



## D2400, D2603 Installation Instructions 2006-2008 Dodge 1500 4wd 4" and 6" Suspension Systems

### Read and understand all instructions and warnings prior to installation of product and operation of vehicle.

Zone Offroad Products recommends this system be installed by a professional technician. In addition to these instructions, professional knowledge of disassembly/ reassembly procedures and post installation checks must be known. Minimum tool requirements include the following: Assorted metric and standard wrenches, hammer, hydraulic floor jack and a set of jack stands. See the "Special Tools Required" section for additional tools needed to complete this installation properly and safely.

#### » PRODUCT SAFETY WARNING

Certain Zone Suspension Products are intended to improve off-road performance. Modifying your vehicle for off-road use may result in the vehicle handling differently than a factory equipped vehicle. Extreme care must be used to prevent loss of control or vehicle rollover. Failure to drive your modified vehicle safely may result in serious injury or death. Zone Offroad Products does not recommend the combined use of suspension lifts, body lifts, or other lifting devices.

You should never operate your modified vehicle under the influence of alcohol or drugs. Always drive your modified vehicle at reduced speeds to ensure your ability to control your vehicle under all driving conditions. Always wear your seat belt.

#### » TECHNICAL SUPPORT

*Live Chat* provides instant communication with Zone tech support. Anyone can access live chat through a link on [www.zoneoffroad.com](http://www.zoneoffroad.com).

[www.zoneoffroad.com](http://www.zoneoffroad.com) may have additional information about this product including the latest instructions, videos, photos, etc.

Send an e-mail to [tech@zoneoffroad.com](mailto:tech@zoneoffroad.com) detailing your issue for a quick response.

**888.998.ZONE** Call to speak directly with Zone tech support.

#### » PRE-INSTALLATION NOTES

1. Special literature required: OE Service Manual for model/year of vehicle. Refer to manual for proper disassembly/reassembly procedures of OE and related components.
2. Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the OE manual.
3. Larger rim and tire combinations may increase leverage on suspension, steering, and related components. When selecting combinations larger than OE, consider the additional stress you could be inducing on the OE and related components.
4. Post suspension system vehicles may experience drive line vibrations. Angles may require tuning, slider on shaft may require replacement, shafts may need to be lengthened or trued, and U-joints may need to be replaced.
5. Secure and properly block vehicle prior to installation of Zone Offroad Products. Always wear safety glasses when using power tools.
6. If installation is to be performed without a hoist, Zone Offroad Products recommends rear alterations first.
7. Due to payload options and initial ride height variances, the amount of lift is a base figure. Final ride height dimensions may vary in accordance to original vehicle attitude. Always measure the attitude prior to beginning installation.

#### Difficulty Level

easy 1 2 **3** 4 5 difficult

Estimated installation: 8 hours

#### Tire/Wheel Fitment

-37x13.50x17 w/ 4-1/2" Backspacing

-37 x 13.50 x 20 w/ 4-1/2"~5" Backspacing

-Stock 20 rims can be reinstalled with stock tire size

-Stock 17" rims cannot be reinstalled after installation

#### Other Notes:

You cannot install this kit in conjunction with a spacer kit to get 8 inches of lift. It will not work.

rev060313

## Kit Contents

**\*Important\* Verify you have all of the kit components before beginning installation.**

Qty	Part	Qty	Description
1	Steering Knuckle (drv)	1	Differential Drop Brkt (pass)
1	Steering Knuckle (pass)	1	Differential Drop Brkt (drv front)
2	Tie Rod Ends (06-10)	1	Differential Drop Brkt (drv front)
1	Bolt Pack - Diff hardware	1	Differential Drop Brkt (drv rear)
1	Bolt Pack - Brake hardware	1	Front Driveshaft Spacer
1	Bolt Pack - Main bolt pack	1	Differential Skid Plate
1	Front Crossmember	2	Brake Line Bracket
1	Rear Crossmember	4	U-bolts
4	18mm x 150mm bolt	8	9/16" washers
4	18mm Nut	8	9/16" High Nuts
8	Cam Slot Washer	2	Rear brakeline bracket
2	Preload Spacer (6in kit only)	2	Rear bump stop spacer (6in kit only)
2	Strut Spacer	2	Loctite
		4	Zip Ties



## PRE-INSTALLATION NOTES

- The factory service manual specifically states that striking the knuckle to loosen the ball joints or tie rod ends is prohibited. Striking the aluminum knuckle can damage it. A special puller tool #8677 (or equivalent ball joint tool) is recommended to be used to separate these components from the knuckle.
- On some vehicles an exhaust modification will be required to clear the front driveshaft in its new, lower position.

## PRE-INSTALLATION MEASUREMENTS

Measure from the center of the wheel up to the bottom edge of the wheel opening

LF \_\_\_\_\_ RF \_\_\_\_\_  
LR \_\_\_\_\_ RR \_\_\_\_\_

## INSTALLATION INSTRUCTIONS

### » FRONT INSTALLATION

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Raise the front of the vehicle and support with jack stands under the frame rails.
3. Remove the wheels.
4. Disconnect the sway bar links from the sway bar, keep all bushings, washers, and nuts **Figure 1**.



Figure. 1

5. Remove and discard the factory front skid plate, if equipped.

### **Important—measure before starting!**

Measure from the center of the wheel up to the bottom edge of the wheel opening

LF \_\_\_\_\_ RF \_\_\_\_\_

LR \_\_\_\_\_ RR \_\_\_\_\_

### Step 8 Note:

The brakeline drop hardware is located in bolt packs 631 & 768

6. Disconnect the tie rod ends from the steering knuckles. Remove and retain the mounting nuts. Use the appropriate puller to separate the tie rod end from the steering knuckle. Take care not to damage the tie rod end.
7. Disconnect the ABS brake line at the frame. Remove it from any retaining clips.
8. Disconnect the brakeline hardware from the strut tower and pull the brakeline through the mount. Cut a slot to allow the brakeline to be removed from the frame. If you do not wish to cut on the coil bucket, the line can be disconnected and reconnected after it is removed from the frame. If the brakelines are disconnected, the lines must be bled after the entire installation is complete. **Figure 2**
9. Attach the provided brake line relocation bracket to the frame where the original line mounted. The brakeline bracket will offset towards the rear of the vehicle. Torque the factory bolt to 10 ft-lbs and the 1/2" bolt to 50 ft-lbs.



Figure 2

10. Carefully reform the hardline to gain additional length. Attach to the relocation bracket with 1/4" hardware **Figure 3**.

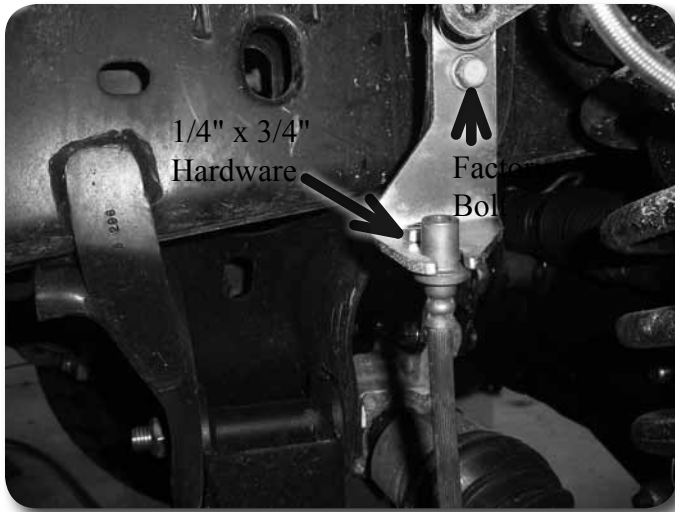


Figure 3

11. Repeat brake line relocation bracket installation on the passenger's side of the vehicle.
12. Remove the brake caliper anchor bracket bolts **Figure 4** and pull the caliper free from the steering knuckle and rotor. Hang the caliper securely out of the way. Retain caliper mounting hardware. Remove the brake rotor from the hub.

### Step 12 Note

Do not allow the brake caliper to hang from the brake hose.



Figure 4

13. Remove the hub axle nut. Retain nut.
14. Loosen but do not remove the lower control arm bolts.
15. Disconnect the CV axles from the differential by carefully prying CV out at the differential to disengage the internal retaining clip. Pry the shaft out just enough to release the clip and leave the axle on the differential at this time.
16. Support the lower control arm with a hydraulic jack. Remove the three strut-to-frame mounting nuts **Figure 5**. DO NOT loosen the middle strut nut.



Figure. 5

17. Loosen the strut-to-lower control arm hardware **Figure 6**. Remove the nut from the bolt and leave the bolt in place to temporarily retain the strut to the lower control arm. Retain the nut.



Figure. 6

18. Remove the upper and lower ball joint nuts. Reinstall the nuts a few turns by hand. Separate the upper and lower ball joints from the steering knuckle using the appropriate puller. Take care not to damage the ball joint.
19. Remove the upper ball joint nut. Lower the jack enough to allow removal of the strut. Remove the lower strut bolt and remove the strut from the vehicle. Mark the strut from the appropriate side (driver's or passenger's). Retain mounting bolt and upper ball joint nuts.
20. Continue to lower the jack allowing the knuckle/CV axle and lower control arm to swing down. Slide the CV axle off of the differential. Remove the CV axle from hub.
21. Remove the lower ball joint nut and remove the knuckle from the lower control arm. Retain the lower ball joint nut.
22. Remove the three bolts mounting the hub bearing assembly to the steering knuckle. Retain the mounting bolts. Remove the hub assembly and dust shield from the knuckle. Note: It may be necessary to press the hub out of the knuckle as a result of excessive corrosion on some vehicles.

23. Install the hubs in the corresponding new knuckles and fasten with the stock mounting bolts **Figure 7**. Index the hub so that the ABS line runs out the front side of the knuckle toward the steering arm. Use Loctite on the bolt threads and torque to 125 ft-lbs.



Figure. 7

24. Remove the lower control arms from the frame. Retain hardware.
25. Make indexing marks on the front drive shaft and differential input flange for realignment later. Remove the four bolts and disconnect the drive shaft from the differential. Support the driveshaft to keep the CV boot from binding. Discard mounting bolts.
26. Remove the four bolts mounting the rear crossmember to the frame rails and remove the crossmember from the vehicle. Discard the crossmember and the hardware.
27. Disconnect the vent hose and wiring from the differential.
28. Using a jack, support the differential. Loosen and remove the two forward-most differential mounting bolts on the driver's side **Figure 8**. Loosen but do not remove the three rear driver's side bolts **Figure 9** and the two passenger's side bolts **Figure 10**.

### Step 25 Note

Failure to support the driveshaft can lead to pinching the rubber boot at the CV joint which can damage the seal causing a leak and premature wear on the joint.



Figure. 8

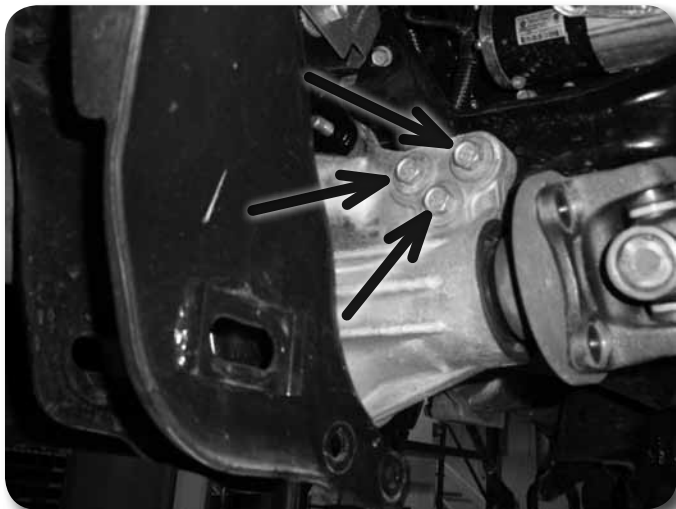


Figure 9



Figure 10

29. With the differential securely supported, remove the remaining bolts and lower the differential from the vehicle.



30. The driver's side rear lower control arm pocket must be trimmed to provide clearance for the differential in its lowered position. Measure inward from the center of the outer crossmember mounting hole  $9/16''$  and mark. Repeat on the opposite side of the pocket. Make a continuous line connecting the two marks over the top edge of the pocket. Trim the pocket on the line with a saw-zall or cut off wheel. Paint any exposed metal to prevent corrosion **Figure 11 / 12**.

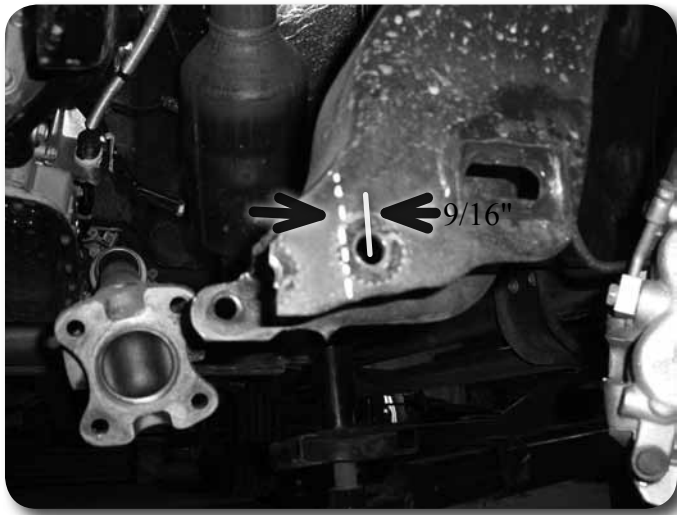


Figure. 11



Figure 12

31. Locate the front differential wiring harness. Reroute the wires to gain adequate slack to connect to the differential in the new lowered position. It is easiest to do this before the differential is reinstalled.
32. Install the provided passenger's side differential drop bracket to the original frame mount with  $1/2''$  hardware '08 models will use factory hardware. Leave hardware loose. **Figure. 13**



Figure. 13

### Step 33 Note

Driver's side brackets uses 1/2" x 2-1/2" bolts. Passenger's side bracket uses 1/2" x 2-3/4" bolts. Bolt pack #617

33. Install the two front driver's side differential drop brackets so that the bracket with the small offset is toward the outside of the vehicle (offsetting out) and the one with the bigger offset is on the inside (offsetting in). The brackets should drop more at the front of the vehicle. Fasten the brackets to the frame with two 1/2" x 2-1/2" bolts, nuts and 1/2" SAE washers. Leave hardware loose. Figure 14



Figure. 14

### Step 34 Note

12mm x 30mm bolts and 1/2" SAE Washers are located in bolt pack #617

34. Install the driver's side rear differential drop bracket to the frame with 12mm hardware into the existing welded nuts on the frame. Figure 15 The bracket will offset toward the outside of the vehicle with the gusset to the front. Leave hardware loose. 2008 and new models will use the factory hardware to attach the bracket to the truck.



Figure. 15

35. Using a jack (and an assistant to aid in balancing) raise the differential up to the new brackets.
36. Attach the differential to the driver's side front and rear brackets with 1/2" hardware. Attach the passenger's side to the differential with 1/2" hardware. Leave all differential hardware loose.
37. Torque all 14 differential mounting bolts. Torque the 1/2" hardware to 65 ft-lbs and the 12mm hardware to 50 ft-lbs.
38. Gain slack as necessary to reattach breather hose and wiring harness to the differential.
39. Install the new front crossmember in the front lower control arm pockets and loosely fasten with the provided 18mm x 150mm bolts, nuts in conjunction with the provided rectangle cam slot washers. **Figure 16**



Figure. 16

40. Install the new rear crossmember in the rear lower control arm pockets and loosely fasten with the provided 18mm x 150mm bolts, nuts in conjunction with the provided rectangle cam slot washers. Run the bolts from front to rear and leave loose at this time.
41. Install the new differential skid plate with 1/2" hardware into the threaded holes in the crossmember. Use Loc-tite on threads. Leave hardware loose.
42. Install the lower control arms in the front and rear crossmembers. Attach the control arms to the crossmembers with the factory cam bolts, washers and nuts running from front to rear. Leave hardware loose.

### Step 39 Note

The offset in the crossmember goes towards the front of the vehicle.

### Step 41 Note

1/2" x 1-1/4" differential skid plate hardware is located in bolt pack #811

### Step 44 Note

12mm x 45mm driveshaft bolts and 12mm washers are located in bolt pack #811

43. With the lower control arms installed, torque the 18mm crossmember mounting bolts to 220 ft-lbs. Torque the ½" differential skid plate hardware to 65 ft-lbs.
44. Install the provided drive shaft spacer on the differential input flange. Attach the front driveshaft to the differential by aligning the marks made earlier. Fasten the driveshaft and spacer to the differential flange with 12mm hardware. Use loctite on the bolt threads and torque to 55 ft-lbs.
45. These trucks vary in ride height from the factory. In order to give a close to level stance after the installation, preload spacers are included to reduce the rake. Install the spacers if a more level stance is desired. Skip to step #49 if a slightly reduced factory rake is desired (no preload spacers = 1" less rake, preload spacers installed = 1-5/8" less rake). Place indexing marks on the strut body, strut cap and upper coil seat Figure 17, 18 for realignment of the components when the strut is reassembled.

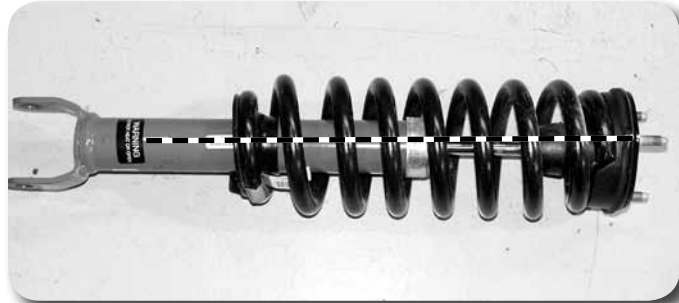


Figure 17



Figure 18

### Step 46 Caution

Coil spring is under extreme pressure. Improper removal/installation of coil spring could result in serious injury or death. Use only a high-quality spring compressor and carefully read and follow the manufacturer's instructions.

46. Using an appropriate strut compressor, compress the coil spring and remove the upper strut nut Figure 19. Remove the strut, strut cap and upper coil seat from the coil spring.

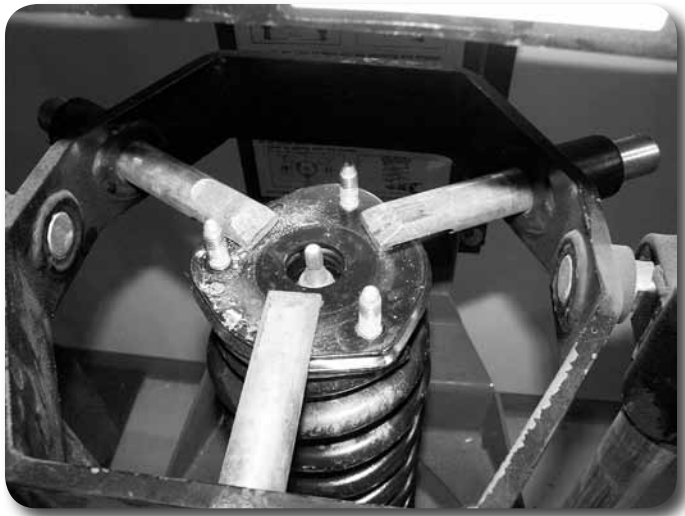


Figure 19

47. Place the provided preload spacer (01278) between the plastic coil seat and the rubber isolator **Figure 20**.

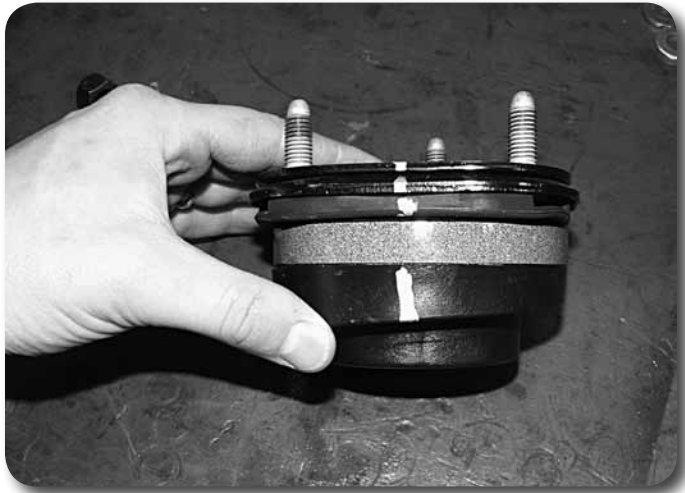


Figure 20

48. Reassemble the strut as it was taken apart by aligning the index marks made earlier. Fasten the assembly with the OE strut nut. Torque nut to 50 ft-lbs.
49. 4 inch kits only: The upper strut mounting plate must be rotated 180 degrees. Make an indexing mark on the coil at the top winding by the stud that faced 'out' on the vehicle. Place the coil in a strut compressor and rotate the top 180 degrees. The stud will still face out on the vehicle when reinstalled. This step rotates the buldge in the coil to give enough clearance. This step is not necessary for the 6 inch kits. **Figure 21**

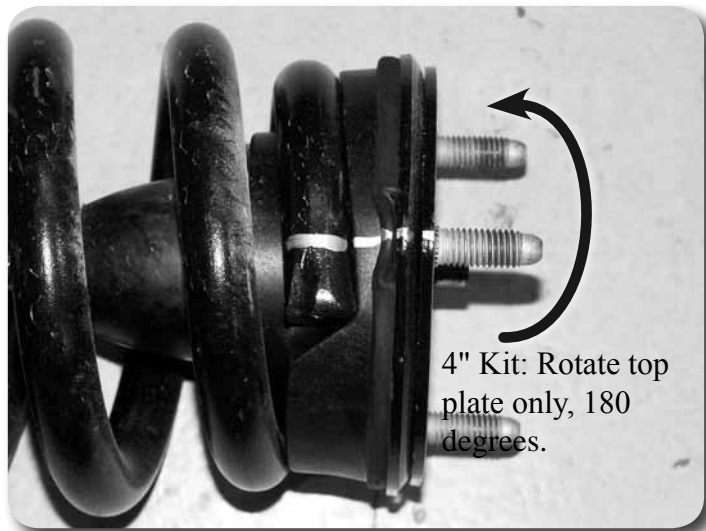


Figure 21

### Step 50 Note

Strut spacer 10mm nuts and washers are located in bolt pack #811

50. Install the provided strut spacers on the struts with the original strut mounting hardware. Torque nuts to 30 ft-lbs.
51. Loosely install the strut assemblies on the appropriate sides of the truck with the provided 10mm nuts and washers on the strut spacer studs.
52. Install the new driver's side steering knuckle to the driver's side lower control arm ball joint and loosely attach with the original nut. Install the driver's side CV axle in the hub and loosely fasten with the original axle nut. Swing the knuckle/CV assembly up while aligning the axle with the differential output shaft. Loosely attach the strut to the lower control arm with the original hardware. Push the CV axle all the way onto the differential output to seat the internal retaining clip.
53. Support the lower control arm with a hydraulic jack and attach the knuckle to the upper ball joint with the factory nut.
54. Torque the upper ball joint nut to 55 ft-lbs and the lower ball joint nut to 60 ft-lbs. Torque the axle nut to 185 ft-lbs. Torque the upper strut-to-frame nuts to 30 ft-lbs.
55. Repeat knuckle/CV installation on passenger's side.
56. Install the brake rotor and caliper on the knuckle/hub. Torque the OE caliper bolts to 130 ft-lbs. Use loctite on the caliper bolts.
57. Remove the factory tie rod ends. Trim 3/8"-7/16" from the male thread on the tie rod end. To make sure enough has been removed, thread the jam nut flush with the last thread followed by the new tie rod end. There should be no visible threads. Take care not to trim too much off from the male threads.
58. Attach the tie rod ends to the new steering knuckles with the factory nut. Torque to 55 ft-lbs. To seat the tie rod end, it may be necessary to pry down on the tie rod with a pry bar while tightening the nut.
59. If equipped, connect the ABS wire at the frame.
60. Route the brake and ABS lines around the back side of the knuckle and use zip ties to secure them out of the way of any moving or rotating parts. Make sure the lines cannot get pinched between the knuckle and the coil spring.
61. Install the sway bar link extensions onto the factory sway bar links. Reattach the sway bar with factory bushings, cup washers, and new 7/16 nuts. Tighten until the bushings begin to swell - Do NOT overtighten. **Figure 22**

### Step 61 Note

Sway bar link hardware is located in bolt pack #654



Figure. 22

62. Reinstall front wheels. Torque to factory specifications, see owner's manual. Aftermarket alloy rims will require more frequent attention. Check lug nuts for proper torque frequently.
63. Lower the vehicle to the ground and bounce the front to settle the suspension.
64. Torque lower control arm hardware to 125 ft-lbs. Torque the strut-to-lower control arm bolt to 125 ft-lbs.
65. The front brakes must be bled before driving the vehicle if the lines were disconnected in the installation. Follow the directions in the factory service manual. Also do a final check to ensure the brake lines will not contact the tire or other moving components.
66. Check all fasteners for proper torque. Recheck all fasteners after 500 miles and at regularly scheduled maintenance intervals.
67. A complete front end alignment is required.

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## » REAR INSTALLATION

68. Park the vehicle on clean, flat, and level surface. Block the front wheels for safety.
69. Raise the rear of the vehicle and support the frame rails with jackstands.
70. Remove the wheels.
71. Remove the OE shocks. Retain the mounting hardware.
72. Remove the parking brake cable retaining the ring from the driver's side frame rail **Figure 23**. Remove the driver's side parking brake cable from the ring and reinstall the ring on the frame with the passenger's side cable still in it.



Figure 23

73. Disconnect brakeline bracket from frame rail.
74. Remove the passenger's side u-bolts. Lower the axle from the leaf spring enough to install the provided lift block.
75. Install the provided 4" block (6 inch front kit) or 2" block (4 inch front kit) so that the short end of the block is toward the front of the vehicle. Fasten the spring, block and axle together with the provided u-bolts, high nuts and washers. Snug u-bolts. The final u-bolt torque is performed with the vehicle on the ground.
76. Repeat installation on the driver's side of the vehicle.
77. 6 inch kit only: Remove the two bolts mounting each of the rear bump stops to the frame. Retain hardware. Figure 24



Figure 24

78. 6 inch kit only: Attach the bump stop to the provided bump stop extension with 3/8" hardware. Torque hardware to 30 ft-lbs.
79. 6 inch kit only: Attached the modified bump stop assembly to the frame in the original holes using the factory hardware. Torque hardware to 35 ft-lbs. The open end of the bracket should face the inside of the vehicle.
80. Install rear brakeline relocation bracket with factory bolt into frame and attach 1/4" nut and washer on new bracket. Figure 25

### Step 74 Note

Take care not to over-extend any wires or hoses. Make adjustments where necessary.

### Step 77 Note

Rear bumpstop extension is for the 6 inch kit only. Hardware is located in bolt pack #422

### Step 80 Note

Rear brakeline nut and washer are located in bolt pack #704





Figure 25

81. Install the new shocks with the factory hardware.
82. Install the wheels.
83. Lower the vehicle to the ground and bounce the vehicle to settle the suspension.
84. Torque the u-bolts to 100-120 ft-lbs.
85. Check all hardware for proper torque.
86. Check all hardware after 500 miles.

### **Post-Installation Warnings**

1. Check all fasteners for proper torque. Check to ensure for adequate clearance between all rotating, mobile, fixed, and heated members. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering gear for clearance. Test and inspect brake system.
2. Perform steering sweep to ensure front brake hoses have adequate slack and do not contact any rotating, mobile or heated members. Inspect rear brake hoses at full extension for adequate slack. Failure to perform hose check/ replacement may result in component failure.
3. Perform head light check and adjustment.
4. Re-torque all fasteners after 500 miles. Always inspect fasteners and components during routine servicing.