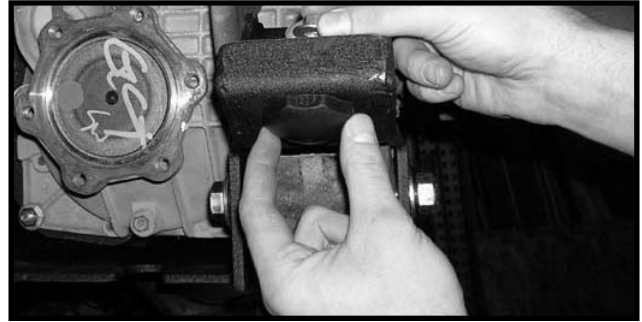


57. Re-install the front drive line to the front differential using the stock hardware. Make sure to use loctite and torque to **18 ft lbs.**



58. Locate (2) PB6199 poly bump stops from hardware bag 16985PL. **Special note: There are (6) poly bump stops located in the poly bag, (4) are the same size and (2) are**

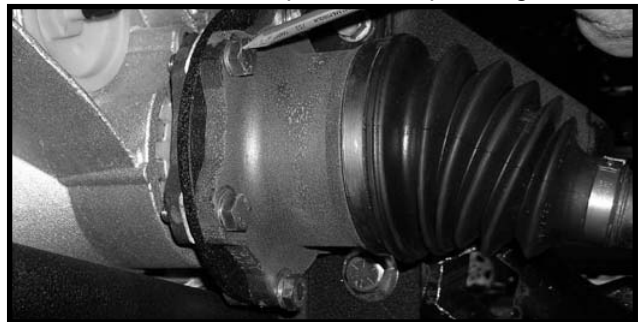
**taller, locate (2) of the shorter poly bump stops.** Also, locate (2) 3/8" unitorque nuts and (2) 5/16" USS flat washers from hardware bag 16985NB1. Working on the driver side rear portion of the newly installed sub frame, secure the new poly bump stop using the new 3/8" hardware. Make sure to use loctite and torque to **28 ft lbs.** Repeat procedure on the passenger side.



59. Working on the driver side, secure the new driver side steering knuckle and hub assembly to the upper control arm ball joint and the lower control arm ball joint using the stock hardware. Make sure to use loctite and torque the upper control hardware to **74 ft lbs.** and the lower control arm hardware to **101 ft lbs.** Repeat procedure on the passenger side.

60. Working on the driver side, carefully install the CV axle back into the hub assembly. Repeat procedure on the passenger side.

61. Locate (2) axle half shaft spacers. Also, locate (12) 10 mm x 35 mm hex bolts and (12) 10 mm lock washers from hardware bag 16985NB1. Working on the driver side, install (1) new axle spacer between the front differential and the CV axle. Secure using the new 10 mm x 35 mm bolts and hardware. Make sure to use loctite and torque to **65 ft. lbs.** **Special note: Make sure that the stock axle is re-installed back into the stock location on the stock front differential. Refer to the scribe mark that was made earlier in the installation.** Repeat on the passenger side.



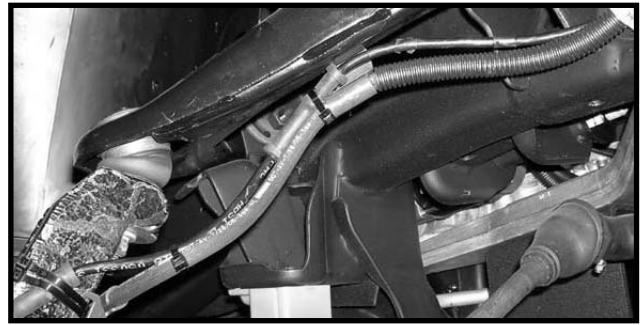
62. Working on the driver side, secure the front CV axle to the hub assembly using the stock hardware. Make sure to use loctite and torque to **112 ft. lbs.** Also, re-install the hub assembly center cap. Repeat procedure on the passenger side.

63. Working on the driver side, reconnect the stock ABS lines back together. Also reconnect all other mounting points on the ABS line. Repeat procedure on the passenger side.

64. Working on the driver side, install the rotor into the stock location. Repeat procedure on the passenger side.

65. Working on the driver side, re-install the brake caliper to the newly installed knuckle and secure using the hardware. Make sure to use loctite and torque to **76 ft. lbs.** Repeat procedure on the passenger side.

66. Locate the new brake line brackets, (4) 1/4" x 3/4" bolts, (6) 1/4" flat washers, (2) 1/4" lock washers and (2) 1/4" uni-torque nuts from hardware bag 16985NB6. Working on the driver side and using the new hardware, install the new brake line bracket to the tapped hole on the inside of the new knuckle. **Do not tighten at this point.** Carefully open up the brake line bracket. Next, secure the brake line bracket to the new brake line bracket using the new 1/4" x 3/4" bolt and hardware from hardware bag 16985NB6. Also, use some shock ties from hardware bag 16985PL and shock tie the stock ABS line and the stock brake lines together. Repeat procedure on the passenger side. **Special note: In this step make sure that once you shock tie the stock brake lines and ABS lines to the knuckle, there will be no contact on the new wheels and tires. If contact occurs, the stock brake lines or ABS lines may be damaged.**



67. Locate the new front shocks. **Special note: New longer front shocks are needed, if you have not already ordered shocks, please contact Tuff Country or your local Tuff Country dealer and order the proper shocks. Tuff Country recommends using a 23" fully extended nitrogen gas shock.** Locate (2) S10073 from hardware bag 16985SL. Install the new sleeves into the new shocks. **Special note: Make sure to use a lithium or moly base grease prior to inserting the sleeves into the lower shock eyelet. This will increase the life of the bushing as well as prevent squeaking.** Working on the driver side, install the new shock into the lower location using the stock hardware and the new hardware on the top mount. Repeat procedure on the passenger side. **Make sure to use loctite and torque torque the lower shock mount to 65 ft lbs. and the upper hardware to 22 ft lbs.** Repeat on passenger side. **Special note: Tuff Country EZ-Ride Suspension highly recommends that the shocks are installed with shock boots. If shock boots are not installed, damage may occur to the piston of the new shock.**

68. Working on the driver side, install the outer tie rod to the new steering knuckle using the stock hardware. Make sure to use loctite and torque to **53 ft. lbs.** **Special note: The new steering knuckle has a reverse taper on it where the outer tie rod mounts to it, make sure to install the outer tie rod the proper way. The outer tie rod nut will now be installed on the bottom side of the new steering knuckle.** Repeat procedure on the passenger side.

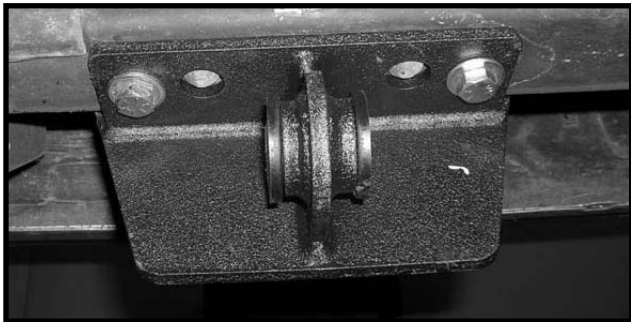
69. Locate (2) new torsion bar cross member relocation brackets. Locate (4) MO2220 poly bushings from hardware bag 16985PL. Also, locate (2) S10074 sleeves from hardware bag 16985SL. Install the new poly bushings and sleeves into the new torsion bar cross member relocation brackets. **Special note: Make sure to use a lithium or moly base grease prior to inserting the new bushings and sleeves into the new torsion bar cross member relocation brackets. This will increase the life of the bushing as well as prevent squeaking.**

70. Working on the driver side, hold the new torsion bar cross member relocation bracket to the new location on the frame rail. **Special note: Using the larger cut out holes in the torsion bar cross member relocation bracket over the stock rivets on the bottom of the stock frame rail with help center the new torsion bar cross member relocation bracket.** With the new torsion bar cross member relocation bracket in place, use a pair of vice grips and secure the new torsion bar drop bracket to the frame rail.



Using the new torsion bar cross member relocation bracket as a guide, carefully drill (4) 7/16" holes into the frame. (2) on the side of the frame rail and (2) on the bottom. **Special note: take special care not to drill into any stock hoses and/or lines running down the inside of the frame rail.** Remove the pair of vice grips that is holding the new torsion bar cross member relocation bracket to the frame rail. Repeat procedure on the passenger side of the vehicle.

71. Locate (8) 7/16" x 1 1/2" bolts, (16) 3/8" USS flat washers and (8) 7/16" unitorque nuts from hardware bag 16985NB2. Working on the driver side, secure the new driver side torsion bar cross member relocation bracket to the frame rail using the new 7/16" x 1 1/2" bolt and hardware. **Do not tighten at this point.** Repeat procedure on the passenger side.



72. Refer to the marks that were made earlier in the installation. This will allow you to re-install the stock torsion bars back into the stock location. **Example: Driver vs. Passenger and Front vs. Rear.** Working on the driver side, slide the torsion bar back into the rear lower control arm. Slide the torsion bar far enough forward so that the torsion bar cross member can be re-installed. Repeat procedure on the passenger side.

73. Install the torsion bar cross member to the newly installed torsion bar cross member relocation brackets and secure using the stock hardware. Make sure to use loctite and torque to **90 ft lbs.**

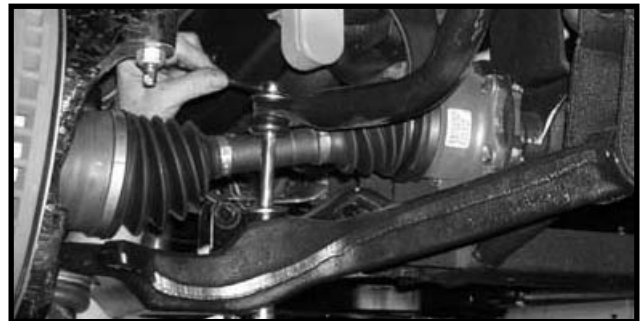


74. Move back to the new 7/16" x 1 1/2" bolts attaching the new driver and passenger side torsion bar cross member relocation bracket to the frame rail and add some loctite and torque all (8) bolts to **70 ft lbs.**

75. Working on the driver side, install the torsion bar key back into the stock location in the torsion bar cross member. Slide the torsion bar back into the previously installed torsion bar key. Repeat procedure on the passenger side. **Special note: Make sure that the torsion bars are installed in the stock location in the lower control arm and the torsion bar key. Refer to the marks that were scribed earlier in the installation.**

76. Working on the driver side, attach the torsion bar removing tool to the torsion bar cross member, making sure that the unloading bolt in the center of the torsion bar removing tool is in the small divot of the stock torsion bar key. Adjust the torsion bar key up high enough so that the stock small metal adjusting block and bolt can be re-installed back into the stock location. Remove the torsion bar removal tool from the stock torsion bar cross member. **Special note: Set the driver and the passenger side torsion bar bolt so that there is 3/4" of thread showing between the head of the bolt and the adjusting block.** Repeat on the passenger side.

77. Locate (2) 3/8" x 7" bolts and (2) 3/8" unitorque nuts from hardware bag 16985NB1. Locate (2) S10067 sway bar end link sleeves from hardware bag 16985SL. Also, locate (8) sway bar end link poly bushings and (8) sway bar end link washers from hardware bag 16985PL. **Special note: If you have not already inverted the sway bar, invert the sway bar now.** Working on the driver side, install the new sway bar end link and hardware to the sway bar and the lower control arm. **Do not tighten at this point.** Repeat procedure on passenger side.



78. Referring to the photo's, measure 2 5/8" from the leading edge of the skid plate and scribe a mark. Carefully cut along the scribed mark.







79. Install the newly modified skid upper skid plate to the upper location using the stock hardware. **Special note: Make sure to use loctite and torque to 28 ft lbs.**

80. Holding the skid plate to the front cross member, carefully drill a 3/16" hole through the skid plate and the stock front cross member.

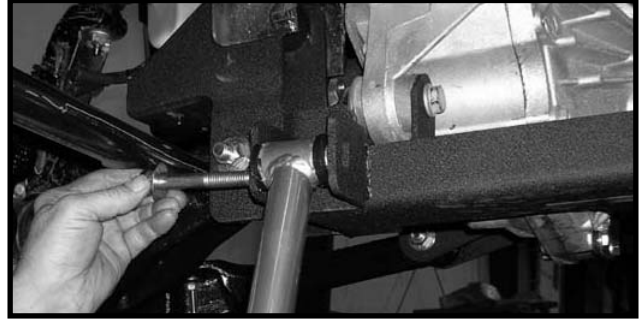


81. Locate (1) 1/4" x 1" self threading bolt from hardware bag 16985NB1. Secure the skid plate to the stock cross member using the new 1/4" x 1" self threading bolt.



82. Locate (2) front lateral compression arms. Locate (8) PB2408 poly bushings from hardware bag 16985PL. Also, locate (4) S10058 crush sleeves from hardware bag 16985SL. Install the new poly bushings into each end of the new front lateral compression arms. Next, install the new crush sleeve into the newly installed poly bushings. **Special note: Make sure to use a lithium or moly base grease prior to inserting the new bushings and sleeves into the new front lateral compression arms. This will increase the life of the bushing as well as prevent squeaking.**

83. Locate (2) 1/2" x 3 1/2" bolts, (4) 7/16" USS flat washers and (2) 1/2" unitorque nuts from hardware bag 16985NB3. Working on the driver side, secure (1) new lateral compression arm to the new front lateral compression arm mount on the newly installed sub frame using the new 1/2" x 3 1/2" bolt and hardware. **Do not tighten at this point.** Repeat procedure on the passenger side.



84. Working on the driver side, measure from the new lateral compression arm mount located on the previously installed sub frame to the center of the stock transfer case cross member. **Special note: Chevy has a variation on the placement of the stock transfer case cross member. Your measurement should either be 31" or 32" long. Remember the measurement, this measurement is needed later in the installation.**

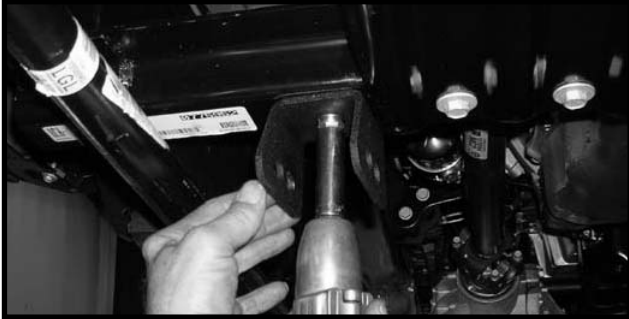
85. Locate (2) 1/2" x 3 1/2" bolts, (4) 7/16" USS flat washers and (2) 1/2" unitorque nuts from hardware bag 16985NB3. Also, locate (2) rear lateral compression mounts. Working on the driver side, if the measurement that you had earlier was 31", secure the new lateral compression arm to the new rear lateral compression arm mount rear hole using the new 1/2" x 3 1/2" bolt and hardware. **Do not tighten at this point.** If the measurement that you had earlier was 32", secure the new lateral compression arm to the new rear lateral compression arm mount front hole using the new 1/2" x 3 1/2" bolt and hardware. **Do not tighten at this point.** Hold the new lateral compression arm and mount up to the stock transfer case cross member and scribe a mark on the transfer case cross member where the new mount will go. Repeat procedure on the passenger side.



86. Working on the driver side, carefully drill a 5/16" hole in the bottom of the transfer case cross member referring to the marks that were scribed earlier. Repeat procedure on the passenger side.

87. Working on the driver side lateral compression arm, remove the new lateral compression arm mount from the new lateral compression arm and save the new hardware for later re-installation. Repeat procedure on the passenger side.

88. Locate (2) 3/8" x 1 1/2" self threading bolts from hardware bag 16985NB1. Working on the driver side, secure the new rear lateral compression arm mount to the previously drilled hole in the transfer case cross member. Use the new 3/8" x 1 1/2" self threading bolt. Torque to **28 ft lbs**. **Make sure to use loctite**. Repeat procedure on the passenger side. **Special note: Make sure that the longer leg of the new lateral compression arm is towards the rear of the vehicle.**



89. Working on the driver side, secure the new lateral compression arm to the previously installed rear lateral compression arm mount. Secure using the new 1/2" x 3 1/2" bolt and hardware. Make sure to use loctite and torque the front and rear mount to **85 ft lbs**. Repeat procedure on the passenger side.



90. Re-install the tires and wheels and carefully lower the vehicle to the ground.

91. Check and double check to make sure that all steps were performed properly and check again.

92. There are still a couple of steps that need to be completed on the front end but these steps will not be completed until the rear end installation is completed and the weight of the vehicle is on the ground. These steps include the tightening of the front sway bar end links and the tightening of the new hardware that connects the stock lower control arms to the newly installed front and rear cross member.

#### Rear end installation:

93. To begin installation, block the front tires of the vehicle so that the vehicle is stable and can't roll forward. Safely lift the

rear of the vehicle and support the frame with a pair of jack stands. Place a jack stand on both the driver and passenger side. Next, remove the wheels and tires from both sides.

94. Working on the driver side, remove the shock from the upper and lower mounting points and save the hardware for later re-installation. The stock shocks may be discarded. **Special note: New longer rear shocks are needed, if you have not already ordered shocks, please contact Tuff Country or your local Tuff Country dealer and order the proper shocks. Tuff Country recommends using a 30" fully extended nitrogen gas shock.** Repeat procedure on the passenger side.

95. Place a pair of hydraulic floor jacks under the rear differential and carefully raise up on both hydraulic floor jacks at the same time until they come into contact with the rear differential.

96. 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.

97. Carefully lower down both hydraulic floor jacks at the same time approximately 5". **Special note: Take special care not to over extend any brake lines and/or hoses.**

98. Locate (2) new rear 4" lifted blocks. Working on the driver side, install the new lifted block into the OE location. Repeat procedure on the passenger side.

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

100. Locate (4) 5/8" x 2 3/4" x 14" square u-bolts. Also, locate (8) 5/8" u-bolt high nuts and (8) u-bolt washers from hardware bag 58NW. Working on the driver side, install the new u-bolts into the OE location and secure using the new 5/8" high nuts and washers. **Special note: Make sure to re-install the upper and lower u-bolt plates. Torque to 135 ft lbs.** Repeat procedure on passenger side.

101. **Special note: New longer rear shocks are needed, if you have not already ordered shocks, please contact Tuff Country or your local Tuff Country dealer and order the proper shocks. Tuff Country recommends using a 30" fully extended nitrogen gas shock.** Locate (2) S10074 from hardware bag 16985SL. Working on the new shocks, install the new shock bushing into the upper and lower eyelets of the new shocks. Next, install the new shock sleeves into the previously installed shock bushings. **Special note: Use the new S10074 shock sleeves and the proper shock sleeves that are located in the new sleeve bag that was provided with your new shocks. Make sure to use a lithium or moly base grease prior to inserting the new lower shock bushings and sleeves into the new lower shock eyelet. This will increase the life of the bushing as well as prevent squeaking.** Working on the driver side, install the new shock into the OE location and

secure using the stock hardware. **Special note: Make sure to use loctite and torque to 75 ft lbs.** Repeat procedure on the passenger side. **Special note: Tuff Country EZ-Ride Suspension highly recommends that the shocks are installed with shock boots. If shock boots are not installed, damage may occur to the piston of the new shock.**

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

103. Locate (2) PB6199 poly bump stops and (2) PB6052 poly bump stops from hardware bag 16985PL. Also, locate (4) 3/8" unitorque nuts and (4) 5/16" USS flat washers from hardware bag 16985NB1. Working on the driver side of the rear spring assembly, remove the (2) teflon inserts located on the over load in the spring assembly. Discard the teflon inserts. Install (1) PB6052 (taller poly bump stop) in front location on the spring assembly. Secure using the new 3/8" hardware. Torque to **28 ft lbs.** Install (1) PB6199 (shorter poly bump stop) in the rear location on the spring assembly. Secure using the new 3/8" hardware. Torque to **28 ft lbs.** Repeat procedure on the passenger side.



**If the vehicle that you are working on has a 2 piece rear drive shaft, please follow step 104 — 105.**

**If the vehicle that you are working on does not have a 2 piece rear drive shaft, please skip to step # 106.**

104. Carefully place a hydraulic floor jack under the rear drive line near the carrier bearing mounting location. Raise up on the hydraulic floor jack until it comes into contact with the rear drive line. Remove the hardware that connects the carrier bearing to the OE location and discard the hardware. Carefully lower down on the hydraulic floor jack allowing enough room for the new rear carrier bearing drop bracket to be installed.

105. Locate the new rear carrier bearing drop. Locate (2) S10007 crush sleeves from hardware bag 16985SL. Also,

locate (2) 3/8" x 3 1/2" bolts, (4) 5/16" USS flat washers and (2) 3/8" unitorque nuts from hardware bag 16985NB1. Install the new carrier bearing drop bracket between the carrier bearing and the mounting point. Secure using the new 3/8" x 3 1/2" bolts, crush sleeves and hardware. **Make sure to use loctite and torque to 28 ft lbs.** Carefully remove the hydraulic floor jack from under the rear drive line. **Special note: The carrier bearing mount has slotted holes, make sure that when you torque the new 3/8" hardware that the new carrier bearing is pushed as far forward as possible.**

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

**Step # 107 and # 108 needs to be performed with the weight of the vehicle on the ground.**

107. Working on the driver side, move back to the new 5/8" hardware attaching the lower control arms to the newly installed sub frame and add some loctite and torque to **125 ft lbs.** Repeat procedure on the passenger side.

108. Working on the driver side, move back to the newly installed sway bar end link bolt and add some loctite and tighten the bolt until the bushings start to bulge. Repeat procedure on the passenger side.

109. Check and double check to make sure that all steps were performed properly. And then check them again.

**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.**

**Special note: After the vehicle has been aligned, in 2WD, test drive the vehicle to check for any drive line vibrations. If drive live vibrations occur, the stock drive line may need to be rebalanced. If the stock drive line is rebalanced and vibration still occurs, please follow steps 110 — 111.**

110. Place a pair of hydraulic floor jacks under the transfer case cross member. Carefully raise up on both hydraulic floor jacks at the same time until the hydraulic floor jacks come into contact with the transfer case cross member. Working on the driver side, remove the (2) bolts and hardware that connects the transfer case cross member to the bottom sides of the frame rail. On the side of the stock frame rail, remove and discard the transfer case support bracket and hardware. Repeat procedure on the passenger side.

111. Carefully lower down on both hydraulic floor jacks at the same time about 3/4". Locate (8) 2" x 2" square washers. Also, locate (4) 1/2" x 2" bolts, (8) 7/16" USS flat washers and (4) 1/2" unitorque nuts from hardware bag 16985NB3. Working on the driver side, install (4) shims, (2) in the forward hole and (2) in the rearward hole, between the

transfer case cross member and the frame rail. Secure using the new 1/2" x 2" bolt and hardware. **Make sure to use loc-tite and torque to 85 ft lbs.** Repeat procedure on the passenger side. Remove both hydraulic floor jacks.

**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.**

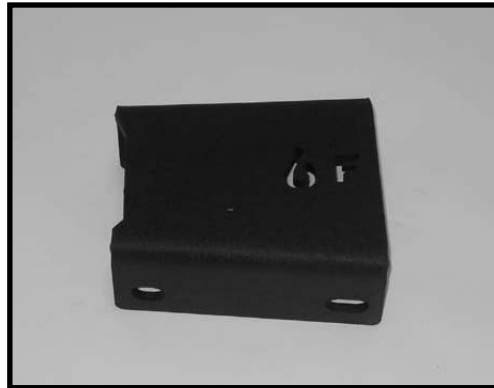
**Special post installation procedure: Tuff Country EZ-Ride Suspension highly recommends adding a minimum of 1 pint, but no more that 1 1/2 pints, of proper front differential fluid into the front differential. To achieve this, you may have to fill the differential with it on its side or you may have to insert the fluid through the vend tube opening. On occasion, the customer may find burping of fluid coming out of the front vent tube.**



**16985-04 (1)**  
**Sub frame**



**HDDIFF-01 (1)**  
**DS differential relocation bracket**



**16985-23 (1)**  
**PS differential relocation bracket**



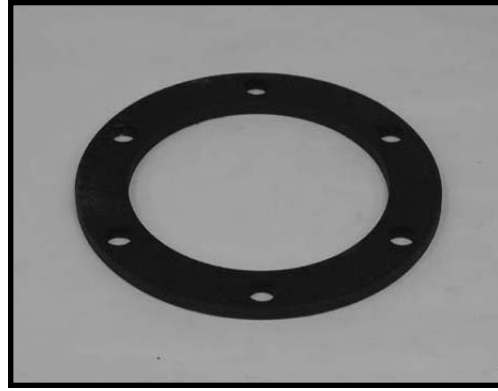
**16985-12 (2)**  
**Lateral compression struts**



**16985-10 (1)**  
**Rear carrier bearing relocation bracket**



**TBD99-01 (2)**  
**Torsion bar relocation bracket**



**9802 (2)**  
**1/4" CV axle spacer**



**16985-01M (1)**  
**Driver side knuckle**



**16985-02M (1)**  
**Passenger side knuckle**



**16985-11 (2)**  
**Lateral compression arm mounts**