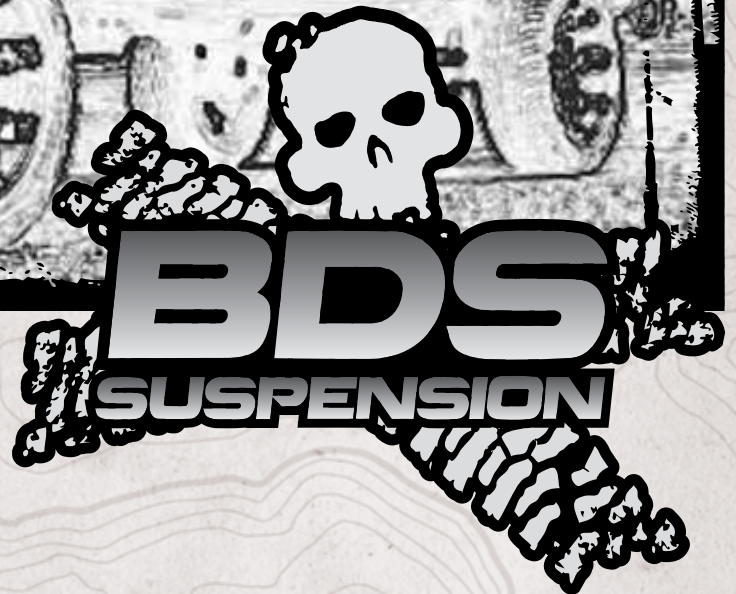


# Installation instructions



Part#: 013412, 013612

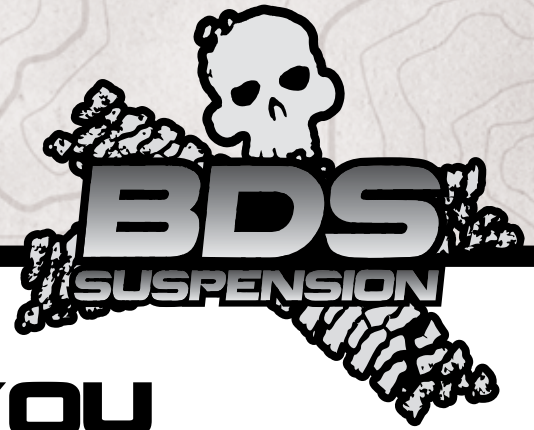


## 4", 6" Suspension System

Ford Super Duty 4WD | 2008-2010



# Read And Understand All Instructions And Warnings Prior To Installation Of System And Operation Of Vehicle.



## THANK YOU

Your truck is about to be fitted with the best suspension system on the market today. That means you will be driving the baddest looking truck in the neighborhood, and you'll have the warranty to ensure that it stays that way for years to come.

Thank you for choosing BDS Suspension!

### BEFORE YOU START

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.

### FOR YOUR SAFETY

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.

### BEFORE INSTALLATION

- Special literature required: OE Service Manual for model/year of vehicle. Refer to manual for proper disassembly/reassembly procedures of OE and related components.
- Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the OE manual.
- 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.
- 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.
- Secure and properly block vehicle prior to installation of BDS Suspension components. Always wear safety glasses when using power tools.
- If installation is to be performed without a hoist, BDS Suspension Co. recommends rear alterations first.
- 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.



### TIRES AND WHEELS

#### 4" Lift

35 x 12.50 on 17x9 with 4.5" backspacing

35 x 12.50 on 17x9 with 4.5" backspacing

35 x 12.50 on 17x9 with 4.5" backspacing

#### 6" Lift

37 x 12.50 on 17x9 with 4.5" backspacing

37 x 12.50 on 17x9 with 4.5" backspacing

37 x 12.50 on 17x9 with 4.5" backspacing



### BEFORE YOU DRIVE

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.

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.

Perform head light check and adjustment.

Re-torque all fasteners after 500 miles. Always inspect fasteners and components during routine servicing.

# CONTENTS OF YOUR KIT

Box Kit - 4" System		
Part #	Qty	Description
02020	2	Radius Arm Drop Bracket
430	1	Bolt Pack
	4	3/4"-16 x 5" bolt grade 8 yellow zinc
	4	3/4"-16 prev. torque nut yellow zinc
	8	3/4" SAE flat washer yellow zinc
434	1	Bolt Pack
	2	8mm-1.25 x 100mm bolt class 8.8 clear zinc
	2	8mm-1.25 x 125mm bolt class 8.8 clear zinc
	2	5/16" SAE flat washer clear zinc
	1	1/8" x 1" cotter pin clear zinc
	2	1/4"-20 x 3/4" bolt grade 5 clear zinc
	2	1/4"-20 prev. torque nut clear zinc
	4	1/4" SAE flat washer clear zinc
	4	5/16"-13 x 1" self-drilling screw clear zinc
	2	Wire Clip
02033	1	Track Bar Bracket
02019	2	Cam Washer
01253	1	Sway Bar Drop Bracket (drv)
01254	1	Sway Bar Drop Bracket (pass)
422	1	Bolt Pack
	4	3/8"-16 x 1-1/4" bolt grade 8 yellow zinc
	4	3/8"-16 prev. torque nut yellow zinc
	8	3/8" USS flat washer yellow zinc
01000	2	Bump Stop Spacer
22501	2	Brake Hard Line Extension
01055	2	Front Brake Line Bracket
01029	2	ABS Line Bracket
083404	1	Pitman Arm
01528	1	Stabilizer Bracket
099000	2	Zip Tie

Box Kit - 6" System		
Part #	Qty	Description
02020	2	Radius Arm Drop Bracket
430	1	Bolt Pack
	4	3/4"-16 x 5" bolt grade 8 yellow zinc
	4	3/4"-16 prev. torque nut yellow zinc
	8	3/4" SAE flat washer yellow zinc
232681	2	Ball Joint Cam
02033	1	Track Bar Bracket
02019	2	Cam Washer
01044	1	Sway Bar Drop Bracket (drv)
01045	1	Sway Bar Drop Bracket (pass)
422	1	Bolt Pack
	4	3/8"-16 x 1-1/4" bolt grade 8 yellow zinc
	4	3/8"-16 prev. torque nut yellow zinc
	8	3/8" USS flat washer yellow zinc
02018	2	Bump Stop Spacer
22502	2	6" Brake Hardline Extension
01049	2	Front Brakeline Bracket
01029	2	ABS Bracket
434	1	Bolt Pack
	2	8mm-1.25 x 100mm bolt class 8.8 clear zinc
	2	8mm-1.25 x 125mm bolt class 8.8 clear zinc
	2	5/16" SAE flat washer clear zinc
	1	1/8" x 1" cotter pin clear zinc
	2	1/4"-20 x 3/4" bolt grade 5 clear zinc
	2	1/4"-20 prev. torque nut clear zinc
	4	1/4" SAE flat washer clear zinc
	4	5/16"-13 x 1" self-drilling screw clear zinc
	2	Wire Clip
083404	1	Pitman Arm
01528	1	Stabilizer Bracket
P01385	1	Mounting Stud
P00932	1	Mounting Stud
099000	2	Zip Tie

## TECH TIPS

### TROUBLESHOOTING INFORMATION FOR YOUR VEHICLE

1. 6" lifts using rear blocks will be 2" lower than the front, upgrade to the rear leaf spring option for a level stance.
2. Vehicles equipped with a 2-piece rear driveshaft will require carrier bearing drop part #123402
3. Although extremely rare, front driveline vibration may occur.
4. U-bolts will not fit dually models.
5. Dropped pitman arm will not fit 10 lug wide track F350.
6. BDS leaf springs are not intended for use beyond the truck's maximum payload capacity. Trucks equipped with overload springs will only have the capacity of a non-overload equipped truck. If heavy payload use is desired, supplemental rear air bags are recommended.

## INSTALLATION INSTRUCTIONS

### INSTALLATION INSTRUCTIONS

### SPECIAL TOOLS

Pitman Arm PULLER

#### FRONT INSTALLATION

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Disconnect the front track bar from the frame mount. Retain hardware.
3. Raise the front of the vehicle and support under the frame rails with jack stands.

*Note: As a result of the location of the long radius arm suspension, support locations are limited. Use your best judgment while supporting the vehicle with sufficient strength stands at appropriate locations. The radius arms will need to move freely during this installation.*

4. Remove the front wheels.
5. Support the front axle with a hydraulic jack.
6. Disconnect the front brake line brackets from the axle and frame (Fig 1). Retain hardware.

**FIGURE 1**



7. Free the hub vacuum lines from the axle (Fig 2, 3).

**FIGURE 2**



**FIGURE 3**



8. Disconnect the sway bar end links from the sway bar. Retain hardware.
9. Remove the OE shock. Retain lower mounting hardware.
10. Remove the ABS line from the retaining tab on the radius arm (Fig 4). Carefully pull the plastic retaining clip free from the radius arm (Fig 5).

**FIGURE 4**



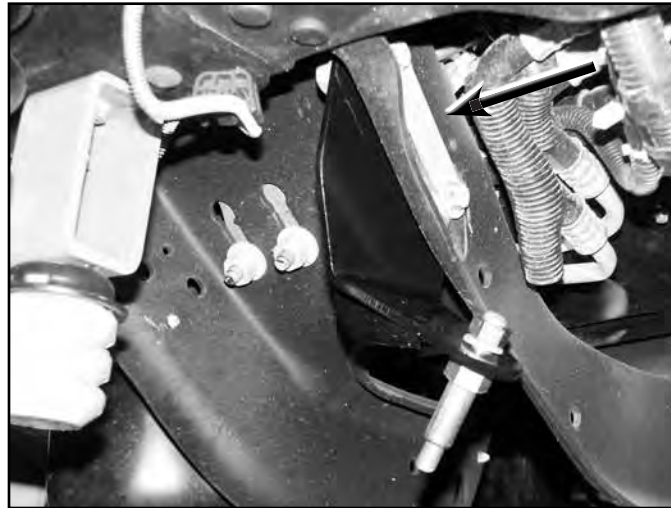
**FIGURE 5**





11. Disconnect the OE steering stabilizer from the drag link and the frame mount. Remove the two nuts (and bolt tab) mounting the stabilizer frame mount and remove it from the vehicle. Retain the frame bracket mounting hardware.
12. Install the new steering stabilizer bracket to the frame using the original hardware (Fig 6). Mount the stabilizer bracket to the back side of the frame crossmember in the original mounting holes. Torque hardware to 55 ft-lbs.
13. Install the provided shock stud in the new stabilizer bracket up through the bracket so that the stud points down (Fig 6). Torque to 50 ft-lbs.

**FIGURE 6**



14. Disconnect the (5) bolts mounting the OE track bar bracket to the frame. Remove bracket and retain hardware.
15. Disconnect the drag link from the pitman arm. Retain hardware. Free the drag link from the pitman arm with a pickle fork.
16. Remove the pitman arm nut. Note the indexing of the pitman arm in relation to the steering sector shaft and remove the pitman arm from the steering box using the appropriate puller.
17. Remove all of the dri-lock compound on the threads of the OE nut and steering sector shafts. This is important to ensure that the new thread lock compound will adhere properly.
18. Apply a bead of the supplied thread lock all the way around the threads of the OE nut.
19. Install the new pitman arm (indexed the same as the OE) and fasten with the OE nut. Torque the nut to 350 ft-lbs.
20. Lower the axle until the OE coil springs are free and remove the springs from the vehicle. Retain the upper spring isolator for use with the new springs.

*Note: Do not over extend the brake lines.*

21. Install the new track bar bracket using the stock mounting hardware as it was removed (Fig 7). Torque all (5) mounting bolts to 129 ft-lbs.

**FIGURE 7 (FRONT)**



**FIGURE 7 (REAR)**



22. Pull the OE front bump stops free from the bump stop cups and remove the bolt mounting the cup to the frame (Fig 8).

**FIGURE 8**



23. Position the cup on the provided bump stop extension. (4" Kit - 01000, 6" Kit - 02018) The alignment tab on the bump stop cup will fit in the second hole in the extension.
24. Install a provided 8mm x 100mm bolt (6" Kit use 8mm x 125mm) and 5/16" SAE washer (BP 434) through the cup extension and attach to the frame in the original hole. Use Loctite on the threads and torque to 20 ft-lbs (Fig 9).

**FIGURE 9**



25. Loosen the four radius arm-to-axle mounting bolts but do not remove. Once again, ensure that the front axle is well supported.
26. Starting with the passenger's side, remove the upper radius arm-to-axle mounting bolt. Remove the radius arm-to-frame bolt as well. This will allow the radius arm to swing down away from the frame.
27. Install the new radius arm brackets in the OE frame bracket (Fig 10) with two  $\frac{3}{4}$ " x 5" bolts, nuts and four SAE washers from bolt pack #430. Torque bolts to 250 ft-lbs. Note: May need to clearance the front mounting hole in the OE bracket slightly to provide proper bolt fitment.

**FIGURE 10**

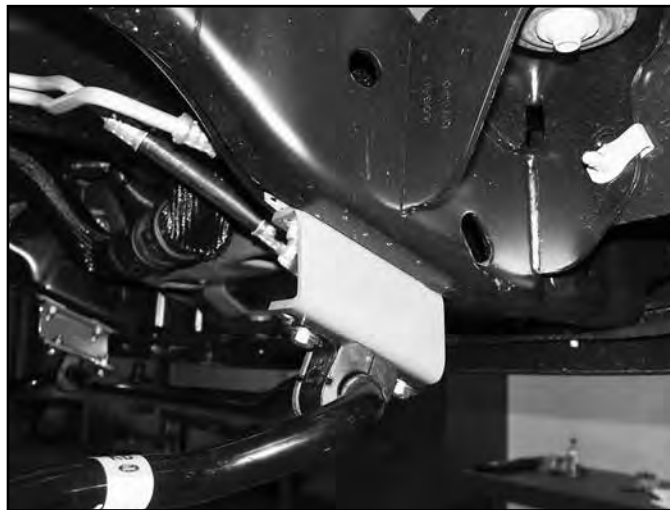


28. Swing the radius arm up into the new bracket and fasten with the original mounting hardware. Leave loose.
29. Repeat this procedure on the driver's side of the vehicle.
30. With both radius arms relocated, reattach the upper radius arm-to-axle mounting bolts. Leave loose. Note: All (6) radius arm bolts will be torqued with the weight of the vehicle on the axle.
31. Install the new coil springs in conjunction with the OE top isolator. Rotate the springs so that they seat in the bottom coil perch properly.
32. Install the new shocks using the original lower mounting hardware and the provided upper mounting hardware. Torque the lower bolt to 100 ft-lbs and the upper until the bushings begin to swell.

*Note the orientation of the front sway bar (top versus bottom). Disconnect the sway bar from the frame and remove from the vehicle. Retain hardware.*

33. Install the provided sway bar drop bracket to the original sway bar frame mounting locations with the original hardware. Mount the drop bracket with the open face toward the inside of the vehicle and the bracket offset toward the front. Torque hardware to 30 ft-lbs.
34. Attach the sway bar to the new drop brackets in the correct orientation with the 3/8" hardware from bolt pack #422. Torque hardware to 30 ft-lbs (Fig 11).

**FIGURE 11**



35. Install the sway bar link ends to the sway bar and secure with the OE hardware. Torque to 90 ft-lbs.
36. Remove the plastic ABS retaining tab from the radius arm. Discard the tab.
37. Attach the provided ABS relocation bracket (01029) to the radius arm using the existing slot (where the plastic tab was removed) and the middle hole in the bracket. Fasten the bracket with a 5/16" self-drilling screw (BP 434).

*Note: The longer portion of the bracket goes up.*

38. Attach the bracket to the radius arm through the lower hole so that the bracket is straight up. Fasten the bracket with a 5/16" self-drilling screw (BP 434). Using the hole in the bracket as a template, drill a 1/4" hole in the radius arm. (Fig 12)



**FIGURE 12**



39. Attach the ABS line to the top hole in the bracket with the provided wire clamps and ¼" hardware (BP 434). Tighten hardware securely.
40. Reconnect ABS line to radius arm in the original front hole with the OE plastic clip. Zip tie the driver's side hub vacuum line to the ABS wire. Reconnect the passenger's side hub vacuum line to the original mounting hole.
41. Install the provided brake line bracket to the frame with the original bolt and mounting hole. Torque bolt to 20 ft-lbs.
42. Separate the OE rubber brake line from the hard line. Install the provided hard line extension on the OE hard line and tighten the fitting securely.
43. Remove the brake line clip and factory brake line bracket from the rubber line. Retain the clip and discard the bracket.
44. Run the end of the rubber line through the new bracket and attach to the hard line extension. Tight the fitting securely and retain the line to the bracket with the OE clip. (Fig 13)

**FIGURE 13**



45. Properly bleed the brake system of air and top off the brake fluid reservoir with the proper type of fluid (see owners manual).

#### **ALIGNMENT CAM INSTALLATION (6" ONLY)**

46. Remove the cotter pin from the upper ball joint.
47. Loosen the upper ball joint stud until the nut is level with the top of the stud. Strike the axle "ear" near the upper ball joint to release the ball joint to sleeve taper.

*Note: The top of the stud can also be struck using a soft blow hammer to aid in loosening the taper. Take care not to damage the stud/nut threads.*

48. Remove the OE ball joint sleeve from the axle using the appropriate removal tool (SPC #41550 or equivalent).

49. Install the new sleeve with the arrow on the top of the sleeve pointing toward the front of the vehicle. Using the old sleeve, pound down on the new sleeve to seat it on the ball joint taper. Make sure that the flat of the sleeve is flush with the flat of the axle.
50. Install and torque the OE ball joint nut to 120 ft-lbs. Install the cotter pin. Note: Do not loosen the nut to install the cotter pin.
51. Install the wheels and lower the vehicle to the ground.
52. Attach the track bar to the new bracket with the OE hardware. Turn the steering wheels to aid in aligning the track bar in the bracket. Install the provided cam washers between the alignment tabs on the bracket. Position the cam washers so that the hole is closer to the driver's side (Fig 14) for 4" kits. The hole should be closer to the passenger's side for 6" kits. Torque hardware to 406 ft-lbs.
53. Torque all six radius arm bolts to 250 ft-lbs.

**FIGURE 14**



## REAR INSTALLATION

54. Raise the rear of the vehicle and support with jack stands under the frame rails just ahead of the spring hangers.
55. Remove the wheels.
56. Support the axle with a hydraulic jack.
57. Remove the OE shocks. Retain all mounting hardware.

### BLOCK KIT ONLY (4" ONLY)

58. Disconnect the passenger's side spring u-bolts.
59. Lower the axle enough to place the provided 4" lift block between the axle and OE block.  
*Note: to eliminate stacking blocks, use BDS #013518 or BDS #013519 and remove factory block for a level stance.*
60. Ensure that the mounting surfaces are clean of dirt and corrosion and install the new block so that the short end is toward the front. Also make certain that the OE block is on top of the new block and that the bump stop wing is pointing inward.
61. Raise the axle to engage all of the block/spring alignment pins. Fasten the entire assembly with the provided u-bolts, high nuts and washers. Snug but do not torque the u-bolts at this time.
62. Repeat block installation of the driver's side. Take care not to over extend the brake lines.  
*Note: You may disconnect the parking brake mounting tab on the spring plate before removing the u-bolts and reattach after the installation is complete (Fig 15).*

### LEAF SPRING KIT ONLY

63. Disconnect the passenger's side u-bolts and lower the axle from the spring.  
**4" Kit: Remove the OE block, it will not be reused.**  
**6" Kit: Retain OE block to be installed with new spring.**
64. Loosen and remove the front spring-to-frame and rear shackle-to-frame bolts and remove the spring from the vehicle.
65. Remove the shackle from the OE spring and loosely install it on the new rear spring. Be sure that the shackle is oriented on the new spring identical to the old. The shackles mount of the longer end of the spring (opposite of the end marked with "FRT").

66. Install the new spring in the vehicle with the OE bolts. Leave hardware loose. All of the spring pivot bolts will be torqued with the weight of the vehicle on the springs.
67. Remove all dirt and corrosion from the axle spring pad and raise the axle to the spring while aligning the center pin with the center pin hole. Fasten the spring with the provided u-bolts. Snug but do not torque u-bolts at this time.
68. Repeat the procedure on the driver's side. Disconnect the parking brake cable bracket from the spring plate and retain hardware (Fig 15). Take care not to over extend the brake lines.

**FIGURE 15**



69. Reattach parking brake cable bracket to the spring plate. If more slack is needed remove the cable from the rear-most cable ring on the frame rail (Fig 16).

**FIGURE 16**



### **BLOCK AND LEAF SPRINGS KITS**

70. Install the new shocks with the original mounting hardware.
71. Install wheels and lower the vehicle to the ground.
72. With the weight of the vehicle on the axle, torque the u-bolts to 130-150 ft-lbs.
73. Check all hardware for proper torque.
74. Adjust steering wheel.
75. Adjust headlights
76. Check hardware after 500 miles.