



Part # 14994
2001 - 2006 Chevy or GMC 3500HD
Strong 4" suspension system

Parts contained in Box 1 of 2

<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
14985-08	Front cross member	1
14985-09	Rear cross member	1
14985-10	4" integrating skid plate	1
HDDIFF-01	DS differential relocation bracket	1
14985-05	PS differential relocation bracket	1
TBD99-01	Torsion bar relocation brackets	2
BL203	2" rear lifted blocks	2
9802	Axle spacers	2
14985NB	Hardware bag	1
14985PL	Hardware bag	1
14985SL	Hardware bag	1
14959NB1	Hardware bag	1
DECAL	Window sticker	1

Parts contained in Box 2 of 2

<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
16985-01M	DS knuckle	1
16985-02M	PS knuckle	1
17853	U-bolt box kit	1
S10120	Sleeve	1
14994INST	Instruction manual (customer copy)	1
14994INST	Instruction manual (Installer copy)	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 are proud to offer a high quality product at the industries most competitive pricing. Thank you for your confidence in us, and our product.

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.

Part # 14994 will not work with vehicle that have dual rear wheels. If part # 14994 is installed on a vehicle with dual rear wheels, Tuff Country assumes no liability and the warranty will be VOID.

Installation manual
Strong 4" suspension system
2001 -- 2006
Chevy or GMC 3500HD
Part # 14994

sj122007rev.02

Important customer information:

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

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

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.

It is the responsibility of the customer or the mechanic 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. OEM manual should be used as a reference guide.

Make sure to use lock tite on all new and stock hardware associated with this installation.

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.

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 # 14994 but a large size tire and the stock wheels will not work in conjunction with part # 14994. Once part # 14994 has been installed with larger tires, new wheels with a 4.5" back spacing or less is required. Tuff Country recommends a 33x12.50 tire package. If larger than a 33x12.50 tire is installed on your vehicle in conjunction with part # 14994; 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 vehicle may encounter a front drive line vibration in 4WD. If this is the case on the vehicle that you are working on, a new front drive line with a dual cardan C.V. type drive line will 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.

Hardware bag 14985SL includes:

<u>Description</u>	<u>Quantity</u>
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

Hardware bag 14985PL includes:

<u>Description</u>	<u>Quantity</u>
PB6199 (short bump stop)	4
PB6052 (tall bump stop)	2
PB2408 (poly bushing)	2
MO2220 (poly bushing)	4
PB8016 (sway bar end link bushing)	8
S10049 (sway bar end link washer)	8
PB8297 (front shock upper bushing)	4
S10107 (front shock upper washer)	4
LUBE (poly lube pack)	2

Hardware bag 14985NB includes:

<u>Description</u>	<u>Quantity</u>
3/8" x 7" bolts	2
3/8" unitorque nuts	8
5/16" USS flat washers	6
10 mm x 35 mm bolts	12
10 mm x 60 mm bolts	4
10 mm lock washers	16
7/16" x 1 1/2" bolts	10
7/16" x 3" bolts	1
7/16" unitorque nuts	11
3/8" USS flat washers	22
9/16" x 1 3/4" bolts	2
9/16" unitorque nuts	2
1/2" USS flat washers	4
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
1/4" x 1" self threading bolts	1

Hardware bag 14959NB1 includes:

<u>Description</u>	<u>Quantity</u>
1/2" x 1 1/2" bolts	6
7/16" USS flat washers	12
1/2" unitorque nuts	6

Hardware bag 916NW includes:

<u>Description</u>	<u>Quantity</u>
9/16" u-bolt high nuts	8
9/16" u-bolt harden washers	8

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.

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

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.

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 stock 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 removed. Set the stock torsion bar block and hardware aside for later re-installation. Repeat procedure on passenger side.

Photo # 1 / Photo # 2

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 stock torsion bars forward until the stock torsion bar cross member can be removed. Once you tap the stock torsion bar out of the stock torsion bar cross member, the stock torsion bar key will fall out. Set the stock torsion bar key aside for later re-installation. Repeat procedure on the passenger side.

Photo # 3 / Photo # 4

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

procedure on the passenger side. Remove the stock torsion bar cross member from the stock location and set aside for later re-installation.

Photo # 5

5. Working on the driver side, slide the stock torsion bar out of the stock 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.

Photo # 6

7. Remove the stock upper skid plate from the stock location. Save the stock upper skid plate and stock hardware for later re-installation.

Photo # 7

8. Working on the driver side, remove the stock hardware on the top of the stock shock. The upper stock hardware may be discarded. Remove the stock hardware on the lower shock mount and save the stock hardware for later re-installation. The stock 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 stock sway bar end link from the stock location and discard the stock end link and all the stock hardware. Repeat procedure on the passenger side. **Special note: At this time, invert the stock sway bar.**

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

Photo # 8 / Photo # 9

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

Disconnect the ABS lines from each other. Also, disconnect the ABS line from any other mounting points on the stock frame rail. Repeat procedure on the passenger side.

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

Photo # 10 / Photo # 11

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

Photo # 12

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

Photo # 13

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

Photo # 14

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

Photo # 15

18. Working on the driver side, remove the (6) stock bolts holding the inner CV axle to the stock front differential. Discard the stock hardware. Carefully remove the stock CV axle from the stock location and set the stock CV axle aside for later re-installation. **Special note: During the removal of the stock 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.

Photo # 16

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

Photo # 17 / Photo # 18

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

Photo # 19 / Photo # 20

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

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

Photo # 21 / Photo # 22

Photo # 23

23. Locate the new driver side steering knuckle. Using the stock rubber "O" ring that was removed in step # 22, carefully re-install the stock rubber "O" ring into the new driver side knuckle. Using the stock hardware that was removed from step # 22, secure the new driver side steering knuckle to the stock 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.** Torque to **133 ft lbs.** Make sure to use thread locker or lock tite. Repeat procedure on the passenger side knuckle.

Photo # 24 / Photo # 25

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

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

Photo # 26 / Photo # 27

26. Working on the driver side, remove the stock bolt that connects the lower rear portion of the stock front differential to the stock rear cross member. Save the stock

hardware for later re-installation.

Photo # 28

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

Photo # 29 / Photo # 30

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

**Photo # 31 / Photo # 32
Photo # 33**

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

Photo # 34 / Photo # 35

30. Working on the passenger side of the stock 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.**

Photo # 36

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

Photo # 37

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 the stock hardware

that connects the upper driver side tab of the stock front differential to the stock location. Save the stock hardware for later re-installation.

Photo # 38

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

Photo # 39

35. Carefully lower down on both hydraulic floor jacks at the same 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 stock front differential on the ground or on a work bench.

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

Photo # 40 / side view

Photo # 41 / pre cut view

Photo # 42 / nose cut off of the front differential

37. Locate the new driver side differential relocation bracket. Locate (2) PB2408 poly bushings from hardware bag 14985PL and (1) S10082 crush sleeve from hardware bag 14985SL. 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, (2) 3/8" USS flat washers, (4) 10 mm x 60 mm bolts and (4) 10 mm lock washers from hardware bag 14985NB. Also, locate (1) S10120 sleeve that was packaged with the installer copy of the instruction manual. Working on the front differential, remove the (4) stock differential mounting bolts that connect to two halves of the front differential together. The stock 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 thread locker or lock tite and torque to **34 ft. lbs.** Move back to the (4) new 10 mm x 60 mm bolts that hold the new driver side differential relocation bracket to the stock front differential and add some thread locker or lock tite and torque to **34 ft lbs.** **Special note: Make sure not to over tighten the stock and new hardware associated**

with the front differential. If bolts are over tightened, the stock 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.

Photo # 43

39. Locate the new passenger side differential relocation bracket and the stock hardware that was removed from step # 34. Working on the passenger side, install the new passenger side differential relocation bracket into the stock upper location and secure using the stock hardware. Do not tighten at this point. **Special note: There is a "4F" cut out in this bracket, the "4F" 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 14985NB. Carefully install the passenger side of the stock 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.

Photo # 44

42. Locate (2) 7/16" x 1 1/2" bolts and (2) 3/8" USS flat washers from hardware bag 14985NB. 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.

Photo # 45

43. Locate the new front cross member. Also, locate the stock lower control arm front mounting hardware that was removed in step # 25. Install the new front cross member to the stock front lower control arm pockets and secure using the stock hardware. **Special note: Make sure to install the stock hardware from the front of the vehicle towards the rear of the vehicle. Do not tighten at this point. Also, make sure that the 7/16" x 1 1/2" bolts that**

were installed in step # 42 slide through the holes in the new front cross member.

Photo # 46

44. Locate the new rear cross member. Also, locate the stock lower control arm rear mounting hardware that was removed in step # 25. Install the new rear cross member to the stock rear lower control arm pockets and secure using the stock hardware. **Special note: Make sure to install the stock hardware from the front of the vehicle towards the rear of the vehicle. Do not tighten at this point.**

Photo # 47

45. Carefully loosen the tie down strap and allow the driver side of the stock front differential to seat properly into the rear cross member and the newly installed driver side differential relocation bracket can be installed to the front cross member. Do not remove the tie down strap at this point.

46. Locate the stock hardware that was removed from step # 33. Secure the newly installed front differential relocation bracket to the newly installed front cross member. Secure using the stock hardware. **Do not tighten at this point.**

Photo # 48

47. Locate the stock hardware that was removed from step # 26. Install the rear portion of the front differential into the tab on the newly installed rear cross member. Secure using the stock hardware. **Do not tighten at this point.** Once this bolt is installed, carefully remove the tie down strap that is holding the driver side of the front differential.

Photo # 49

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 14985NB. Also, locate the stock lower control arms that were removed from step # 25. Working on the driver side, install the stock 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 stock 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.

Photo # 50

49. Using a hydraulic floor jack, carefully raise up on the front portion on the newly installed front cross member until the newly installed front cross member 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 14985NB. Working on the driver side, secure the newly installed front cross member to the stock front cross member using the new 7/16" x 1 1/2" bolts that were installed in step # 42 and the new hardware. **Torque to 38 ft lbs. Special note: Make**

sure to use thread locker or lock tite. Repeat procedure on the passenger side. Carefully remove the hydraulic floor jack from under the front cross member.

Photo # 51

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

Photo # 52

52. Locate the new 4" integrating skid plate. Also, locate (6) 1/2" x 1 1/2" bolts, (12) 7/16" USS flat washers and (6) 1/2" unitorque nuts from hardware bag 14959NB1. Install the new 4" integrating skid plate to the front and rear cross members and secure using the new 1/2" x 1 1/2" bolts and hardware. **Do not tighten at this point.**

Photo # 53

53. Working on the driver side, move back to the stock hardware attaching the new front cross member into the stock lower control arm pocket and add some thread locker or lock tite and torque to **105 ft lbs.** Repeat procedure on the passenger side.

Photo # 54

54. Working on the driver side, move back to the stock hardware attaching the new rear cross member into the stock lower control arm pocket and add some thread locker or lock tite and torque to **105 ft lbs.** Repeat procedure on the passenger side.

Photo # 55

55. Working on the driver side, move back to the stock hardware attaching the newly installed driver side differential relocation bracket to the newly installed front cross member and add some thread locker or lock tite and torque to **75 ft lbs.**

Photo # 56

56. Working on the driver side, move back to the stock hardware attaching the rear portion of the stock front differential to the newly installed rear cross member and add some thread locker or lock tite and torque to **75 ft lbs.**

Photo # 57

57. Move back to the new hardware attaching the new skid plate to the front and rear cross member and add some thread locker or lock tite on all (6) bolts and torque all (6) bolts to **70 ft lbs.**

Photo # 58 / Photo # 59

58. 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.

Photo # 60

59. Locate the stock front drive line hardware that was removed in step # 29. Re-install the stock front drive line to the stock front differential using the stock hardware. Make sure to use thread locker or lock tite and torque to **18 ft lbs.**

Photo # 61

60. Locate (2) PB6199 poly bump stops from hardware bag 14985PL. **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 14985NB. Working on the driver side rear portion of the newly installed rear cross member, secure the new poly bump stop using the new 3/8" hardware. Torque to **28 ft lbs.** Repeat procedure on the passenger side. Make sure to use thread locker or lock tite.

Photo # 62 / Photo # 63

61. Locate the new driver side steering knuckle and the stock hub assembly. Also, locate the stock hardware for the upper control arm ball joint and the lower control arm ball joint that was removed in step # 21. Using the stock hardware, secure the new driver side steering knuckle and stock hub assembly to the stock upper control arm ball joint and the stock lower control arm ball joint using the stock hardware. Torque the stock upper control hardware to **74 ft lbs.** and the stock lower control arm hardware to **101 ft lbs.** Make sure to use thread locker or lock tite. Repeat procedure on the passenger side using the passenger side steering knuckle.

62. Locate the stock CV axles that were removed from step # 18. Working on the driver side, carefully install the stock CV axle back into the stock hub assembly. Repeat procedure on the passenger side.

63. 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 14985NB. Working on the driver side, install (1) new axle spacer between the stock front differential and the stock CV axle. Secure using the new 10 mm x 35 mm bolts and hardware. Make sure to use thread locker or lock tite 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 in step # 17.** Repeat on the passenger side.

Photo # 64

64. Locate the stock hardware that connects the stock front axle to the stock hub assembly that was removed in step # 16. Working on the driver side, secure the stock front axle to the stock hub assembly using the stock hardware. Make sure to use thread locker or lock tite and torque to **112 ft. lbs.** Also, re-install the hub assembly center cap that was removed from step # 15. Repeat procedure on the passenger side.

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

66. Locate the stock rotors that were removed in step # 14. Working on the driver side, install the stock rotor into the stock location. Repeat procedure on the passenger side.

67. Locate the stock brake caliper hardware that was removed in step # 13. Working on the driver side, re-install the stock brake caliper to the newly installed knuckle and secure using the stock hardware. Make sure to use thread locker or lock tite and torque to **76 ft. lbs.** Repeat procedure on the passenger side.

68. Locate the stock brake line hardware that was removed in step # 11. Working on the driver side, secure the stock brake line bracket to the stock upper control arm using the stock hardware. Carefully open up the stock bracket line bracket. Next, secure the stock brake line bracket to the new brake line bracket on the inside of the new knuckle. Secure using the hardware that was supplied on the new brake line bracket. Also, use some shock ties that were packaged with the installer copy of the installation manual 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 spindle, there will be no contact on the new wheels and tires. If contact occurs, the stock brake lines or ABS lines may be damaged.**

Photo # 65 / Photo # 66

69. 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 14985SL. Also, locate (4) PB8297 upper shock bushings and (4) S10107 upper shock washers from hardware bag 14985PL. Working on the new shocks, install the new lower shock bushing into the lower eyelet and install the new S10073 shock sleeves into the previously installed bushings. **Special note: 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 stock location using the stock hardware on the bottom mount that was removed in step # 8 and the new hardware on the top mount. Repeat procedure on the passenger side. **Special note: Make sure to use the new upper bushings and upper shock washers. 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, damaged my occur to the piston of the new shock.

70. Locate the stock outer tie rod ball joint hardware that was removed from step # 10. Working on the driver side, install the stock outer tie rod to the new steering knuckle using the stock hardware. Make sure to use thread locker or lock tite and torque to **53 ft. lbs.** **Special note: The new steering knuckle has a reverse taper on it where the stock outer tie rod mounts to it, make sure to install the outer tie rod the proper way. The stock outer tie rod nut will now be installed on the bottom side of the new steering knuckle.** Repeat procedure on the passenger side.

71. Locate (2) new torsion bar cross member relocation brackets. Locate (4) MO2220 poly bushings from hardware bag 14985PL. Also, locate (2) S10074 sleeves from hardware bag 14985SL. 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.**

72. Working on the driver side, hold the new torsion bar cross member relocation bracket to the new location on the stock 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 stock frame rail. Using the new torsion bar cross member relocation bracket as a guide, carefully drill (4) 7/16" holes into the stock 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 stock 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.

73. Locate (8) 7/16" x 1 1/2" bolts, (16) 3/8" USS flat washers and (8) 7/16" unitorque nuts from hardware bag 14985NB. Working on the driver side, secure the new driver side torsion bar cross member relocation bracket to the stock 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.

Photo # 67 / photo # 68

74. Locate the stock torsion bars that were removed from step # 5. Refer to the marks that were made in step # 3. 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 stock torsion bar back into the stock rear lower control arm. Slide the stock torsion bar far enough forward so that the stock torsion bar cross member can be re-installed. Repeat procedure on the passenger side.

75. Locate the stock torsion bar cross member and stock hardware that was removed from step # 4. Install the stock torsion bar cross member to the newly installed torsion bar cross member relocation brackets and secure using the stock hardware. Make sure to use thread locker or lock tite and torque to **90 ft lbs.**

Photo # 69

76. 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 stock frame rail and add some thread locker or lock tite and torque all (8) bolts to **70 ft lbs.**

77. Locate the stock torsion bar keys that were removed in step # 3. Working on the driver side, install the stock torsion bar key back into the stock location in the stock torsion bar cross member. Slide the stock 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 stock lower control arm and the stock torsion bar key. Refer to the marks that were scribed in step # 3.**

78. Locate the torsion bar adjusting blocks and hardware that was removed from step # 2. Working on the driver side, attach the torsion bar removing tool to the stock 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 front he 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.**

79. Locate (2) 3/8" x 7" bolts and (2) 3/8" unitorque nuts from hardware bag 14985NB. Locate (2) S10067 sway bar end link sleeves from hardware bag 14985SL. Also, locate (8) sway bar end link poly bushings and (8) sway bar end link washers from hardware bag 14985PL. **Special note: If you did not invert the stock sway bar in step # 9, invert the stock sway bar now.** Working on the driver side, install the new sway bar end link and hardware into the stock location . Do not tighten at this point. Repeat procedure on passenger side.

80. Locate the stock skid plate that was removed in step # 7. Referring to photo # 70, measure 2 5/8" from the leading edge of the stock skid plate and scribe a mark. Carefully cut along the scribed mark.

Photo # 70 / 2 5/8" measurement

Photo # 71 / post cut view

81. Locate the (3) stock upper skid plate mounting hardware that we removed in step # 7. Install the newly modified skid upper skid plate to the stock upper location using the stock hardware. **Special note: Make sure to use thread locker or lock tite and torque to 28 ft lbs.**

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

Photo # 72

83. Locate (1) 1/4" x 1" self threading bolt from hardware bag 14985NB. Secure the stock skid plate to the stock cross member using the new 1/4" x 1" self threading bolt.

Photo # 73

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

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

86. 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:

87. 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.

88. Working on the driver side, remove the stock shock from the stock upper and lower mounting points and save the stock 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.

89. 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.

90. Working on the driver side, remove the stock u-bolts

from the stock location and discard the stock u-bolts and hardware. Set the stock upper and lower u-bolt plates a side for later re-installation. Repeat procedure on passenger side.

91. Carefully lower down 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.**

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

93. Carefully raise up on both hydraulic floor jacks at the same time until the stock spring assembly sits flush with the newly installed 2" lifted block.

94. Locate (4) 5/8" x 2 3/4" x 15 1/2" square u-bolts, (8) 5/8" u-bolt high nuts and (8) u-bolt washers from box kit 17853. Also, locate the stock upper and lower u-bolt plates that were removed from step # 90. Working on the driver side, install the new u-bolts into the stock location and secure using the new 5/8" high nuts and washers. **Special note: Make sure to re-install the stock upper and lower u-bolt plates. Torque to 135 ft lbs.** Repeat procedure on passenger side.

95. **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 14985SL. 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 stock location and secure using the stock hardware that was removed in step # 88. **Special note: Make sure to use thread locker or lock tite 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, damaged my occur to the piston of the new shock.**

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

97. Locate (2) PB6199 poly bump stops and (2) PB6052 poly bump stops from hardware bag 14985PL. Also, locate (4) 3/8" unitorque nuts and (4) 5/16" USS flat washers from

hardware bag 14985NB. Working on the driver side of the stock rear spring assembly. Remove the (2) stock teflon inserts located on the stock over load in the stock spring assembly. Discard the stock teflon inserts. Install (1) PB6052 (taller poly bump stop) in front location on the stock 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 stock spring assembly. Secure using the new 3/8" hardware. Torque to **28 ft lbs.** Repeat procedure on the passenger side.

Photo # 74 / front location

Photo # 75 / rear location

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

Step # 99 and # 100 needs to be performed with the weight of the vehicle on the ground.

99. Working on the driver side, move back to the new 5/8" hardware attaching the stock lower control arms to the newly installed front and rear cross members and add some thread locker or lock tite and torque to **125 ft lbs.** Repeat procedure on the passenger side.

100. Working on the driver side, move back to the newly installed sway bar end link bolt and add some thread locker or lock tie and torque to **38 ft lbs.** Repeat procedure on the passenger side.

101. 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.

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.

After installation, some vehicle may encounter a front drive line vibration in 4WD. If this is the case on the vehicle that you are working on, a new front drive line with a dual cardan C.V. type drive line will be needed.



Photo # 1



Photo # 2



Photo # 3



Photo # 4



Photo # 5



Photo # 6



Photo # 7



Photo # 8



Photo # 9



Photo # 10



Photo # 11



Photo # 12

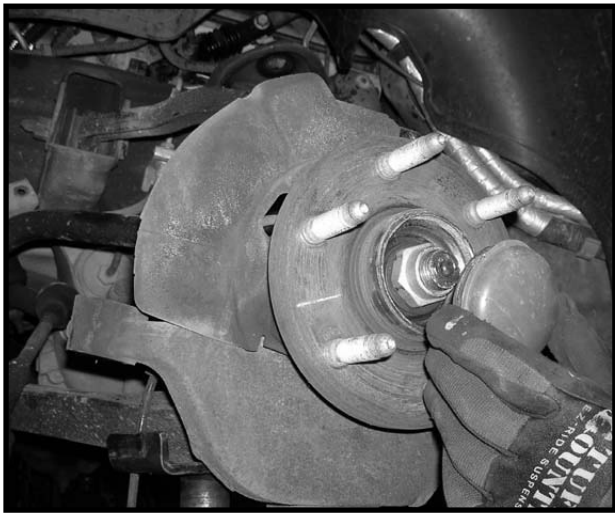


Photo # 13

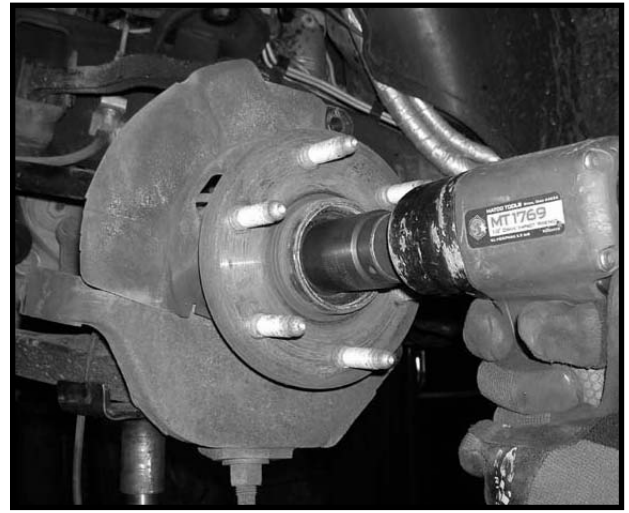


Photo # 14



Photo # 15



Photo # 16



Photo # 17



Photo # 18



Photo # 19

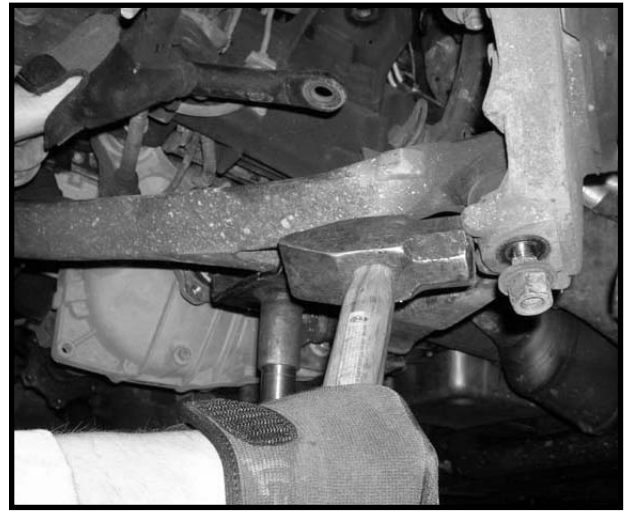


Photo # 20



Photo # 21



Photo # 22



Photo # 23



Photo # 24



Photo # 25

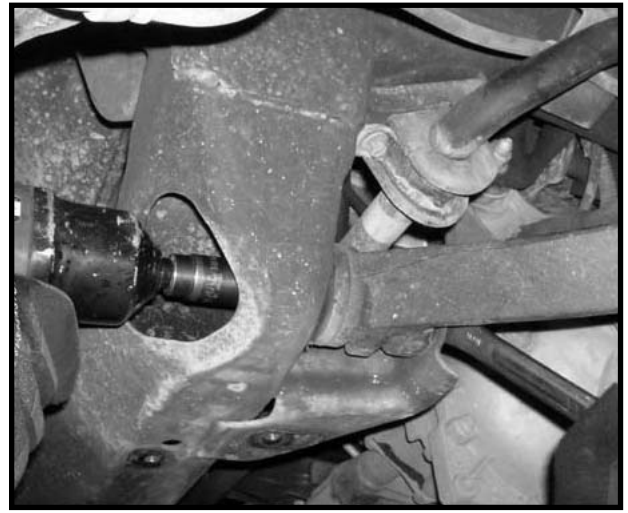


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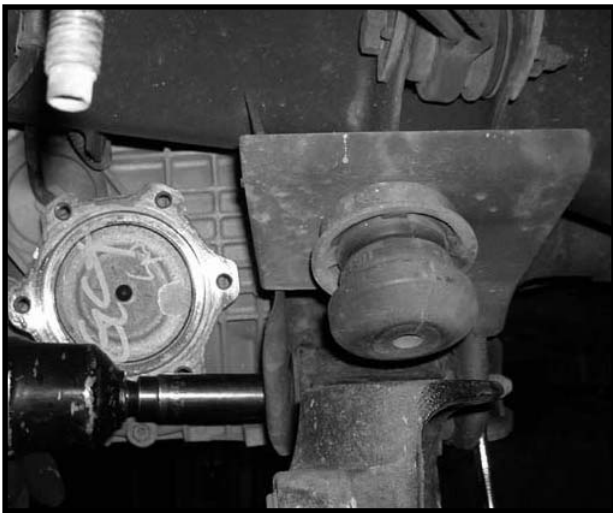


Photo # 27



Photo # 28



Photo # 29

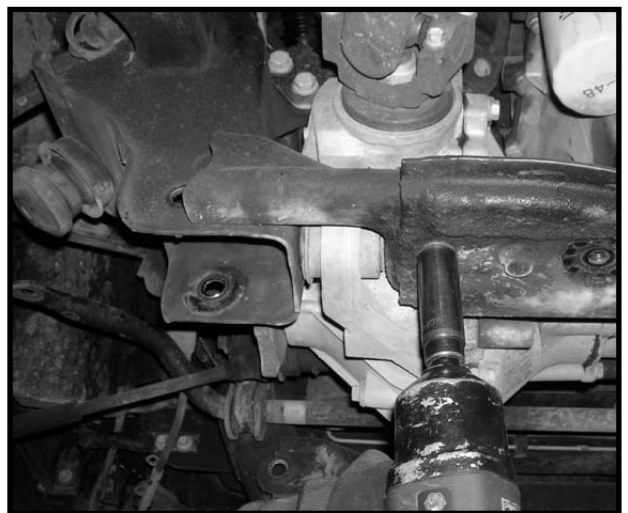


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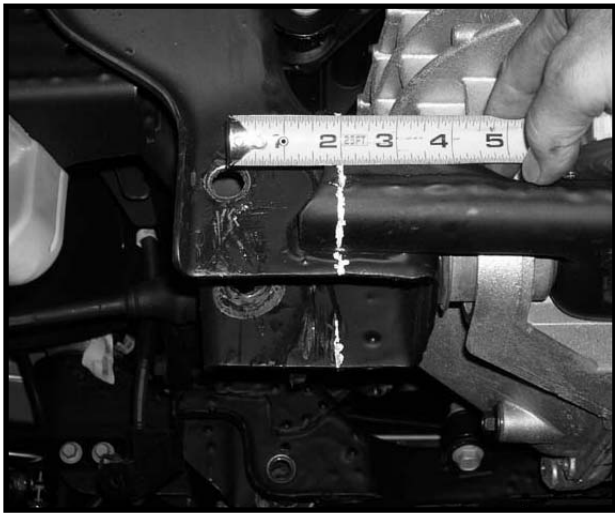


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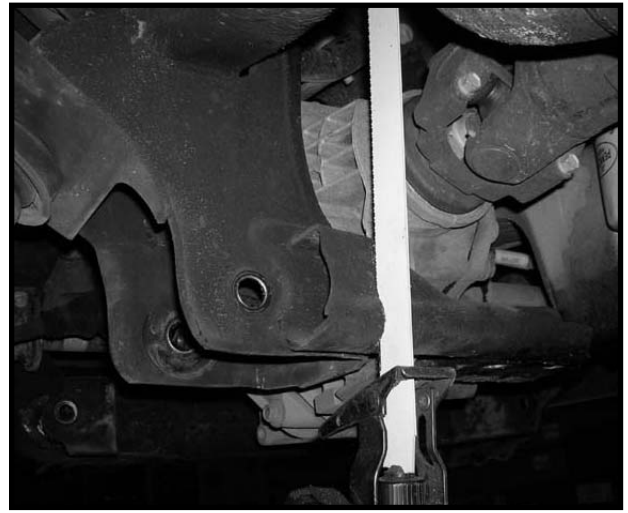


Photo # 32



Photo # 33

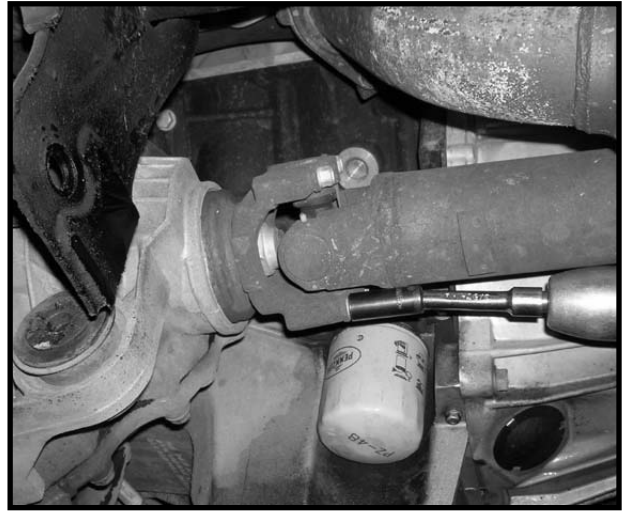


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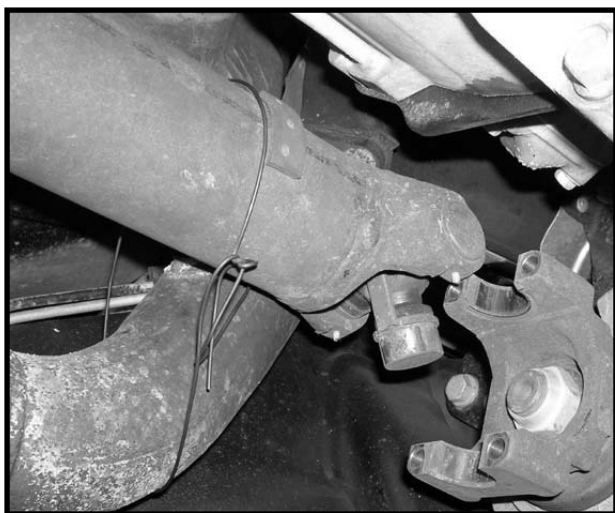


Photo # 35



Photo # 36

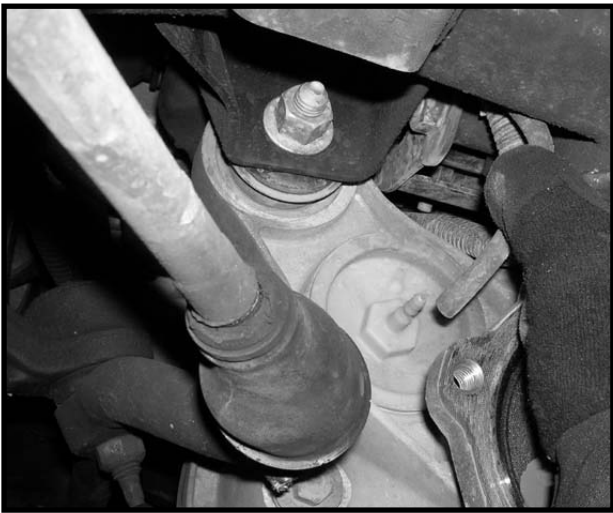


Photo # 37



Photo # 38

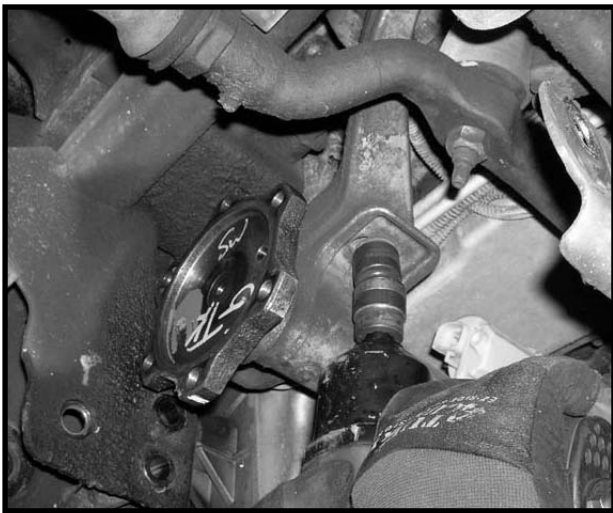


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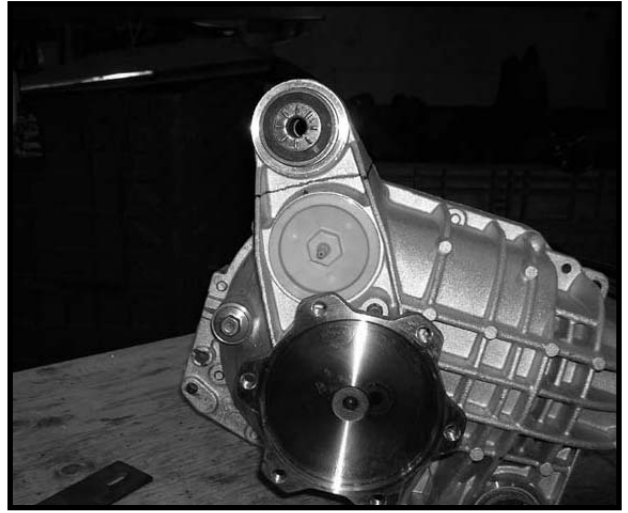


Photo # 40



Photo # 41

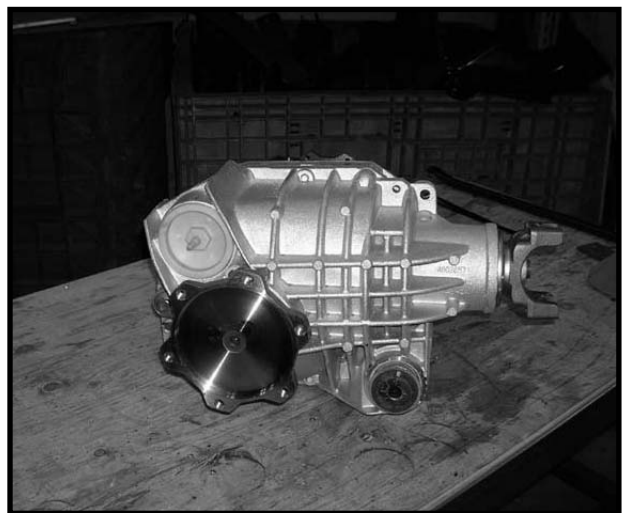


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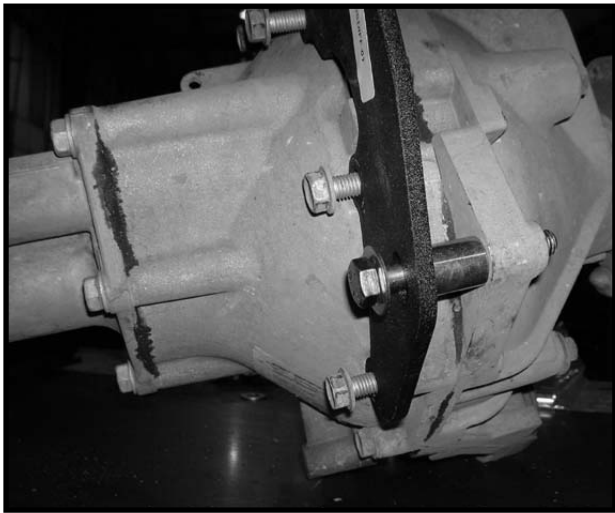


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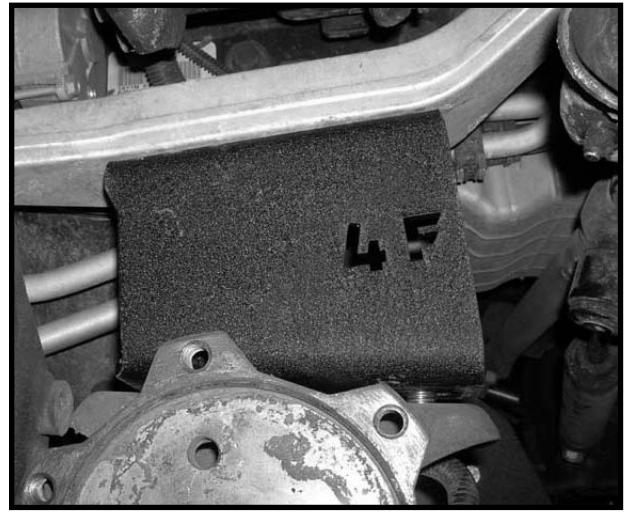


Photo # 44



Photo # 45



Photo # 46



Photo # 47



Photo # 48



Photo # 49

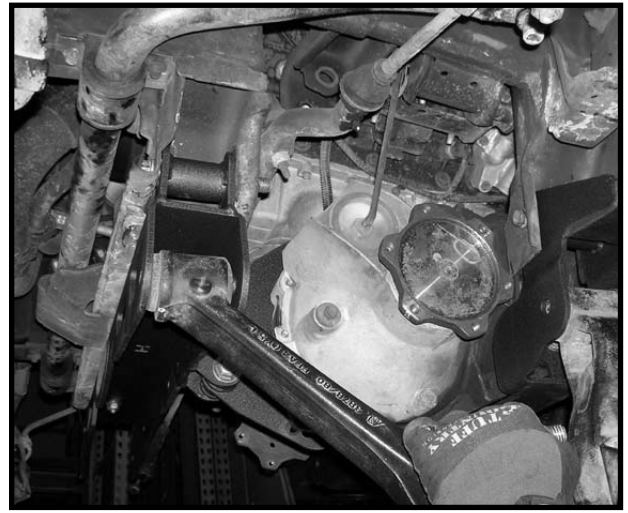


Photo # 50



Photo # 51

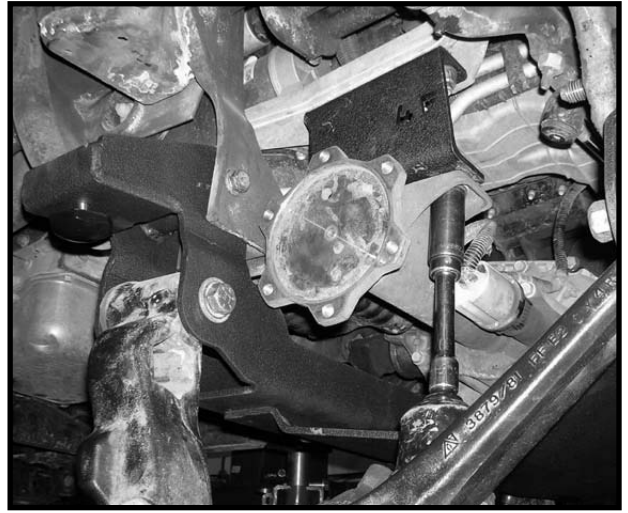


Photo # 52



Photo # 53

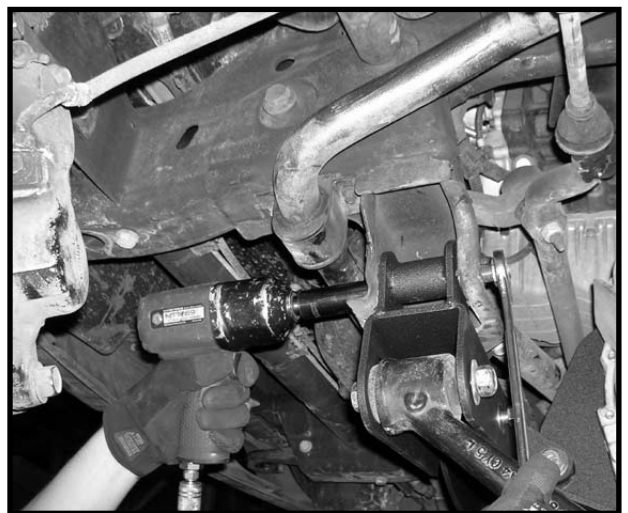


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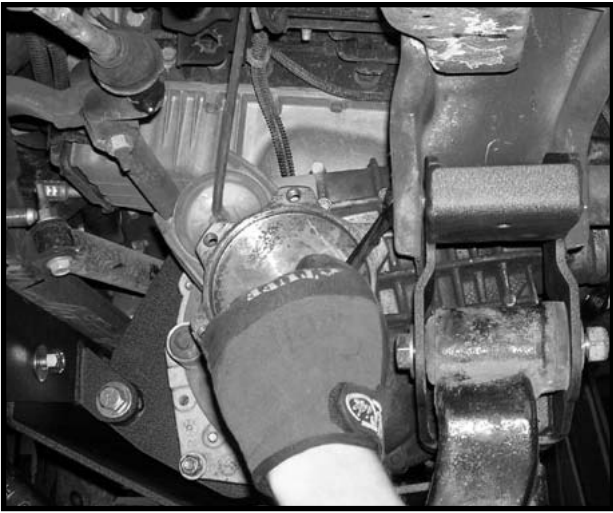


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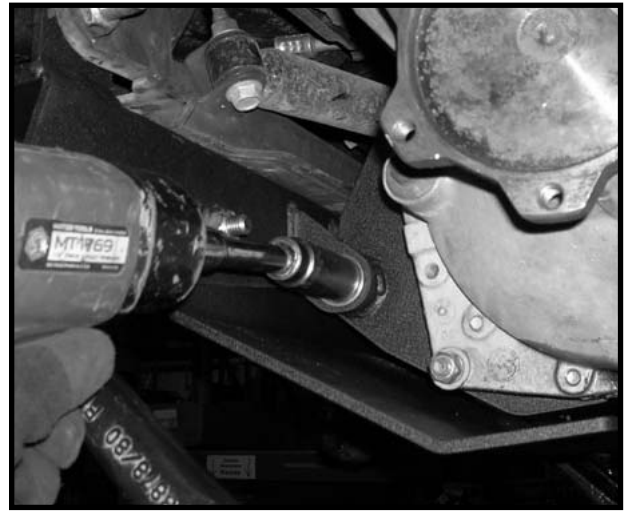


Photo # 56



Photo # 57

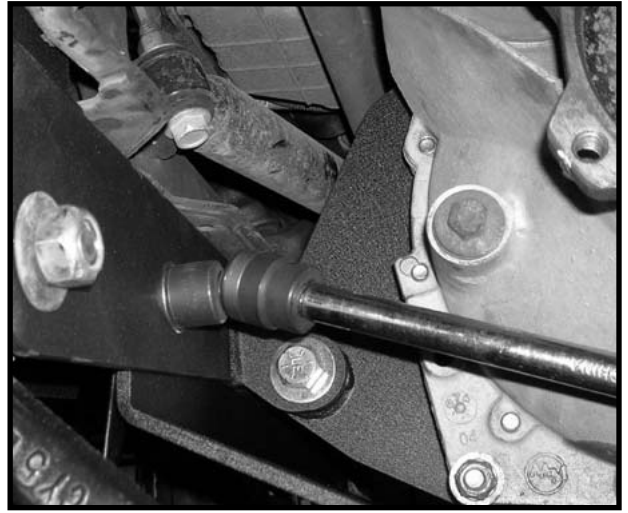


Photo # 58



Photo # 59



Photo # 60

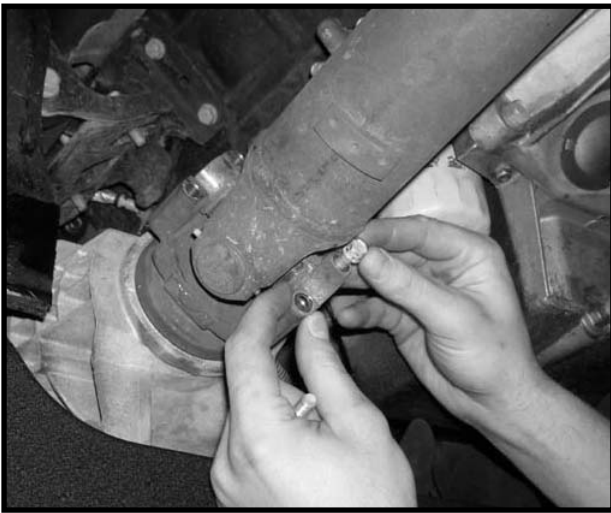


Photo # 61



Photo # 62

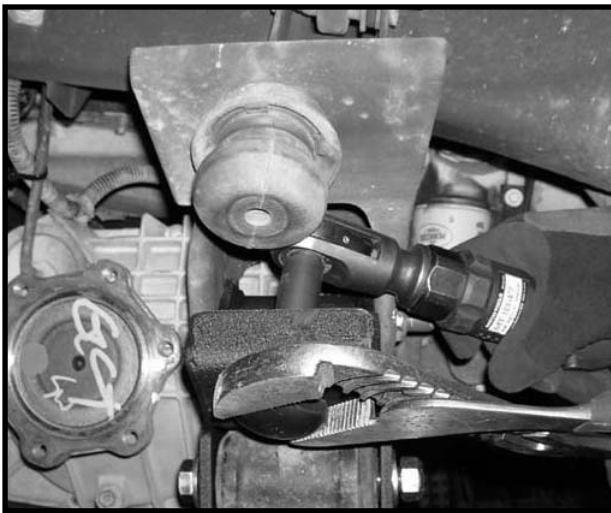


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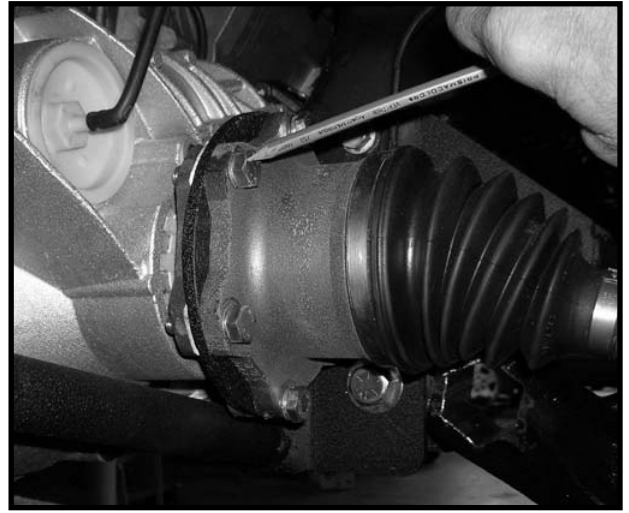


Photo # 64



Photo # 65



Photo # 66

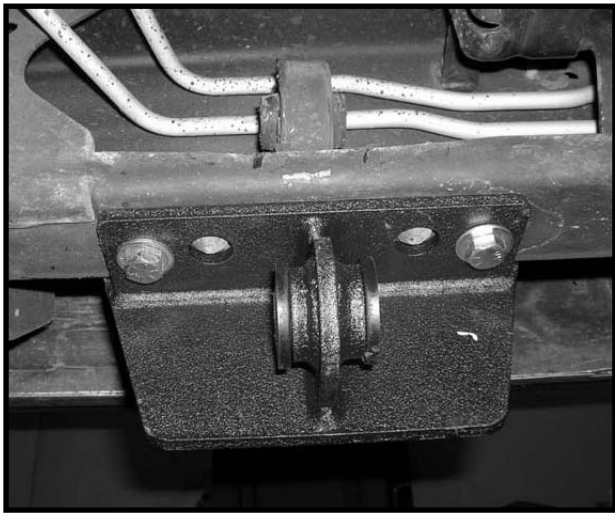


Photo # 67



Photo # 68



Photo # 69



Photo # 70



Photo # 71



Photo # 72



Photo # 73

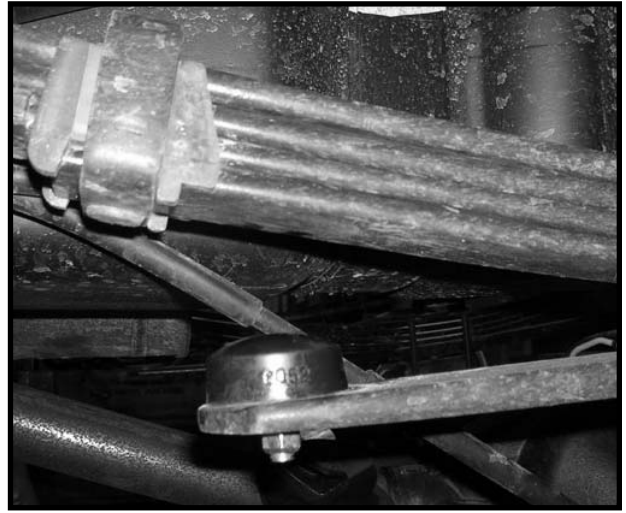


Photo # 74



Photo # 75



14985-08 (1)
Front cross member



14985-09 (1)
Rear cross member



14985-10 (1)
4" integrating skid plate



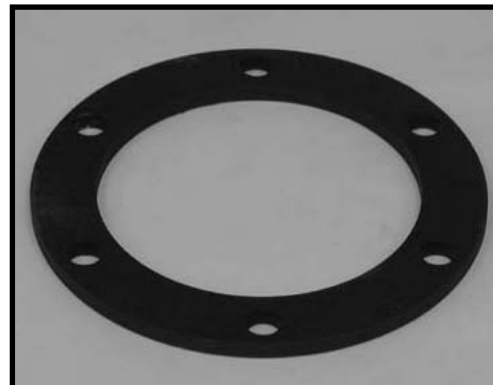
HDDIFF-01 (1)
DS differential relocation bracket



14985-05 (1)
PS differential 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