



## EZ - Ride Suspension

**INSTALLATION MANUAL**  
**6" I.F.S. SUSPENSION**  
 1999 - 2003  
**CHEVY OR GMC 1500 SILVERADO**  
**PART # 16955**

sj031203rev.01

**PART NUMBER : 16955**  
**1999 — 2003 CHEVY 1500 PICK UP**  
**6" SUSPENSION SYSTEM WITH FRONT SPINDLES**

<b>Part #</b>	<b>Description</b>	<b>Qty.</b>
16955-01	Driver Side Spindle	1
16955-02	Passenger Side Spindle	1
16955-03	Lower One Piece Sub Frame	1
16955-05	Driver Side Differential Drop	1
16955-06	Passenger Side Differential Drop	1
16955-07	Driver Side Shock Relocation Bracket	1
16955-08	Pass. Side Shock Relocation Bracket	1
16985-16	Torsion Bar Drop Brackets	2
9803	Front Axle 1" Spacers	2
TCI-R31	Rear Add-A-Leafs	2
BL401	3" Rear Lifted Blocks	2
5U-9262S	9/16" x 2 3/4" x 12 5/8" Square U-bolts	4
16955SL	Poly Bushing & Sleeve Bag	1
16955NB	Hardware Box	1
CB38	Hardware Bag	1
916NW	Hardware Bag	1
16955INST	Instruction Sheet	1

### IMPORTANT CUSTOMER INFORMATION

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

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

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.

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.

**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.**

**For a list of all parts, please refer to the Parts Description Page, at the end of the Installation Manual.**

**Make sure to use thread locker or locktite on all new and stock hardware associated with the installation of this suspension system.**

**It is the responsibility of the installers to make sure that the rear view mirror hanger is hung from the rear view mirror. The rear view mirror hanger has instructions on proper post installation procedure.**

**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 or consequential damages. Any part or product returned for warranty claim must be returned through the dealer of the distributor from whom it was purchased. Tuff Country reserves the right to examine all parts returned to it for warranty claim to determine whether or not any such part has failed because of defect in material or workmanship. The obligation of Tuff Country under this warranty shall be limited to repairing, replacing or crediting, at its option, any part or product found to be so defective. Regardless of whether any part is repaired, replaced or credited under this warranty, shipping and/or transportation charges on the return of such product must be prepaid by the customer under this warranty.

## IMPORTANT INFORMATION THAT NEEDS TO BE READ BEFORE INSTALLATION BEGINS:

Tuff Country EZ-Ride Suspension recommends using a 4.5" back spacing on the tire and wheel combination. The stock wheels will not work in combination with the new spindle design.

If the vehicle that you are working on has the stock transfer case cross member that is bolted to the bottom side of the stock frame rail, and you would like to install new lateral compression arms, please contact Tuff Country or your local Tuff Country dealer and order part # 10906.

If the vehicle that you are working on has the stock transfer case cross member that is bolted to brackets that are welded to the inside of the stock frame rail, and you would like to install new lateral compression arms, please contact Tuff Country or your local Tuff Country dealer and order part # 10907.

If you would like to install an aftermarket lower skid plate, please contact Tuff Country or your local Tuff Country dealer and order part # 90057.

If you would like to install an aftermarket pre-runner style skid plate, please contact Tuff Country or your local Tuff Country dealer and order part # 90056.

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 drive line may need to be rebalanced. If the stock drive line is rebalanced and the vibration still occurs, a new drive line may be needed. If a new drive line is needed, you may contact Tuff Country or your local Tuff Country dealer and order part # 10902.

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.

**Hardware Bag 16955SL Includes:**

<u>Description</u>	<u>Quantity</u>
Poly Bushings (PB2408G)	2
Crush Sleeve (9/16" x 2 1/2")	1
Poly Bushings (PB4902G)	4
Crush Sleeves (9/16" x 1 1/2")	2
Poly Bump Stops	2
9 1/2" Long Sway Bar End Links	2
Sway Bar End Link Washers	8
Sway Bar End Link Bushings	8
Poly Lube Pack	2

**Hardware Bag 16955NB Includes:****Bag # 1**

<u>Description</u>	<u>Quantity</u>
3/8" x 13" Bolts	2
3/8" Unitorque Nuts	4
3/8" Flat Washers	2
3/8" Lock Washers	2
10 mm x 70 mm Bolts	12
10mm Lock Washers	12

**Bag # 2**

<u>Description</u>	<u>Quantity</u>
7/16" x 1 1/2" Bolts	10
7/16" x 3" Bolts	1
7/16" Unitorque Nuts	11
7/16" Flat Washers	22
7/16" Lock Washers	11

**Bag # 3**

<u>Description</u>	<u>Quantity</u>
1/2" x 3 1/4" Bolts	4
1/2" Unitorque Nuts	4
1/2" Flat Washers	8
1/2" Lock Washers	4

**Bag # 4**

<u>Description</u>	<u>Quantity</u>
9/16" x 1 3/4" Bolts	2
9/16" Unitorque Nuts	2
9/16" Flat Washers	10
9/16" Lock Washers	2

**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
5/8" Flat Washers	8
5/8" Lock Washers	4

**Hardware Bag CB38 Includes:**

<u>Description</u>	<u>Quantity</u>
3/8" x 6" Rear Centering Bolts	2
3/8" Fine Nuts	2

**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.

**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:** \_\_\_\_\_

**Please follow instructions carefully:**

**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 passenger side. Next, remove the tires and wheels from both sides.

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

3. Remove the stock front upper plate. If you are going to re-install the stock upper skid plate back into the stock location, save the (3) stock upper bolts, (2) stock lower bolts and the stock front upper skid plate for later re-installation. If you are not going to re-install the stock front upper skid plate, discard the (3) stock upper bolts and the stock front upper skid plate, but keep the (2) stock lower bolts for later re-installation.

4. Working on the driver side, remove the stock shock from the stock location. The stock shock and hardware 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.

5. Remove the stock front driveline from the stock location, and save the stock driveline and hardware for later re-installation.

6. Measure the exposed threads on the torsion bar adjustment bolt and record measurement here for a later reference.

Record Driver Side measurement here: \_\_\_\_\_

Record Passenger Side measurement here: \_\_\_\_\_

**See Illustration # 1**

7. 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 hardware a side for later re-installation. Repeat procedure on passenger side.

**See Illustration # 2**

8. 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. Set the stock torsion bar keys aside for later re-installation.

9. Working on the driver side, remove the stock bolt that connects the stock torsion bar cross member to the stock mounting point. Save the stock hardware 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 a side for later re-installation.

10. 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.

11. Working on the driver side, remove the stock sway bar end link from the stock location, and discard the stock end link and stock hardware. **Special Note: New end links and bushings are included with this suspension system.** Repeat procedure on the passenger side.

12. Working on the driver side, remove the stock brake line bracket that connects to the top of the stock steering knuckle, and save the stock hardware. Next, remove the stock bolt that connects the stock brake line bracket to the stock upper control arm, and save hardware for later re-installation.

13. Working on the driver side, remove the (2) stock bolts that connect the stock brake caliper to the stock rotor. 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.**

14. Working on the driver side, remove the stock rotor and set a side for later re-installation.

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.

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

**See Illustration # 3**

17. 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.

18. Working on the driver side, loosen the stock nut that connects the stock upper control arm ball joint to the stock steering knuckle. **Do not remove the stock nut completely.** Carefully break the stock taper on the stock upper control arm ball joint. **Special Note: Take special care not to rip or tear the stock ball joint dust boot.**

19. Working on the driver side, loosen the stock nut that connects the stock lower control arm ball joint to the stock steering knuckle. **Do not remove the stock nut completely.** Carefully break the stock taper on the stock lower control arm ball joint. **Special Note: Take special care not to rip or tear the stock ball joint dust boot.**

20. Working on the driver side, loosen the stock nut that connects the stock outer tie rod ball joint to the stock steering knuckle. **Do not remove the stock nut completely.** Carefully break the stock taper on the stock outer tie rod ball joint. **Special Note: Take special care not to rip or tear the stock outer tie rod ball joint dust boot.**

21. Working on the driver side, move back to the stock nuts holding the upper control arm ball joint, the lower control arm ball joint and the outer tie rod ball joint to the stock steering knuckle, and remove completely. Save hardware for later re-installation.

22. Working on the driver side, use a suitable removal tool to remove the stock axle from the hub assembly. **Special Note: Take special care not to damage the stock threads on the stock axle.**

23. Carefully remove the stock hub assembly and the stock steering knuckle from the stock location and stock axle.

24. Working on the driver side stock hub assembly, remove the (3) 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. A new steering knuckle is used, the stock steering knuckle can be discarded.

25. Locate the new driver side steering knuckle. Using the stock hardware that was removed from step # 24,

secure the new driver side steering knuckle to the stock hub assembly. **Torque to 92 ft lbs. Special Note: Make sure to use thread locker or lock tite.**

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

27. 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.

**See Illustration # 4**

28. Working on the driver side, unbolt and remove the (6) stock bolts holding the inner CV axle to the stock differential. Discard the stock hardware. Set the stock axle aside for later re-installation.

29. 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.

30. Repeat step's 12 - 29 on the passenger side.

31. 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.

32. 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.

**See Illustration # 5**

33. Working on the driver side, measure 2 1/8" 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 one piece lower sub frame. Also, Tuff Country EZ-Ride highly recommends not using a cutting torch when performing step # 33. Clean and dress up any exposed metal.**

**See Illustration # 6**

34. Working on the driver side, carefully cut flush, the remainder of the stock rear cross member that is located on the rear portion of the stock rear lower control arm mounting bracket. **Refer to illustration # 6 for proper cut line. Special Note: Take special care not to cut into the stock rear lower control arm mounting**

**bracket. Tuff Country recommends not using a cutting torch when performing step # 33. Clean and dress up any exposed metal.**

35. 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.

36. 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.**

37. Disconnect any other vent hoses and/or wiring that is connected to the front differential.

38. 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.

39. 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.

40. Carefully lower down on both hydraulic floor jacks at the same allowing enough room to remove the front differential completely from the vehicle. Remove the front differential completely from underneath the vehicle.

41. 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 front differential. Using a sawzall, cut the upper tab off of the stock front differential and discard. **Refer to illustration # 7 for proper cut line.**

**See Illustration # 7**

42. Locate the new driver side differential relocation bracket, (1) 7/16" X 3" bolt, (1) 7/16" unitorque nut, (2) 7/16" flat washers and (1) 7/16" lock washer from hardware bag 16955NB2. Also, locate (2) MO2050 poly bushings and (1) 9/16" x 2 1/8" anti crush sleeve from hardware bag 16955SL. Install the new poly bushings and anti crush sleeve into the new driver side 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.** Referring to illustration # 8, remove the (4) stock differential mounting bolts that connect to two half's of the front differential together. Save the stock hardware for later re-installation. Secure the new driver side differential relocation bracket to the stock front differential using the stock hardware that was removed earlier in this step. **Special Note: Get all (4) stock bolts started but do not tighten at this point.**

**Also, make sure to use thread locker or lock tite.** 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. Torque to **34 Ft. lbs.** Go back to the (4) stock bolts that hold the new differential relocation bracket to the stock front differential 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 tighten, the stock front differential could crack.**

**See Illustration # 8**

43. Working on the passenger side stock rear lower control arm pocket. Carefully cut off the front corner of the stock passenger side stock rear lower control arm pocket. This will allow enough room for the stock front differential to seat properly when the new passenger side differential drop bracket is installed. **Refer to the cut line in illustration # 9**

**See Illustration # 9**

44. Locate the new passenger side differential drop bracket and the stock hardware that was removed from step # 39. Install the new upper passenger side differential drop bracket into the stock location and secure using the stock hardware. **Do not tighten at this point. Special Note: There is a front and a rear of this bracket, refer to illustration # 10 for proper placement of the new passenger side differential drop bracket. Make sure to use thread locker or lock tite.**

**See Illustration # 10**

45. Locate (2) 9/16" x 1 3/4" bolts, (4) 9/16" flat washers, (2) 9/16" unitorque nuts and (2) 9/16" lock washers from hardware bag 16955NB4. 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, make sure to use thread locker or lock tite. Using a bungee cord, carefully tie the driver side of the stock front differential up and out of the way so that the new one piece lower sub frame can be installed.**

**See Illustration # 11**

46. Locate the new one piece lower sub frame and the stock lower control arm mounting hardware that was removed from step # 29. On the driver side, install the front and rear part of the new one piece sub frame into the stock front and rear lower control arm mounting points using the stock hardware. **Do not tighten at this point. Make sure to use thread locker or lock tite.** Repeat procedure on passenger side.

**See Illustration # 12 / Front Location**

**See Illustration # 13 / Rear Location**

47. Carefully remove the bungee cord that is holding the driver side of the front differential up and out of the way. Let the stock front differential rest on the newly installed one piece lower sub frame.

48. Locate the stock hardware that was removed from step # 31. Install the rear portion of the front differential into the tab on the rear portion of the new one piece lower sub frame. Secure using the stock hardware. **Do not tighten at this point. Make sure to use thread locker or lock tite.**

**See Illustration # 14**

49. Locate the stock hardware that was removed from step # 38. Secure the newly installed front differential relocation bracket to the front portion of the new one piece sub frame. Secure using the stock hardware. **Do not tighten at this point. Make sure to use thread locker or lock tite.**

**See Illustration # 15**

**Note: If you are going to re-install the stock front upper skid plate, please follow step #'s 50 - 52**

**Note: If you are not going to install the stock front upper skid plate please skip to step # 52**

50. Locate the stock front upper skid plate and the mounting hardware that was removed from step # 3. Secure the stock front upper skid plate to the upper stock location using the (3) stock bolts. **Do not tighten at this point. Make sure to use thread locker or lock tite.**

51. Install the lower portion of the stock front skid plate between the newly installed one piece lower sub frame and the stock front cross member. Using a pair of hydraulic floor jacks, carefully raise up on the front portion on the one piece lower sub frame, and smash the stock upper skid plate between the stock front cross member and front portion of the newly installed one piece sub frame.

52. Locate (2) stock upper skid plate lower bolts that were removed from step # 3. Working on the driver side, secure the newly installed one piece sub frame to the stock front cross member using the stock hardware. Torque to **38 ft lbs.** **Special Note: Make sure to use thread locker or lock tite. Also, make sure that the bolts secure the lower portion of the stock upper skid plate into the stock location.** Repeat procedure on the passenger side. Move back to the (3) stock upper bolts and torque to **38 ft lbs.** Carefully remove both hydraulic floor jacks from under the front portion of the one piece lower sub frame.

**Note: If you installed the stock front upper skid plate, please skip to step # 55**

53. Using a pair of hydraulic floor jacks, carefully raise up on the front portion on the one piece lower sub frame until the one piece lower sub frame sits flush with the stock front cross member.

54. Locate (2) stock upper skid plate lower bolts that were removed from step # 3. Working on the driver side, secure the newly installed one piece sub frame to the

stock front cross member using the stock 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 both hydraulic floor jacks from under the front portion of the one piece lower sub frame.

55. Move back to all the new and stock hardware associated with the front differential, and the new one piece sub frame and torque to proper specifications. Refer to the torque setting sheet at the end of the installation manual for proper torque.

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. Locate (2) poly bump stops from hardware bag 16955SL. Also, locate (2) 3/8" unitorque nuts, (2) 3/8" flat washers and (2) 3/8" lock washers from hardware bag 16955NB1. Working on the driver side rear portion of the newly installed one piece lower sub frame, 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.**

**See Illustration # 16**

58. Locate (2) 5/8" x 4 1/2" bolts, (2) 5/8" x 5 1/2" bolts, (8) 5/8" flat washers, (4) 5/8" unitorque nuts and (4) 5/8" lock washers from hardware bag 16955NB5. Also locate the stock lower control arms that were removed from step # 29. Working on the driver side, install the stock lower control arm into the newly installed one piece sub frame's front location and secure using the new 5/8" x 4 1/2" bolt and hardware. **Do not tighten at this point. Make sure to use thread locker or lock tite.** Install the stock lower control arm into the newly installed one piece sub frame's rear location and secure using the new 5/8" x 5 1/2" bolt and hardware. **Do not tighten at this point. Make sure to use thread locker or lock tite.** Repeat procedure on the passenger side.

**See Illustration # 17 / Front Location**

**See Illustration # 18 / Rear Location**

59. Locate the new driver side steering knuckle and the stock hub assembly. Also, locate the stock hardware for the upper control arm ball joint, lower control arm ball joint and outer tie rod ball joint that was removed from 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, the stock lower control arm ball joint and the stock outer tie rod assembly. Torque the stock hardware on the upper and lower ball joints to **85 ft lbs.** Torque the outer tie rod ball joint hardware to **68 ft. lbs.** **Special Note: When installing the new driver side spindle, make sure that the stock brake line is located towards the inside of the vehicle. Make sure to use thread locker or lock tite.** Repeat procedure on the passenger side using the passenger side steering knuckle.

**See Illustration # 19**

60. Locate (2) axle half shaft spacers, (12) 10 mm x 70 mm hex bolts and (12) 10 mm lock washers from hardware bag 16955NB1. Also locate the stock front axles that were removed from step # 28. Working on the driver side, install (1) new axle spacers between the stock front differential and the stock axle. Secure using the new 10 mm x 70 mm bolts. Torque to **65 ft. lbs.** **Make sure to use thread locker or lock tite. 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 # 27.** Repeat on the passenger side.

**See Illustration # 20**

61. 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.

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

63. Move back to all associated hardware that connects the stock lower control arms to the new one piece sub frame and torque **125 ft. lbs.**

64. 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.

65. 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 stock rotor and secure using the stock hardware. Torque to **76 ft. lbs. Make sure to use thread locker or lock tite.** Repeat procedure on the passenger side.

66. Locate the stock brake line hardware that was removed in step # 12. Working on the inside of the newly installed driver side spindle, reconnect the stock brake line bracket to the new driver side spindle. Secure using the stock hardware. Torque to **18 ft lbs. Make sure to use thread locker or lock tite.** Also reconnect the stock brake line bracket to the stock upper control arm using the stock hardware. Torque to **18 ft lbs. Make sure to use thread locker or lock tite.** Repeat procedure on the passenger side.

**See Illustration # 21**

67. Locate the new driver and passenger side front shock relocation bracket. Locate (4) 9/16" flat washers from hardware bag 16955NB4, (2) 7/16" x 1 1/2" bolt, (4) 7/16"

flat washers, (2) 7/16" unitorque nuts, (2) 7/16" lock washers from hardware bag 16955NB, (2) 1/2" x 3 1/4" bolts, (4) 1/2" flat washers, (2) 1/2" unitorque nuts and (2) 1/2" lock washers from hardware bag 16955NB3. Working on the driver side, install the new driver side shock relocation bracket to the stock location and secure using the new 1/2" x 3 1/4" bolt and hardware. **Do not tighten at this point. Make sure to use thread locker or lock tite. Special Notice: When installing the new shock relocation bracket, make sure to use (2) 9/16" flat washers as spacers on the front lower portion of the new shock relocation bracket and the stock location.** Refer to illustration # 22 for proper washer placement. Using the driver side shock relocation bracket as a guide, drill a 7/16" hole into the stock lower control arm. Secure the new driver side bracket to the stock lower control arm using the new 7/16" x 1 1/2" bolt and hardware. Torque to **42 ft lbs. Make sure to use thread locker or lock tite.** Torque the new 1/2" x 3 1/4" bolt to **110 ft lbs.** Repeat procedure on the passenger side.

**See Illustration # 22**

68. Working on the driver side, carefully remove the (2) stock rivets on the bottom side of the stock frame rail. **Special Note: If using a drill, take special care not to drill into any stock hoses and/or lines running down the inside of the stock frame rail.** Repeat procedure on the passenger side.

69. Locate (2) new torsion bar drop brackets, (4) PB4902 poly bushings and (2) 9/16" x 1 1/2" anti crush sleeve from hardware bag 16955SL. Install the new poly bushings and sleeves into the new torsion bar drop 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 drop 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 drop bracket to the new location on the stock frame rail. **Special Note: Make sure to center the new torsion bar drop bracket with the stock torsion bar drop bracket.** With the new torsion bar drop 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 drop 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. **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 drop 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) 7/16" flat washers, (8) 7/16" unitorque nuts and (8) 7/16" lock washers from hardware bag 16955NB2. Working on the driver side, secure the new driver side torsion bar drop bracket to the stock frame rail using the new 7/16" x



1 1/2" bolt and hardware. **Make sure to use thread locker or lock tite.** Torque to **76 ft lbs.** Repeat procedure on the passenger side.

**See Illustration # 23**

72. Locate the stock torsion bars that were removed from step # 10. Refer to the marks that were made in step # 8. 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.

73. Locate the stock torsion bar cross member and stock hardware that was removed from step # 9. Install the stock torsion bar cross member to the newly installed torsion bar drop brackets and secure using the stock hardware. **Make sure to use thread locker or lock tite.** Torque to **90 ft lbs.**

**See Illustration # 24**

74. Locate the stock torsion bar keys that were removed from step # 7. 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.

75. Locate the torsion bar adjusting blocks and hardware that was removed from step # 7. 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. Refer back to the measurements that were made in step # 6, and set to the torsion bar adjusting bolt to the stock setting. Repeat procedure on the passenger side. Carefully remove the torsion bar removing tool from the stock torsion bar cross member.

76. Locate (2) 3/8" x 13" bolts, (2) 3/8" unitorque nuts from hardware bag 16955NB1, (2) new sway bar end links, (8) sway bar end link bushings and (8) sway bar end link washers from hardware bag 16955SL. Working on the driver side, install the new sway bar end link and hardware into the stock location and torque to **32 ft lbs.** Repeat procedure on passenger side.

**See Illustration # 25**

77. 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.** Also, locate (2)

1/2" x 3 1/4" bolt, (4) 1/2" flat washers, (2) 1/2" unitorque nut and (2) 1/2" lock washers from hardware bag 16955NB3, and (2) 9/16" flat washers from hardware bag 16955NB4. Working on the driver side, install the new shock into the stock upper location using the new hardware that was included with the new shocks. Torque to **28 ft lbs.** Secure the bottom of the new shock to the newly installed shock relocation bracket using the new 1/2" x 3 1/4" bolt and hardware. **Make sure to use thread locker or lock tite.** Torque the lower 1/2" bolt to **80 ft lbs.** **Special Notice: When installing the new shock into the lower shock relocation bracket, make sure to use (1) 9/16" flat washers as a spacers on the front lower portion of the new shock relocation bracket. Refer to illustration # 26 for proper placement of the new 9/16" flat washer.** Repeat procedure on the passenger. **Special Note: After the installation of the new front shock, check to make sure that there is proper clearance between the new front shock and the stock bump stop bracket. If there is contact between the new front shock and the stock bump stop bracket, carefully cut off the corner of the stock bump stop bracket for proper shock clearance.**

**See Illustration # 26**

78. Locate the stock front drive line and hardware that was removed from step # 5. Re-install the stock drive line back into the stock location and secure using the stock hardware.

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

80. Check and double check to make sure that all steps were performed properly. Check and double check to make sure that all new and stock hardware has been torque to proper torque specifications. Refer to the torque specification sheet at the end of the installation manual.

**Front-End Installation Complete:**

**Rear-End Installation:**

81. 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.

82. Working on the driver side, remove the stock shock from the stock location and save the stock hardware for later re-installation. The stock shock 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.

83. Place a pair of hydraulic floor jack 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.

84. 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.

85. Carefully lower down both hydraulic floor jacks at the same time approximately 6". **Special Note: Take special care not to over extend any brake lines and/or hoses.** Working on the driver side, remove and discard the stock rear block. Repeat procedure on the passenger side.

86. Working on the driver side, place a pair of "C" clamp vise grips on each side of the stock centering bolt. Carefully remove the stock centering bolt and nut and discard. Carefully remove the "C" clamp vise grips that are holding the stock springs together. **Special Note: Be very carefully when removing the "C" clamps, the stock springs are under tension and can be dangerous.** Repeat procedure on passenger side.

87. Locate (2) new rear add-a-leaf, (2) 3/8" x 6" centering bolt and (2) 3/8" fine nut from hardware bag CB38. Install the new rear add-a-leaf into the stock spring assembly. Secure the new rear add-a-leaf to the stock spring assembly using the new 3/8" center bolt and nut. Torque to **28 ft. lbs.** **Special Note: If the new add-a-leaf that you are installing into the stock spring assembly has an offset center hole location, place the longest side of the add-a-leaf towards the rear of the vehicle. Also the new add-a-leaf should be installed into the stock spring assembly in progression in order, from longest to shortest. The new add-a-leaf should be installed between the stock overload and the stock spring pack. The stock overload is usually the un-arched spring at the bottom of the stock leaf pack. Also Tuff Country EZ-Ride Suspension recommends not using any air tools when installing the new add-a-leaves into the stock spring assembly. If air tools are used the centering bolt may strip, causing the stock spring assembly to come apart.** With a suitable cutting tool, cut off the extra thread from the new centering bolt. Repeat procedure on passenger side.

**See Illustration # 27**

88. Locate (2) new 4" lifted blocks. Working on the driver side, install the new 4" lifted block into the stock location. **Special Note: The new 3" lifted block has a taper to it, the small end of the block needs to be installed towards the front of the vehicle.** Repeat procedure on the passenger side.

**See Illustration # 28**

89. Carefully raise up on both hydraulic floor jacks at the same time until the stock spring assembly sits flush with the newly installed 4" lifted block.

90. Locate (4) 9/16" x 2 3/4" x 12 5/8" square U-bolts, (8) 9/16" U-bolt high nuts, (8) U-bolt washers from hardware bag 916NW and the stock upper and lower U-bolt plates that were removed from step # 84. Working on the driver side, install the new U-bolts into the stock location and secure using the new 9/16" high nuts and washers. **Special Note: Make sure to re-install the stock upper and lower U-bolt plates into the stock location.** Torque to **120 ft lbs.** Repeat procedure on passenger side.

**See Illustration # 28**

91. Locate the new rear shocks. **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.** Also, locate the upper and lower shock hardware that was removed from step # 82. Working on the driver side, install the new rear shock into the stock location and secure using the stock hardware. Torque to **80 ft lbs.** **Make sure to use thread locker or lock tite.** Repeat procedure on passenger side.

92. Carefully remove the (2) hydraulic floor jack from under the rear differential.

93. Working on the driver side rear frame rail, carefully bend down on the stock rear brake cable extension bracket to allow for proper brake line clearance.

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

**Congratulations! Installation complete. Check and double check to make sure that all steps were performed properly. Check torque settings to make sure that all stock and new hardware has been torque to proper torque specifications**

**Take vehicle directly to an alignment shop for proper front end alignment.**

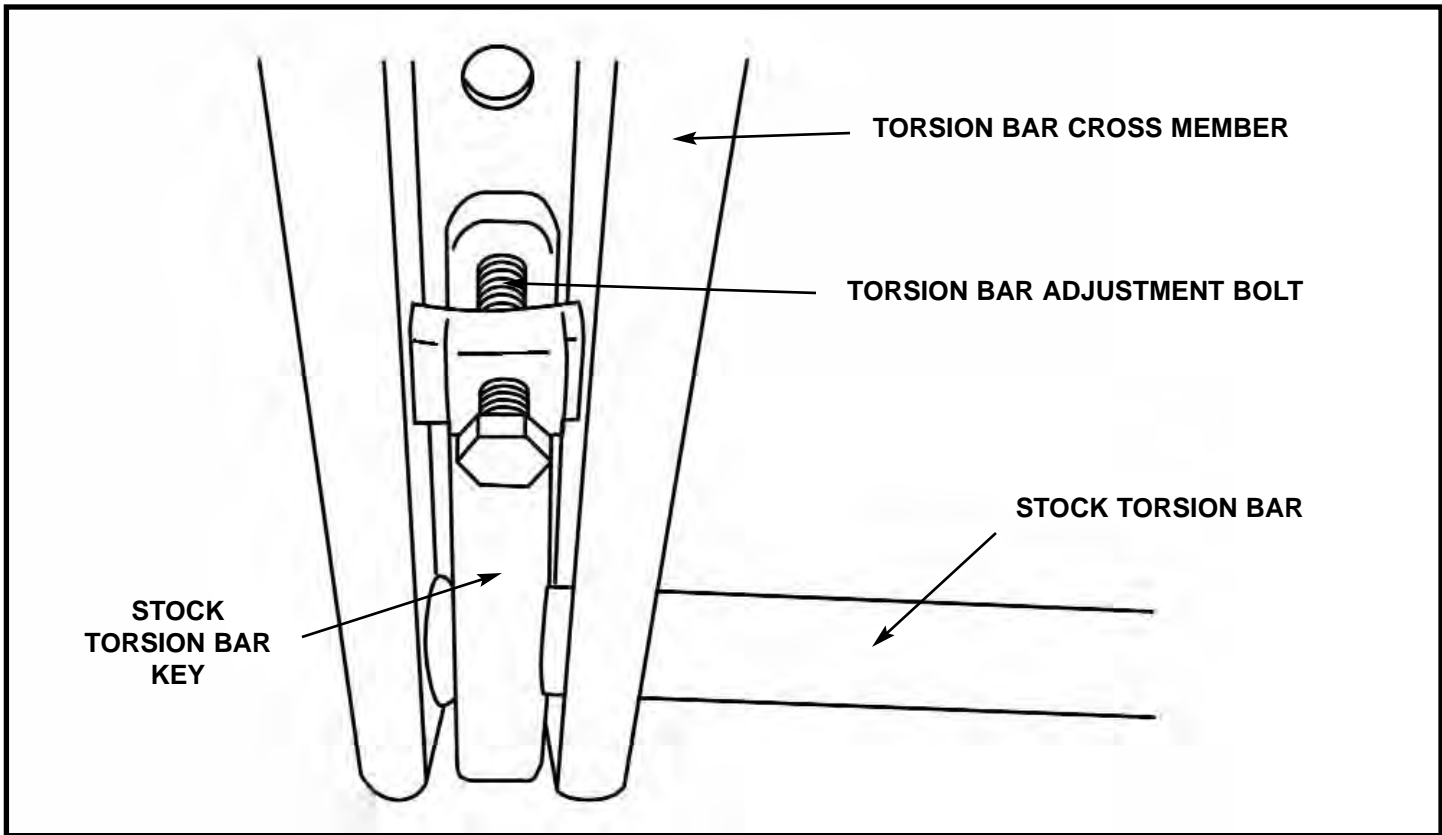
**If you have any questions and or concerns about the installation, please fell free to contact Tuff Country or your local Tuff Country dealer.**

## **Torque Settings:**

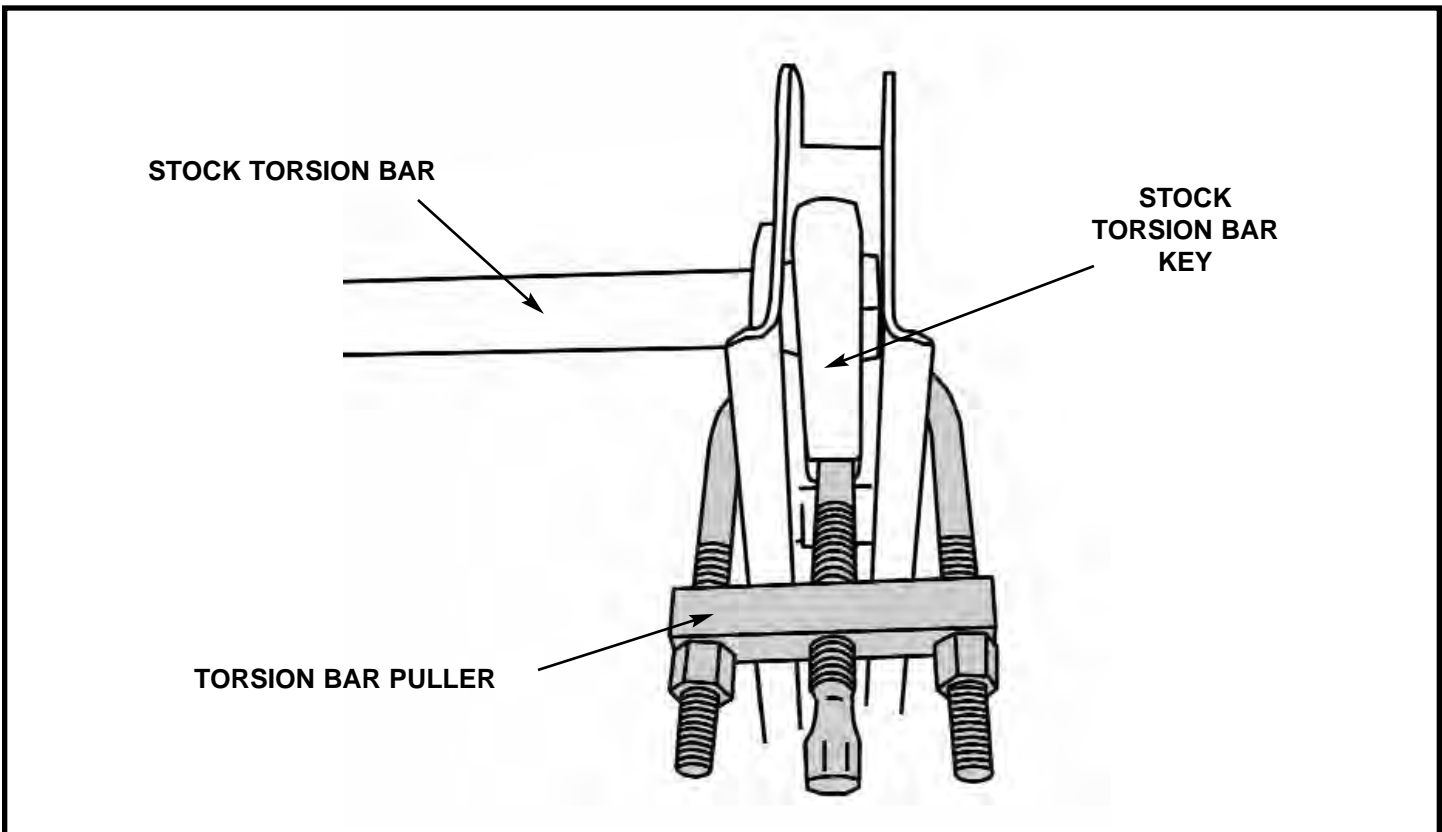
<b>5/16"</b>	<b>15 - 18 ft lbs.</b>
<b>3/8"</b>	<b>28 - 32 ft lbs.</b>
<b>7/16"</b>	<b>30 - 35 ft lbs.</b>
<b>1/2"</b>	<b>65 - 85 ft lbs.</b>
<b>9/16"</b>	<b>85 - 120 ft lbs.</b>
<b>5/8"</b>	<b>95 - 130 ft lbs.</b>
<b>3/4"</b>	<b>100 - 140 ft lbs.</b>

**Also refer to the Vehicle owners manual for proper torque specifications on any stock hardware.**

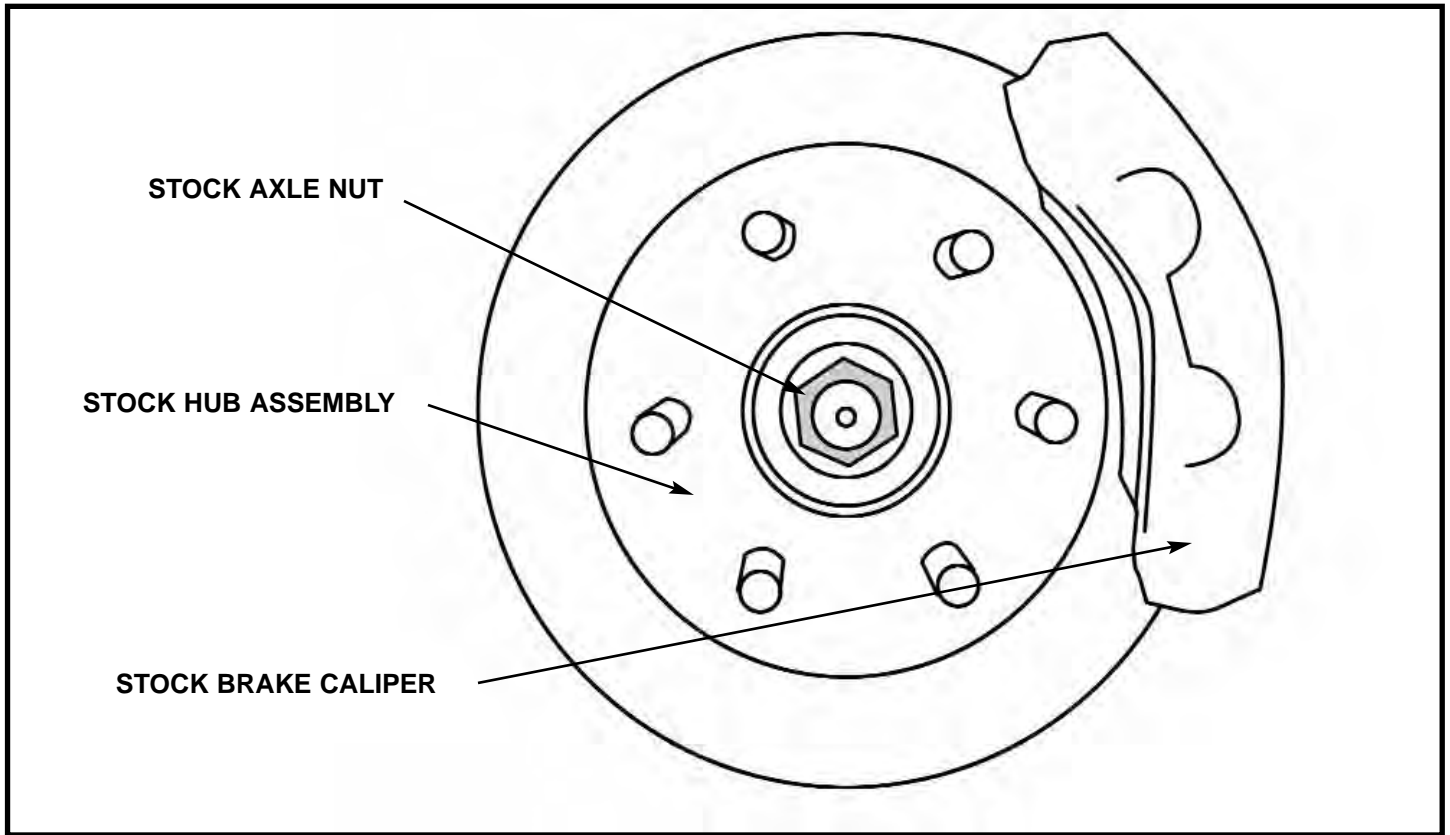
**Special Post Installation Procedure: Once the new Suspension System has been installed, check the fluid level in the front differential. Top off the fluid with proper differential fluid. On occasion, customer may find burping of fluid coming out of the front vent tube.**



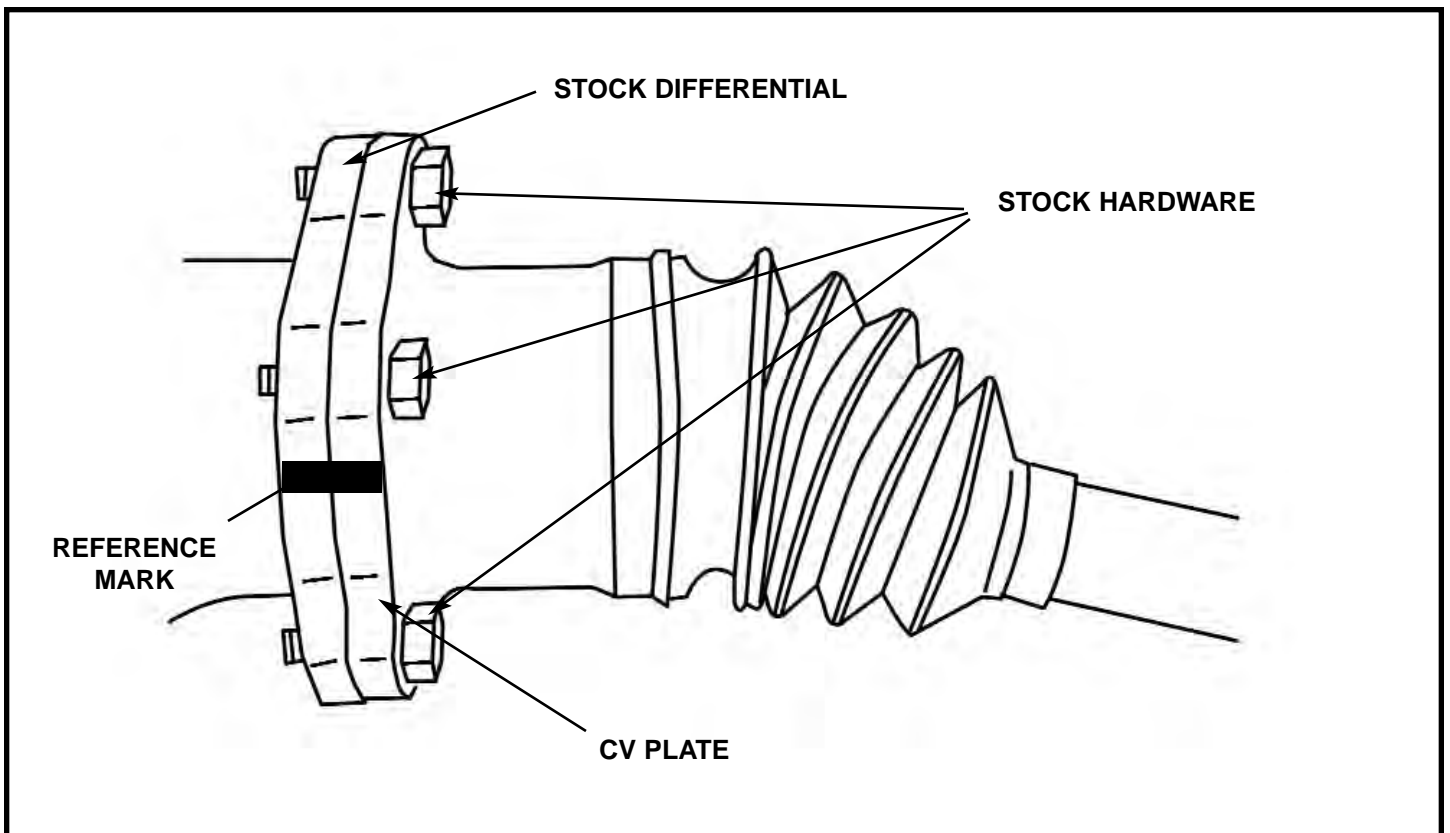
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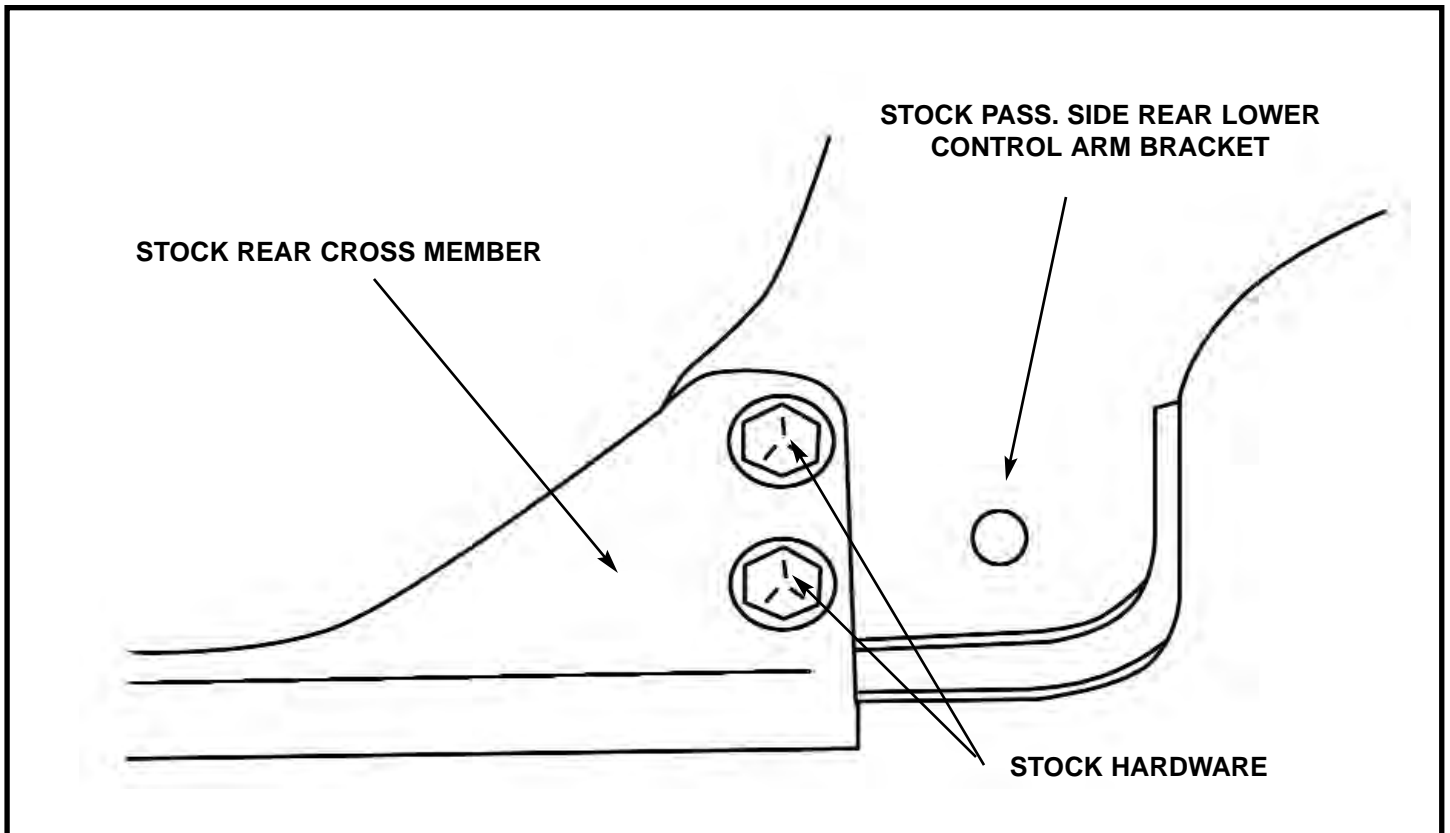
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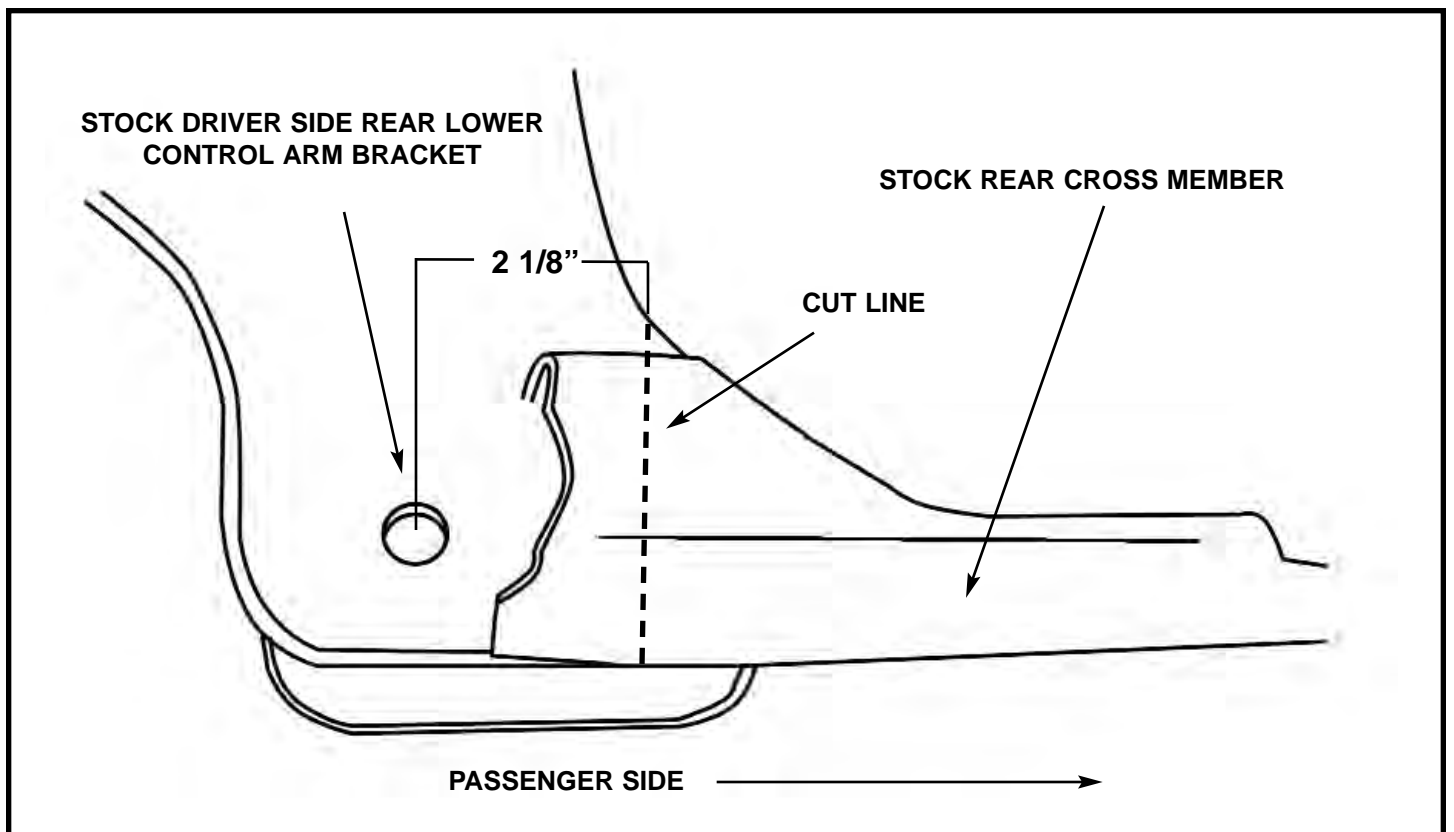
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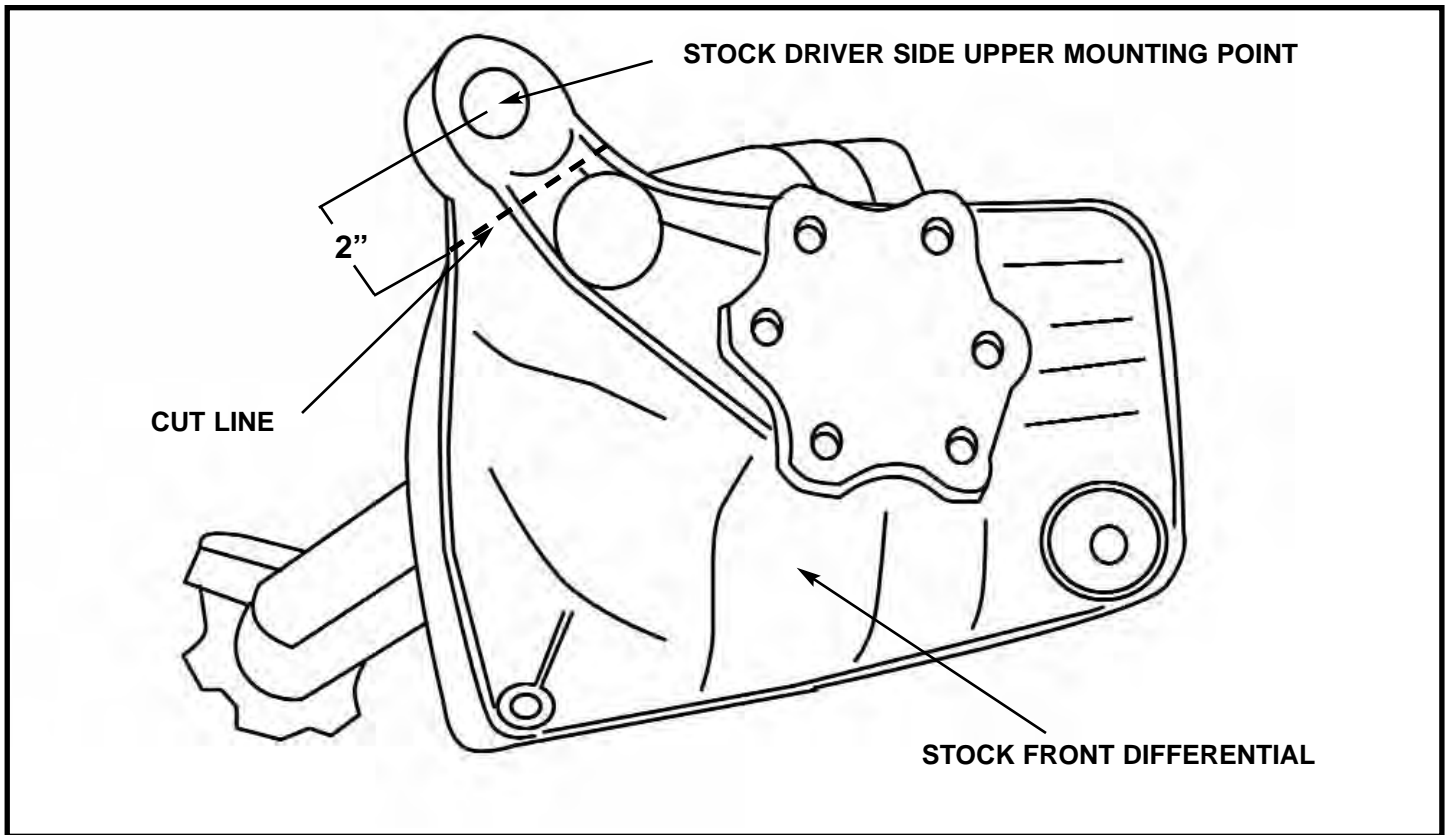
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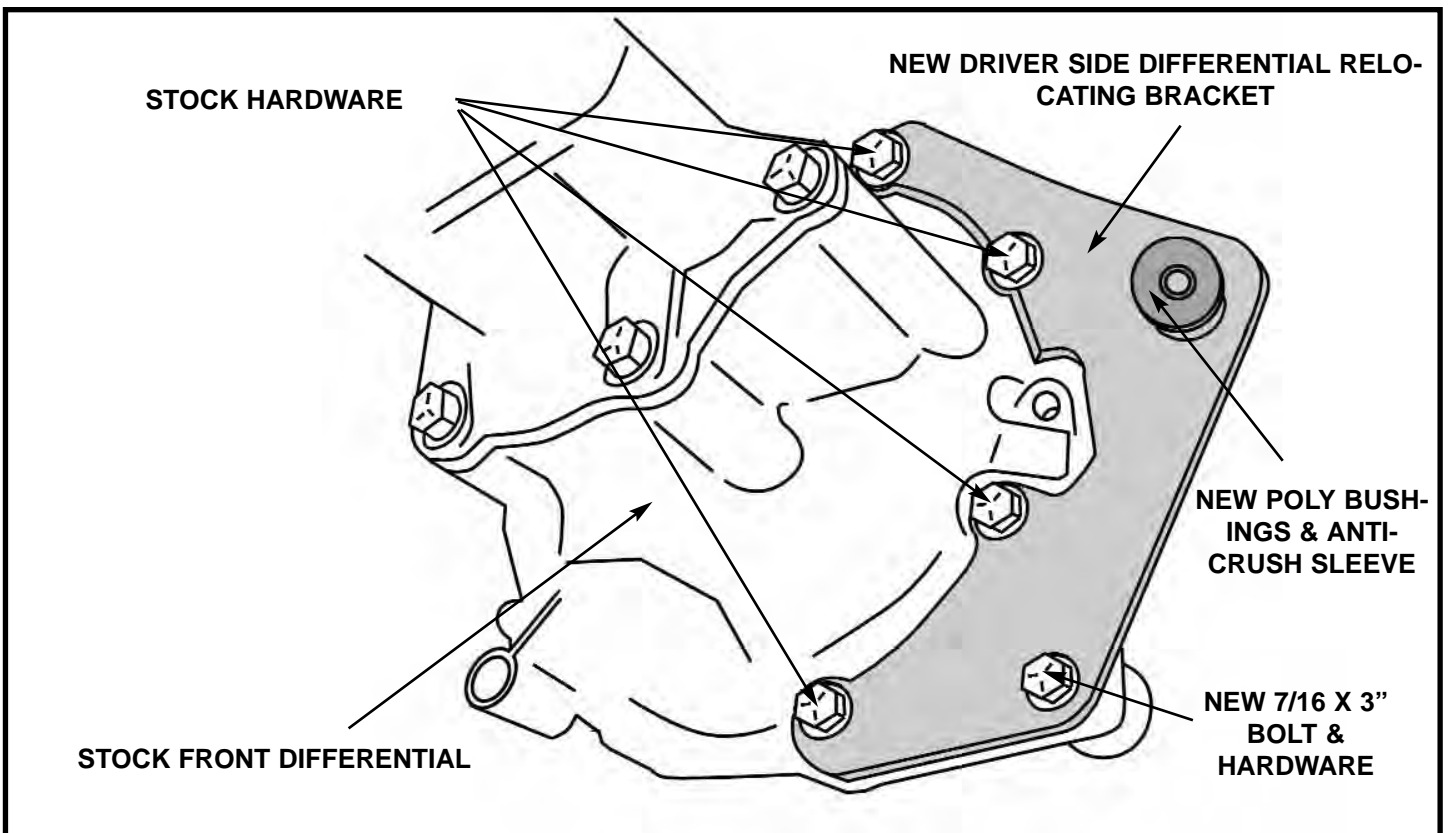
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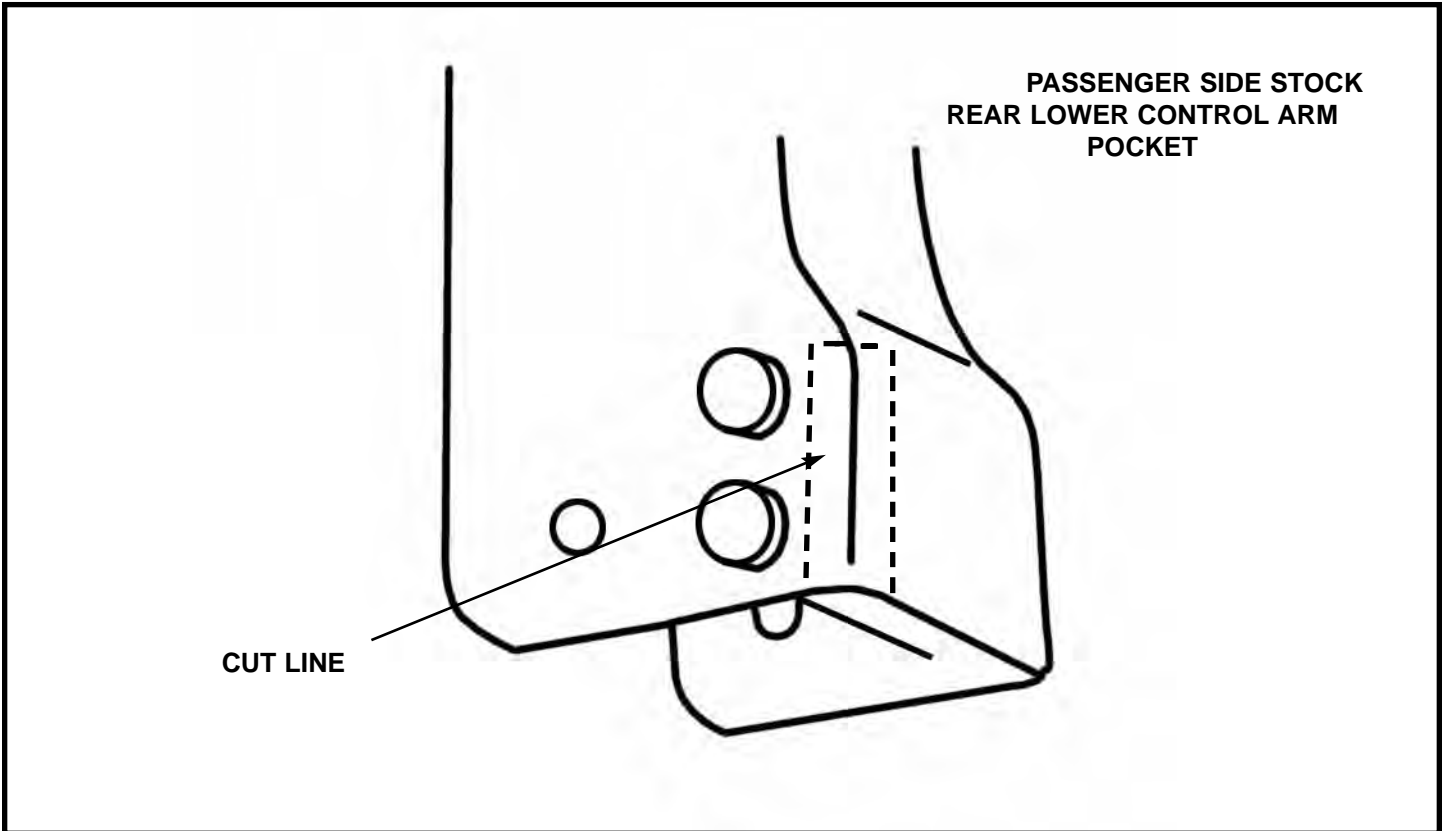
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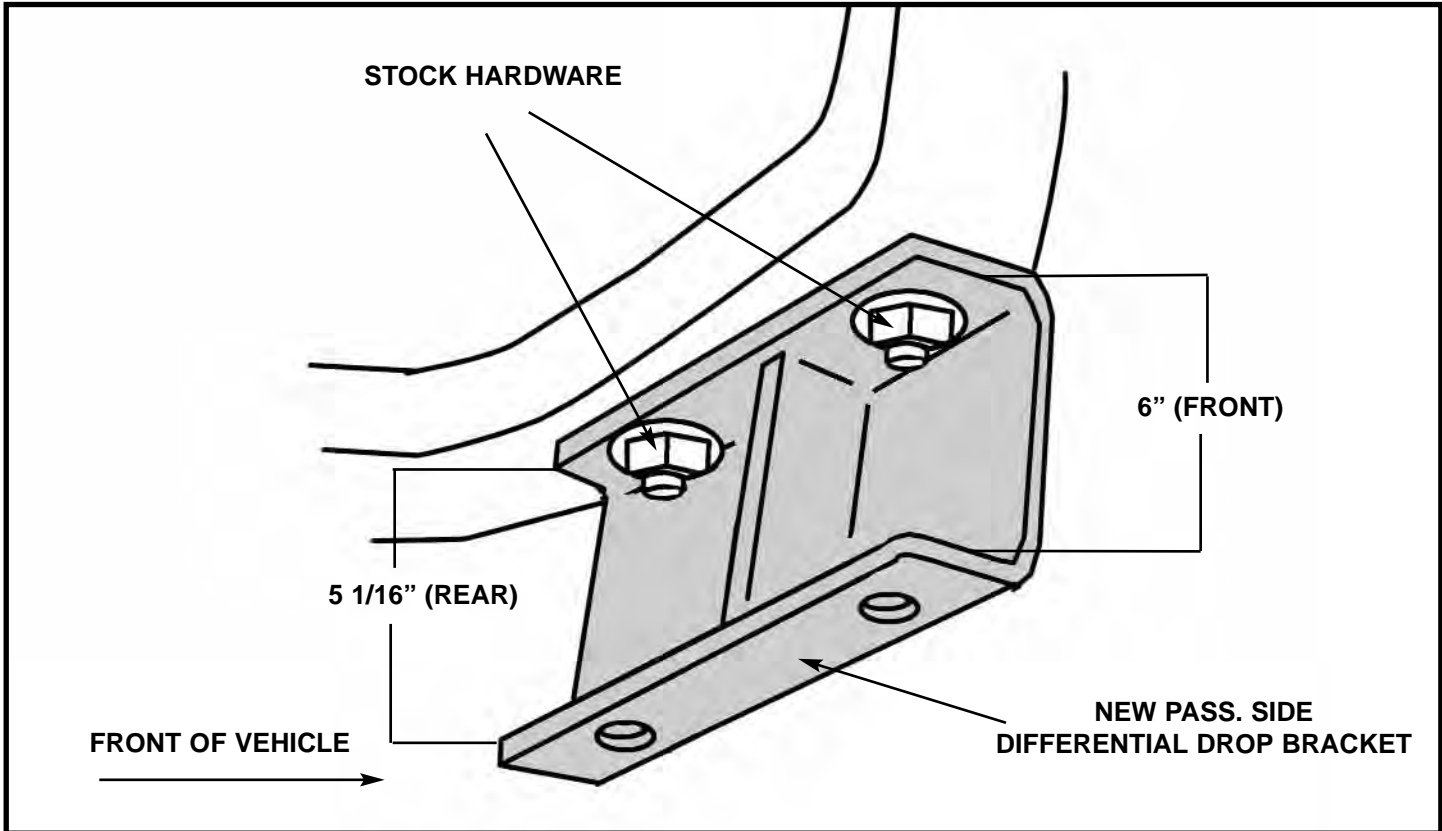
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**ILLUSTRATION # 8**

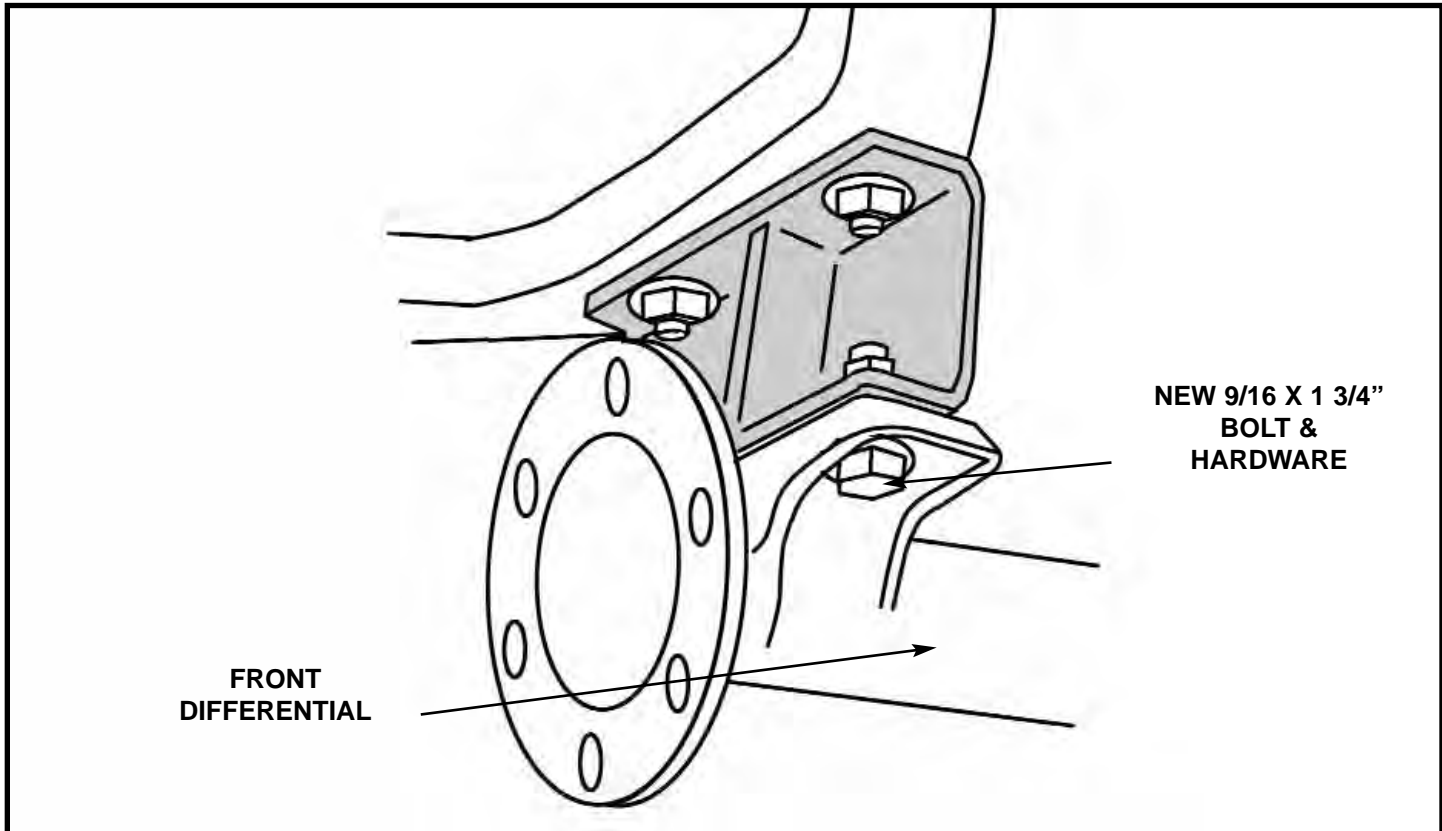


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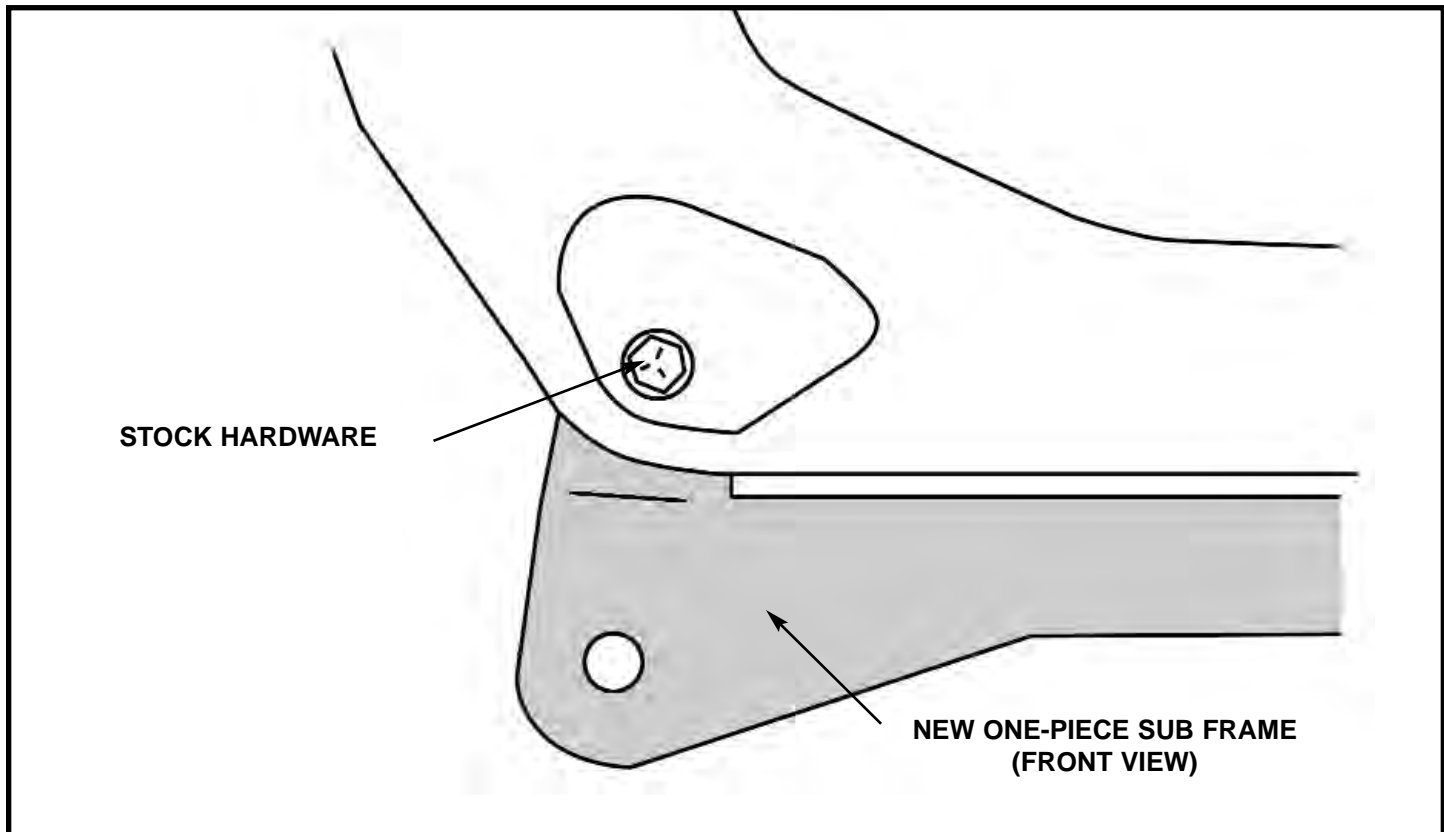


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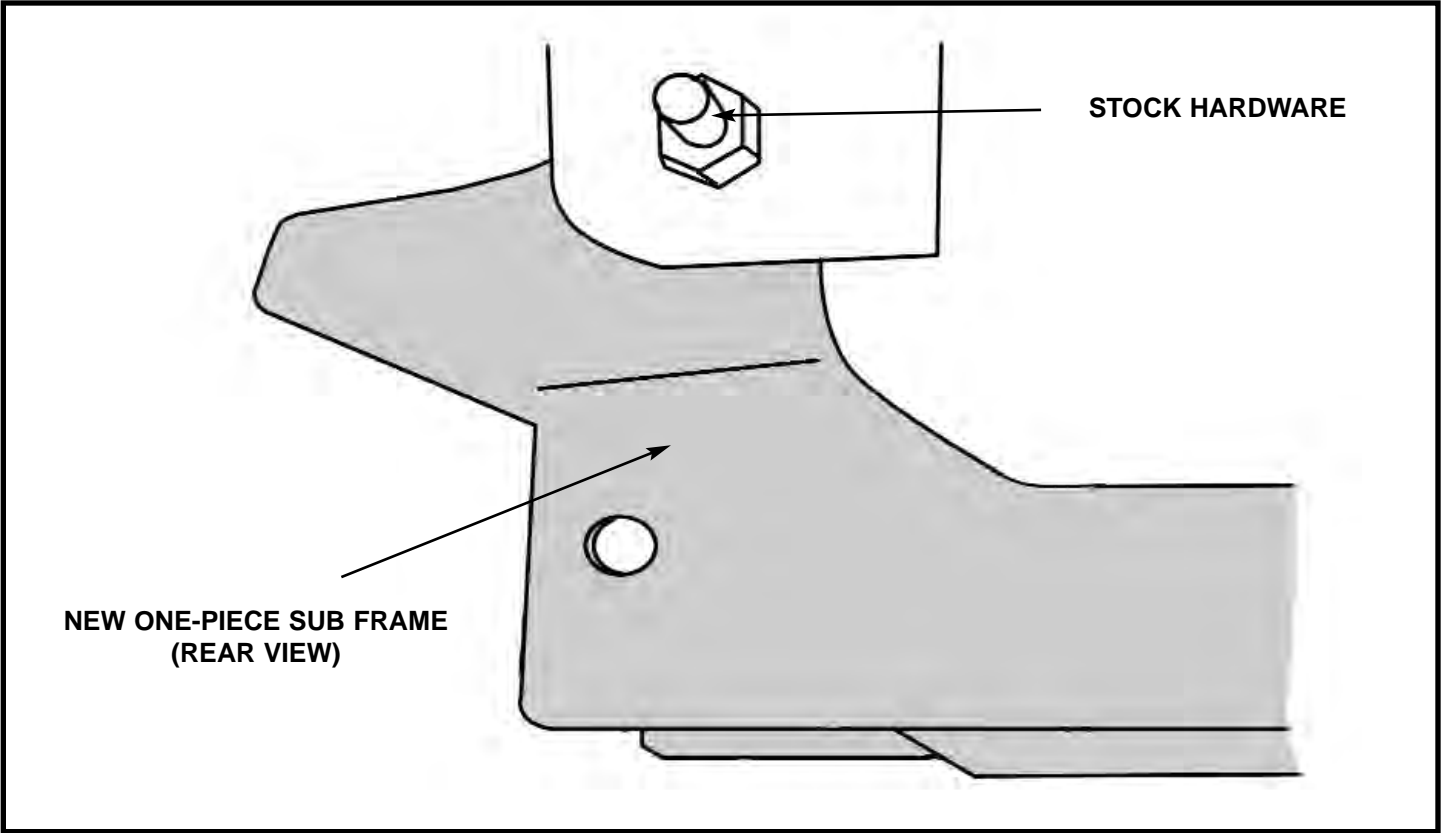




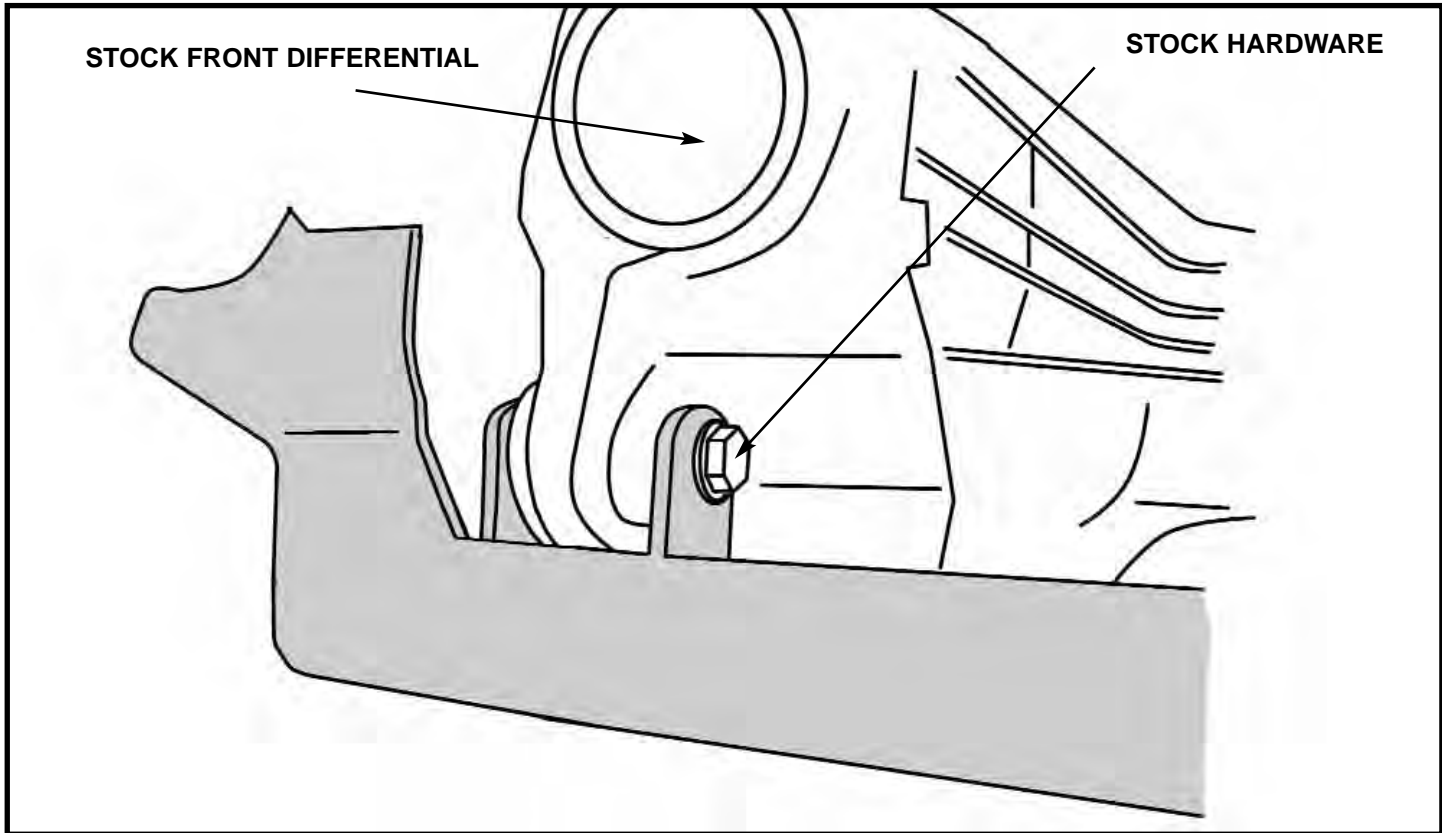
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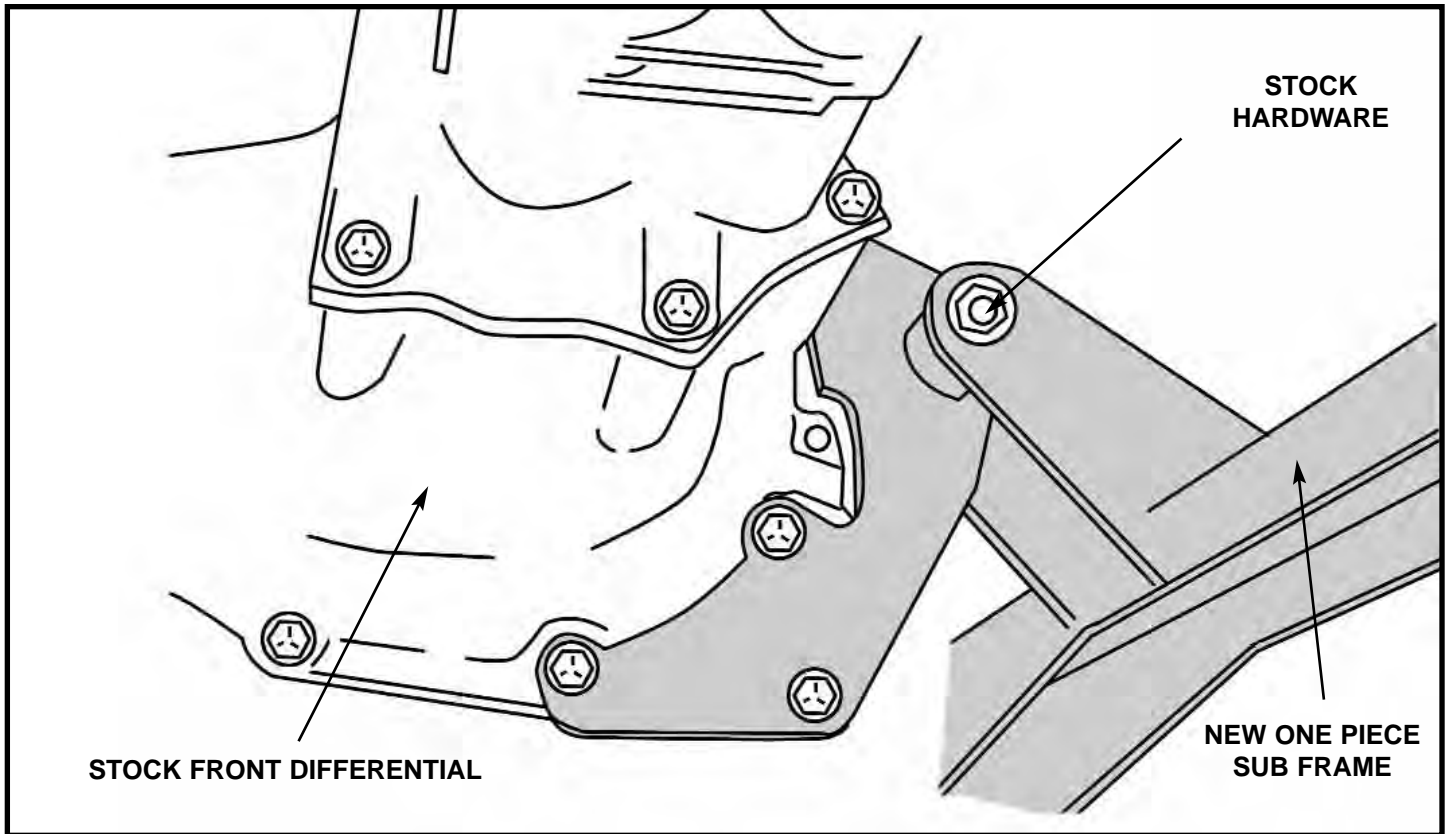
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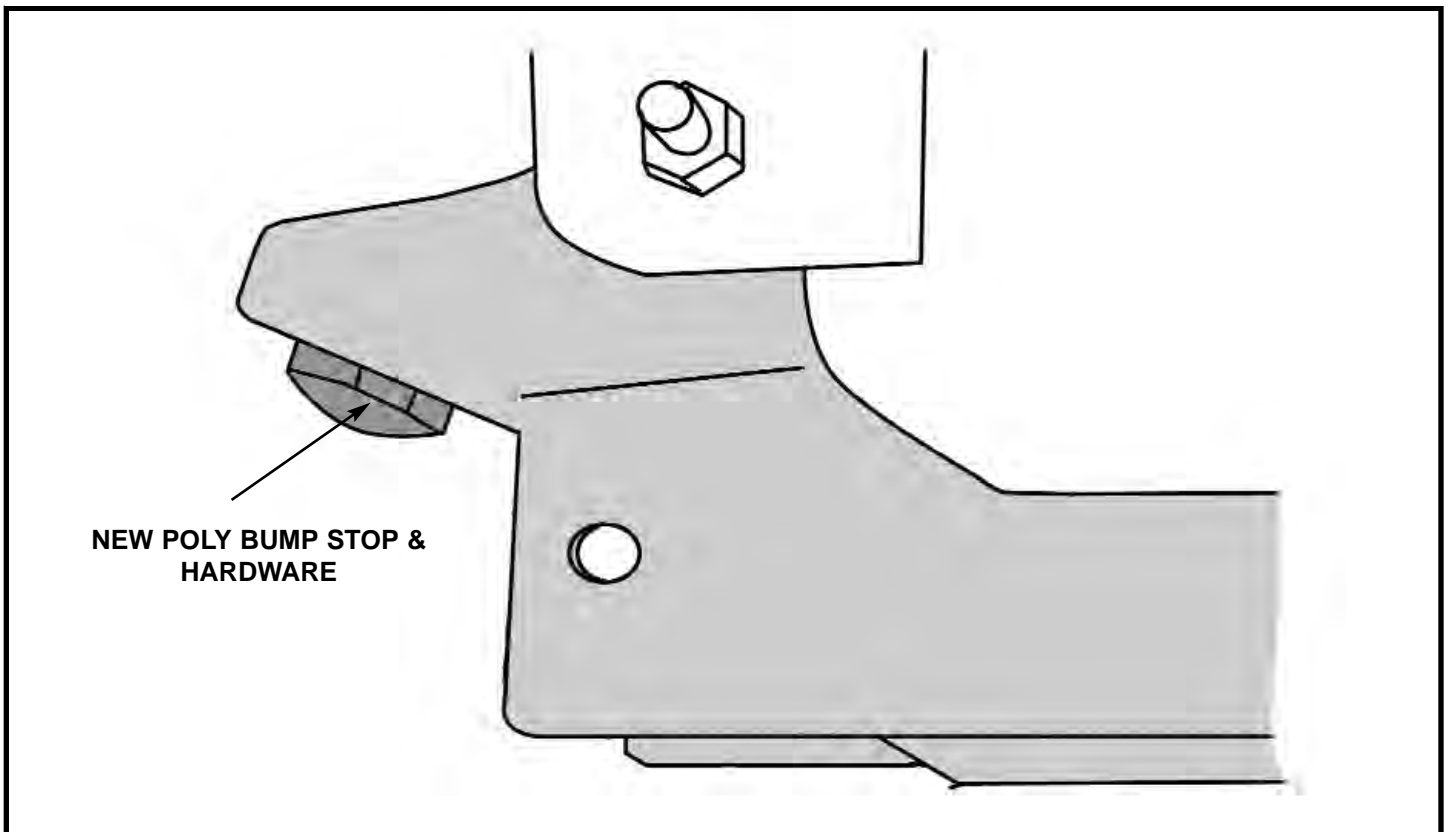
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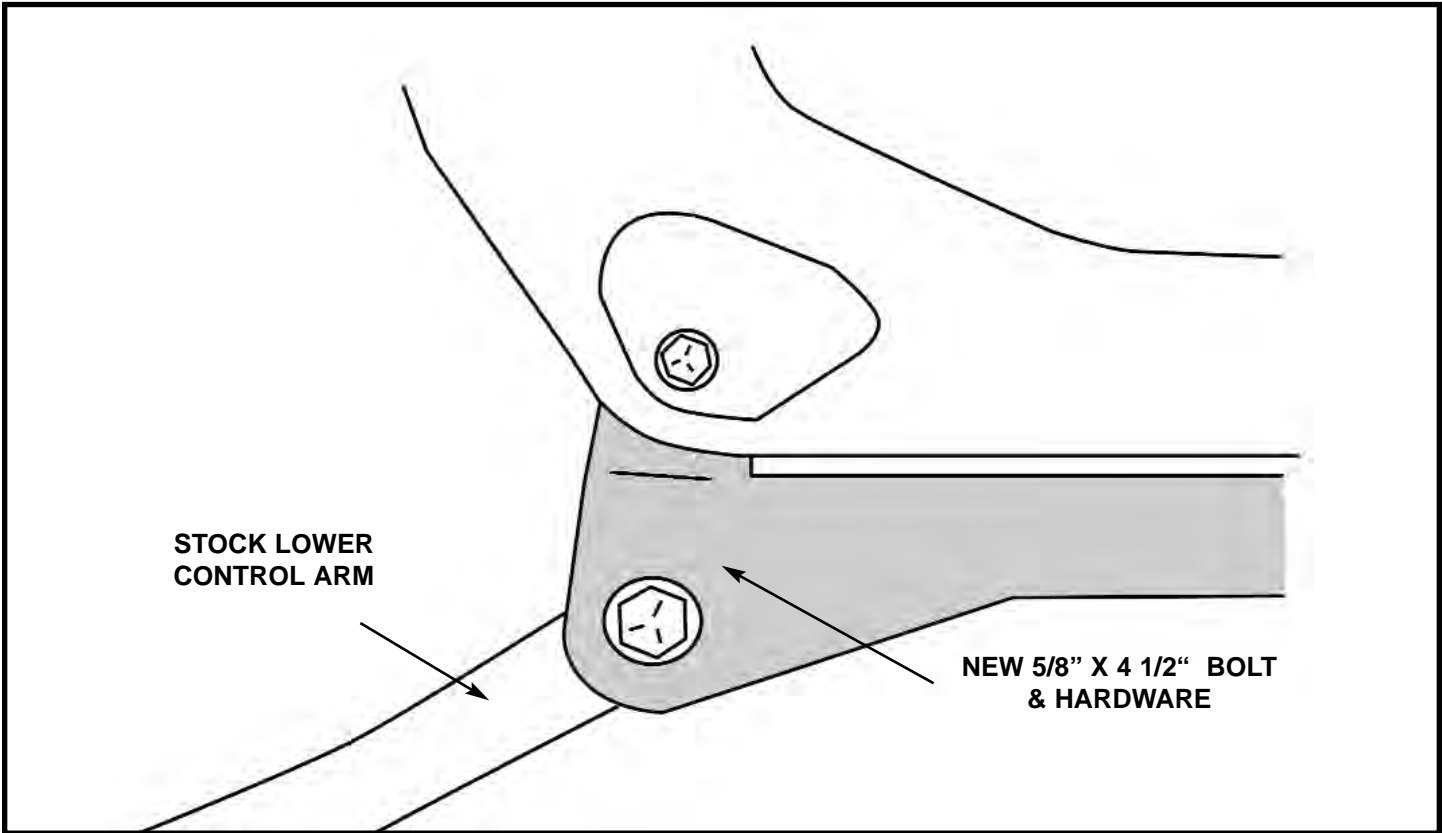
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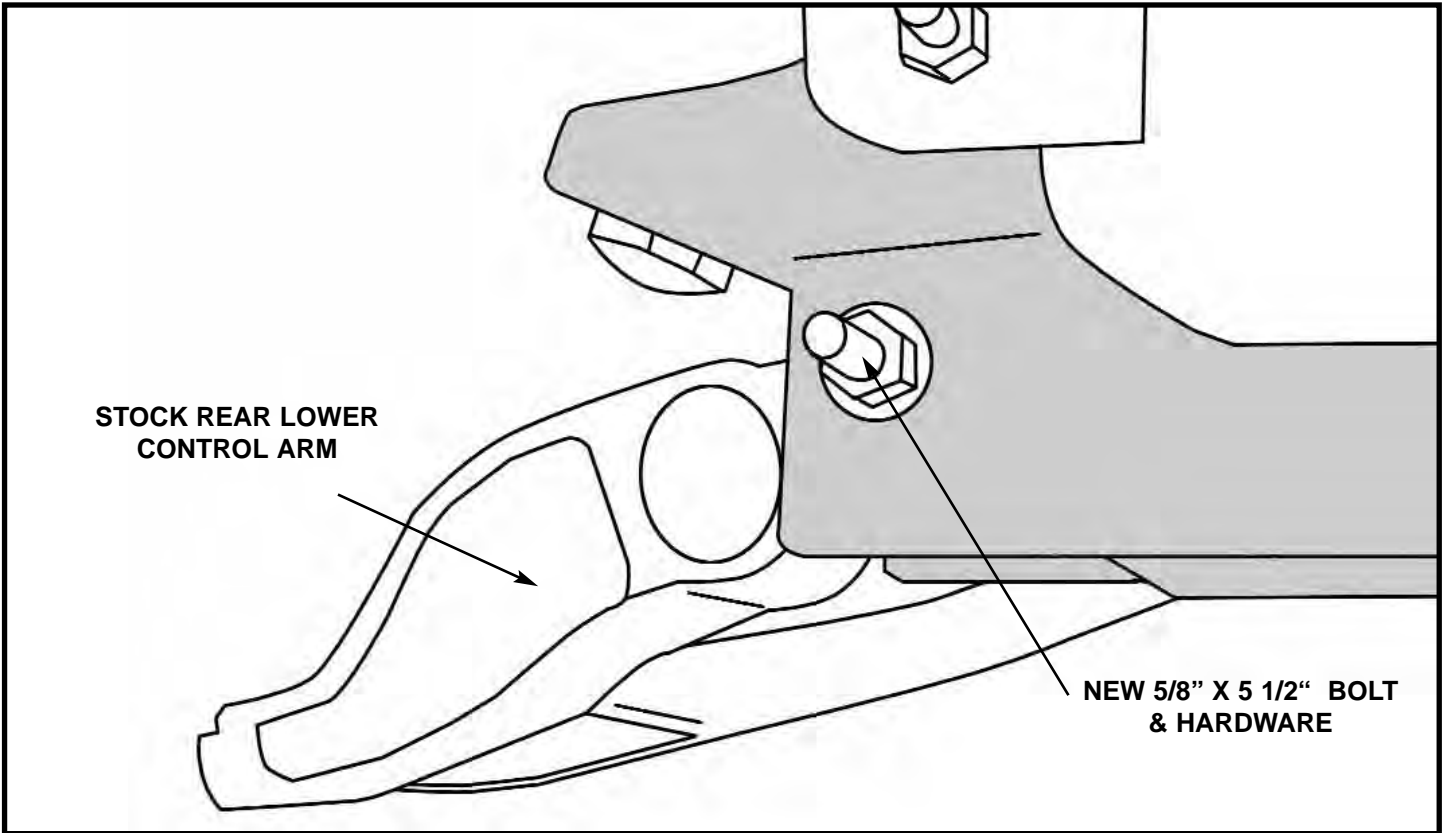
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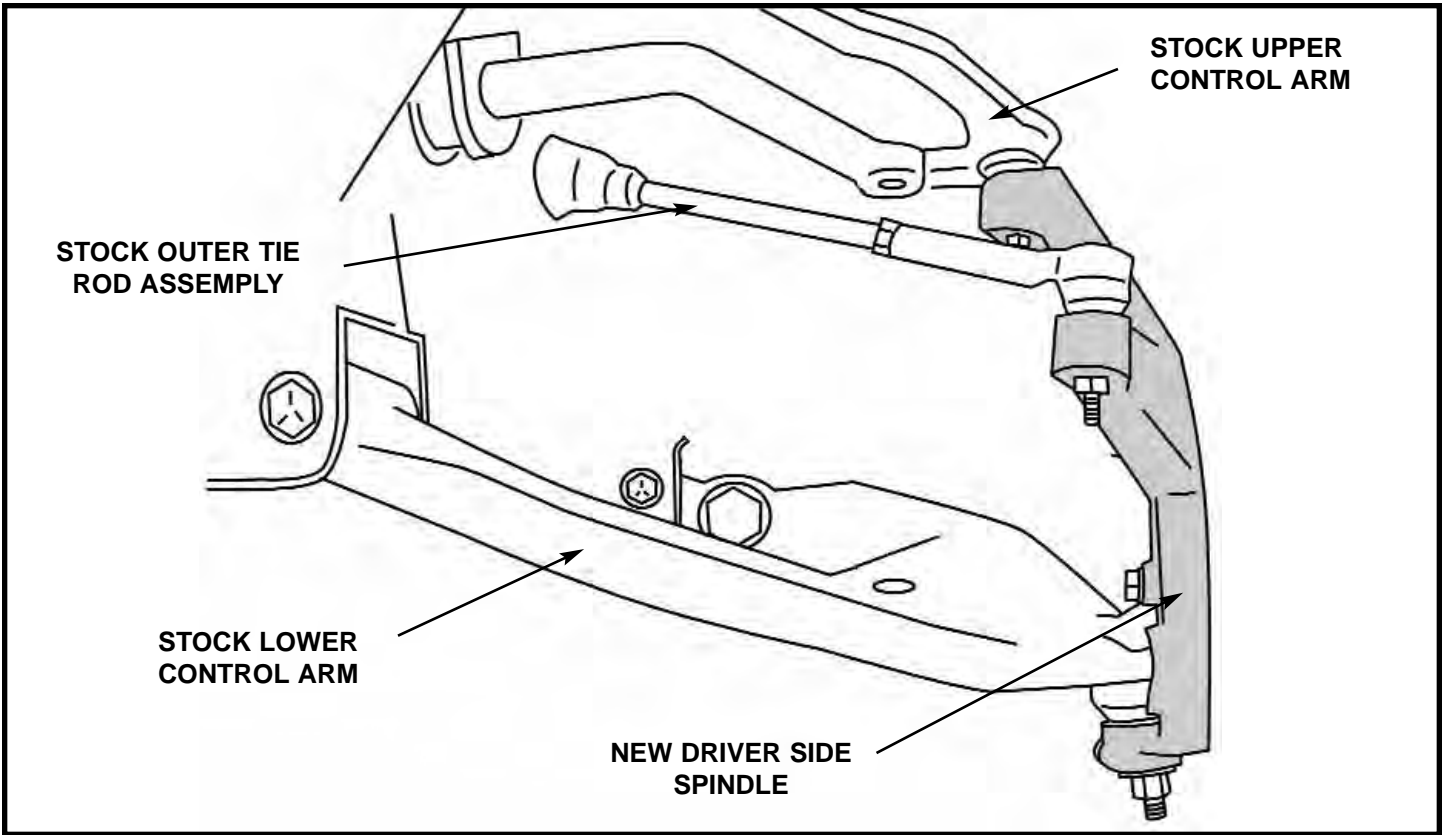
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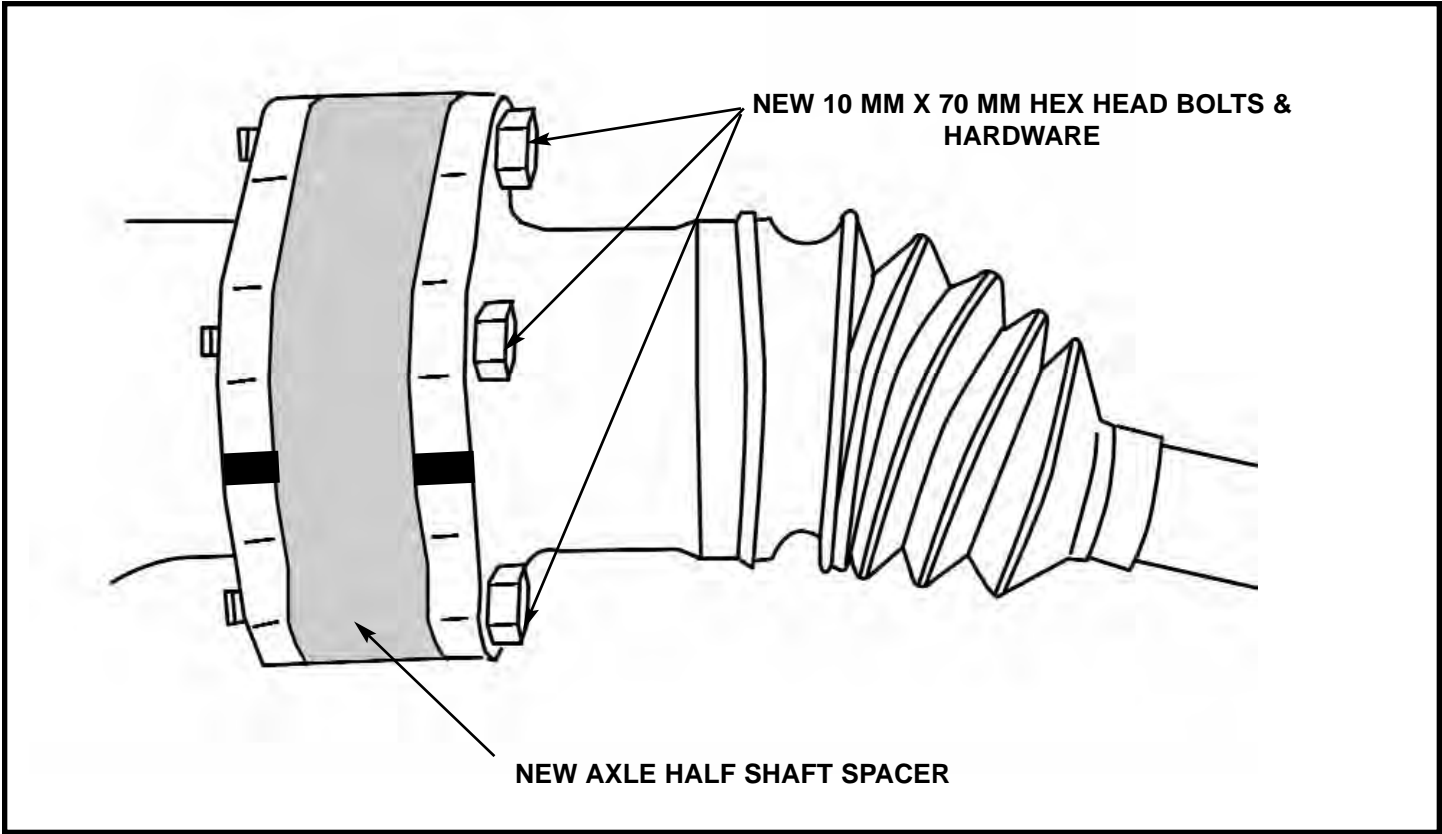
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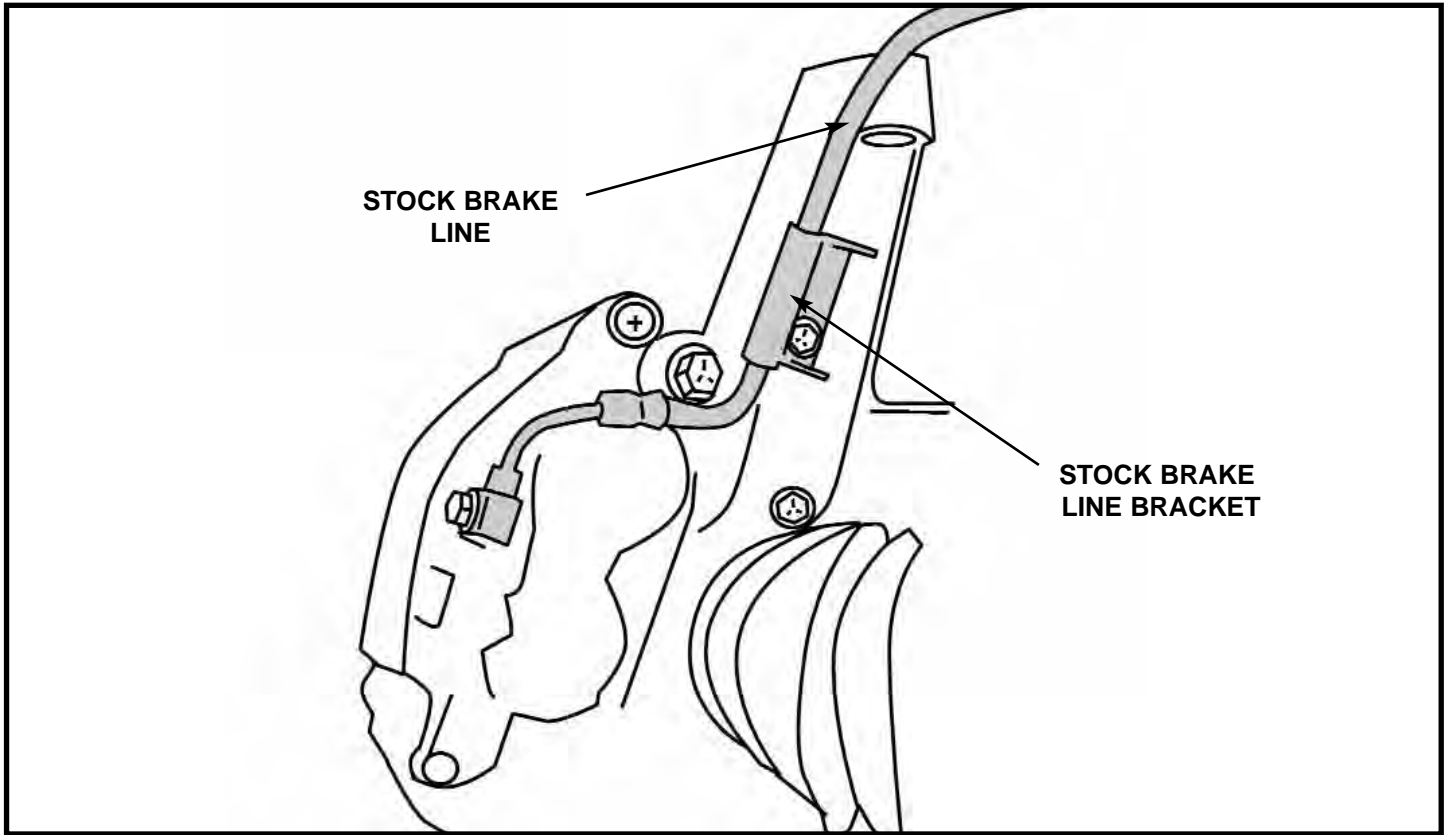
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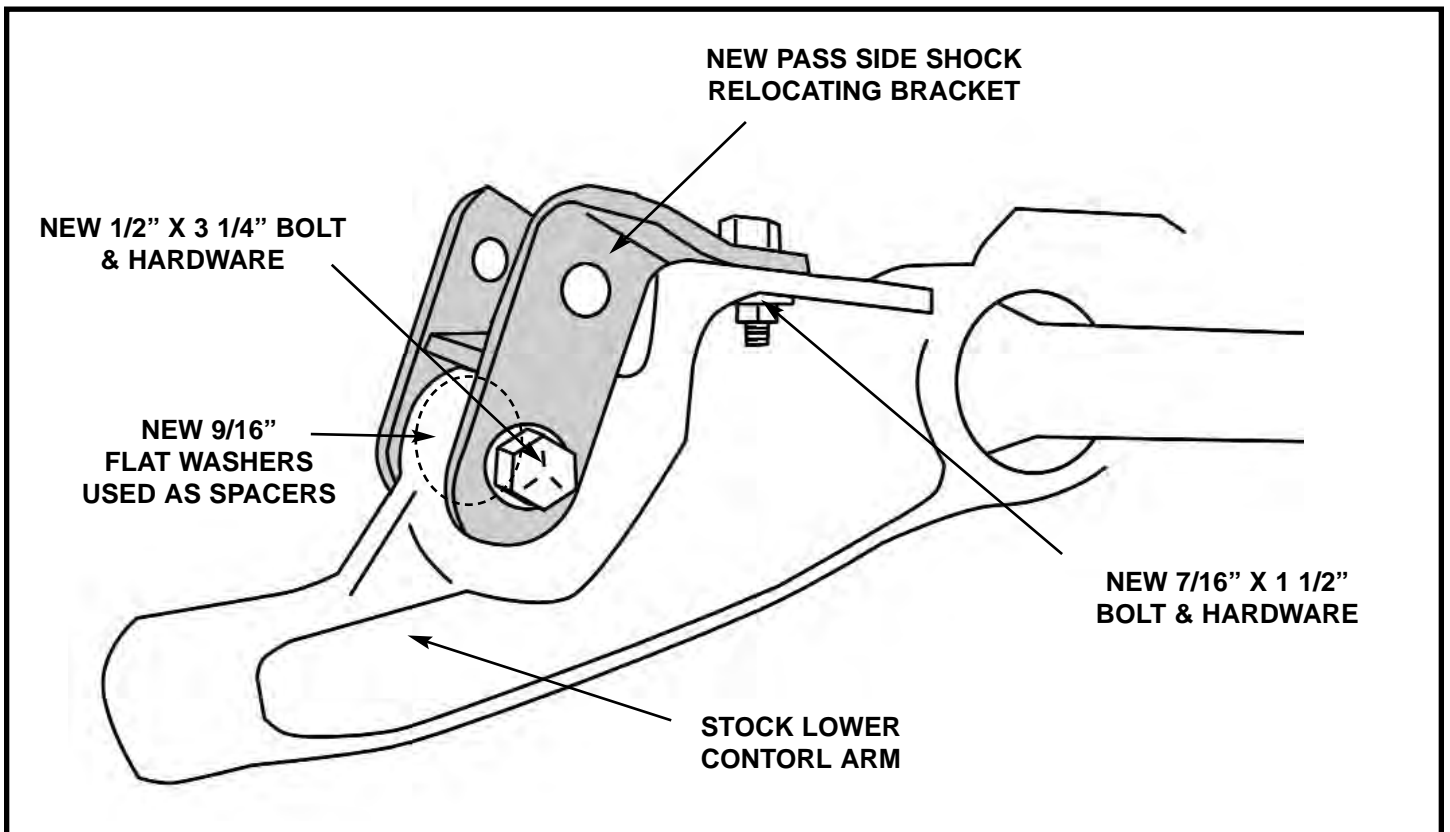
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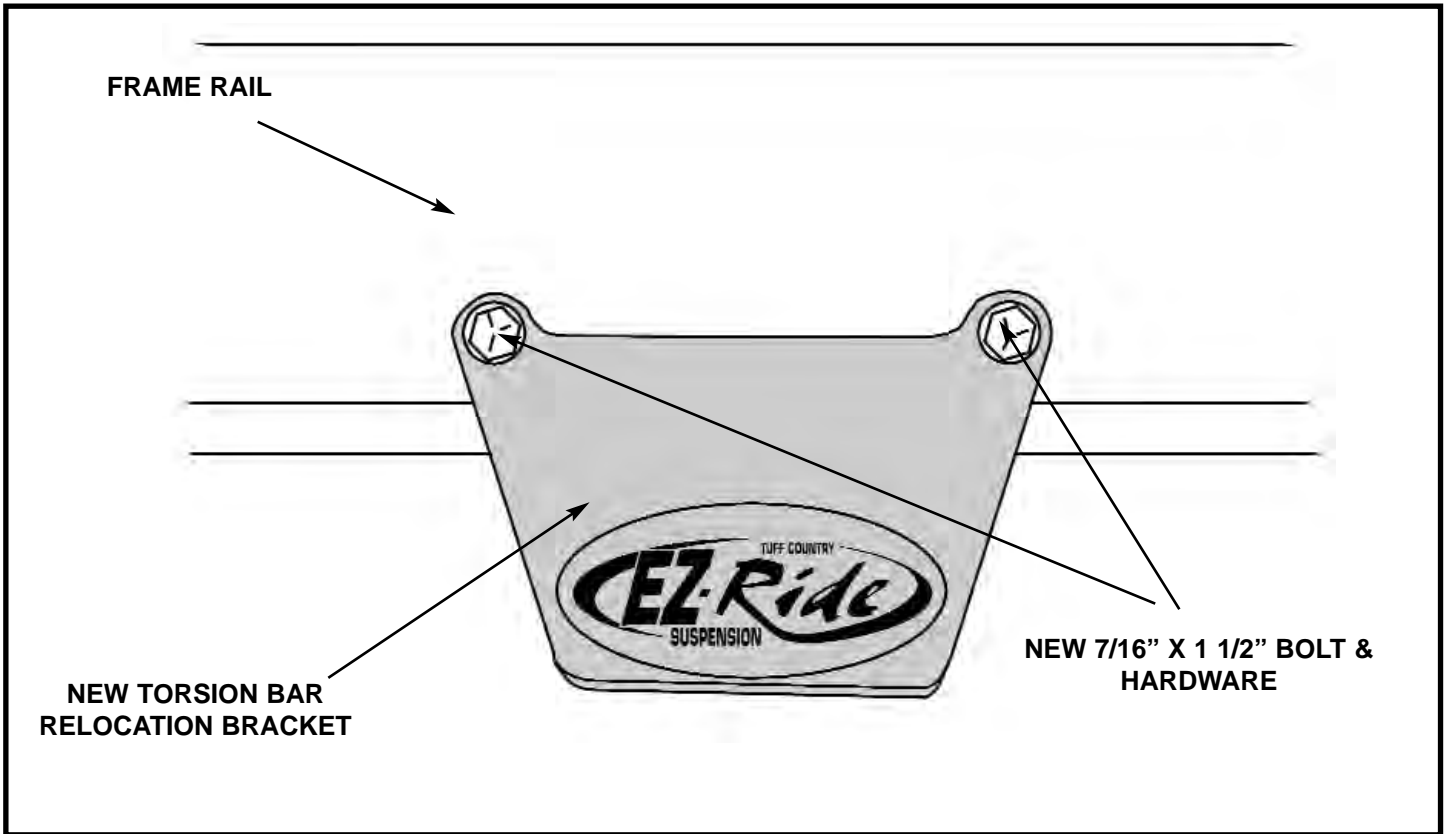
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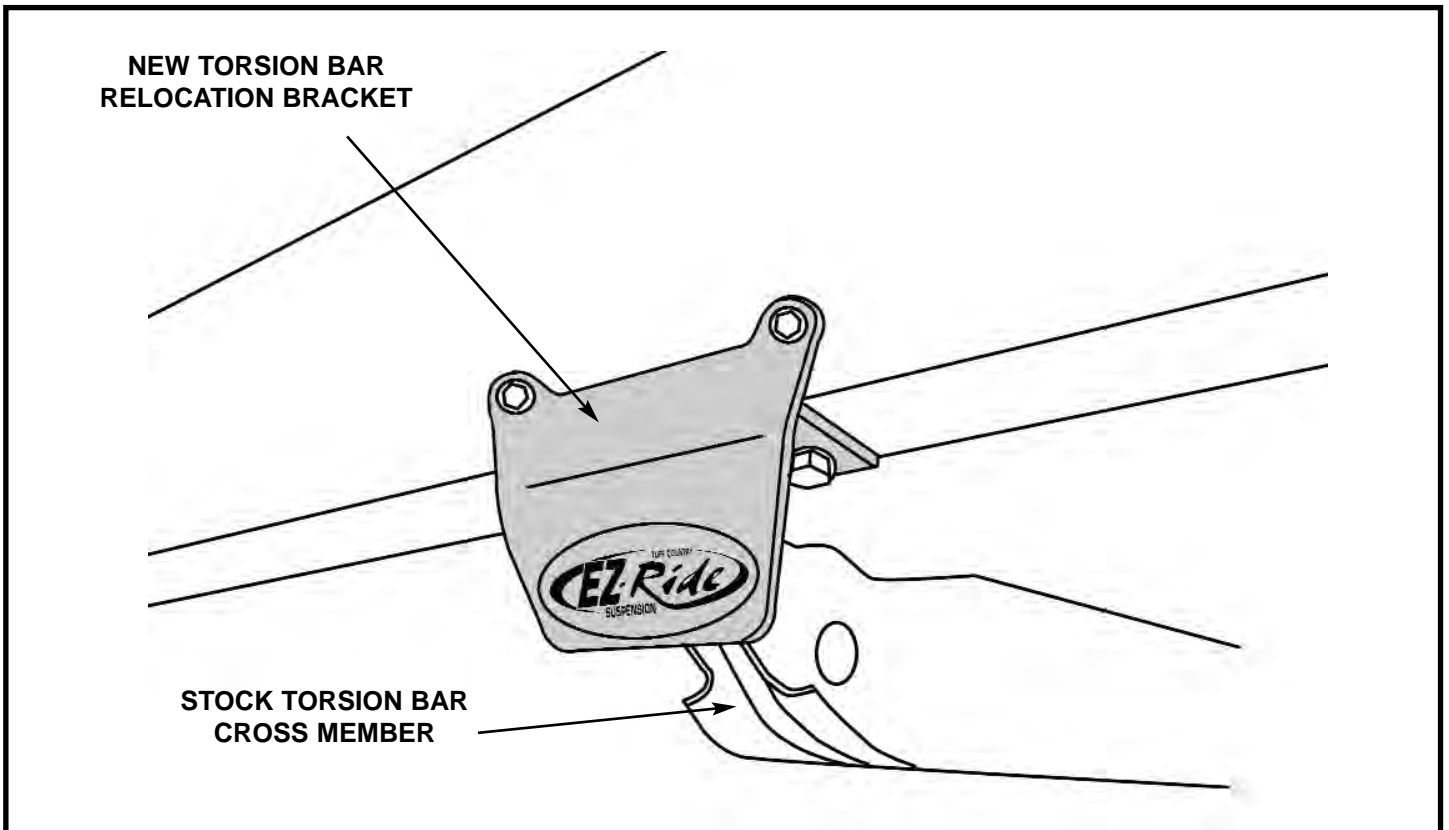
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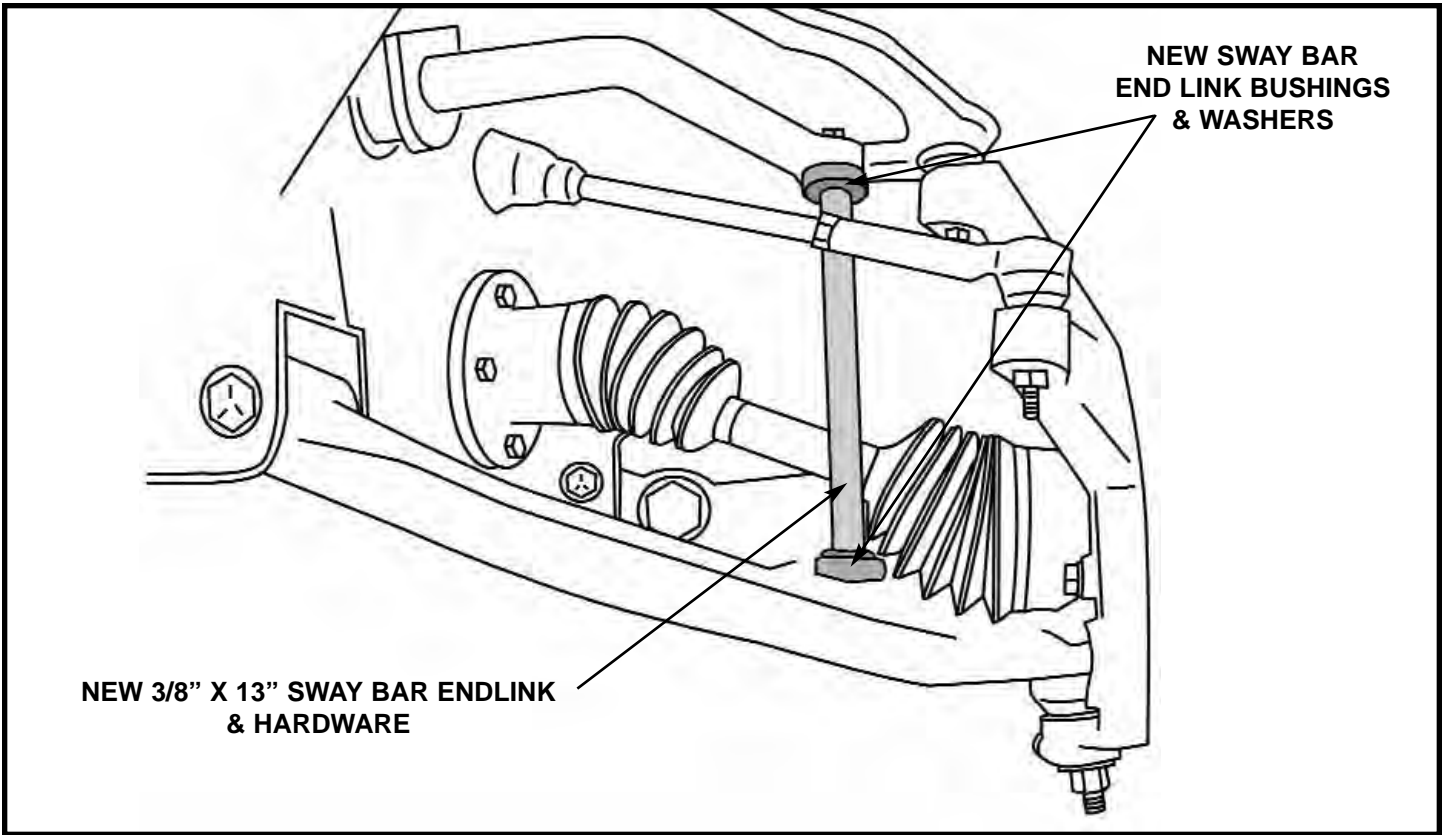
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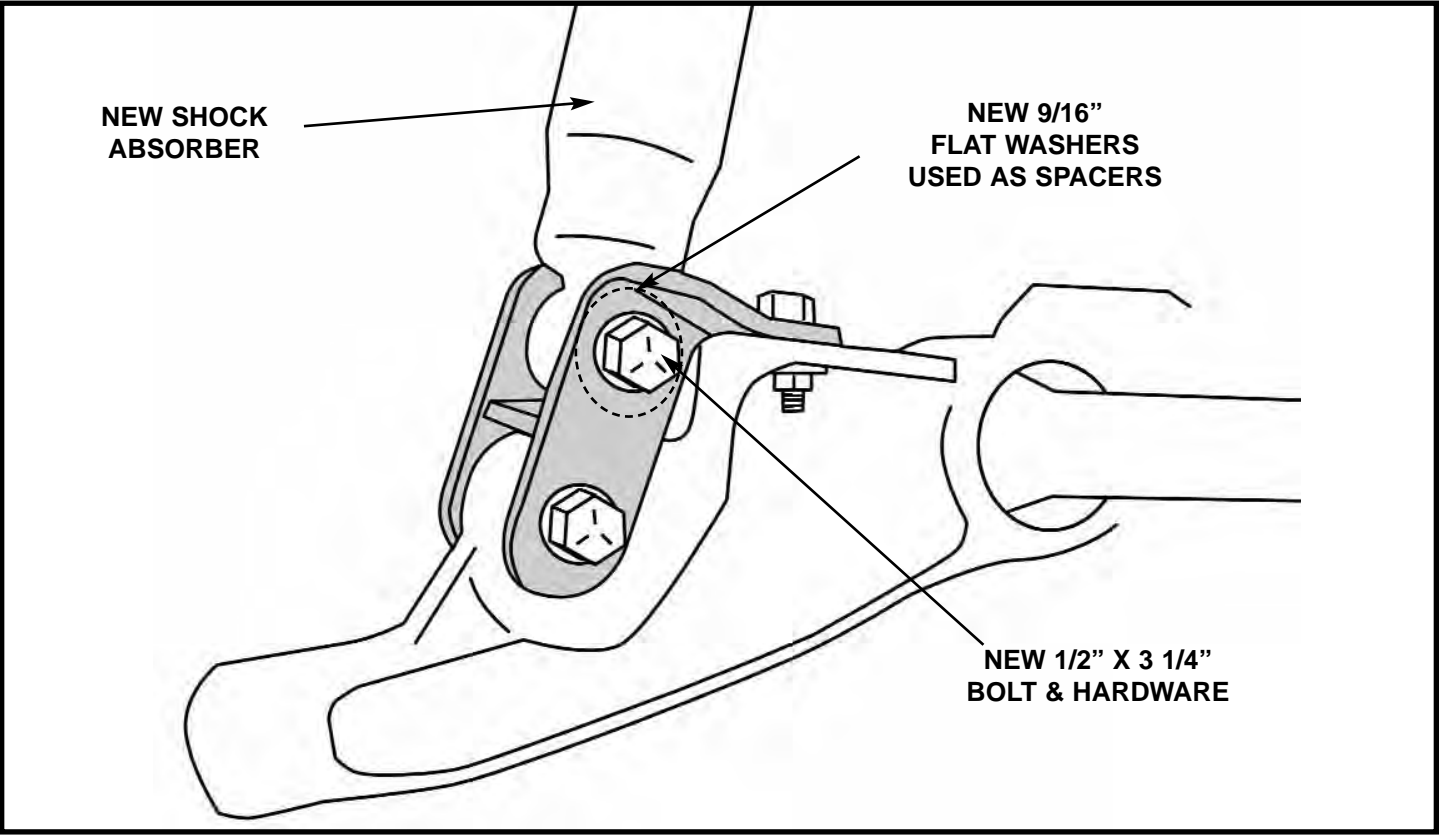
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**ILLUSTRATION # 24**

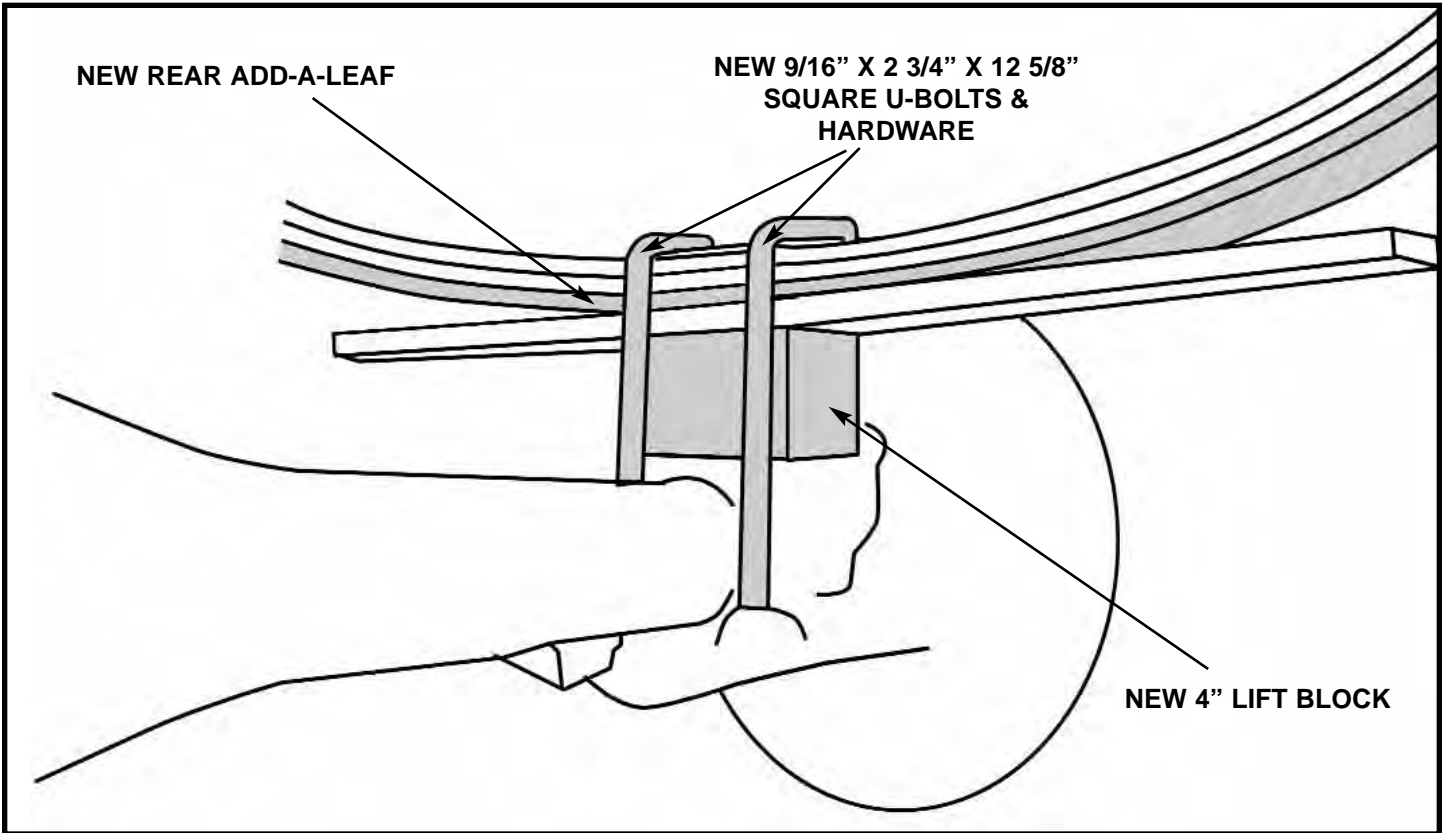


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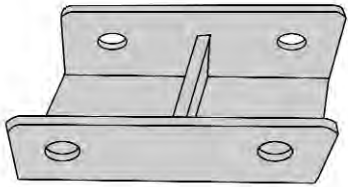


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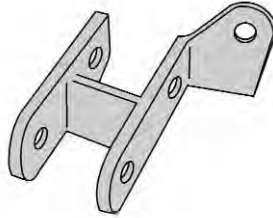




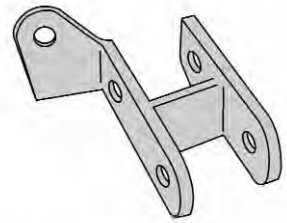
**ILLUSTRATION # 27**



PASSENGER SIDE DIFFERENTIAL  
DROP BRACKET  
16955-06 / QTY 1



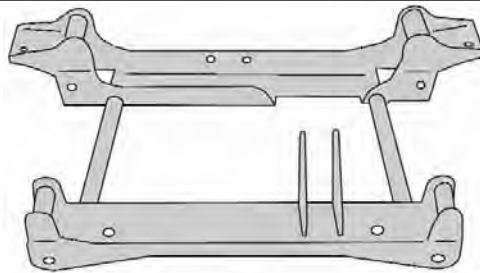
DRIVER SIDE FRONT SHOCK  
RELOCATION BRACKET  
16955-07 / QTY 1



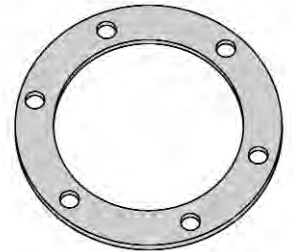
PASS. SIDE FRONT SHOCK  
RELOCATION BRACKET  
16955-08 / QTY 1



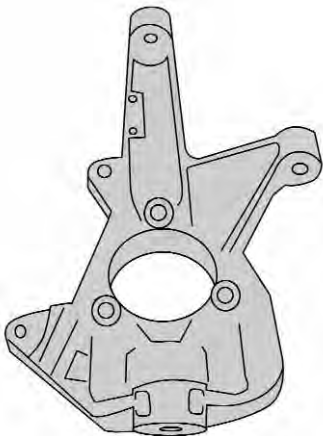
TORSION DROP BRACKETS  
16985-16 / QTY 2



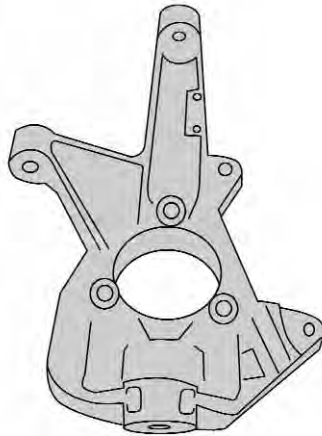
ONE PIECE LOWER SUB FRAME  
16955-03 / QTY 1



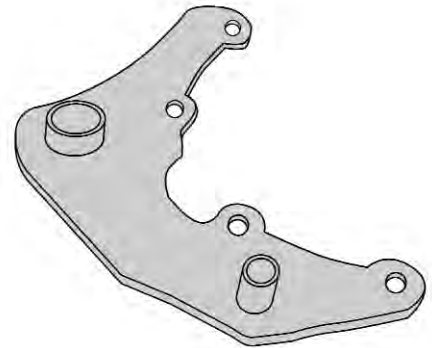
DRIVER & PASS SIDE AXLE  
SPACERS  
9803 / QTY 2



DRIVER SIDE SPINDLE  
16955-01 / QTY 1



PASSENGER SIDE SPINDLE  
16955-02 / QTY 1



DRIVER SIDE DIFFERENTIAL  
RELOCATION BRACKET  
16955-05 / QTY 1