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Part#: **014403**

Product: **4" Suspension System**

Application: **1999-2004 Jeep Grand Cherokee WJ**

READ AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS PRIOR TO INSTALLATION OF SYSTEM AND OPERATION OF VEHICLE.

SAFETY WARNING BDS Suspension Co. 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.

PRODUCT SAFETY WARNING Certain BDS 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. BDS Suspension Co. 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.

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 BDS Suspension components. Always wear safety glasses when using power tools.
6. If installation is to be performed without a hoist, BDS Suspension Co. 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.

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. Longer replacement hoses, if needed can be purchased from a local parts supplier.
3. Perform head light check and adjustment.
4. Re-torque all fasteners after 500 miles. Always inspect fasteners and components during routine servicing.

PARTS LIST

Part #	Qty	Description			
034401R	2	Front Coil	439	1	Bolt Pack
034359R	2	Rear Coil			2 3/8"-16 x 2-1/2" bolt
725	1	Bolt Pack			2 3/8" USS flat washer
		2 10mm-1.50 x 65mm bolt			1 3/8"-16 x 1" self-tapping bolt
		2 10mm-1.50 prevailing torque nut	084404R	1	Pitman Arm
		4 3/8" USS flat washer	01473	2	Rear Sway Bar Link
		4 8mm-1.25 x 100mm bolt	SB58BK	4	Hourglass Bushing
		4 5/16" USS flat washer clear zinc	45313	4	0.625 x 0.109 x 1.375 Sleeve
		3 14mm-2.00 x 80mm bolt	3296	2	Rear Bump Stop Spacer
		3 9/16" SAE flat washer	01489	2	Front Bump Stop Spacer
		1 1/8" x 1-1/4" cotter pin	YJTC5	8	Transfer Case Drop Spacer
726	1	Bolt Pack	01491	1	Front Track Bar Bracket
		4 10mm-1.50 x 140mm bolt	01320	1	Rear A-arm Spacer Block
		4 10mm-1.50 x 100mm bolt	A111	2	Front Lower Control Arm Assembly
		8 3/8" USS flat washer	516	2	Grease Zerk -Straight
727	1	Bolt Pack	60107	2	Grease Zerk- 90 degree
		1 12mm-1.75 x 75mm bolt	51	2	0.750 x 0.090 x 3.140 Sleeve
		1 12mm-1.75 prevailing torque nut	99	2	0.750 x 0.090 x 2.620 Sleeve
		1 1/2"-13 x 3" bolt	3524RB	4	Bushing (Wide Flange)
		1 1/2"-13 x 1-1/2" bolt	3533RB	4	Bushing (Narrow Flange)
		6 1/2" SAE flat washer	01422	4	LCA Spacer Washer (Frame End)
		2 10mm-1.50 x 120mm bolt			
		2 3/8" USS flat washer			
		2 3/16" thick washer			



INSTALLATION INSTRUCTIONS

Pre-Installation

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

LF _____ RF _____ LR _____ RR _____

2. Locate the new front lower adjustable control arm assemblies (A111), bushings (3524RB, 3533RB), sleeves (51, 99) and grease fittings (516, 60107). Apply grease to the mating surfaces of the bushings and sleeves. Install the narrow flanged bushings and 0.750 x 2.620 long sleeves into the adjustable end of the control arms. Install the wide flanged bushings and 0.750 x 3.140 long sleeves into the other end of the control arms (axle end). Install the provided 90 degree grease fittings in the adjustable control arm end so they point toward the body of the arm. Install the straight grease fittings in the opposite end.
3. Adjust the center-to-center length of the new control arms to 16-1/8". This is a starting point and may need to be adjusted at the end of the installation to achieve desired caster/front driveline angles. Leave the jam nut loose at this time.

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 behind the front lower control arm pockets.
3. Remove the wheels.
4. Remove the shocks. Discard the hardware and the shocks.
5. Pull the front rubber bump stops free from the frame mounting cups (Fig 1). Large channel lock pliers work well for this.
6. Remove the bump stop mounting cups from the frame by removing the two (per cup) mounting bolts securing them to the frame (Fig 2). Retain the mounting cups and discard the hardware.

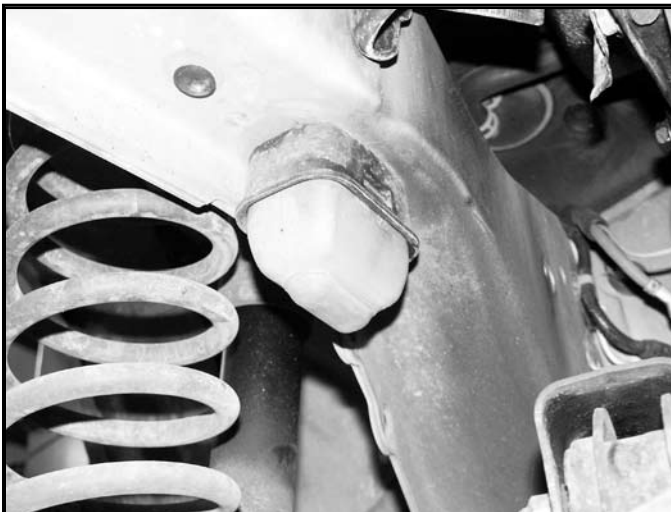


Fig 1



Fig 2

7. Support the front axle with a jack and disconnect the front track bar from the driver's side frame mount (Fig 3). Retain hardware.

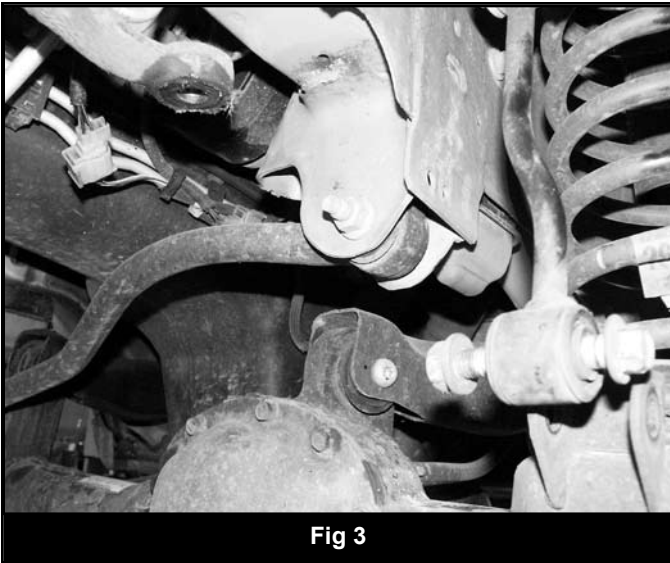


Fig 3

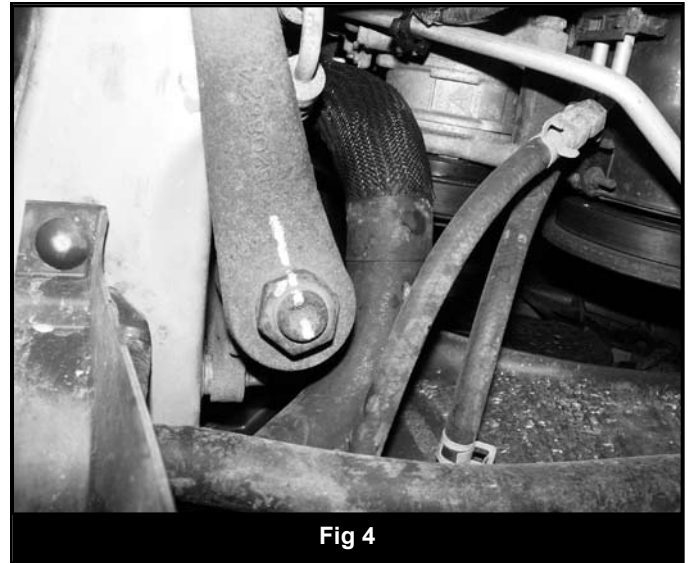


Fig 4

8. Disconnect the front sway bar links from the axle. Retain the mounting hardware.
9. Remove the cotter pin and nut from the drag link-to-pitman arm tie rod end. Dislodge the end from the pitman arm with a pickle fork or other appropriate puller.
10. Lower the axle just enough to allow removal of the front OE coil springs. Remove the springs from the vehicle.
- 11. Important: Make an indexing mark on the pitman arm and steering box sector shaft to indicate the relationship between the two for installation (Fig 4)** Remove the pitman arm nut and washer. Using a pitman arm puller remove the pitman arm from the sector shaft.
12. Transfer the alignment mark on the OE pitman arm to the corresponding position on the new pitman arm (Fig 5).

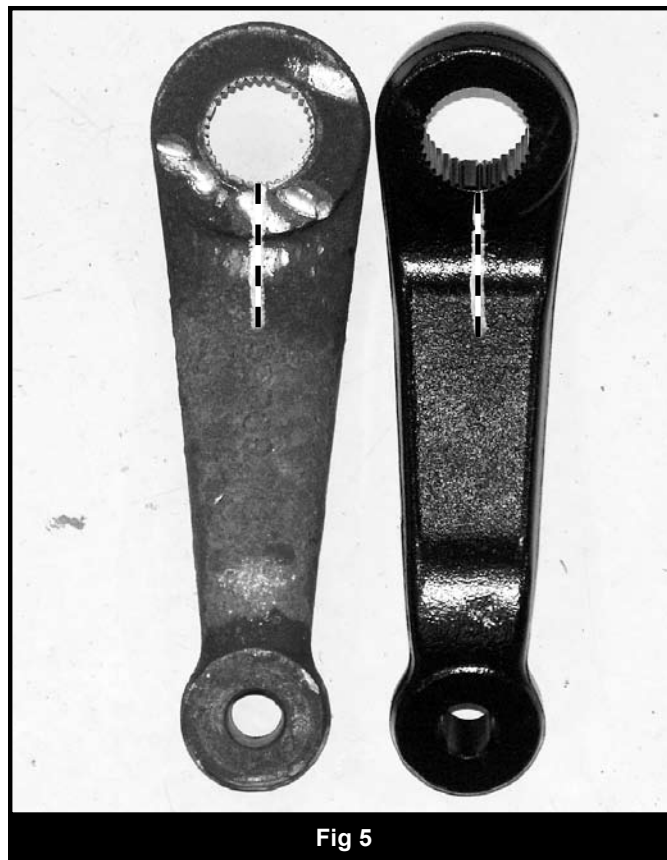
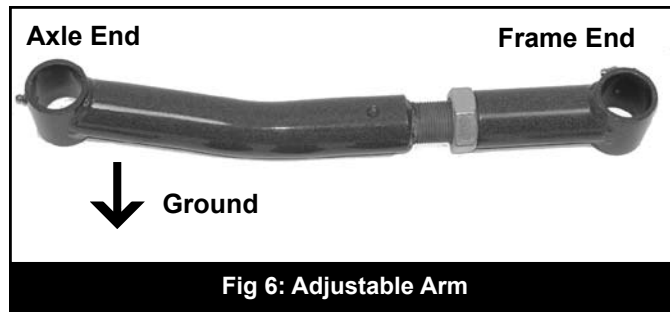
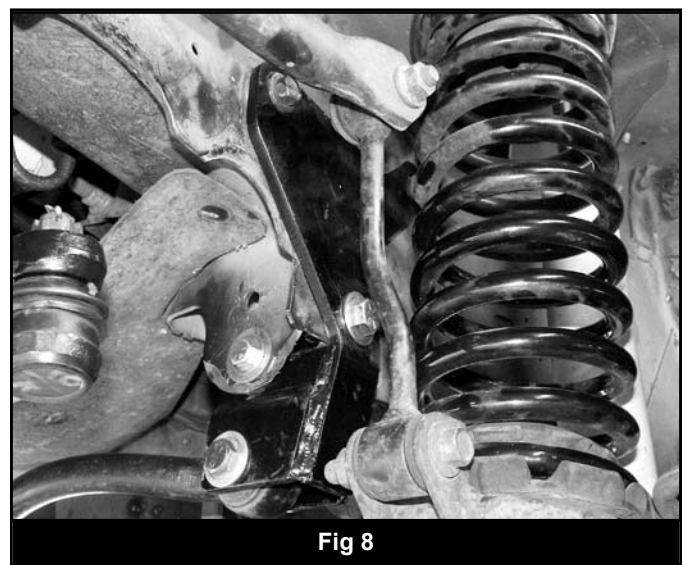
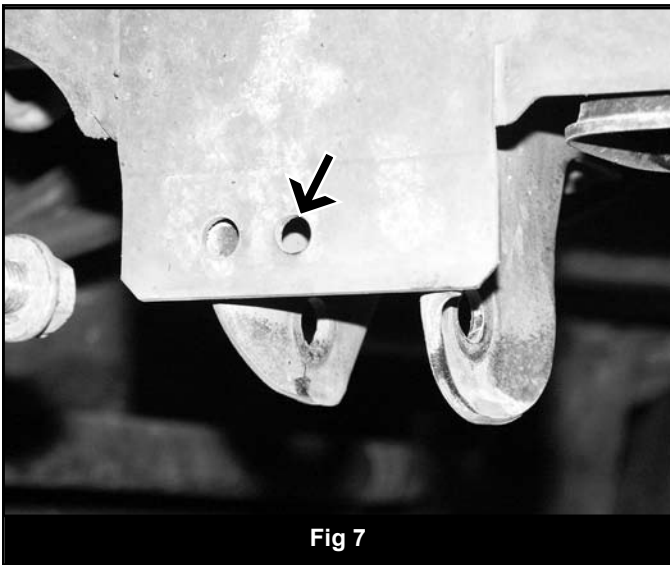


Fig 5

13. Install the new pitman arm of the sector shaft by aligning the marks. Fasten the arm with the OE nut and washer and torque to 185 ft-lbs.



14. With the front axle well supported, remove the driver's and passenger's side lower control arm mounting bolts and remove the control arms from the vehicle. Retain hardware.
15. Install a new lower control arm assemblies oriented as shown in Figure 6. Loosely fasten the control arms to the axle with the OE hardware. At the frame mount, place a provided spacer washer (01422) on each side of the control arm end and fasten with the OE hardware.
16. Locate the center hole in the outside of the OE track bar mount (Fig 7) on the driver's side of the vehicle. Drill hole out to 1/2".
17. Support the driver's side motor mount with a jack and block of wood. Remove the two motor mount bolts accessed inside the driver's side wheel well.
18. Slide the provided track bar bracket (01491) in place (Fig 8). Position the provided 3/16" thick spacer washers (BP #727) between each of the upper mounting holes in the bracket and the body. Attach the bracket through the motor mount holes with 10mm x 120mm bolts and 3/8" USS flat washers (BP #727). Leave hardware loose.



19. Install a 1/2" x 1-1/2" bolt, nut and 1/2" SAE washers (BP #727) in the lower track bar bracket mounting hole and through the OE hole that was previously drilled out. Leave hardware loose.
20. Attach the track bar bracket through the original track bar mounting hole with the original track bar hardware. Run the bolt from front to back.
21. Torque the front track bar bracket hardware as follows: 10mm hardware- 30 ft-lbs, 12mm hardware- 60 ft-lbs.
22. Install the provided front bump stop spacers (01489) in conjunction with the OE bump stop mounting cups (Fig 9). Run the provided 8mm x 100mm bolts and 5/16" USS washers (BP #725) through the OE mounting cup, the new spacers and into the original threaded mounting holes in the frame. Use Loctite on the threads and torque bolts to 15 ft-lbs.

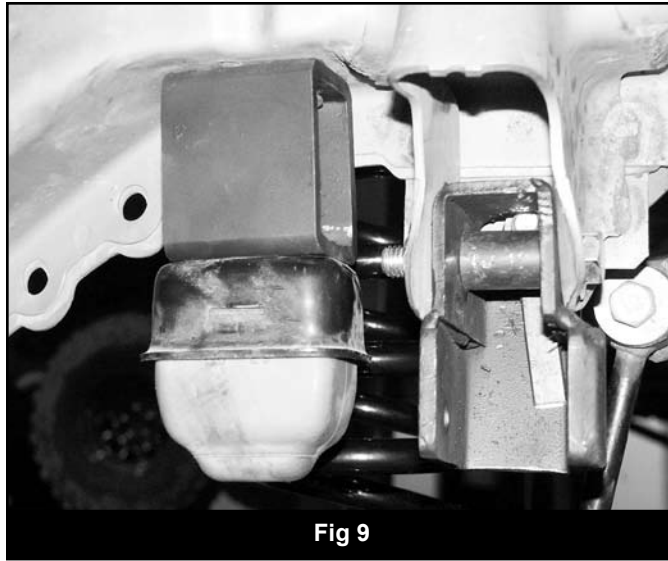


Fig 9

23. Lightly grease and install the OE rubber bump stops in the relocated bump stop cups.
24. Install the new coil springs in conjunction with the original spring isolators. Ensure that the coils are seated in the axle mount properly.
25. Install the new front shocks with the new upper and lower hardware. Torque the lower mounting hardware to 25 ft-lbs and the upper until the stem bushings begin to swell.
26. Attach the drag link to the new pitman arm and fasten with the OE castellated nut and new cotter pin (BP #725). Torque nut to 50 ft-lbs. Do not loosen nut to line up the cotter pin hole, only tighten.
27. Reattach the sway bar links to the original axle mounts with the OE hardware. Torque hardware to 50 ft-lbs.
28. Install the front wheels and lower the vehicle to the ground. Bounce the front of the vehicle to settle the suspension.
29. Install the front track bar in the new track bar bracket and fasten with a 12mm x 75mm bolt, nut and ½" SAE washers (BP #727). Torque mounting bolt to 70 ft-lbs.
30. Torque the lower control arm bolts to 130 ft-lbs. Lock off the control arm jam nuts securely.
31. Check all mounting hardware for proper torque.
32. Grease the lower control arms.

Transfer Case Drop

1. Support the transfer case with jack.
2. Loosen but do not remove all eight transmission crossmember bolts (Fig 10).



Fig 10

3. Remove the four passenger's side crossmember bolts. Lower the crossmember just enough to be able to place the provided drop spacers (YJTC5) at the four mounting holes (Fig 11). Loosely attach the crossmember and spacers with two 10mm x 140mm and two 10mm x 100mm bolts and 3/8" USS washers (BP #726). The longer 140mm bolts go to the outside of the vehicle.

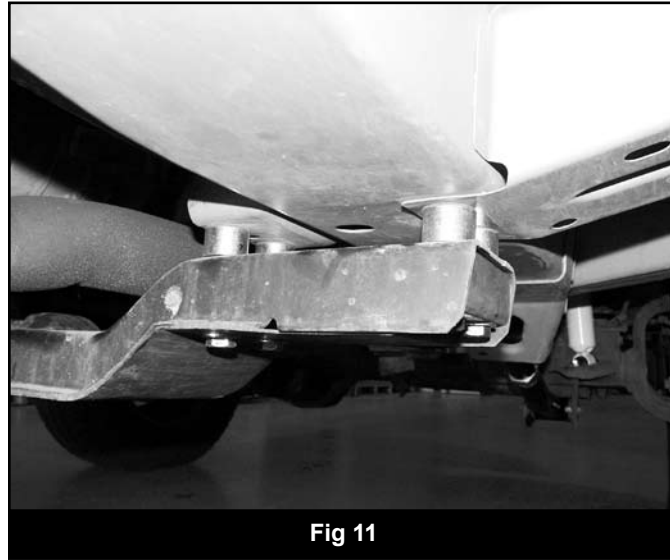


Fig 11

4. Repeat spacer installation on the driver's side.
5. With the spacers installed, remove the bolts one at a time and apply loctite to the threads. Install the bolts and torque to 30 ft-lbs.

Rear Installation

1. Block the front wheels for safety.
2. Raise the rear of the vehicle and support with jack stands under the frame just in front of the rear lower control arm mounts.
3. Remove the wheels.
4. Support the rear axle with a hydraulic jack.
5. Remove the rear shocks. Retain mounting hardware and discard the shocks.
6. Remove the rear sway bar links. Retain the upper mounting hardware, discard the lower hardware.
7. Using channel lock pliers, remove the rubber bump stop from the axle inside each of the rear coil springs (Fig 12). Allow the bump stop to rest free in the coil spring.

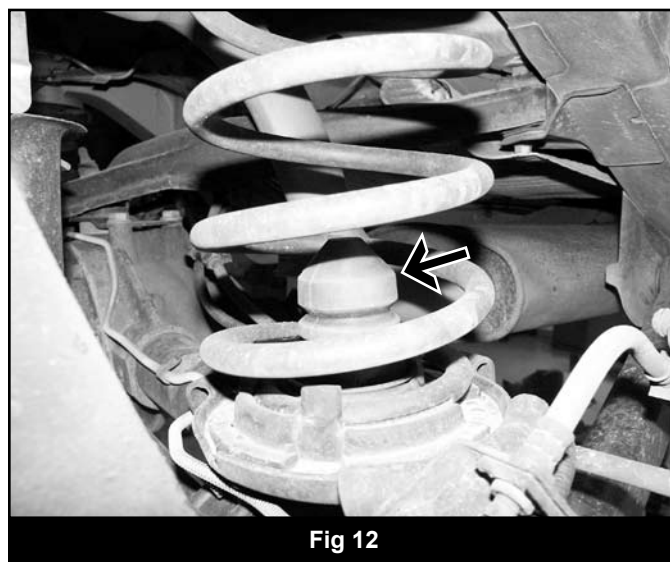


Fig 12

8. Lower the axle and remove the rear coil springs and bump stops.
9. Locate the existing hole in the center of the upper coil pocket. Tap hole using the provided 3/8" x 1" self-tapping bolt (BP439). Remove bolt and repeat on the other side.
10. Install the provided bump stop extensions (3296) to the upper coil pocket with 3/8" x 2-1/2" bolts and 3/8" USS washers (BP #439) in the hole that was tapped out (Fig 13). Use Loctite on the bolt threads and torque to 20 ft-lbs.



Fig 13

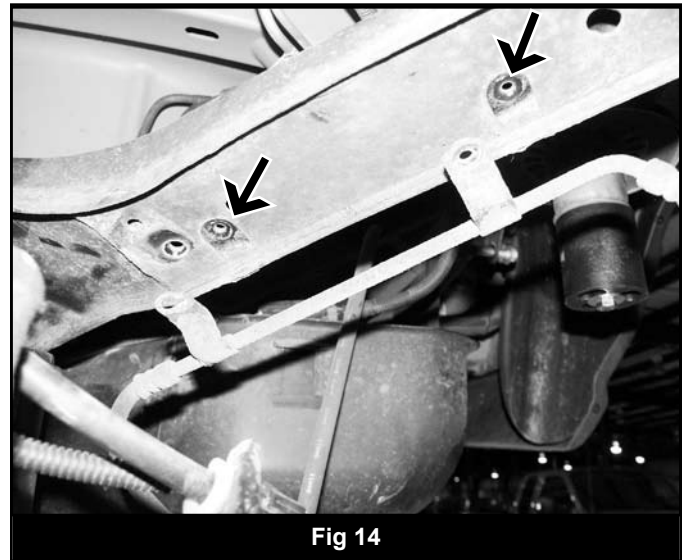


Fig 14

11. Disconnect the brake line brackets attached to the rear upper control arm (Fig 14, 15). Retain hardware.
12. Remove the three bolts mounting the rear control arm to the top of the differential housing (Fig 15).

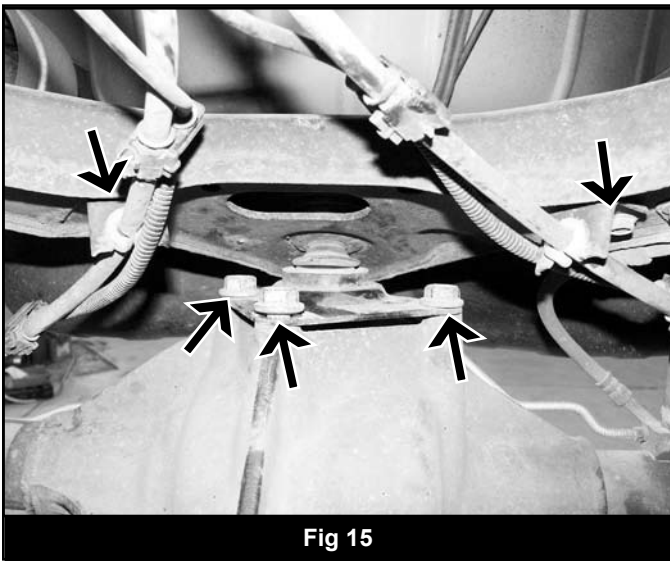


Fig 15

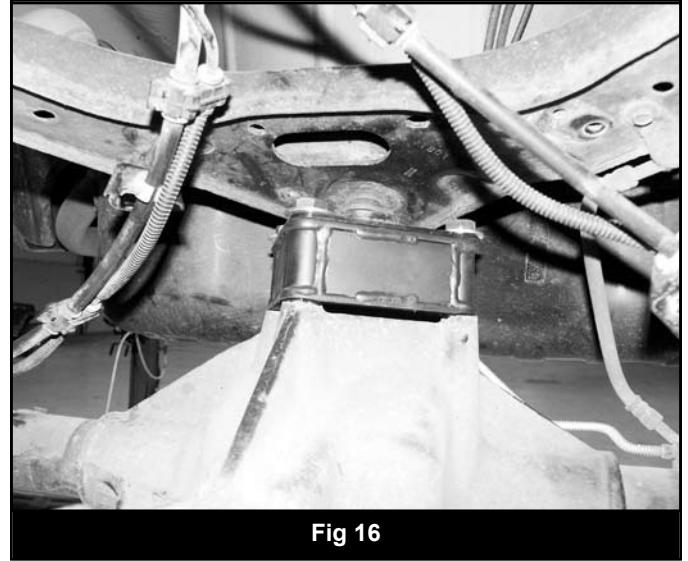


Fig 16

13. Install the provided control arm spacer (01320) between the differential housing and the upper control arm (Fig 16). Fasten the control and control spacer with 14mm x 80mm bolts and 9/16" SAE washers (BP #725). Use Loctite on the bolt threads and torque to 75-85 ft-lbs.
14. Reattach the brake lines to the upper control arm with the original hardware. Torque to 10 ft-lbs.
15. Lightly grease and place the OE rubber bump stops in the new rear coil springs. Install the coil springs in the vehicle in conjunction with the OE isolators. Ensure that the coils are seated properly. Press the bump stop back into the axle mounting cup.
16. Lightly grease and install the provided bushings and sleeves in the new rear sway bar links (01028). Install the links to the frame with the original hardware. Attach the links to the sway bar with 10mm x 65mm bolts, nuts and 3/8" USS washers (BP #725). Torque hardware to 30 ft-lbs.

17. Install the new shocks with the original hardware. At the top mount install the provided 5/8" spacer washers on the shock sleeve to allow for proper compress of the shock bushing.
18. Install wheels and lower the vehicle to the ground.
19. Check all hardware for proper torque.
20. Check hardware after 500 miles.
21. Center steering wheel.

ⓘ *Note: Front wheel shimmy—some vehicles may experience front wheel shimmy. This is not a warranty issue, but rather an inherent OE design issue with the 99-04 WJ. We have found that 4-5 degrees of caster combined with max toe in setting will help eliminate this problem. Specific tire and wheel combinations may also induce steering shimmy. In most cases, alignment and/or tire and wheel changes will correct this problem. The addition of a dual steering stabilizer setup has also been found to be very effective in controlling wheel shimmy. BDS Suspension assumes no incurred expenses associated with the correction of this problem.*

NOTICE TO DEALER/INSTALLER

These instructions, the warning card, and included decals must be given to the owner of this BDS Suspension product.

For questions, technical support and warranty issues relating to this BDS Suspension product, please contact your distributor/installer before contacting BDS Suspension directly.

Sold/Installed by:

Shock Absorber Installation Instructions



READ AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS PRIOR TO INSTALLATION OF SYSTEM AND OPERATION OF VEHICLE.

LIMITED LIFETIME WARRANTY

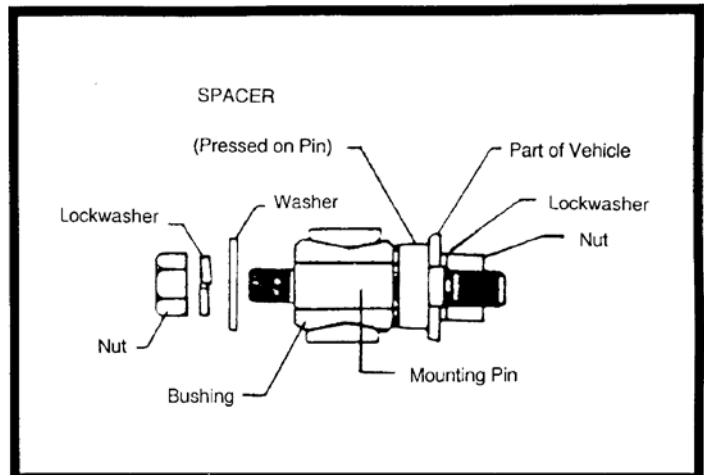
BDS Suspension Co. warrants to the original retail purchaser that its shock and stabilizer cylinders are free from defects in material and workmanship for so long as they own the vehicle. Excluded from this warranty are the finish of the product and mounting bushings. Defects in material and workmanship do not include such things as dented cylinders or bent rods caused by obvious side impact, rust, worn or deformed bushings. A shock absorber is a wear item and over time will experience diminished damping resistance due to normal component wear. This is not a defect in material or workmanship and is therefore not warrantable.

BDS Suspension's obligation under all warranties is limited to the repair or replacement, at BDS's option, of the defective material. Any cost of removal, installation or reinstallation, freight charges, incidental or consequential damages are expressly excluded from these warranties.

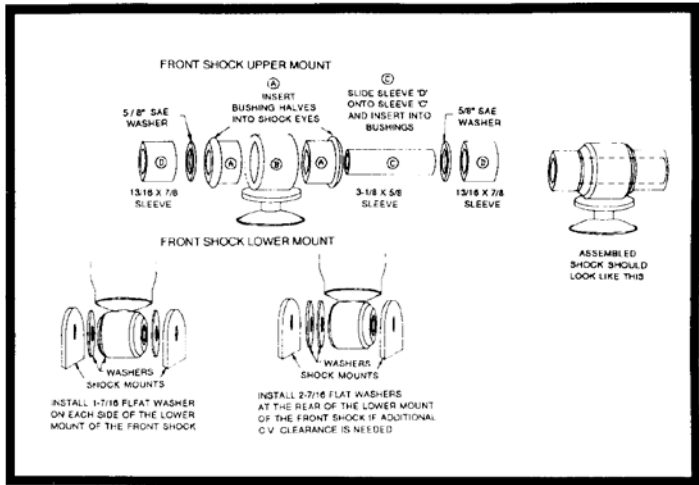
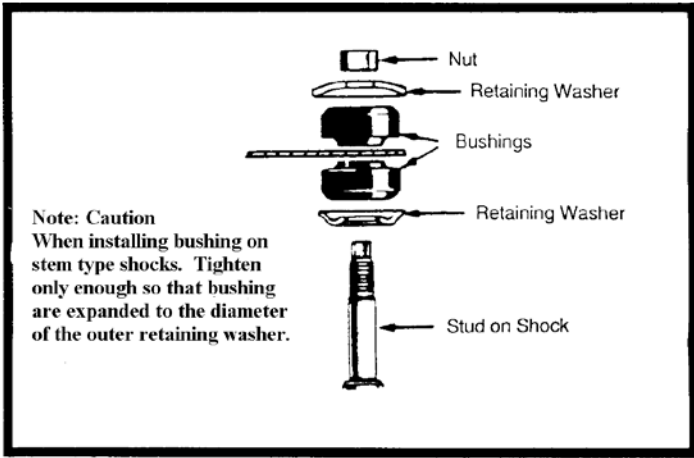
INSTALLATION INSTRUCTIONS

1. **Note: Please read instructions thoroughly before installing shock absorber.**
2. Remove old shock absorber from vehicle. Note any spacers, washers, sleeves or other hardware and note their location. Compare the existing hardware with the supplied hardware. Always use new hardware wherever possible. Due to the variety of applications, you may not use any or all of the hardware supplied. You may need to use some of the original hardware. If any of the original hardware is damaged, corroded, bent or broken it must be replaced.

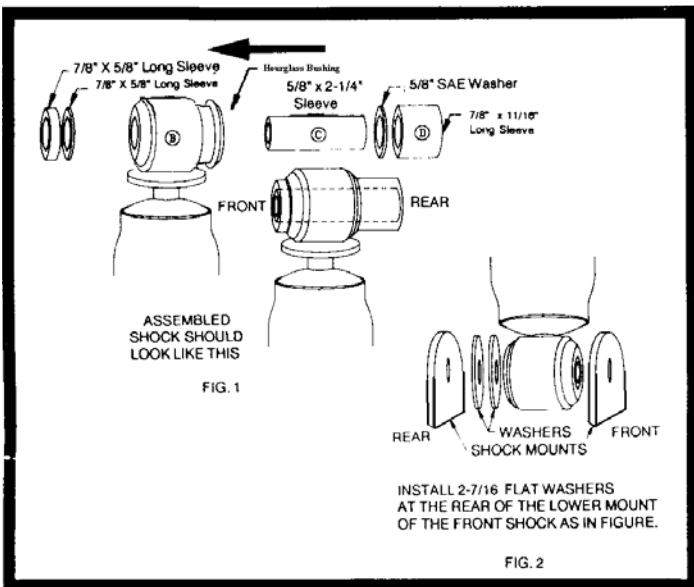
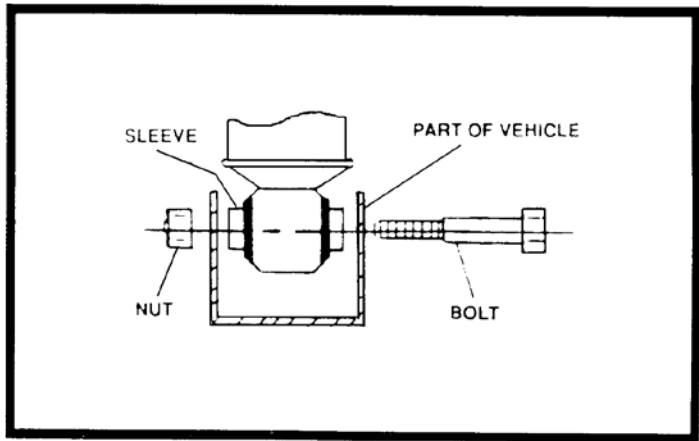
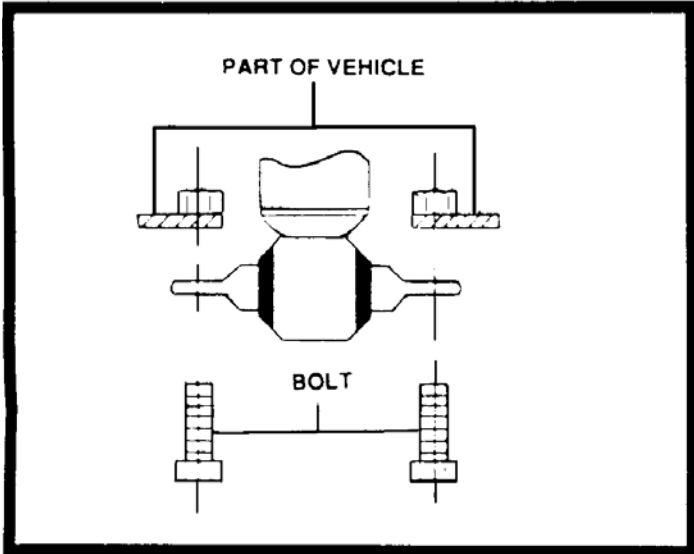
3. If installing dust boot, do so at this time. **Note: The use of a lubricant like dish soap on the inside of the boot will ease installation.** Make sure the washer at the top of the shock is fully seated in the boot all the way around. Secure the bottom of the boot to the cylinder with a plastic tie strap.
4. Install any required bushings and sleeves in to the shock eyes at this time. Install the shock absorber on the vehicle. Use the appropriate illustration as a frame of reference. Due to the different shock mounts within a vehicle model range, the shock eyes must be built to match the shocks that you removed by using the universal hardware kit included. Choose the sleeve with an I.D. closest to the O.D. of the mounting stud or bolt without binding. Some applications will require some extra effort to install.
5. Check all fasteners for tightness before driving and inspect periodically.



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CHEV. S-SERIES W/LIFT



FULL-SIZE CHEV. W/LIFT 88-UP MODELS

