

# INSTALLATION INSTRUCTION

88564

Rev D

For Rancho Torsion Bar Drop Suspension System **RS6564B**: GM 2500HD.

*READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION*



Ultra Wheels : 18 x 9 w/ 6" BS  
BFGoodrich Mud-Terrain T/A 35 x 12.5 x R18

## IMPORTANT NOTES!

**WARNING:** This suspension system will enhance the off-road performance of your vehicle. It will handle differently, both on and off-road, from a factory equipped passenger car or truck. Extreme care must be used to prevent loss of control or vehicle rollover during abrupt maneuvers. Failure to drive this vehicle safely may result in serious injury or death to the driver and passengers. **ALWAYS WEAR** your seat belts, **REDUCE** your speed, and **AVOID** sharp turns and other abrupt maneuvers.

A. Before installing this system, have the vehicle's alignment and frame checked by a certified technician. The alignment must be within factory specifications and the frame of the vehicle must be sound (no cracks, damage or corrosion).

B. Do not install a body lift kit with this suspension system or interchange Rancho components with parts from another manufacturer. New Rancho shock absorbers are required and must be purchased separately.

| Front    | Rear     |
|----------|----------|
| RS5380   | RS5381   |
| RS7380   | RS7381   |
| RS999380 | RS999381 |

C. Do not powder coat or plate any of the components in this system. To change the appearance of components, automotive paint can be applied over the original coating.

D. Each hardware kit in this system contains fasteners of high strength and specific size. Do not mix hardware kits or substitute a fastener of lesser strength. See bolt identification table on page 2.

E. Compare the contents of this system with the parts list in these instructions. If any parts are missing, contact the Rancho Technical Department at 1-734-384-7804.

F. Install all nuts and bolts with a flat washer. When both SAE (small OD) and USS (large OD) washers are used in a fastener assembly, place the USS washer against the slotted hole and the SAE washer against the round hole.

G. Apply a drop of thread locking compound to all bolts during installation. **CAUTION:** Thread locking compound may irritate sensitive skin. Read warning label on container before use.

H. Unless otherwise specified, tighten all nuts and bolts to the standard torque specifications shown in the table below. **USE A TORQUE WRENCH** for accurate measurements.

I. Some of the service procedures require the use of special tools designed for specific procedures. The following tools and supplies are recommended for proper installation of this system: ☒

- ☐ Chevrolet Service Manual GMT11CK9PU
- ☐ Torsion Bar Unloading Tool CH48809
- ☐ Universal Steering Linkage Puller J24319
- ☐ Ball Joint Separator J43631
- ☐ Prevailing Torque Nuts (for steering linkage & front wheel drive shaft)
- ☐ Welder
- ☐ Die Grinder
- ☐ Drill motor
- ☐ Assorted Drills: 1/8" through 1"
- ☐ Torque Wrench (250 FT-LB capacity)
- ☐ 1/2" Drive Ratchet and Sockets
- ☐ Assorted Combination Wrenches
- ☐ Heavy Duty Jack Stands
- ☐ Wheel Chocks (wooden blocks)
- ☐ Hydraulic Floor Jack
- ☐ Center punch
- ☐ File
- ☐ Large "C" Clamps
- ☐ Reciprocating Saw (to modify frame and differential)
- ☐ Hammer
- ☐ Wire Brush (to clean bracket mounting surfaces)
- ☐ Black Enamel Paint
- ☐ Silicone Spray Lubricant
- ☐ Tape Measure
- ☐ **Safety Glasses** (wear safety glasses at all times)

J. It is extremely important to replace torsion bars, CV flanges, and front drive shaft/pinion relationships as original. Be sure to mark left/right, front/rear, and indexing of mating parts before disassembly. A paint marker or light colored nail polish is handy for this.

K. Suspension components that use rubber or urethane bushings should be tightened with the vehicle at normal ride height. This will prevent premature failure of the bushing and maintain ride comfort.

L. Although designed for 4wd vehicles, some Rancho suspension systems will fit 2wd applications. Refer to the application catalog or contact Rancho Technical Support at 1-734-384-7804. If you are installing this system on a 2wd vehicle

some of the steps in these instructions may not be applicable (4wd only).

M. When attaching box plate 176613, welding is required. Prior to any welding, disconnect vehicle's ground cable from the battery(s).

N. The required installation time for this system is approximately 6 to 7 hours. Check off the box ( ☒ ) at the beginning of each step when you finish it. Then when you stop during the installation, it will be easier to find where you need to continue from.

O. This suspension system was developed using the following tire & wheel combination: 35x12.5 R18 tire, 18 x 9 wheel with 6.0 inches of wheel backspacing. Before installing any other combination, consult your local tire and wheel specialist.

P. **IMPORTANT:** If the OEM 17" wheel is reused, the OEM wheel weight will need to be removed from the front wheels. Use sticky wheel weights that attach to the inside diameter of the wheel.

Q. Important information for the end user is contained in the consumer/installer information pack. If you are installing this system for someone else, place the information pack on the driver's seat. Please include the installation instructions when you finish.

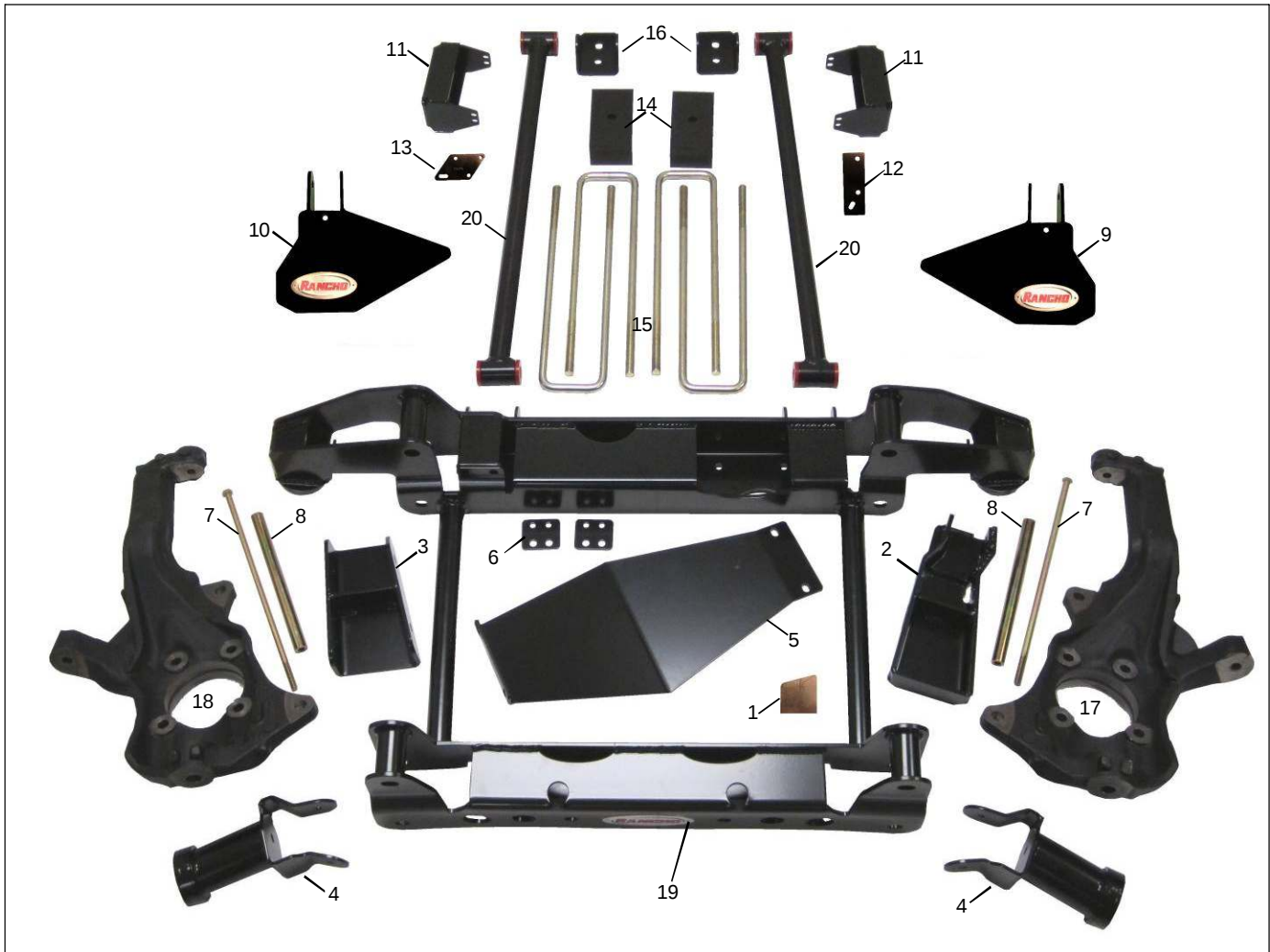
R. Thank you for purchasing the best suspension system available. For the best-installed system, follow these instructions. If you do not have the tools or are unsure of your abilities, have this system installed by a certified technician. RANCHO SUSPENSION IS NOT RESPONSIBLE FOR DAMAGE OR FAILURE RESULTING FROM AN IMPROPER OR MODIFIED INSTALLATION...

| STANDARD BOLT TORQUE & IDENTIFICATION                                                                                                                                                             |           |           |                                                                                                                                                                                                              |           |            |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|------------|
| INCH SYSTEM                                                                                                                                                                                       |           |           | METRIC SYSTEM                                                                                                                                                                                                |           |            |            |
| Bolt Size                                                                                                                                                                                         | Grade 5   | Grade 8   | Bolt Size                                                                                                                                                                                                    | Class 9.8 | Class 10.9 | Class 12.9 |
| 5/16                                                                                                                                                                                              | 15 FT-LB  | 20 FT-LB  | M6                                                                                                                                                                                                           | 5 FT-LB   | 9 FT-LB    | 12 FT-LB   |
| 3/8                                                                                                                                                                                               | 30 FT-LB  | 35 FT-LB  | M8                                                                                                                                                                                                           | 18 FT-LB  | 23 FT-LB   | 27 FT-LB   |
| 7/16                                                                                                                                                                                              | 45 FT-LB  | 60 FT-LB  | M10                                                                                                                                                                                                          | 32 FT-LB  | 45 FT-LB   | 50 FT-LB   |
| 1/2                                                                                                                                                                                               | 65 FT-LB  | 90 FT-LB  | M12                                                                                                                                                                                                          | 55 FT-LB  | 75 FT-LB   | 90 FT-LB   |
| 9/16                                                                                                                                                                                              | 95 FT-LB  | 130 FT-LB | M14                                                                                                                                                                                                          | 85 FT-LB  | 120 FT-LB  | 145 FT-LB  |
| 5/8                                                                                                                                                                                               | 135 FT-LB | 175 FT-LB | M16                                                                                                                                                                                                          | 130 FT-LB | 165 FT-LB  | 210 FT-LB  |
| 3/4                                                                                                                                                                                               | 185 FT-LB | 280 FT-LB | M18                                                                                                                                                                                                          | 170 FT-LB | 240 FT-LB  | 290 FT-LB  |
| 1/2-13x1.75 HHCS<br>D T L X<br>G = Grade Marking (bolt strength) L = Length (inches)<br>D = Nominal Diameter (inches) X = Description (hex head cap screw)<br>T = Thread Pitch (threads per inch) |           |           | M12-1.25x50 HHCS<br>D T L X<br>P = Property Class (bolt strength) L = Length (millimeters)<br>D = Nominal Diameter (millimeters) X = Description (hex head cap screw)<br>T = Thread Pitch (thread width, mm) |           |            |            |

## PARTS LIST

| #  | P/N              | DESCRIPTION                       | QTY      |
|----|------------------|-----------------------------------|----------|
|    | <b>RS6564B-1</b> | <b>Box 1 Of 4</b>                 | <b>1</b> |
| 1  | RS176613         | Box Plate, Weld In                | 1        |
| 2  | RS176614         | Diff Drop Bracket - Left          | 1        |
| 3  | RS176615         | Diff Drop Bracket - Right         | 1        |
|    | RS860688         | Sub Assy-Diff Drop                | 1        |
|    | RS770108         | HHCS, M12-1.75X40MM               | 5        |
|    | RS7911           | Nut, 12Mm-1.75 Top Lock           | 5        |
|    | RS7915           | Washer, M12                       | 12       |
|    | RS7719           | Washer, 1/2 USS                   | 4        |
| 4  | RS176616         | Front Bump Stop Bracket           | 2        |
|    | RS860687         | Sub Assy- Front Bump Stop Bracket | 1        |
|    | RS770056         | HHTS, 3/8-16X1.00                 | 4        |
| 5  | RS176621         | Skid Plate                        | 1        |
|    | RS860699         | Sub, Assy Skid Plate              | 1        |
|    | RS770080         | HHCS, M10-1.50X30MM               | 4        |
|    | RS7657           | Nut, 10MM-1.50 Nylock             | 4        |
|    | RS770064         | Washer, M10                       | 8        |
|    | RS860686         | Sub Assy-Front Brake Hose Bracket | 1        |
| 6  | RS176617         | Front Brake Hose Bracket          | 2        |
|    | RS770127         | HHCS, M8-1.25X20MM                | 2        |
|    | RS603112         | Nut, M8-1.25 Nylock               | 2        |
|    | RS770128         | Washer, M8                        | 4        |
|    | RS96315          | 1/2" Split Loom                   | 2        |
|    | RS860180         | Sub Assy, End Link                | 1        |
| 7  | RS770078         | HHCS, 3/8-16X14.0                 | 2        |
|    | RS7604           | Nut, 3/8-16 Nylock                | 2        |
| 8  | RS420044         | Sleeve, .75 X .438 X 9.50         | 2        |
|    | 117300007        | Retainer                          | 8        |
|    | RS860869         | Sub Assy-Sub Frame                | 1        |
|    | RS770237         | HHCS, M18-2.50X120MM              | 2        |
|    | RS770238         | HHCS, M18-2.50X150MM              | 2        |
|    | RS770118         | Nut, M18-2.5 Nylock               | 4        |
|    | RS770123         | Washer, M18 SAE                   | 8        |
| 9  | RS176619         | T-Bar Drop Bracket - Left         | 1        |
| 10 | RS176627         | T-Bar Drop Bracket - Right        | 1        |
|    | RS860690         | Sub Assy, T-Bar Drop Bracket      | 1        |
|    | RS770043         | HHCS, M14-2.00X10MM               | 2        |
|    | RS7877           | Nut, 14Mm-2.00 Top Lock           | 2        |
|    | RS770109         | Washer, M14                       | 4        |
|    | RS603605         | HHCS, 1/2-13 X 1.0                | 2        |
| 11 | RS176620         | Rear Bump Stop Spacer             | 2        |

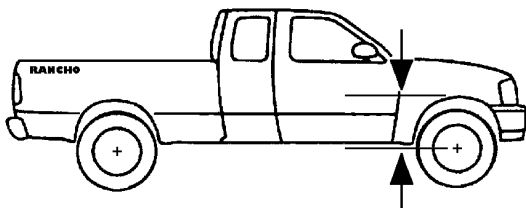
| #  | P/N              | DESCRIPTION                     | QTY      |
|----|------------------|---------------------------------|----------|
|    | RS860691         | Sub Assy, Rear Bump Stop Spacer | 1        |
|    | RS770239         | HHTS, 5/16-18X0.75              | 2        |
|    | RS7642           | Washer, 5/16 SAE                | 2        |
|    | RS860696         | Sub Assy, Rear Brake            | 1        |
| 12 | RS176624         | E-Brake Relocation              | 1        |
| 13 | RS176625         | Rear Brakeline Bracket          | 1        |
|    | RS770241         | HHCS, M8-1.25X25MM              | 1        |
|    | RS603112         | Nut, 8MM-1.25 Nylock            | 1        |
|    | RS770128         | Washer, M8                      | 2        |
|    | RS770240         | HHCS, M8-1.25X20MM              | 2        |
|    | RS603112         | Nut, 8MM-1.25 Nylock            | 2        |
|    | RS770128         | Washer, M8                      | 4        |
|    | RS860694         | Sub Assy, Spacer Block          | 1        |
| 14 | RS15108          | Spacer Block                    | 2        |
|    | RS860695         | Sub Assy, Spacer Block Pin      | 1        |
|    | RS10481          | Spacer Block Pin                | 2        |
| 15 | RS740031         | U-Bolts, 3/4X3.86X14.5          | 4        |
|    | RS860698         | Sub Assy, U-Bolt                | 1        |
|    | RS770242         | Nut, 3/4-10 Nylock              | 8        |
|    | RS770243         | Washer, 3/4 SAE Thick           | 8        |
| 16 | RS176138         | Aft Brace Bracket -2 Hole       | 2        |
|    | RS860474         | Sub Assy, Aft Brace             | 1        |
|    | RS420072         | Sleeve, .750 X .570 X 2.74      | 4        |
|    | RS520041         | Bushing                         | 8        |
|    | RS603616         | HHCS, 1/2-13 X 4.0              | 4        |
|    | RS603605         | HHCS, 1/2-13 X 1.0              | 2        |
|    | RS78361          | Nut 1/2-13 Top Lock             | 4        |
|    | RS7723           | Washer, 1/2 SAE                 | 10       |
|    | RS176137         | Nut Bracket                     | 2        |
|    | RS42702          | .5 cc Thread Lok                | 1        |
|    | RS88564          | Instruction                     | 1        |
|    | RS94180          | Information Pack                | 1        |
|    | RS94177          | Rollover Warning                | 1        |
|    | RS94119          | Consumer/Warranty Information   | 1        |
|    | RS780281         | Rancho Decal                    | 1        |
|    | R-RM0082-1112    | Warranty Tag                    | 1        |
|    | <b>RS6564B-2</b> | <b>Box 2 Of 4</b>               | <b>1</b> |
| 17 | RS176610         | Knuckle, Driver Side (Left)     | 1        |
|    | <b>RS6564B-3</b> | <b>Box 3 Of 4</b>               | <b>1</b> |
| 18 | RS176611         | Knuckle, Passenger Side (Right) | 1        |
|    | <b>RS6564B-4</b> | <b>Box 4 Of 4</b>               | <b>1</b> |
| 19 | RS176612B        | Subframe                        | 1        |
| 20 | RS176618B        | Aft Brace - 31.25"              | 2        |



## FRONT SUSPENSION

### VEHICLE PREPARATION & TORSION BAR REMOVAL

1) ☐ Park the vehicle on a level surface. Set the parking brake and chock rear wheels. Measure and record the distance from the center of each wheel to the top of the fender opening. See illustration #1.



LR \_\_\_\_\_

LF \_\_\_\_\_

RR \_\_\_\_\_

RF \_\_\_\_\_

Illustration #1

2) ☐ Raise the front of the vehicle and support the frame with jackstands. Remove the front wheels and set them aside.

3) ☐ Mark the torsion bars left and right. Make alignment marks on the torsion bars, the lower control arms, and the adjustment arms.

4) ☐ Install the GM torsion bar unloading tool (CH48809) and increase the tension on the torsion bar. Remove the adjuster and adjuster bolt. Relieve the tension on the torsion bar and remove the tool.

5) ☐ Slide the torsion bar forward and remove the adjustment arm. **CAUTION!!!** Do not nick the CV boot with the torsion bar. See illustration #2.

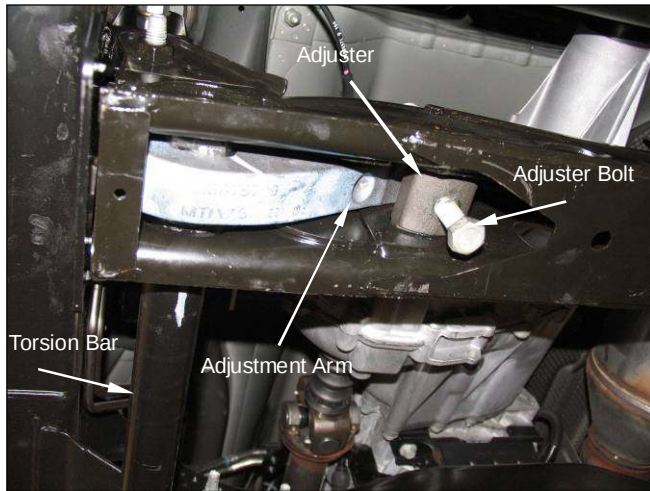


Illustration #2

- 6) ☐ Repeat steps 4 and 5 for the other side.
- 7) ☐ Remove the torsion bar crossmember by removing the two OE bolts securing it. Make sure to disconnect the O<sub>2</sub> sensor wire that is connected to the crossmember.
- 8) ☐ Remove the torsion bars from the lower control arms.

### **WHEEL DRIVE SHAFT (HALF-SHAFT) REMOVAL**

- 1) ☐ Remove the front shock absorbers. Remove the front bump stops.
- 2) ☐ Remove the sway bar end links. See illustration #3.

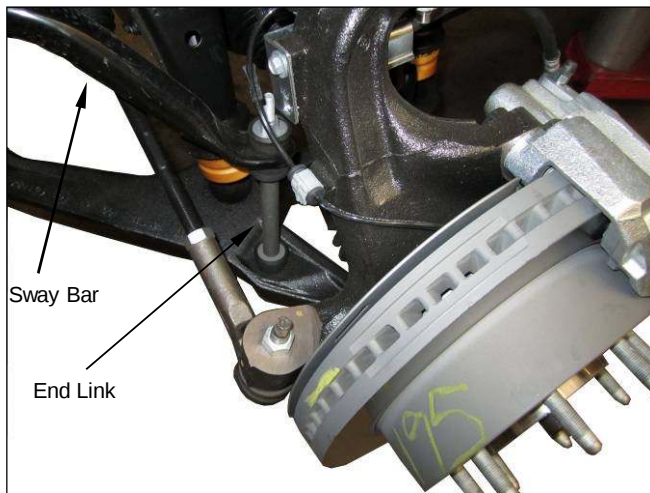


Illustration #3

- 3) ☐ (4wd only) Mark the differential output flange and the axle flange for installation reference.

- 4) ☐ (4wd only) Remove the cap, nut and washer from the hub. Remove the eight bolts from the inboard flange. See illustration #4.

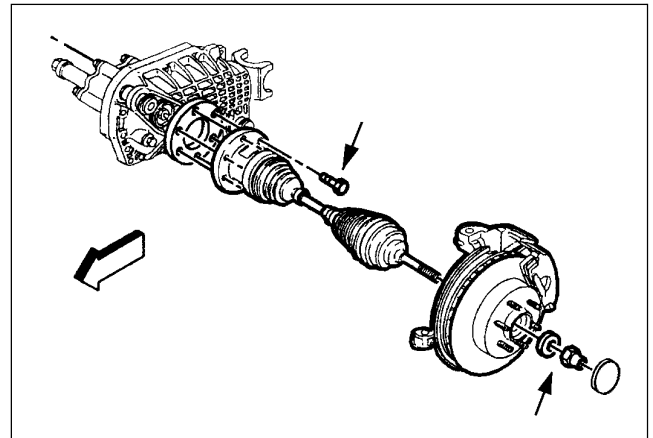


Illustration #4

- 5) ☐ (4wd only) Pull the half-shaft out of the hub and through the lower control arm opening. IMPORTANT!!! Be careful not to damage the drive shaft boots.
- 6) ☐ (4wd only) Repeat steps 3 through 5 for the other side.

### **STEERING KNUCKLE & LOWER CONTROL ARM REMOVAL**

- 1) ☐ Loosen the brake hose bracket on the brake hose (top of steering knuckle) by prying the bracket open with vice grips or pliers. Remove the brake hose from the bracket. Remove the bolt and brake hose bracket from the steering knuckle.
- 2) ☐ Disconnect the brake hose bracket on the frame. Save bolt for reuse later. See illustration #5.



Illustration #5

3) ☐ Remove the brake caliper assembly by loosening the 2 mounting bolts. Hang the caliper assembly with wire or a tie wrap. The brake caliper is very heavy, so be sure to properly support it.

4) ☐ Label the brake rotor left or right. Remove the brake rotor by removing the one OE bolt fastening it to the hub.

5) ☐ Remove the prevailing torque nut from the outer tie rod stud. Disconnect the tie rod end from the steering knuckle with a universal puller.

6) ☐ If applicable, disconnect the ABS connectors and separate the cable from the upper control arm and the steering knuckle.

7) ☐ Remove the nuts at the upper and lower ball joints. Disconnect the ball joints from the steering knuckle using separating tool J43631. Remove the steering knuckle and hub assembly.

8) ☐ Remove the hub and bearing assembly mounting bolts. See illustration #6. Remove the hub and bearing assembly. Remove the dust shield and carefully remove the o-ring.

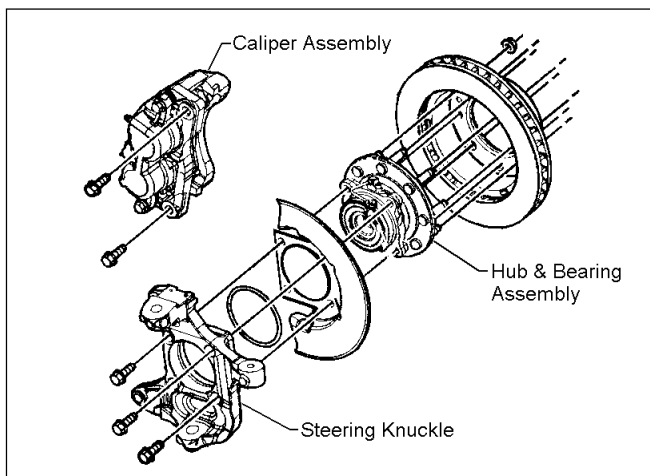


Illustration #6

9) ☐ Remove the lower control arm pivot bolts. Save for reuse. Remove the lower control arm.

10) ☐ Repeat steps 1 through 9 for the other side.

## **FRONT DIFFERENTIAL REMOVAL (4WD ONLY)**

1) ☐ If applicable, remove the front differential skid plate and rear support bracket.

2) ☐ Remove the vehicle crossmember that is directly below the differential. Save the OE mounting hardware for reuse later.

3) ☐ Reference mark the front drive shaft U-joint to the differential yoke. Remove the bolts and retainers from the yoke and slide the shaft rearward to disengage. Tape the bearing cap assemblies and secure the shaft out of the way.

4) ☐ Disconnect the electrical connector and the vent hose from the differential assembly.

5) ☐ Support the front differential assembly with a floor jack

6) ☐ Remove the right (qty 2) and left (qty 3) side differential mounting nuts and bolts. See illustration #7.



Illustration #7

7) ☐ Getting assistance from another person or two, remove the differential assembly from the vehicle.

8) ☐ Trim the crossmember mount / driver side aft lower control arm pocket. Measure 1.00" inboard from the control arm mounting hole and mark a vertical line. Continue this line all of the way around the pocket. See illustration #8.

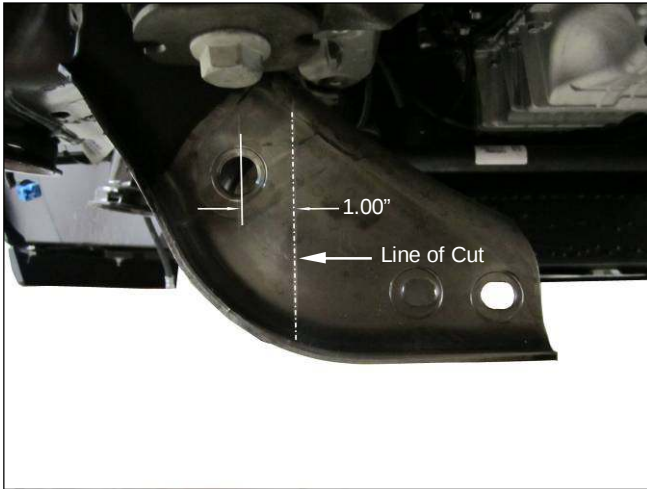


Illustration #8

9) ☐ Thoroughly clean the remaining portion of the mount and prep for welding. Weld box plate 176613 to the outside of the pocket. See illustration #9. **IMPORTANT!!!** Only weld on the outside of the pocket. Welding on the inside will cause interference issues with the subframe. Make sure that all batteries are disconnected before welding.



Illustration #9

**NOTE:** Box plate 176613 does not have a protective coating and may develop surface rust. Remove rust before welding plate to lower control arm frame bracket. After installation, coat the plate and bracket with enamel paint or undercoating.

#### **FRONT BUMPSSTOP DROP INSTALLATION**

- 1) ☐ Remove the both front bumpstops.
- 2) ☐ Using front bumpstop spacer 176616 as a template, fit to OE bumpstop perch and mark left and right holes. See illustration #10.

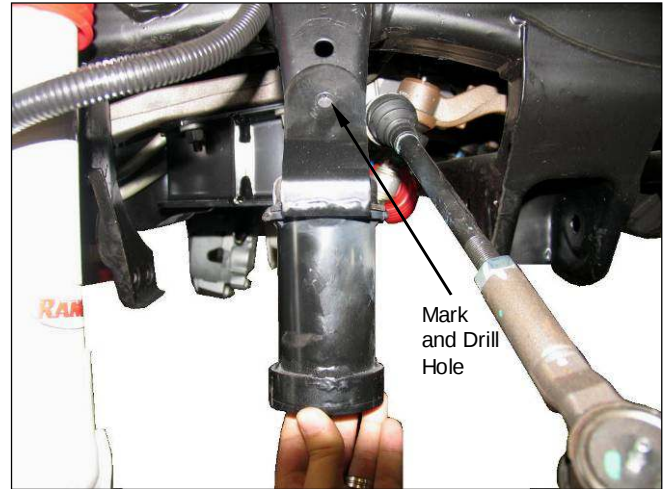


Illustration #10

- 3) ☐ Drill a 5/16" hole at the two marked locations.
- 4) ☐ Attach bumpstop spacer to the perch with two 3/8"-16 self tapping bolts from hardware kit 860687.
- 5) ☐ Repeat steps 1-5 for the other side.

#### **FRONT DIFFERENTIAL INSTALLATION**

- 1) ☐ (4wd only) To clear the box plate 176613, the left side aft mount on the differential needs to be trimmed. Attach left differential drop mount 176614 to the differential. Using the bracket as a guide, trace the outside of the bracket on the aft mount.
- 2) ☐ (4wd only) Remove drop bracket and trim aft mount along the traced line. See illustration #11

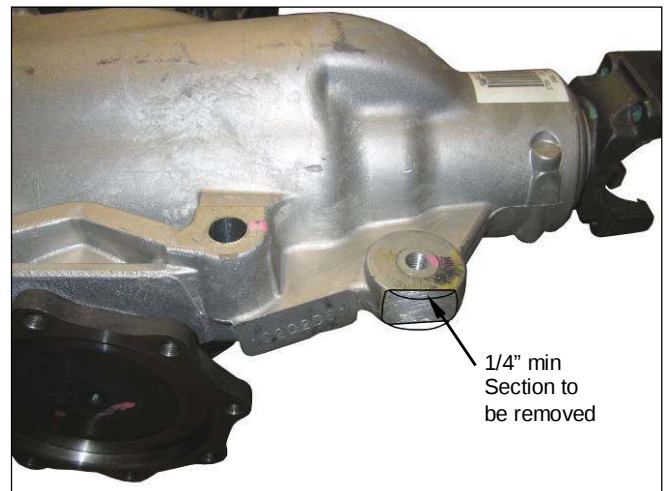


Illustration #11

3) ☐ (4wd only) Reattach left differential drop bracket 176613 to the differential. Reuse OE bolt in the front and middle mount with provided M12-1.75 nut and 1/2" USS washers from hardware kit 860688. Use the M12-1.75 x 40mm bolt, M12 nut and two M12 washers from kit 860688 for the aft mount. Apply Loctite to OE hardware. Only snug the hardware at this time.

4) ☐ (4wd only) Attach right differential drop bracket 176614 to the vehicle mount using the OE mounting hardware. Apply Loctite to the hardware. Only snug the hardware at this time.

5) ☐ (4wd only) Using assistance and stands, lift the differential into place. Use two M12-1.75 x 40mm bolts and two M12 washers from kit 860688 for the front and middle vehicle mounts on left differential drop bracket 176614. Reuse the OE nut and a M12 washer on the aft mounting hole. Attach right differential drop bracket 176615 to the differential using two M12-1.75 x 40mm bolts and two M12 washers. Apply Loctite to OE hardware. Torque all hardware 65 ft-lbs. See illustration #12.

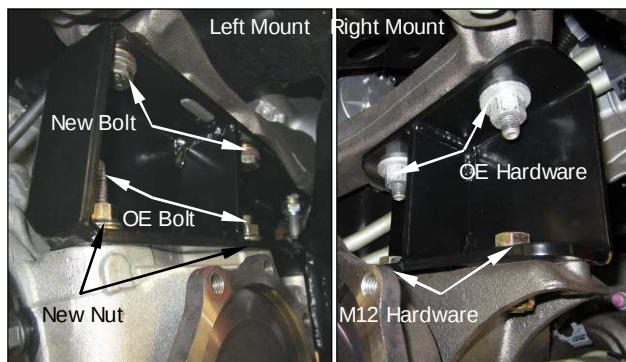


Illustration #12

6) ☐ (4wd only) Gently pull on vacuum hose to stretch. Reattach to the differential along with the electrical connector.

### **TRIM TIE RODS**

1) ☐ Mark the location of the left tie rod end on the tie rod. Remove tie rod end. Back the jam nut 1-1/4" inboard.

2) ☐ Trim 1/2" from the end of the tie rod. See illustration #13 for details.

3) ☐ Reinstall tie rod end with taper end facing down. Secure jam nut against tie rod end.

4) ☐ Repeat steps 1-3 for the right side.

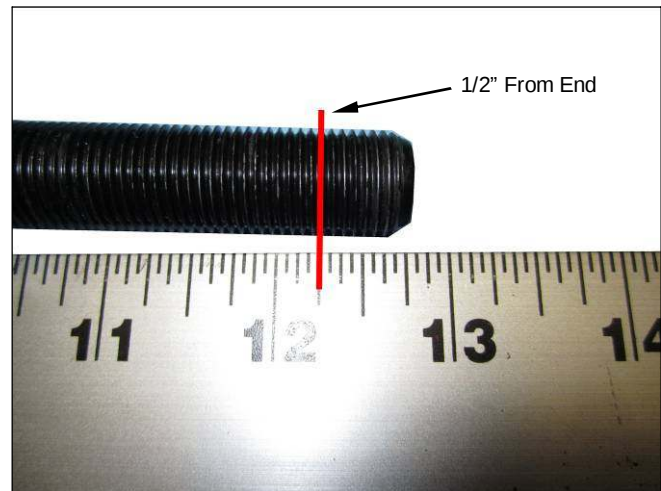


Illustration #13

### **SUBFRAME INSTALLATION**

1) ☐ Getting assistance, lift subframe 176612 into the OE control arm pockets. Reuse OE mounting hardware to fasten the subframe to the vehicle. **NOTE:** Install the forward mounting bolts from the front. Insert the aft mounting bolts from the rear. Apply Loctite to OE hardware. Torque to 250 ft-lbs.

2) ☐ Reusing two of the OE crossmember nuts and bolts, attach the subframe through the right side, aft pocket. Insert bolts from the rear. See illustration #14. Torque to 45 ft-lbs.



Illustration #14

### **CONTROL ARM AND SKID PLATE INSTALLATION**

1) ☐ Install new front Rancho shock absorber RS5380, RS7380 or RS9995380. Only attach upper mount. Torque to 75 ft-lbs.

2) ☐ Reinstall OE bumpstops into bumpstop spacer 176616 and subframe. Twist bumpstop while pushing up.

3) ☐ Attach left control arm to the subframe using one M18-2.5 x 120mm, two M18 washers and one M18 Nylock nut for the front mount (install from the front) and one M18-2.5 x 150mm, two M18 washers and one M18 Nylock for the rear mount (install from the rear) from hardware kit 860869. Only snugly tighten the hardware at this point.

4) ☐ Attach the lower mount of the shock to the lower control arm using the OE hardware. Only snugly tighten the hardware at this time.

5) ☐ Repeat for right side.

6) ☐ Install skid plate 176621. The bent flange attaches to the forward crossmember of the subframe. Using the four M10-1.5 x 30mm bolts, four M10 Nylock nut and eight M10 washers from hardware kit 860699, attach the skid plate to the subframe. Torque to 45 ft-lbs. See illustration #15.



Illustration #15

### **DRIVE SHAFT AND KNUCKLE INSTALLATION**

1) ☐ (4wd only) Reinstall left half shaft using the eight OE mounting bolts. **CAUTION!!!** Be careful not to nick the CV boots during installation as it will decrease the life of the CV joint. Torque to 40 ft-lbs in cross type pattern.

2) ☐ Insert the O-ring from the inner bearing surface of the OE knuckle into left knuckle 176610. Install new knuckle reusing OE nuts. Make sure the tie rod end installs with stem end pointing down. See illustration

#16. Torque upper ball joint to 37 ft-lbs, lower ball joint to 74 ft-lbs and tie rod end to 33 ft-lbs.

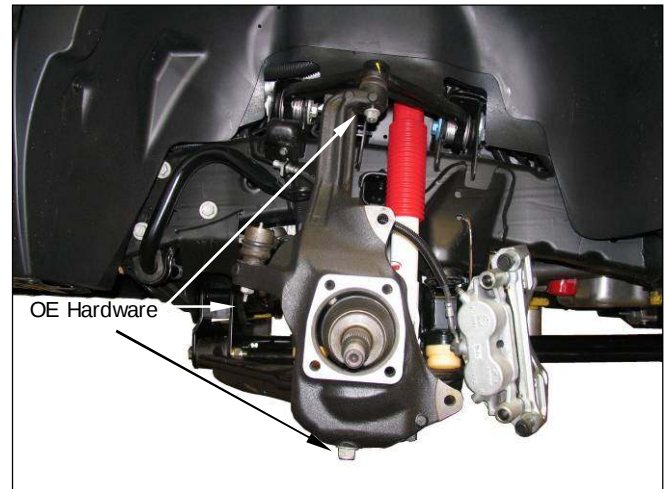


Illustration #16

3) ☐ Reinstall dust shield and hub assembly using the OE hardware. Properly align half shaft to the hub. Torque hub mounting bolts to 125 ft-lbs.

4) ☐ (4wd only) Secure half shaft to hub using OE washer and center bolt. Place a drift or large screwdriver through the wheel mounting bolts to prevent the drive axle from turning. Torque to 155 ft-lbs.

5) ☐ (4wd only) Install hub dust cap.

6) ☐ Reattach ABS line to hub reusing OE hardware. Tie wrap the ABS line to the neck of the knuckle. See Illustration #16 for details.

**NOTE:** Do not lubricate the wheel drive shaft splines or the knuckle hub with grease.

7) ☐ Install the brake rotor. Fasten rotor to hub with the OE bolt. Reattach the front caliper with the original mounting bolts. Be sure to clean the bolt threads and apply thread lock. Tighten the caliper mounting bolts to 125 ft-lbs.

8) ☐ Attach brake line drop bracket 176617 to the OE brake line bracket using one M8-1.25 x 20mm bolt, one M8-1.25 Nylock nut and two M8 washers. All components are located in hardware kit 860686. Torque to 23 ft-lbs.

9) ☐ Connect full brake line bracket assembly to the frame reusing the OE hardware. See illustration #17 for details.

10) ☐ Place the protective sheathing from kit 860686 over the brake line.

11) ☐ Repeat steps 1 through 10 for right side.

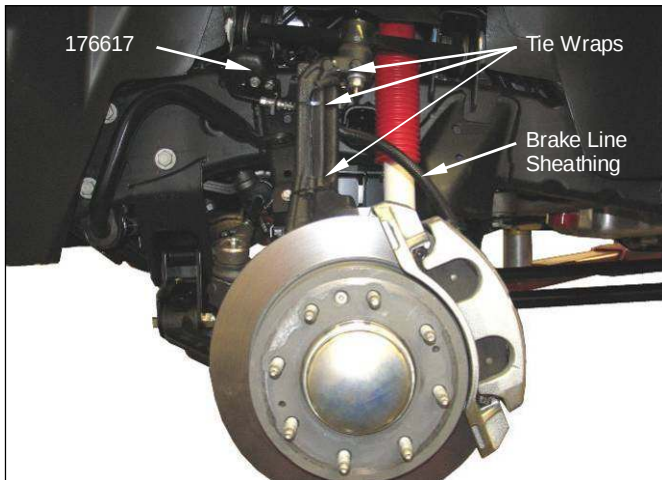


Illustration #17

12) ☐ Install new sway bar end links from kit 860180. Reuse the four OE end link bushings, which need to be separated from the OE retainers. The end link should be installed from top to bottom, with retainers on the backside of each bushing and the spacer sleeve in the middle. See illustration #18.

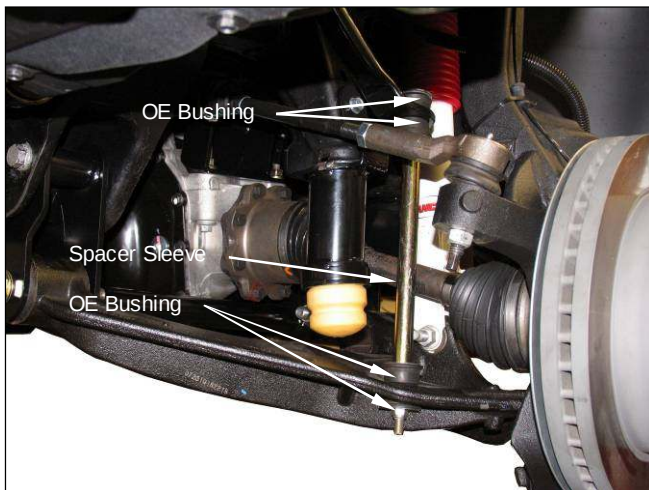


Illustration #18

13) ☐ Repeat step 12 for the right side.

### **TORSION BAR CROSSMEMBER DROP AND TORSION BAR INSTALLATION**

1) ☐ Slide torsion bar back into the control arm. Make sure that the correct bar is being installed on the corresponding side. Slide the bar through the control arm a little. **CAUTION!!!** Do not nick the CV boot with the torsion bar.

2) ☐ Prepare torsion bar crossmember drop bracket for installation by threading one of the 1/2-13 x 1.0" bolts into the bracket (the bolt head should be between the mounting brackets). This bolt is used to center the crossmember.

3) ☐ Install right torsion bar crossmember drop bracket 176627. Use one M14-2.0 x 100mm bolt, one M12 toplock nut and two M14 washers from hardware kit 860690 to attach the drop bracket to the OE crossmember mount. Do not torque the hardware at this point. See illustration #19.

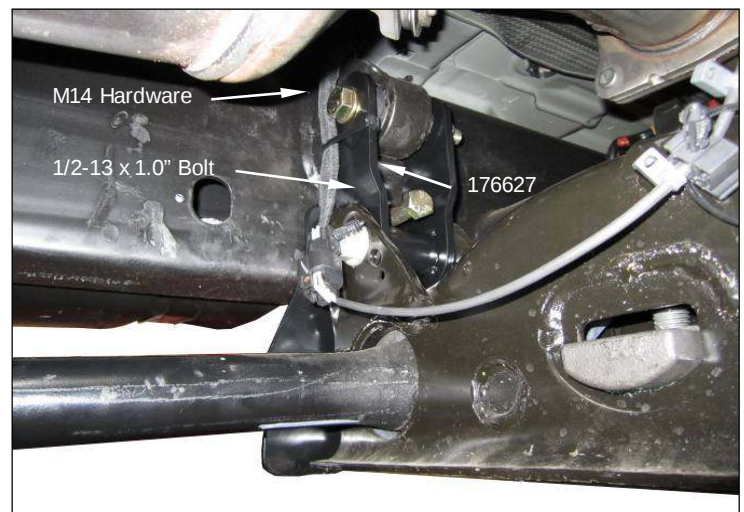


Illustration #19

4) ☐ Repeat steps 1 through 3 for the left side.

5) ☐ Reinstall torsion bar crossmember, attaching it to the drop brackets using the OE bolts. Do not torque the bolts at this point.

6) ☐ Center the torsion bar crossmember using the 1/2" alignment bolts on the crossmember drop brackets. Once the crossmember is centered, only an extra 1/2 turn of the bolt is need to secure it.

7) ☐ Tie wrap the O<sub>2</sub> sensor wire to the crossmember to keep it away from the exhaust.

9) ☐ Slide torsion bar through the pocket on the crossmember and into the torsion bar key. Verify that the reference mark on the adjustment arm matches the mark on the end of the torsion bar.

10) ☐ Install the torsion key adjuster and adjuster bolt using GM torsion bar tool CH48809. Adjust the bolt to the original setting. Make sure that the correct adjuster is installed on the corresponding side. See illustration #20.

11) ☐ Torque the hardware attaching the torsion bar drop bracket to the OE mount and the hardware attaching the torsion bar crossmember to the drop brackets to 75 ft-lbs.

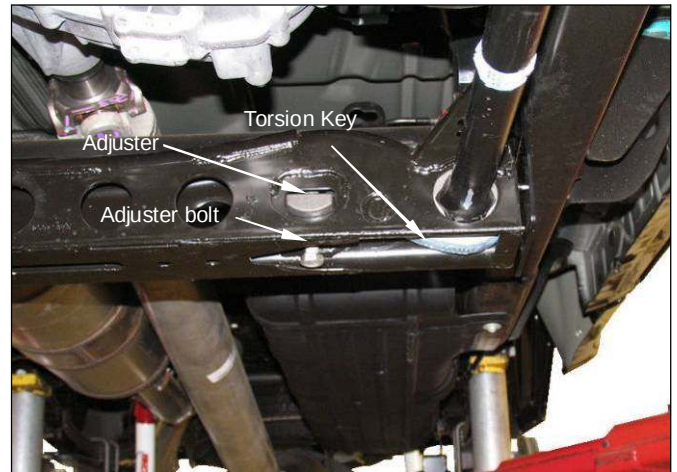


Illustration #20

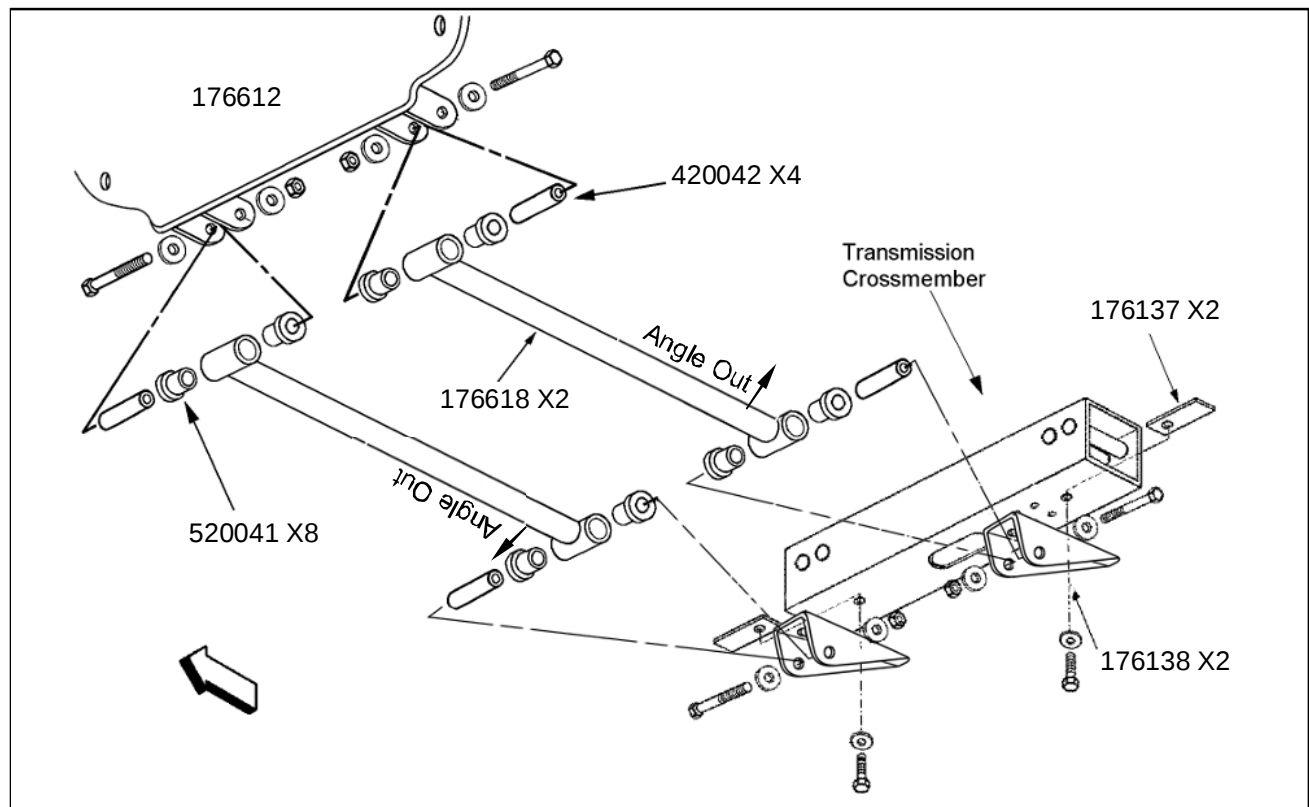


Illustration #21

### **AFT BRACE ASSEMBLY & INSTALLATION**

1) ☐ Lubricate two bushings 520041 and one sleeve 420042, from kit 860434, with a silicon spray. Press the bushings and sleeve into aft brace 176618 as shown in illustration #21.

2) ☐ Repeat step 1 to install the rest of the bushings and sleeves.

3) ☐ Using the hardware from kit 860434, loosely attach the end of the aft brace to the rear of the subframe 176612 using one 1/2-13 x 4.0" bolt, one 1/2-13 stover nut and two 1/2" SAE washers. The aft braces must angel out toward the frame in the rear.

4) ☐ Loosely attach aft brace bracket 176138 to aft brace using one 1/2-13 x 4.0" bolt, one 1/2-13 stover nut and two 1/2" SAE washers. See figure #21.



- 5) ☐ Rotate aft brace assembly up and secure the bracket to the transmission crossmember with a c-clamp. Mark the rear mounting hole location on the bottom of the crossmember.
- 6) ☐ Unclamp the bracket and rotate the aft brace forward. Drill a 17/32" hole into the crossmember.
- 7) ☐ Slide nut bracket 176137 into the side opening of the crossmember. Locate the nut over the drilled hole. Rotate the aft brace so the bracket is over the mounting hole. Attach the aft brace bracket to the nut plate using one 1/2-13 x 1.0" bolt and one 1/2" SAE washer.
- 8) ☐ Repeat steps 3 through 7 for the other side.
- 9) ☐ Torque all 1/2" mounting hardware to 90 ft-lbs
- 10) ☐ Repeat the previous two steps for the other side.
- 11) ☐ Tighten the aft brace and bracket mounting bolts to 65 ft-lbs.
- 12) ☐ Install front wheels and lower vehicle to ground. Tighten the lug nuts to 140 ft-lbs. **IMPORTANT:** If the OEM 17" wheel is reused, the OEM wheel weight will need to be removed from the front wheels. Use sticky wheel weights that attach to the inside diameter of the wheel.
- 13) ☐ Confirm that the tire does not rub on any components or wires.
- 14) ☐ Tighten the lower control arm pivot bolts to 250 ft-lbs.
- 15) ☐ Tighten the lower shock mounts to 120 ft-lbs.

## REAR SUSPENSION

- 1) ☐ Chock front wheels. Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.
- 2) ☐ Support the rear axle assembly with a floor jack. Use a floor stand on the front of the differential to keep it from rotating freely. Remove both rear shock absorbers. Do not reuse OEM shock absorbers.
- 3) ☐ Disconnect the OE brake line bracket from the differential cover by removing the two OE nuts securing it. Save for reuse. It is also necessary to pull the brake line out of the clip securing it to the differential cover.
- 4) ☐ Disconnect emergency brake line wire hanger from left side wheel well. Save OE bolt for reuse.
- 5) ☐ With the axle still being supported, remove left side anchor plate, U-bolts, and spacer. See illustration #22.

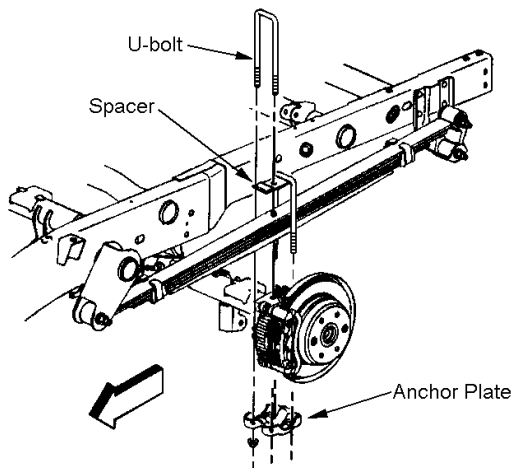


Illustration #22

6) ☐ Carefully lower the left side of the rear axle. It may be necessary to loosen the right side U-bolt to get enough clearance to install the new block. Do not allow the axle to hang by any hoses or cables.

7) ☐ Insert a block pin from kit 860694 into the hole in the axle pad. Place new riser block 15108 on the axle pad. See illustration #23.

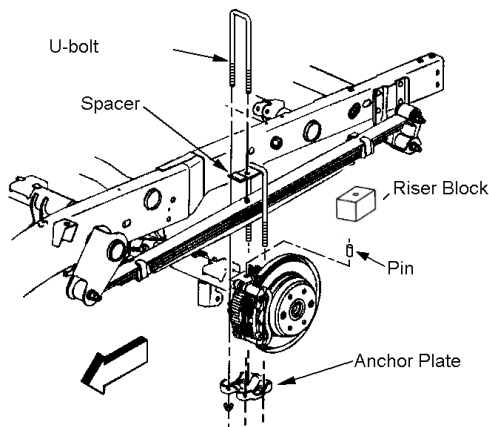


Illustration #23

8) ☐ Raise the axle assembly until the riser block contacts the helper spring. Be sure to align the hole in the block with the head of the center bolt.

9) ☐ Reinstall the U-bolt spacer on top of the leaf spring. Attach the spring to the axle with the NEW U-bolts 740031, original anchor plate, and hardware from kit 860694. Snug the nuts down but do not tighten. See illustration #24.

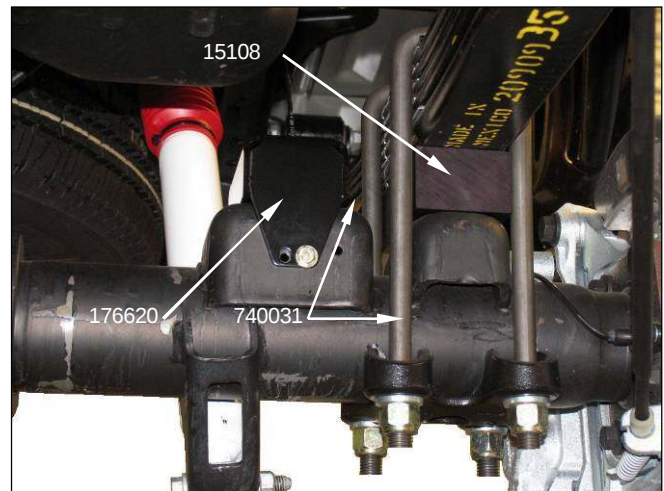


Illustration #24

10) ☐ Repeat steps 3 through 7 for the right side.

11) ☐ Cross tighten the U-bolt nuts evenly to 155 ft-lbs.

12) ☐ Install new Rancho shock absorbers RS999381, RS7381 or RS5381.

### **BUMP STOP SPACER INSTALLATION**

6) ☐ Disconnect the brake line bracket from the bump stop saddle. Keep self tapping bolt for reuse later.

7) ☐ Place bump stop spacer 176620 on the OE bump stop saddle. Using the OE bolt on the aft, attach the OE brake line bracket and spacer bracket. Use the 5/16-18 x .75 self tapping bolt and 5/16 SAE washer from hardware kit 860691 to attach the bracket in front. See illustration #25.

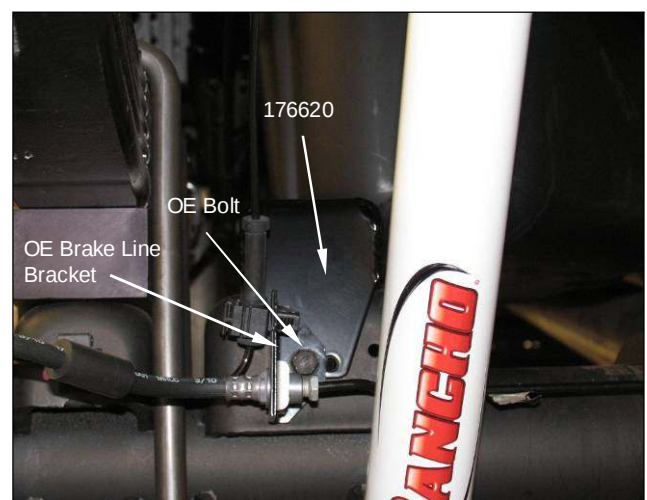


Illustration #25

8) ☐ Attach drop bracket 176624 to the OE emergency brake line hanger using one M8-1.25 x 25 mm bolt, one M8-1.25 Nylock nut and two M8 washers from hardware kit 860696. Torque to 23 ft-lbs.

9) ☐ Connect the drop bracket to the frame reusing the OE bolt. See illustration #26.

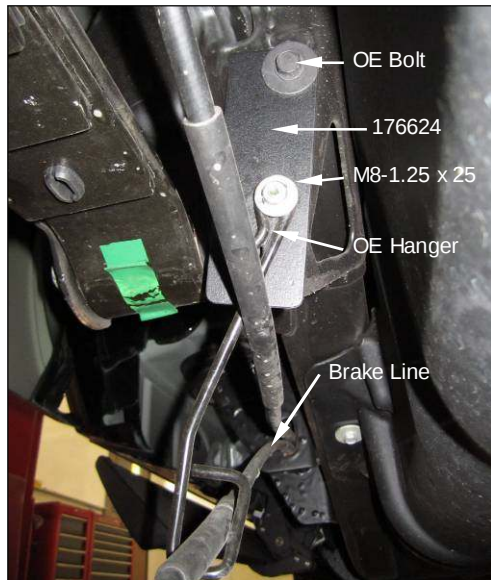


Illustration #26

10) ☐ Attach brake line relocation bracket 176625 to the OE mounting on the differential cover. Use the OE nuts to secure.

11) ☐ Attach OE brake line bracket to bracket 176625 using two M8-1.25 x 20 mm bolts, two Nylock nuts and four M8 washers from 860696. See illustration #27  
Torque to 23 ft-lbs.

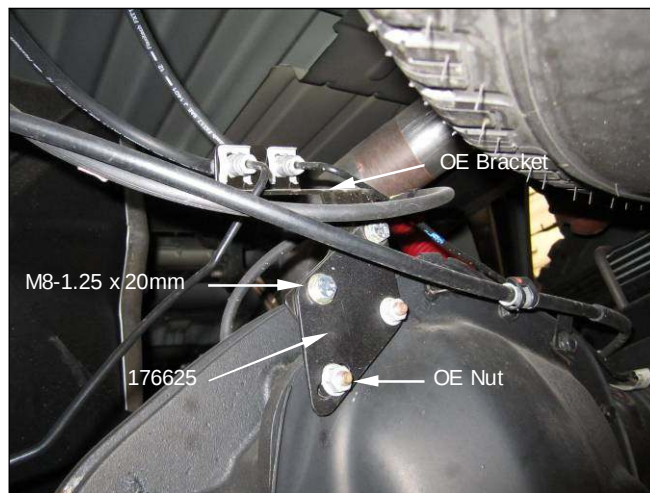


Illustration #27

16) ☐ Install rear wheels and lower vehicle to ground. Tighten the lug nuts to 140 ft-lbs.

## FINAL CHECKS & ADJUSTMENTS

1) ☐ Jounce suspension and move the vehicle to normalize ride height. Verify that the front spindle to fender height is 29 to 29.5" and that both sides are equal. If necessary, reinstall GM tool CH48809 and adjust the tension on the torsion bars to correct the height.

2) ☐ Turn the front wheels completely left then right. Verify adequate tire, wheel, and brake hose clearance. Inspect steering and suspension for tightness and proper operation.

3) ☐ With the suspension at maximum extension (full droop), inspect and rotate all axles and drive shafts. Check for binding and proper slip yoke insertion. The slip yoke must be inserted a minimum of one inch into the transfer case and/or transmission.

4) ☐ Ensure that the vehicle brake system operates correctly. If new brake hoses were installed, verify that each hose allows for full suspension movement.

5) ☐ Readjust headlamps. Have vehicle aligned at a certified facility.

6) ☐ Align vehicle to OE specifications.

**Please retain this publication for future reference. See Important Note P.**



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