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Part#: **014453**

Product: **4.5" Suspension System**

Application: **1993-1998 Jeep Grand Cherokee ZJ**

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			
01460	2	Front Lower Control Arm			
01447	2	Rear Lower Control Arm			
01300	2	Disconnect End			
01307	2	Disconnect Collar			
01302	4	Disconnect Stud			
01306	2	End Link			
01324	2	Sway bar link			
01325	2	U-bracket			
02129	4	Sway bar end link u-bracket	123406	1	Bolt Pack
SB58BK	4	Hourglass bushing		8	1/4" USS washer clear zinc
3523RB	16	Bushings		4	1/4"-20 x 1" bolt grade 5 clear zinc
M02957RB	12	Bushings -Blue		4	1/4"-20 prevailing torque nut clear zinc
034001	2	Compression Spring			
68016	2	Retaining Clip	438	1	Bolt pack - bump stops
01463-1	2	Front Upper Control Arm		2	3/8"-16 x 3-1/2" bolt
01464-1	4	Upper Control Arm End		2	3/8" USS flat washer
01466-1	1	Upper Control Arm -DS		1	3/8"-16 x 1" self-tapping bolt
01469-1	1	Upper Control Arm -PS	22510	2	Front Brake Line assy 25"
01474	1	Rear Track Bar Bracket	5188	2	Snap in Brake Line Clip
01735	1	Brakeline adaptor brkt - drv side	B06103C	2	L Bracket
01736	1	Brakeline adaptor brkt - pass side	CCW-03-050	4	3/8" Crush Washer
60107	6	90 Degree Grease Zerk	099000	2	Zip Tie
516	8	Straight Grease Zerk	55003	1	3/4" x 0.120 x 1.58 sleeve
36270	4	Jam Nut	36270	1	3/4"-16 Jam nut
02322RB	2	Rear Bump Stop	01396	1	Adjustable track bar end
3396	2	3"od x 3" high body lift block	M03406RB	2	Bushings
6-1	1	0.875 x 0.156 x 1.600 Sleeve	01968	1	Track Bar
61-1	8	0.875 x 0.156 x 2.620 Sleeve	01947	2	Race (Bushings)
67-1	6	0.750 x 0.156 x 2.000 Sleeve	68061	2	Snap ring - Small
45313-1	6	0.625 x 0.109 x 1.375 Sleeve	01319	2	Washer
556	1	Sway bar Bolt pack	01994	1	tie rod end ball
	4	5/8" SAE washer - clear zinc	01392	1	1/2" nut tab
	4	5/8"-11 prevailing torque nut - clear zinc	915	1	Bolt Pack
	4	3/8"-16 x 2-1/2" bolt grade 8 yellow zinc		1	1/2"13 x 2-3/4" bolt grade 8 yellow zinc
	8	3/8" SAE washer - yellow zinc		1	1/2"-20 nylock nut clear zinc
	4	3/8"-16 prevailing torque nut - yellow zinc		1	12mm flat washer clear zinc
				1	1/2" SAE thru-hardened washer yellow zinc
718	1	Bolt Pack		1	5/16"-18 x 3/4" button head bolt grade 5 -black
	2	1/2-20 prevailing torque nut clear zinc	01422	4	1/8" Lower Control Arm Spacer
	4	1/2" SAE flat washer clear zinc			
	2	3/8"-16 x 2-1/2" bolt grade 5 clear zinc			
	2	3/8"-16 prevailing torque nut clear zinc			
	4	3/8" SAE flat washer clear zinc			
	2	7/16"-14 x 1-1/2" bolt grade 5 clear zinc			
	2	7/16"-14 prevailing torque nut clear zinc			
	2	7/16" SAE flat washer clear zinc			
	2	7/16" USS flat washer clear zinc			
	2	#10-16 x 5/8" self drilling screw			

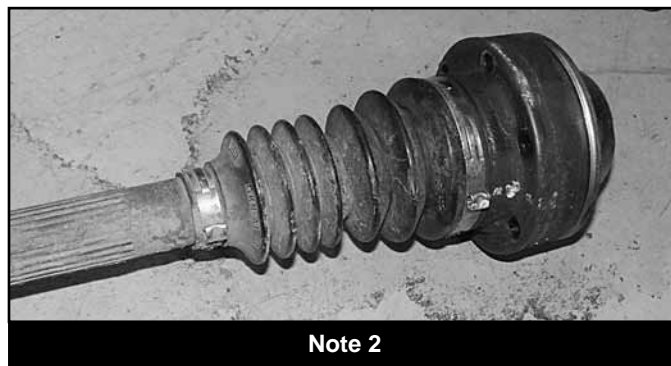


INSTALLATION INSTRUCTIONS

FRONT INSTALLATION

Note 1: This kit includes new braided stainless steel brake lines. Installation of these lines requires the entire brake system to be bled following the completed installation and prior to operating the vehicle. Consult your owner's manual for the proper brake fluid to use for your vehicle. Fluid is not included in this kit.

Note 2: If vehicle is equipped with CV style drive shaft mount at front pinion (shown below) you WILL experience driveline vibration and a new driveshaft with spicer type u-joint setup will be required with the slip in the driveshaft.

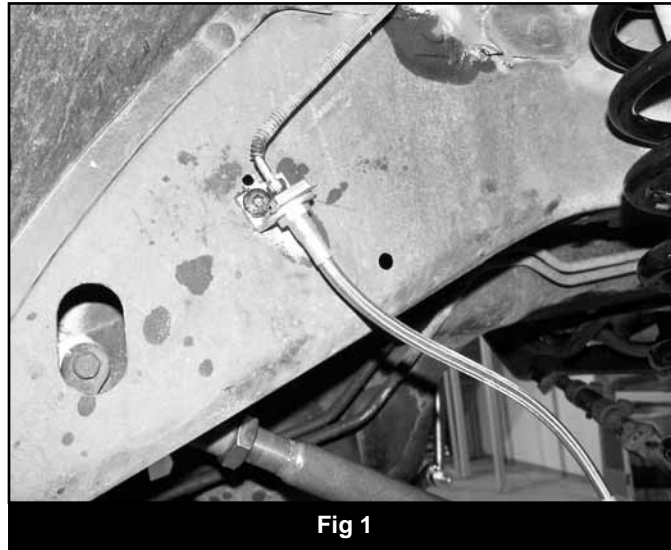


1. Measure and record the distance from the center of the wheel to the bottom of the fender opening:

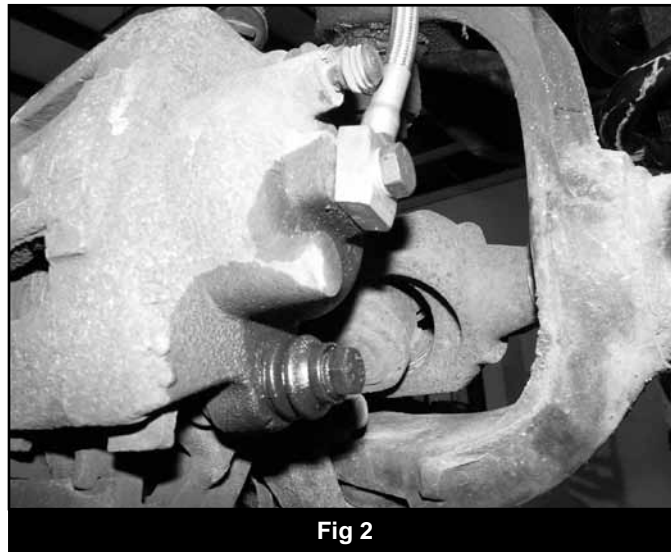
LF _____ RF _____ RR _____ LR _____

2. Park the vehicle on a clean, level surface and block the rear wheels for safety.
3. Safely raise the front of the vehicle and support with jack stands under the frame rails. Support front axle with a hydraulic jack.
4. Remove wheels and shocks, retain lower shock hardware.
5. Remove OE sway bar end links and discard.
6. Remove track bar by disconnecting at axle (retain hardware) and frame mount by removing cotter pin and nut. Use a pickle fork to dislodge the track bar from the frame mount.

7. Disconnect center link from Pitman Arm (retain hardware), this will aid in installation later on.
8. Remove brake line retaining clips.
9. Remove fasteners holding brake line anchors to frame on driver's and passenger's side. (Fig 1)
10. Disconnect passenger side rubber brake line from metal hard line.
11. Disconnect brake line from caliper and discard hardware. Ensure old washer is removed from caliper and brake line mounting area.
12. Install new upper brake line bracket with OE bolt. (Fig 1)



13. Mount hard line into new bracket before installing new stainless steel brake line.
14. Install BDS 25" Front brake line (22510) by attaching upper portion first. Torque to 20 ft-lbs.
15. Install lower portion with provided hardware. Note: One (1) washer is required on EACH side of the fitting. Brake line must face up after installation. (Fig 2). Torque bolt to 20 ft-lbs.



16. Repeat for driver's side.
17. Loosen nuts for all control arms (Do not remove at this time).
18. Remove spring retaining clips (save for reinstallation) and remove coils by lowering front axle.
19. Drill lower bump stop holes to 5/16" diameter and use 3/8 self tapping bolt to cut threads for bump stop extension. Remove 3/8" self tapping bolt (#438). (Fig 3)

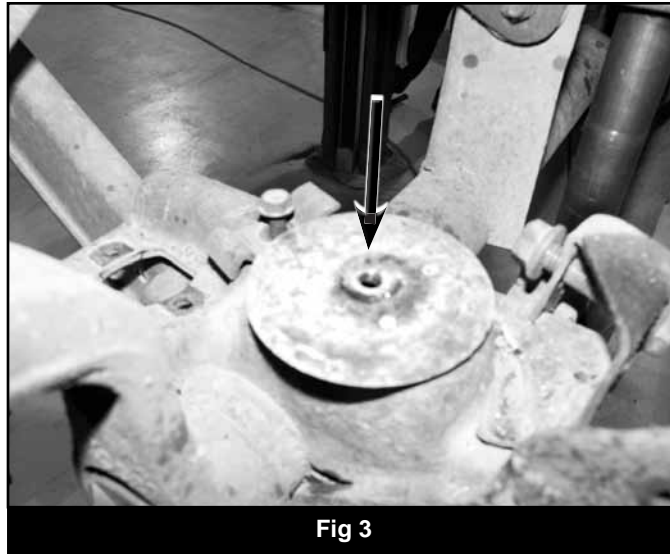


Fig 3

20. Adjust new front upper control arms to 15-1/2" (center to center) do not lock off the jam nut at this time.
21. Apply a small amount of lithium based grease to bushings (M02957RB); install in end of upper control arms.
22. Install 3/4 x .156 x 2.0" (67-1) sleeve in upper control arms.
23. Locate the supplied front lower control arms 01460. Note: These are the shorter of the supplied fixed length lower arms. Grease and install the 3523 bushings with the 61-1 sleeves (0.875 x 0.156 x 2.620) in to both ends of the lower control arms.
24. Install a supplied 90 degree grease zerk on the end of the assembled upper control arm.
25. Install a supplied 90 degree grease zerk on the frame end of the lower control arm. Align the zerk so that it faces the opposite end of the control arm. (Fig 4)

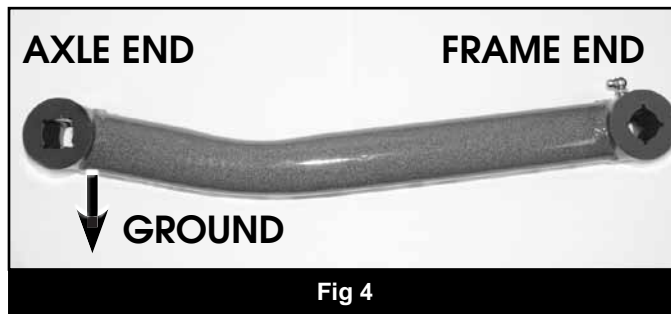


Fig 4

26. Install the straight grease zerk into the axle end of the lower control arm. (Fig 5)

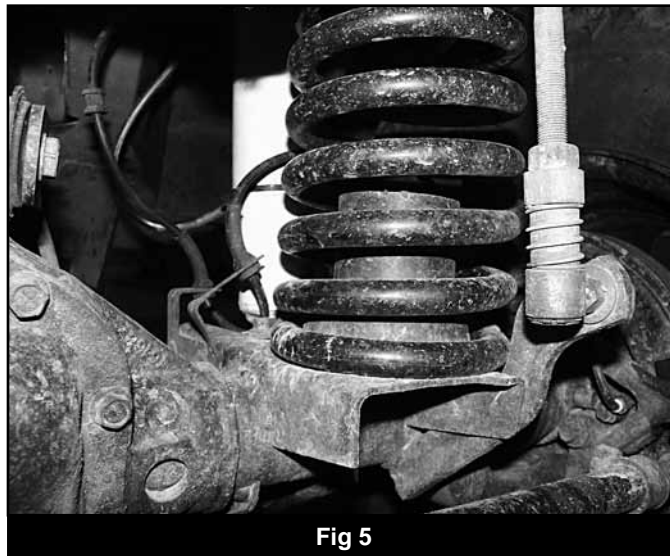
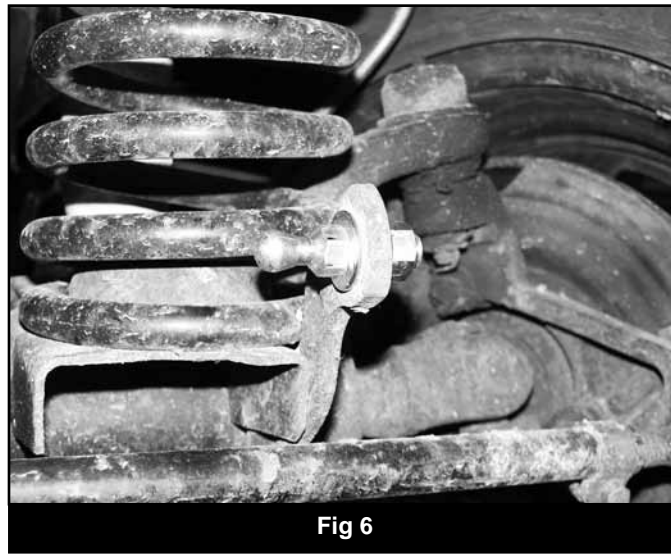
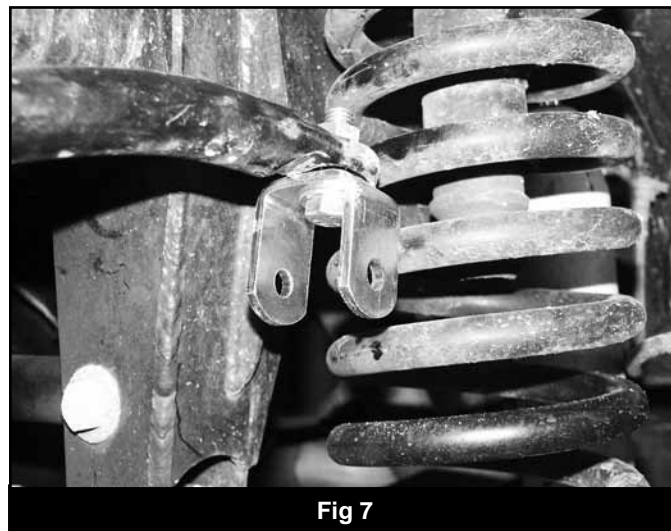


Fig 5

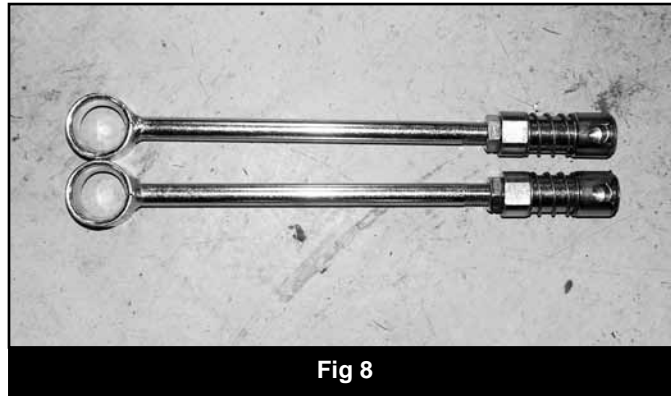
27. With front axle supported, remove the passenger side control arms
28. Install new BDS coil on passenger side with bump stop extension inside of spring, do not attach bump stop at this time. Center spring on mounts; rotate spring so that it is seated properly.
29. Reinstall lower spring retaining clips with OE hardware.
30. Attach bump stop extension (3" wide x 3" high block) with 3/8 x 3-1/2" bolt (#438). Torque to 30 ft-lbs. (Fig 5)
31. Install new Upper and Lower control arms with OE hardware, lower control arm orientated as shown (Fig 6), upper control arm grease zerk faces up. At the frame end of the lower control arm, install the supplied 1/8" thick spacers on each side of the control arm. Do not tighten control arm mounting bolts at this time. Torque upper and lower control arm jam nut securely.
32. Repeat for Driver's side.
33. Install shocks with new upper and OE lower hardware. Torque lower bolts to 20 ft-lbs. Install new upper nut (included with shock), tighten upper nut until bushing just begins to swell. Install and lock off jam nut to 25 ft-lbs.
34. If installing optional single or dual steering stabilizer, do so at this time.
35. Drill lower OE sway bar mount to 1/2".
36. Install the new lower ball stud to the OE sway bar link axle mount with a 1/2" nut and two 1/2" SAE washers provided. The washers mount on each side of the OE mount. The ball mounts toward the inside of the vehicle (Fig 6). Torque the stud to 60 ft-lbs.



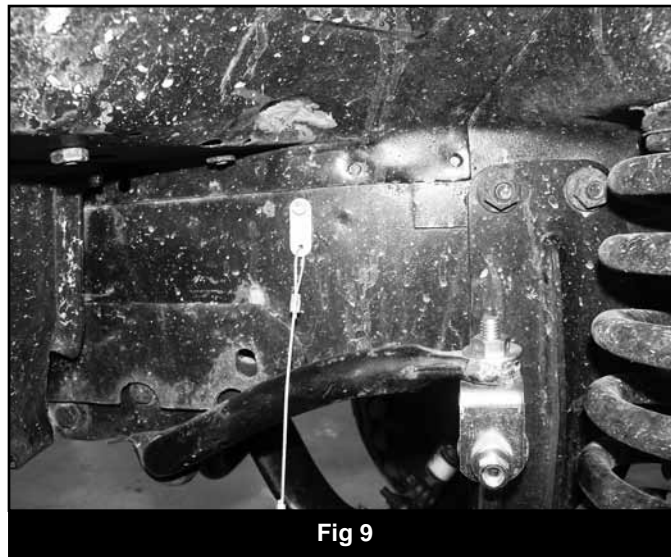
37. Install the provided upper u-bracket (01325) to the sway bar using the original link mounting hole with a 7/16" x 1-1/2" bolt, nut, 7/16" SAE and 7/16" USS washers (bolt pack #718). Install the bolt up through the u-bracket with an SAE washer into the sway bar. Fasten with the nut and USS washer. Position the bracket so that the thru-holes are parallel to the stud on the axle (Fig 7). Note: On certain model years it might be necessary to clearance the hole in the sway bar slightly to accept the 7/16" bolt. Tighten 7/16" hardware to 40 ft-lbs.



38. Lightly grease and install the provided hourglass bushings in the ends of the new sway bar links. Lightly grease and install the provided sleeves (45313-1) into the bushings.
39. Install the provided $\frac{1}{2}$ " jam nut then the spring loaded disconnect assembly on the threaded end of the new link. Thread the nut and assembly all the way on to the link (Fig 8).

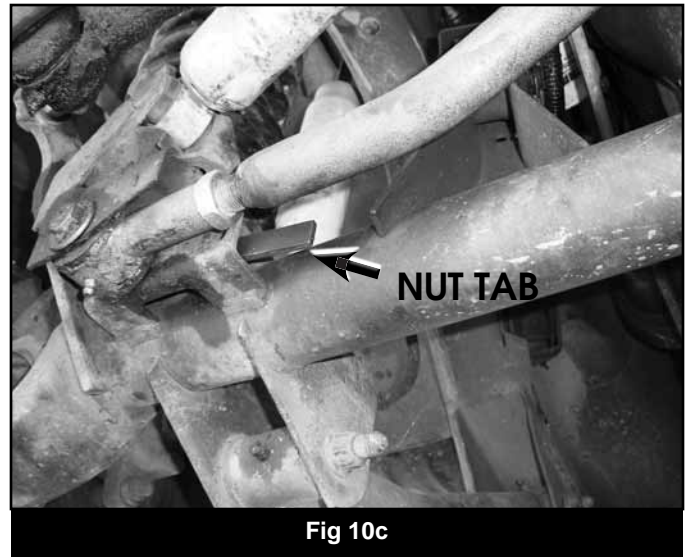
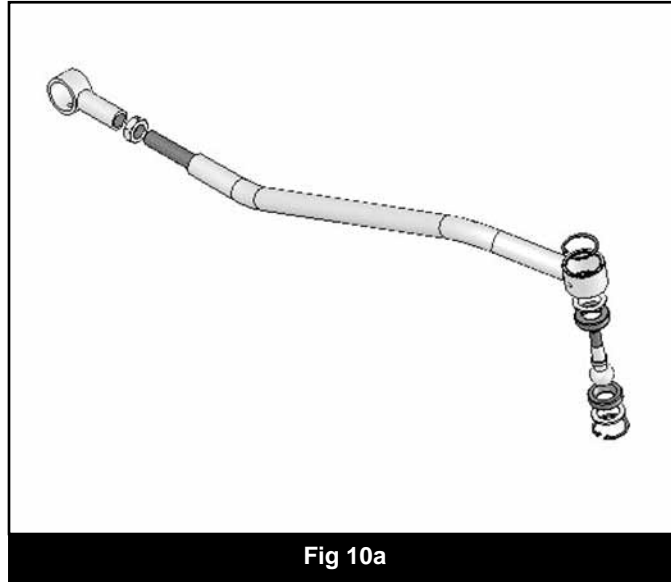


40. Attach the sway bar link assembly to the upper u-bracket with the provided $\frac{3}{8}$ " x 2-1/2" bolt, nut and $\frac{3}{8}$ " SAE washers, running from the inside out. Torque bolt to 30 ft-lbs.
41. Ensure that the vehicle and axle are sitting level. Pull the spring collar up on the disconnect end and attach it to the ball stud. Make sure that the disconnect end stud hole is square with the ball stud and tighten the jam nut against the disconnect end. The disconnects allow for $\frac{1}{2}$ " of adjustment ($\frac{1}{2}$ " longer from full-bottomed out). If necessary, adjust the links side-to-side to compensate for any unevenness in the vehicle, allowing for the easiest possible disconnecting of the ends.
42. Check the jam nuts to be sure they are securely locked off. Disconnect both end links and fold them up against the sway bar. Clip the provided lanyard/clip assembly around the sway bar/end link and find the best position for mounting the lanyard. This position will vary from vehicle to vehicle and with different suspension setups. Use your best judgment. Use the provided self-drilling screws to mount the lanyard to the body/frame. (Fig 9).



43. With the lanyards installed reconnect the sway bar links to the axle. The lanyards can be reattached to themselves so that they remain out of the way of moving parts when not in use.
44. Reattach center link to pitman arm. Torque nut to 35-40 ft-lbs. Install new cotter pin. Note: Do not back off nut to install cotter pin.
45. Use provided zip-ties to keep brake line from interfering with suspension parts.
46. Reinstall wheels and torque lug nuts to specification, see owner's manual.
47. With suspension hanging, inspect for interference. Turn wheels full turn from left to right while inspecting for interference. Inspect front driveline for proper clearance and lengths. Return wheels/steering to center.
48. Remove jack stands and lower vehicle to the ground.

49. Grease and install bushings (M03406RB) and sleeve (55003) into adjustable track bar end. Thread jam nut onto track bar followed by adjustable end. Make sure there is at least 1" of thread engagement. Install straight grease zerks into both ends of track bar. The grease zerk at the axle will face down to allow for access once the track bar is installed.
50. Drill out the OE track bar axle mount to $\frac{1}{2}$ ". Do NOT drill the taper out.
51. Ball stud end is shipped assembled. See figures 10a, 10b, and 10c for rebuild instructions. Center the stud and install into the original tapered frame mount. Use an 18mm wrench to hold the flats while tightening down the $\frac{1}{2}$ " fine thread nylock nut with the 12mm flat washer. There will be a slight gap between the flats and OE mount once installed. Tighten to 55 ft-lbs.



52. Center the front axle and swing the lower track bar mount into place. Adjust the length as necessary. Attach the track bar to axle mount with $\frac{1}{2}$ " button head bolt and nut tab. Run the nut tab horizontally from the center of the vehicle as shown. Tighten the bolt to 55 ft-lbs.
53. Make sure the mount at the frame is horizontal (front to back) then securely lock off the jam nut on the track bar. Replace the upper most differential cover bolt with the $\frac{5}{16}$ " button head bolt (bolt pack #915).
54. Torque upper and lower control arm bolts to following specifications: Upper 30 ft-lbs; Lower 95 ft-lbs.
55. Grease control arms and track bar fittings at this time.

REAR INSTALLATION

56. Block the front wheels.
57. Remove rear track bar and retain hardware. Discard plastic cover if equipped. Note: It is easiest to disconnect the rear track bar when vehicle is on the ground.
58. Safely raise the rear of the vehicle and support with jack stands for safety.
59. Remove wheels.
60. Place a floor jack under the rear axle for support and remove rear shocks, retain OE hardware.
61. Remove sway bar end links from body and axle, discard hardware.
62. Remove retaining bracket holding ABS wires to axle. (Fig 11)

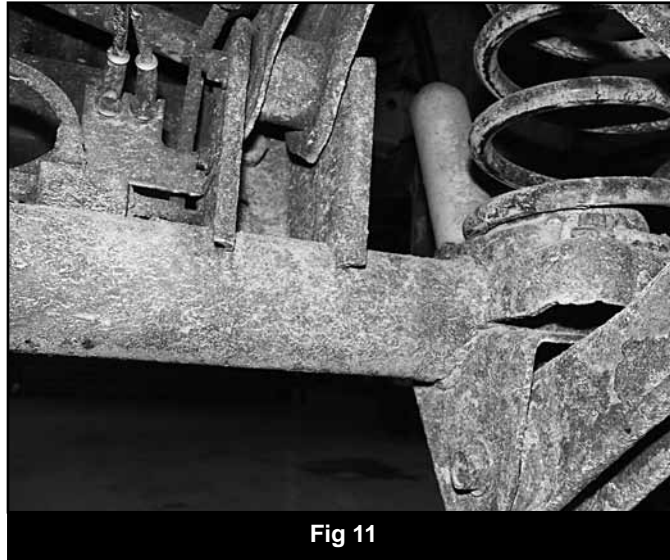


Fig 11

63. Disconnect parking and rubber brake line from control arms, retain hardware.
64. Remove spring clips, retain hardware. Lower rear axle and remove springs.
65. Remove upper bump stop.
66. Install new bump stop in place of old one. (Fig 12)

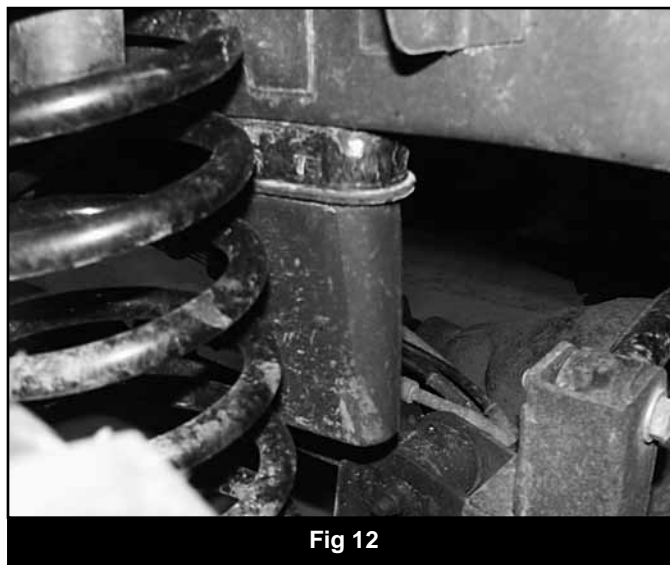
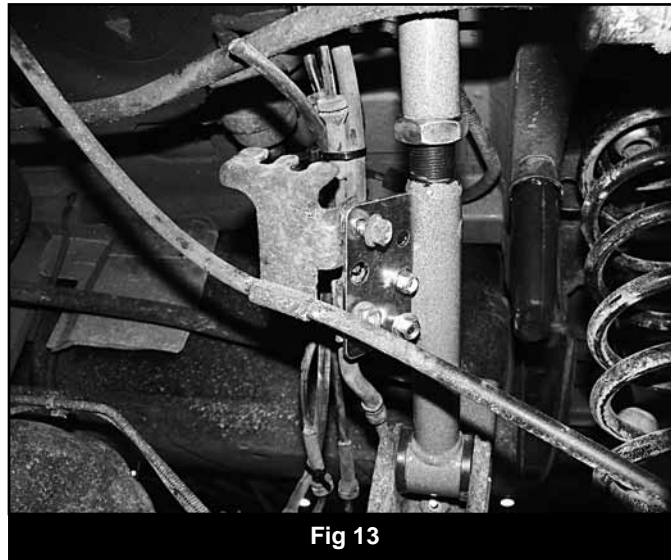


Fig 12

67. Optional adjustable control arms: Use the two adjustable ends (approximately 2-3/16" mating tube length) (Fig 5), assemble and adjust length to 17-5/16" center to center. Do not lock off jam nuts at this time.

68. Apply a small amount of grease to bushings (3523RB) and install into both ends of lower control arms. Note: The rear control arms are the longest ones in the kit. The bend in the tube goes closest to axle, same as the front control arms. Note: The same bushings go into both ends of control arms. (Fig 5)
69. Apply a small amount of grease and install sleeves (61-1) into both ends of the rear lower control arms. Install 90 degree grease zerk into frame end of control arm and straight zerk into axle end.
70. Install jam nut (36270) onto upper control arm (01466/01469) and install end (01464). Adjust length to 13-7/8". (note: do not lock off jam at this time)
71. Apply grease and install bushings (M02957RB) into upper arms.
72. Install sleeves (67-1) into upper arms.
73. Install straight grease zerks into both ends of control arms.
74. With rear axle supported, remove the passenger side control arms and retain hardware.
75. Install new spring, lower axle if necessary, rotate spring until it is seated into perch correctly. Reinstall spring clips with OE hardware.
76. Install upper control arm with OE hardware, such that the emergency brake mounting tab faces toward the center of the vehicle and down. Grease zerk at the axle faces up and faces down at frame mounting position. Do not tighten hardware at this time. (Fig 13) Note: parking brake line runs between upper and lower control arms.



77. Install lower control arm with OE hardware, do not tighten hardware at this time.
78. Repeat for driver's side.
79. Attach brake line relocation brackets to upper control arms. (Fig 13) Passenger's side bracket has 4 holes; Driver's side bracket has 6 holes. Attach to control arms with 1/4" hardware from bolt pack #123406.
80. Position the provided track bar relocation bracket up to the OE axle mount. Insert the supplied 1.6" long sleeve (#6-1) in the OE axle mount. Attach the bracket to the axle through the original track bar mounting hole and new sleeve with a 12mm x 70mm bolt, 12mm nut and 7/16" USS washers (Bolt pack #722). Snug hardware to hold the bracket in place. (Fig 14)

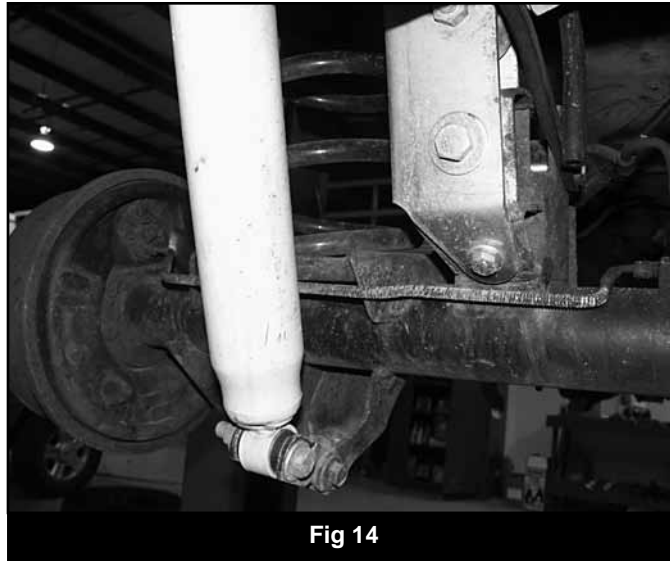


Fig 14

81. Using the new bracket as a template, mark the 2 additional mounting holes to be drilled to 7/16".
82. Remove the bracket and drill 7/16" holes at the 2 new mounting positions
83. Reinstall the bracket as instructed before with 7/16" x 1-1/4" hardware at new mounting holes.
84. Torque all track bar mounting bolts: 12mm and 7/16" hardware – 50 ft-lbs
85. Install sway bar mounting brackets (02129). These have the 5/8" bolt welded in. Use 5/8" nuts and washers from bolt pack #556 to attach to OE mounting positions
86. Grease and install hourglass bushings into ends of sway bar links (01324). Install sleeve (45313-1) into bushings.
87. Attach sway bar links to u-brackets with 3/8" x 2-1/2" bolts, run bolts from inside to outside (Fig 15). Tighten 3/8" hardware to 30 ft-lbs and 5/8" hardware to 75 ft-lbs

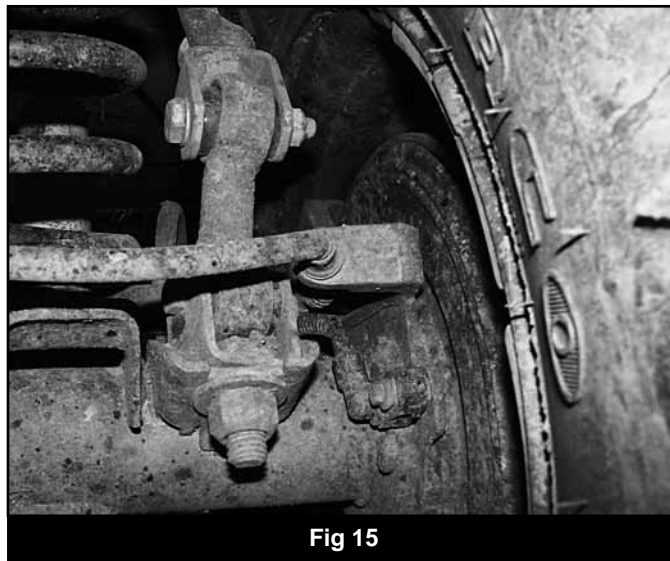


Fig 15

88. Reinstall and spin the wheels and look for any possible interference. Inspect driveline for proper operation, clearance, and lengths.
89. Remove jack stands and lower vehicle to the ground. Bounce vehicle to normalize rear suspension.
90. Install track bar end into new bracket (01474) with OE hardware. (Note: to make installation easier, have an assistant stand on the back bumper to slightly compress the suspension). Torque the driver's side track bar hardware to 55 ft-lbs. Torque the passenger's side track bar hardware to 35 ft-lbs.
91. Torque upper control arm hardware to: 30 ft-lbs, Lower control arm hardware to: 95 ft-lbs.
92. Bleed brakes starting with the wheel furthest away from master cylinder. (check fluid level before you start)

POST INSTALLATION

93. Double-check all fasteners for proper torque.
94. Check all moving parts for clearance.
95. Complete a full radius turning check to ensure that no interference occurs.
96. Align headlights
97. Double check the brake lines for adequate slack and clearance at full wheel travel.
98. Complete a vehicle alignment to OE specifications.
99. If rear slip-yoke eliminator is installed with dual-cardan setup at transfer case, the rear upper controls arms may need to be adjusted to correct driveline angles and eliminate any vibration.
100. Check all fasteners after 500 miles.
101. Grease fittings at regularly scheduled maintenance intervals.

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: