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Part#: **014462**

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

014462 Box Kit

Control Arm Parts

01422	4	Front LCA Frame 1/8" Spacer
A174	2	Front LCA w/ rubber bushings
A177	2	Adjustable Flex Front UCA
738	1	Bolt Pack
	2	10mm-1.50 x 80mm bolt
	2	10mm-1.50 prevailing torque nut
	4	3/8" USS flat washer
A178	1	Adjustable Flex Rear UCA - DRV
A179	1	Adjustable Flex Rear UCA - PASS
941	1	Bolt Pack
	2	12mm-1.75 x 80mm bolt
	2	12mm-1.75 prevailing torque nut
	4	12mm flat washer
A198	2	Rear LCA w/ rubber bushings

Front Adjustable Track Bar

A153B	1	Track Bar Assembly
M03406BK	2	Track Bar Bushing
55003	1	.625 x .060 x 1.625 Sleeve
516	1	1/4" Grease Zerk
01392	1	Nut Tab
915	1	Bolt Pack
	1	1/2"-13 x 2-3/4" bolt
	1	1/2"-20 nylock nut
	1	12mm flat washer
	1	1/2" SAE washer
	1	5/16"-18 x 3/4" button head bolt

Front Brake Lines

22510	2	Jeep TJ Front Brake Line
5188	2	Snap In Brake Line Clip
B06103C	2	Brake Line L-Bracket
CCW-03-050	4	3/8 Brake Line Crush Washer
099000	2	11.5in Nylon Cable Tie

Front Bump Stops

3396	2	3in x 3in Body Block
438	1	Bolt Pack

Rear Brake Line Parts

01735	1	UCA Brakeline Bracket - DS
01736	1	UCA Brakeline Bracket - PS
BP123406	1	Bolt Pack
	8	1/4" USS washer
	4	1/4"-20 x 1" bolt
	4	1/4"-20 prevailing torque nut

Rear Bump Stops

02322BK	2	Bump Stop
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Rear Sway Bar Links

02129	4	Sway Bar End Link Bracket
01324	2	Rear Sway Bar End Link
SB58BK	4	5/8 ID Hourglass Bushing - black
45313	4	.625 x .109 x 1.375 Sleeve

556	1	Bolt Pack
	4	5/8" SAE washer
	4	5/8"-11 nylock nut
	4	3/8"-16 x 2-1/2" bolt
	8	3/8" SAE washer
	4	3/8"-16 prevailing torque nut

Rear Track Bar Bracket

01474	1	Rear Track Bar Brkt
54587	1	.750 x .090 x 1.575 Sleeve
722	1	Bolt Pack
	1	12mm-1.75 x 70mm bolt
	1	12mm-1.75 prevailing torque nut
	2	7/16" USS flat washer
	2	7/16"-14 x 1-1/4" bolt
	2	7/16"-14 prevailing torque nut
	4	7/16" SAE flat washer

124451 Box Kit

A110	2	Sway Bar Link Assembly
01302	2	Disconnect Stud
01325	2	U-Bracket
01316	2	13.5in Lanyard
45313	2	.625 x .109 x 1.375 Sleeve
718	1	Bolt Pack
	2	1/2-20 prevailing torque nut
	4	1/2" SAE flat washer
	2	3/8"-16 x 2-1/2" bolt
	2	3/8"-16 prevailing torque nut
	4	3/8" SAE flat washer
	2	7/16"-14 x 1-1/2" bolt
	2	7/16"-14 prevailing torque nut
	2	7/16" SAE flat washer
	2	7/16" USS flat washer
	2	#10-16 x 5/8" self-drilling screw

124026 Box Kit

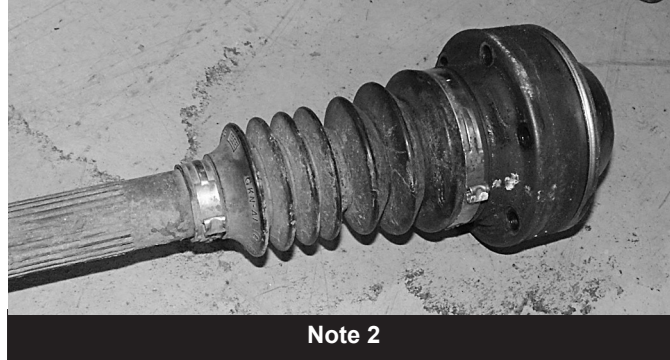
YJTC5	4	Transfer Case Spacer
342701	1	Loctite - 1ml
703	1	Bolt Pack
	4	10mm-1.50mm x 50mm bolt
	4	10mm flat washer
	4	10mm Lock washer

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 the drag link from the 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. Have a container ready to catch the fluid.
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)

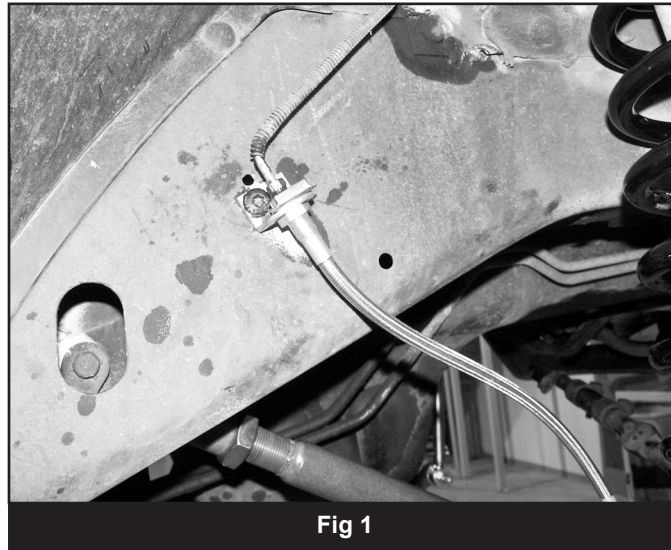


Fig 1

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.

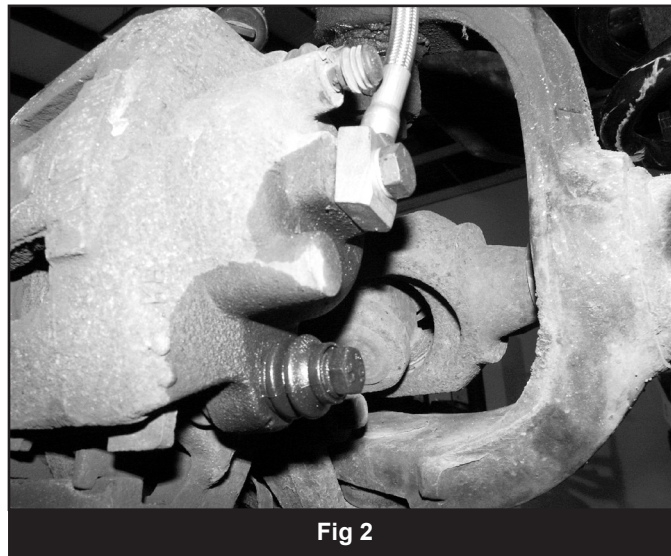


Fig 2

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 11/32" diameter and use 3/8 self tapping bolt to cut threads for bump stop extension. Remove 3/8" self tapping bolt (BP 438). (Fig 3)

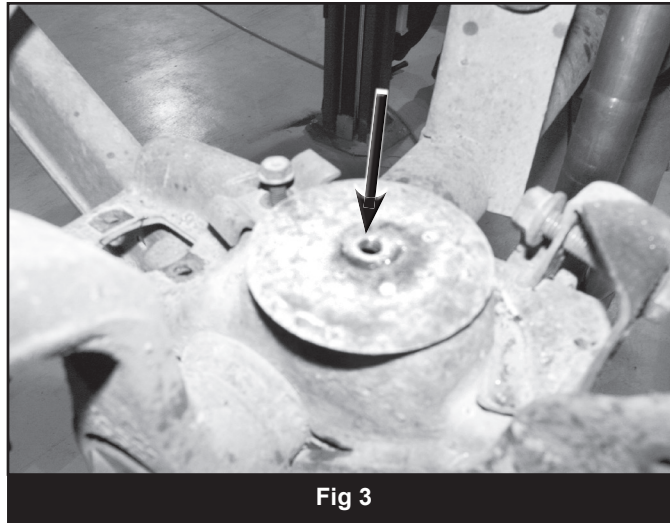


Fig 3

20. Lower the axle enough to install the BDS coil springs along with the bump stop extension inside of spring. Center spring on mounts; rotate spring so that it is seated properly. Reinstall lower spring retaining clips with OE hardware.

21. Attach bump stop extension (3" wide x 3" high block) with 3/8 x 3-1/2" bolt (BP 438). Torque to 30 ft-lbs. (Fig 4)

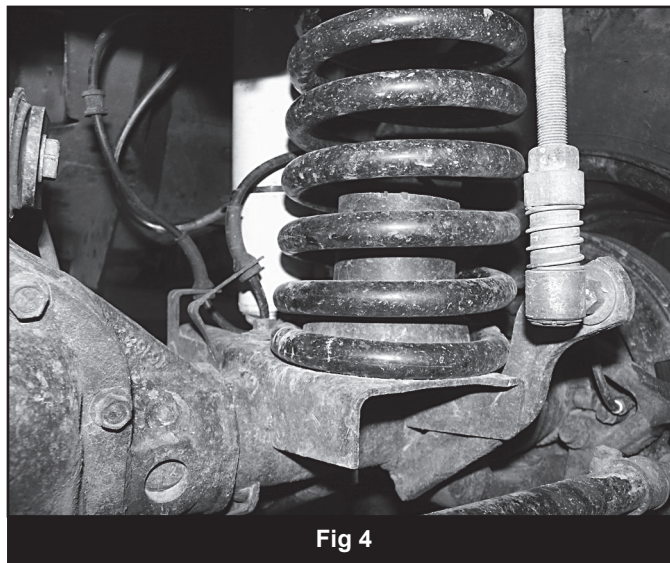


Fig 4

22. With front axle well supported, remove both lower control arms.

23. Install the new driver's and passenger's side lower control arms with the factory bolts/nuts/washers. The front arms are shorter than the rear ones. Install the short side from the bend at the axle with the bend down (Fig 6). At the frame end of the lower control arm, install the supplied 1/8" thick spacers on each side of the control arm. Snug the bolts but do not tighten completely. The bolts will be tightened with the weight of the vehicle on the suspension.

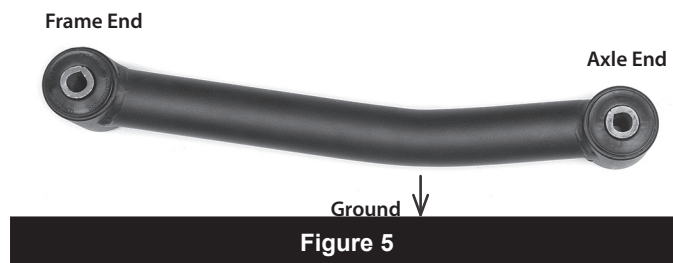
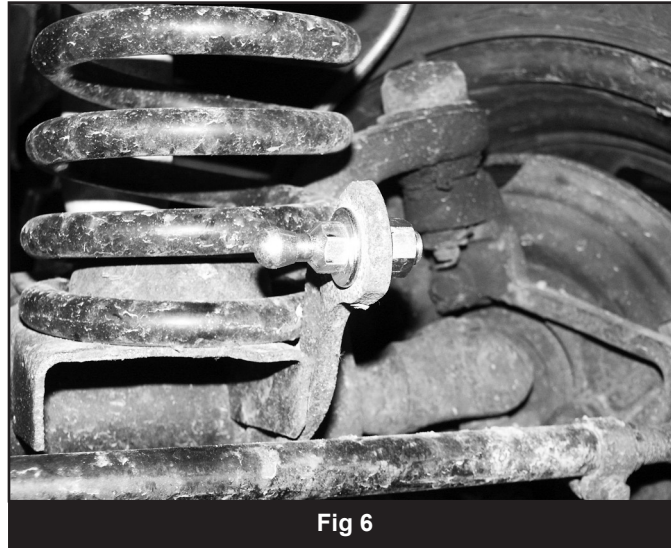


Figure 5

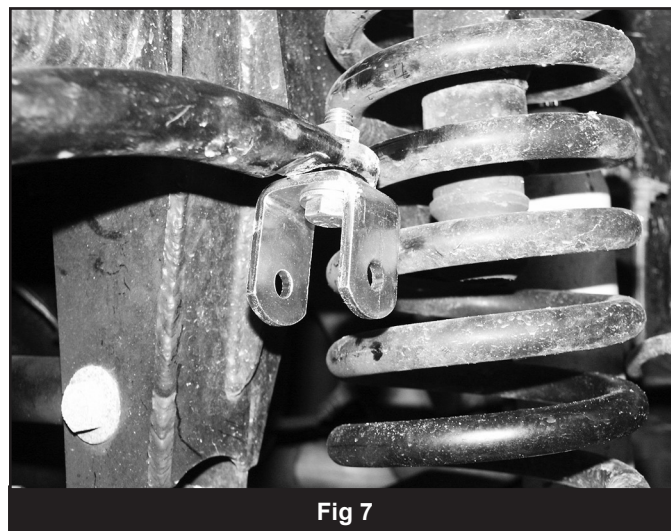
24. Adjust new front upper control arms to 15-1/2" (center to center) do not lock off the jam nut at this time.

25. Remove the upper control arms from the front axle and frame. Retain frame hardware. *Note: Be sure that the axle is well supported.*

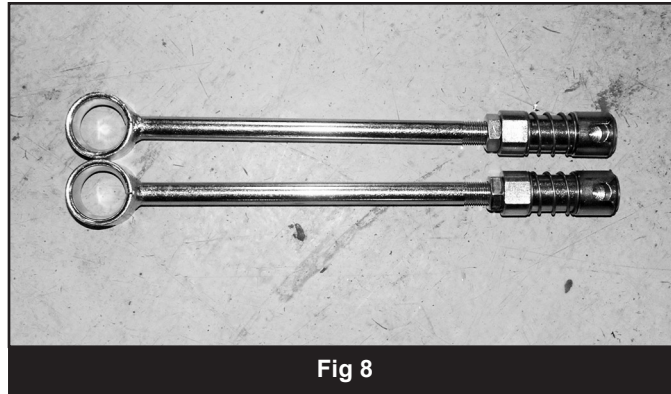
26. Install the new upper control arms to the axle with the provided 10mm hardware (BP738). Use the factory hardware at the frame and the grease fitting should be on the bottom. Leave hardware loose.
27. Install shocks with new upper and OE lower hardware. Torque lower bolts to 20 ft-lbs. Install new upper nut (included with shock), tighten upper nut until bushing just begins to swell. Install and lock off jam nut to 25 ft-lbs.
28. If installing optional single or dual steering stabilizer, do so at this time.
29. Drill lower OE sway bar mount to $\frac{1}{2}$ ".
30. Install the new lower ball stud to the OE sway bar link axle mount with a $\frac{1}{2}$ " nut and two $\frac{1}{2}$ " 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.




31. Install the provided upper u-bracket (01325) to the sway bar using the original link mounting hole with a $\frac{7}{16}$ " x 1-1/2" bolt, nut, $\frac{7}{16}$ " SAE and $\frac{7}{16}$ " 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 $\frac{7}{16}$ " bolt. Tighten $\frac{7}{16}$ " hardware to 40 ft-lbs.

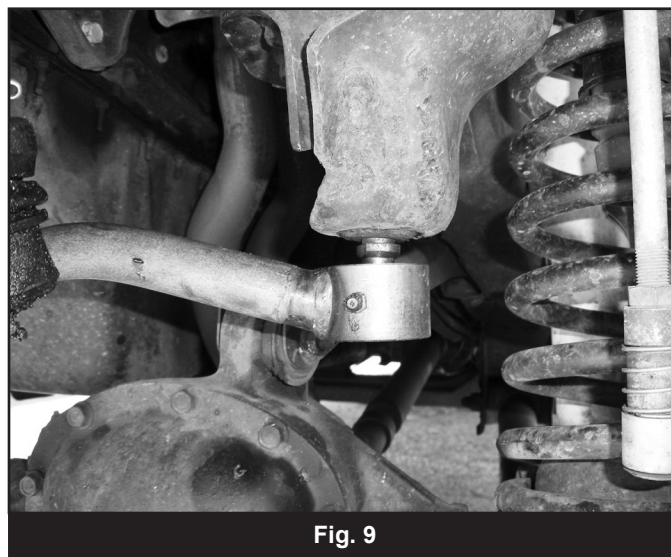


32. Lightly grease and install the provided sleeves (45313) into the sway bar link bushings.
33. Thread the nut and spring assembly all the way on to the link (Fig 8).



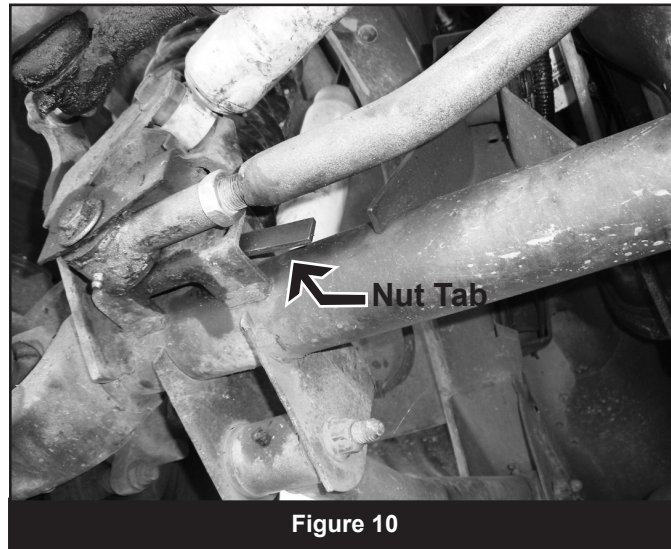
34. Attach the sway bar link assembly to the upper u-bracket with the provided 3/8" x 2-1/2" bolt, nut and 3/8" SAE washers, running from the inside out. Torque bolt to 30 ft-lbs. Leave them disconnected from the axle.
35. Grease and install the provided bushings (M03406RB) and sleeve (55003) into the preassembled adjustable track bar end (A153B). Install the provided straight grease fitting (516) into the ball stud end of the track bar.
36. Drill out the OE track bar axle mounting holes to 1/2" to provided clearance for the new track bar mounting hardware.
37. Install the new track bar tapered ball stud end in the OE track bar from mount with a 1/2"-20 nylock nut and 12mm flat washer (BP 915). Use an 18mm wrench to hold the flats on the stud and torque the 1/2" nut to 55 ft-lbs.

 *Note: There will be a small gap between the flats on the stud and the OE mount when properly installed (Fig 9).*



38. Attach the drag link to the pitman arm with the original castellated nut and new provided cotter pin (BP 715). Torque nut to 50 ft-lbs. Do not loosen the nut to install the cotter pin, only tighten.
39. Use provided zip-ties to keep brake line from interfering with any rotating or heated objects.
40. Reinstall wheels and torque lug nuts to specification, see owner's manual.
41. With the 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.
42. Remove jack stands and lower vehicle to the ground.
43. Bounce vehicle to normalize suspension.
44. Torque upper and lower control arms to the following specifications: Upper 45 ft-lbs; Lower 95 ft-lbs.
45. Lock off jam nuts on the control arms. Make sure the flex ends remain square to the mounts.
46. 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 1/2" head bolt and nut tab. Run the nut tab horizontally from the center of the vehicle (Fig 10). Tighten the bolt to 55 ft-lbs.

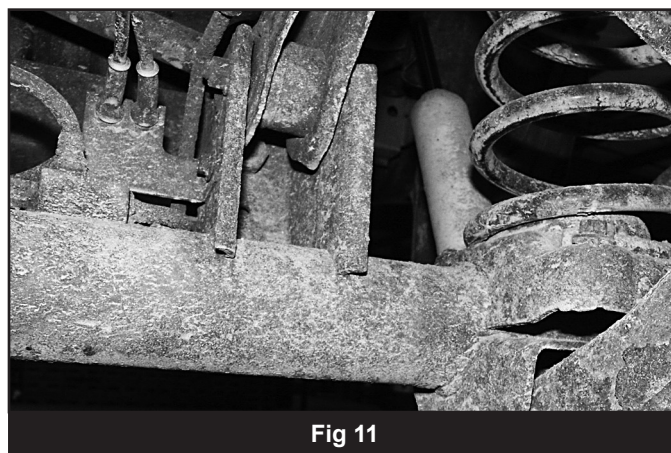
47. Make sure the mount at the frame is horizontal (front to back) then securely lock off the jam nut on the track bar. Replace the upper most differential cover bolt with the 5/16" button head bolt (bolt pack BP 915).



48. Ensure the vehicle setting level on the ground. Pull the spring collar up on the disconnect ends and attach them to the ball studs on the axle. Make sure the disconnect end stud is square with the ball stud and tighten the jam nut against the disconnect end. These disconnects allow for 1/2" adjustment (1/2" longer from full-bottomed out).
49. 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. Use your best judgment. Use the provided self-drilling screws to mount the lanyard to the body/frame.
50. 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.
51. Grease control arms and track bar fittings.

REAR INSTALLATION

52. Block the front wheels.
53. 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.*
54. Safely raise the rear of the vehicle and support with jack stands for safety.
55. Remove wheels.
56. Place a floor jack under the rear axle for support and remove rear shocks, retain OE hardware.
57. Remove sway bar end links from body and axle, discard hardware.
58. Remove retaining bracket holding ABS wires to axle. (Fig 11)



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



63. Install new springs, lower the axle if necessary, rotate the spring until it is seated into the perch correctly. Reinstall spring clips with OE hardware.
64. With the axle well supported, remove both lower control arms.
65. Install the new lower control arms with the factory bolts/nuts/washers. The rear arms are the longest ones. Install the short side from the bend at the axle with the bend down (Fig 5). Snug the bolts but do not tighten completely. The bolts will be tightened with the weight of the vehicle on the suspension.
66. Locate the adjustable upper control arms and adjust the length to 13 7/8".
Note: This adjustment should be close, but some further adjustment may be required if a rear driveshaft vibration is present.
67. Remove the driver's and passenger's upper control arms from the axle and frame mounts. Retain all hardware.
68. The holes at the axle mounts will need to be enlarged to accept the new 12mm hardware (BP 941). Using a 31/64" drill or grinding tool open up the holes to accept the new hardware
69. Install the new upper control arms. The arms are driver and passenger side specific. When installed correctly, the adjustable end is at the frame with the zerk fitting down and the brake line tab is facing inward and down (Fig 23). Fasten to the frame with the OE hardware. At the axle use the provided 12mm x 80mm bolts, nuts, and washers (BP941) Leave hardware loose.
Note: The parking brake line runs between upper and lower control arms.
70. Attach brake line relocation brackets to upper control arms. The passenger side bracket (01736) has 4 holes; Driver's side bracket (01735) has 6 holes. Attach to control arms with 1/4" hardware from bolt pack 123406.
71. Position the provided track bar relocation bracket up to the OE axle mount. Insert the supplied 1.57" long sleeve (54587) 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 (BP 722). Snug hardware to hold the bracket in place. (Fig 13)



Fig 13

72. Using the new bracket as a template, mark the 2 additional mounting holes to be drilled to 7/16".
73. Remove the bracket and drill 7/16" holes at the 2 new mounting positions
74. Reinstall the bracket as instructed before with 7/16" x 1-1/4" hardware at new mounting holes.
75. Torque all track bar mounting bolts: 12mm and 7/16" hardware – 50 ft-lbs
76. 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
77. Grease and install hourglass bushings into ends of sway bar links (01324). Install sleeve (45313) into bushings.
78. Attach sway bar links to u-brackets with 3/8" x 2-1/2" bolts, run bolts from inside to outside (Fig 14). Tighten 3/8" hardware to 30 ft-lbs and 5/8" hardware to 75 ft-lbs

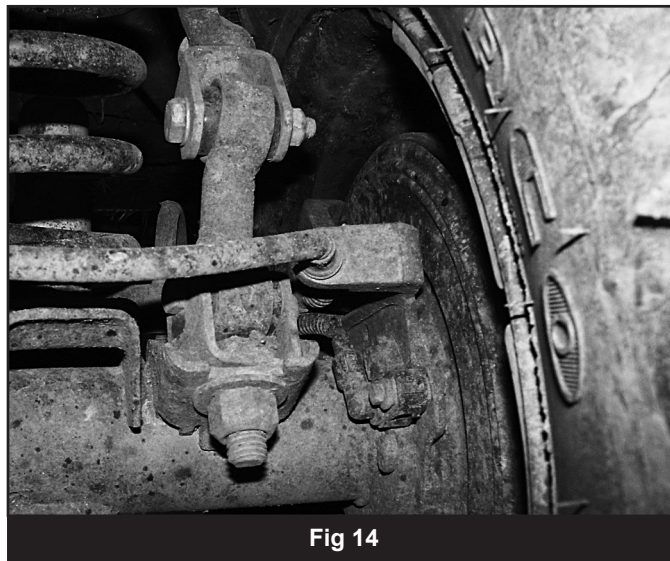


Fig 14

79. Reinstall and spin the wheels and look for any possible interference. Inspect driveline for proper operation, clearance, and lengths.
80. Remove jack stands and lower vehicle to the ground. Bounce vehicle to normalize rear suspension.
81. 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.
82. Torque the rear lower control arm bolts at the axle and frame to 105 ft-lbs. Torque the upper control arm bolts to 45 ft-lbs.
83. Lock off all adjustable control arm jam nuts securely ensuring the flex ends are square to the mounts..

84. Bleed brakes starting with the wheel furthest away from master cylinder. (check fluid level before you start)

TRANSFER CASE DROP - (Only necessary when using the stock driveshaft)

85. Support the transfer case with a hydraulic jack.

86. Loosen but do not remove all four transmission crossmember bolts.

87. Remove the two 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. Loosely attach the crossmember and spacers with two 10mm x 50mm and two flat and lock washers.

88. Repeat spacer installation on the driver's side.

89. 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.

POST INSTALLATION

90. Double-check all fasteners for proper torque.

91. Check all moving parts for clearance.

92. Complete a full radius turning check to ensure that no interference occurs.

93. Align headlights

94. Double check the brake lines for adequate slack and clearance at full wheel travel.

95. Complete a vehicle alignment to OE specifications.

96. 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.

97. Check all fasteners after 500 miles.

98. 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: