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Part#: 013405

Product: 4" Suspension System

Application: 3/1/99-2004 Ford F250/350 Super Duty 4wd

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

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**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

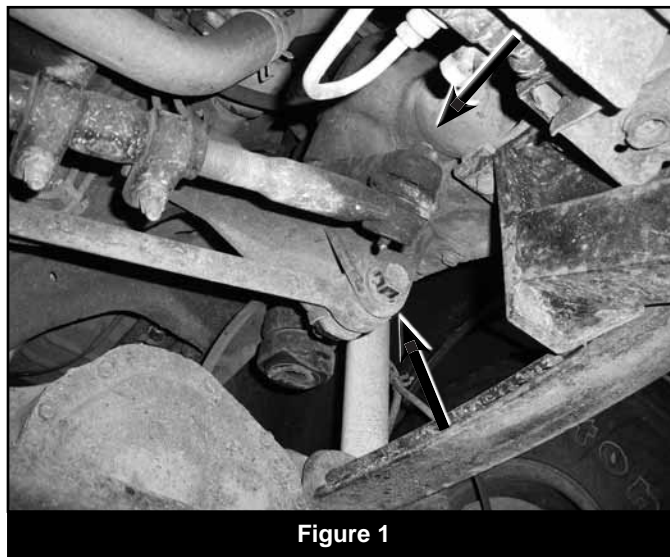
1. Check all fasteners for proper torque. Check to ensure for adequate clearance between all rotating, mobile, fixed, and heated members. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering gear for clearance. Test and inspect brake 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
083403R	1	Pitman Arm
963180900Q	4	9/16" x 3-1/8" x 9-1/2" U-Bolt
W96S	8	9/16" Washer
N96FH	8	9/16" High Nut
01027	2	Front Bump Stop Spacer
01056	1	Track Bar Bracket
65077	1	1/8" x 1-1/4" Cotter Pin
441	1	Bolt Pack - Bump Stop
	4	10mm-1.5 x 110mm bolt
	4	3/8" USS washer

## INSTALLATION INSTRUCTIONS

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Disconnect the front track bar from the driver's side frame bracket (Fig 1). Save hardware.
3. Raise the front of the vehicle with a hydraulic jack and support with jack stands under the frame. Locate the stands just behind the front leaf spring shackles.
4. Remove the front wheels.
5. Remove the front bumper. Removing the bumper greatly improves access to the front spring bolts and speeds installation time. Front bumper mounting varies slightly from year to year. Be sure to disconnect any auxiliary lights and shrouds before attempting to remove the bumper. The main four mounting bolts are accessed in the front near the tow hooks. Depending on the year, there will be a side support on each side that must be disconnected.
6. Remove the cotter pin and castellated nut from the steering drag link at the pitman arm (Fig 1). Thread the nut back on a couple turns. Strike the pitman arm near the drag link end to dislodge the taper. Remove the nut and drag link from the pitman arm. Save nut.



7. Remove the front shocks from the axle and frame mounts. Save hardware and discard shocks.
8. Locate the brake line mount bracket on the frame. Using pliers, bend the bracket down about 45-60 degrees away from the frame (Fig 2). After the bracket is reformed, remove the mounting bolt and remove the bracket from the frame. Save hardware.

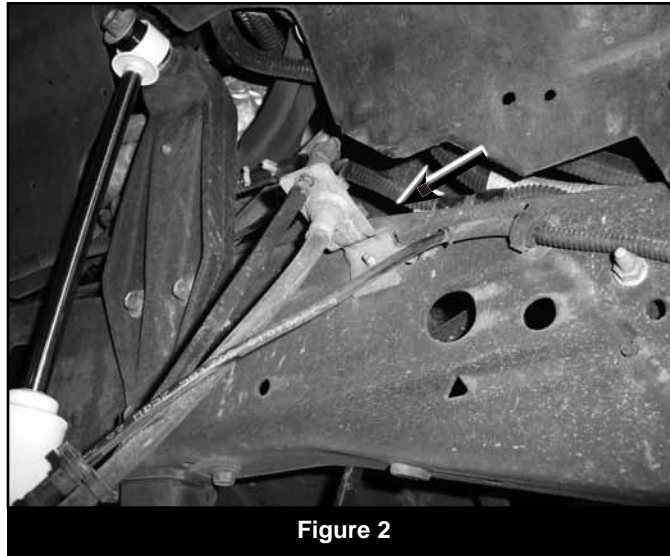


Figure 2

9. Disconnect the front sway bar links from the frame (Fig 3A). Loosen but do not remove the sway bar link hardware at the sway bar (Fig 3B). Save hardware.

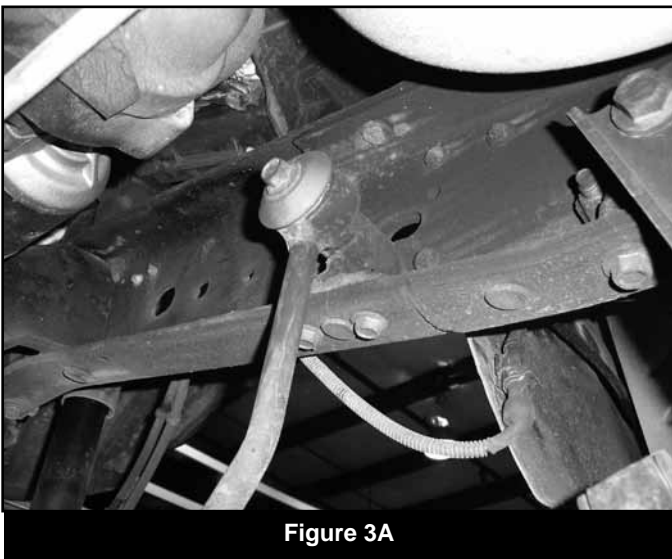


Figure 3A



Figure 3B

10. Loosen but do not remove all four leaf spring mounting bolts. On the front, the A/C condenser brackets will need to be removed to gain access to the bolt (Fig 4). Remove the brackets from the core support and save along with the mounting bolts. Note: The factory uses very strong Loctite on the leaf spring bolts. In most cases heat will be needed to loosen the nuts (Fig 5). Take extra care when heating the nuts and keep a fire extinguisher near by.

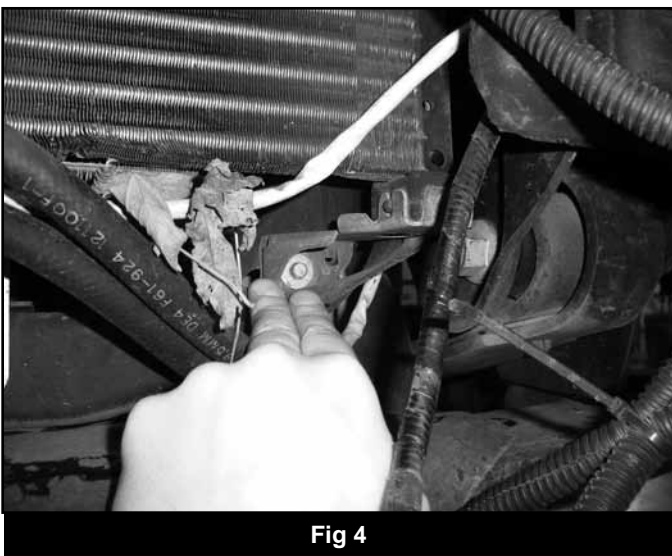


Fig 4

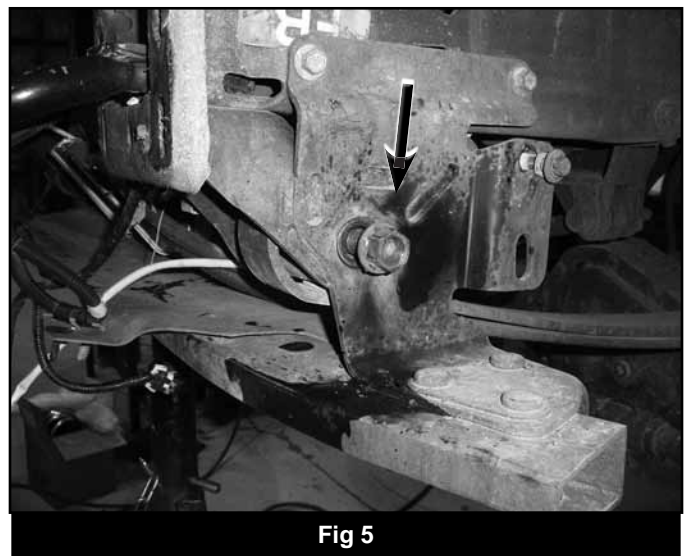
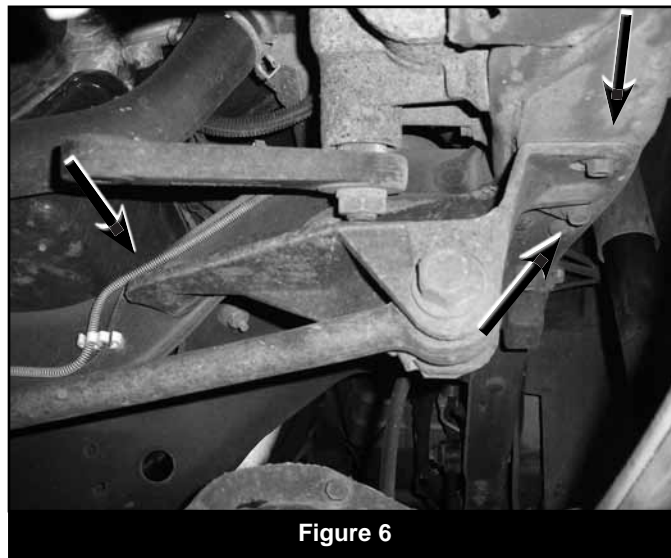
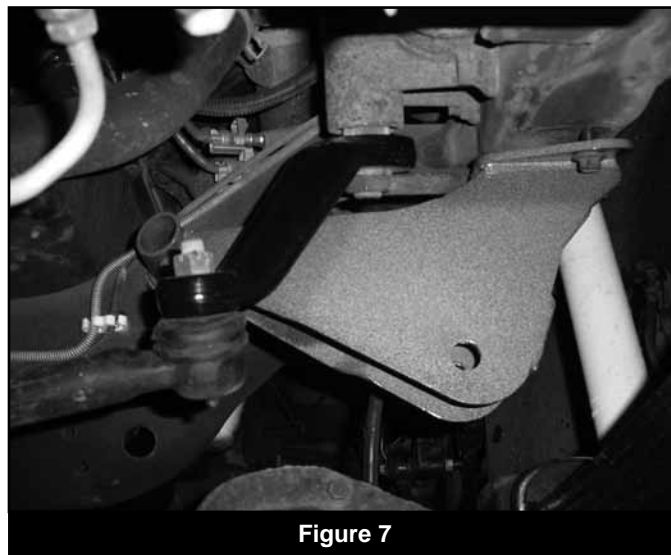


Fig 5

11. With all of the leaf spring bolts loose, support the passenger's side of the front axle with a jack. Remove the passenger's side spring u-bolts. Lower the axle away from the spring. Remove the spring bolts and remove the spring from the vehicle. Save the leaf spring bolts and discard the u-bolts.
12. Locate one of the new leaf springs. The larger spring eye will mount to the front of the vehicle. Install the new spring in the vehicle and loosely attach it to the front frame mount and rear shackle with the factory hardware.
13. Raise the axle to the new spring. Align the spring pin into the pin hole in the axle mount and fasten with the new 9/16" u-bolts/nuts/washers and the factory spring plates. The axle will have to be pulled forward to align the pin. It may be necessary to loosen the driver's side u-bolts to allow the axle to move forward. Snug the u-bolts just enough to keep the spring pin in place.
14. Repeat the leaf spring installation steps on the driver's side of the vehicle. Leave all hardware loose. The u-bolts and spring bolts will be torqued with the weight of the vehicle on the suspension at the end of the installation.
15. Remove the (3) bolts mounting the track bar bracket to the frame and front frame crossmember. The two bolts at the frame thread into a nut tab inside the frame (Fig 6). Remove the bracket from the vehicle. Save hardware.
16. Mark the relationship between the steering sector shaft and the pitman arm for reference. Remove the pitman arm nut/washer (Fig 6). Remove the pitman arm from the steering box sector shaft with an appropriate pitman arm puller. Save hardware.

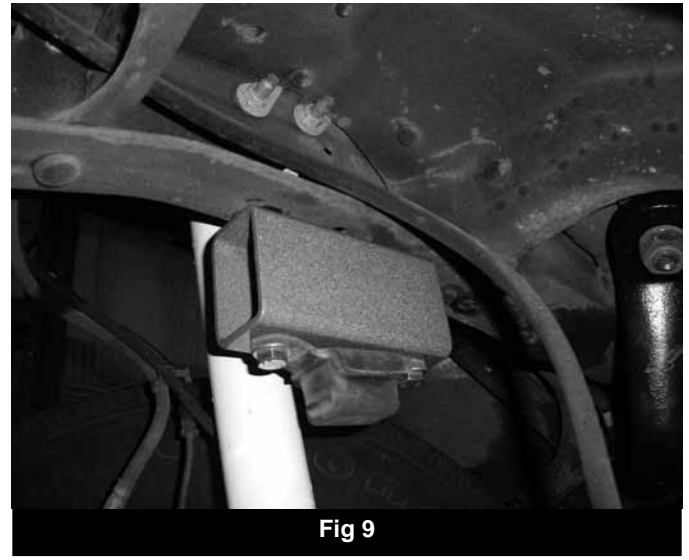
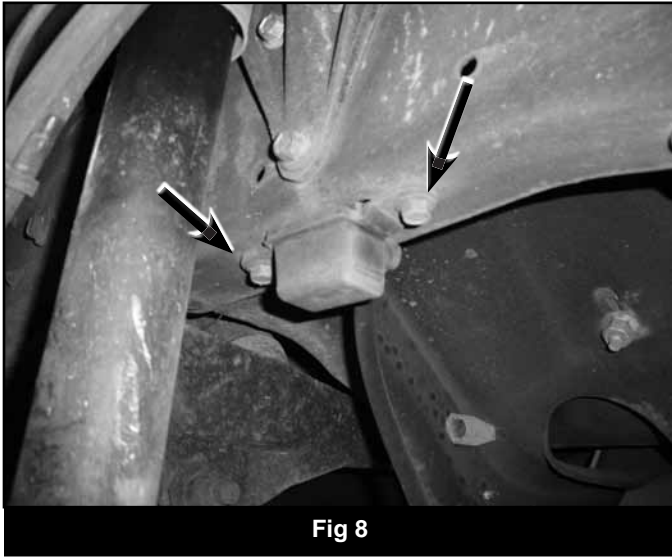


17. Install the new provided pitman arm on the steering sector shaft. Use the marks made on the factory arm as a guide. Fasten the pitman arm with the original sector shaft nut/washer. Torque nut to 185-200 ft-lbs.
18. Install the new track bar bracket to the original bracket mount points (Fig 7). Fasten with the factory hardware. Torque bolts to 65 ft-lbs.





19. Remove the factory front bump stops from the frame rails (Fig 8). Locate the provided rectangle bump stop spacers (01027) and place between the factory bump stops and the frame rail. Align the holes in the bump stop and spacer with the original frame mounting holes and fasten with the provided 10mm x 110mm bolts and washers (BP 441) into the captive nuts in the frame (Fig 9) . Use Loctite on the bolt threads and torque bolts to 30 ft-lbs.



20. Install the new provided shocks to the factory axle/frame mounts with the original hardware. The body end of the shock mounts to the axle. Torque the upper and lower shock mount hardware to 70 ft-lbs
21. Attach the steering drag link to the new pitman arm with the original castellated nut and new cotter pin. Torque nut to 65 ft-lbs. Note: Do not loosen the nut to align the cotter pin, only tighten.
22. Remove the two bolts and the OE sway bar mounts from the inside of the frame rails and reinstall on the bottom of the frame with the original bolts (Fig 10). Install the mounts so the small ID of the link mounting hole is toward the inside of the vehicle. Torque the link mount bolts to 35 ft-lbs.
23. Reinstall the factory sway bar links to the relocated mount with the original hardware. Torque the upper and lower sway bar link hardware to 60 ft-lbs.



24. Reattach the front brake line brackets to the frame with the original bolts. Torque bolts to 15-20 ft-lbs.
25. Install the wheels and lower the vehicle to the ground. Torque the lug nuts to 165 ft-lbs.
26. Bounce the front of the vehicle to help settle the suspension.
27. Install the driver's side end of the factory track bar into the new frame mount bracket with the original hardware. Torque the original 20mm hardware to 405 ft-lbs.
28. Torque the front leaf spring u-bolts to 100 ft-lbs. Torque the front leaf spring hanger bolts to 200 ft-lbs and the shackle bolts to 180 ft-lbs.

29. After the front spring hardware is properly tightened, reinstall the A/C condenser support brackets with the original hardware. Tighten bolt to approximately 5 ft-lbs.
30. Reinstall the front bumper with the original hardware. Be sure to replace any shrouds/wire that were removed. Adjust bumper to the desired location and tighten all mounting hardware securely.
31. Check all hardware for proper torque.
32. Check hardware after 500 miles.
33. The steering wheel will need to be re-centered.
34. Adjust headlights.

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## **NOTICE TO DEALER/INSTALLER**

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

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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:**