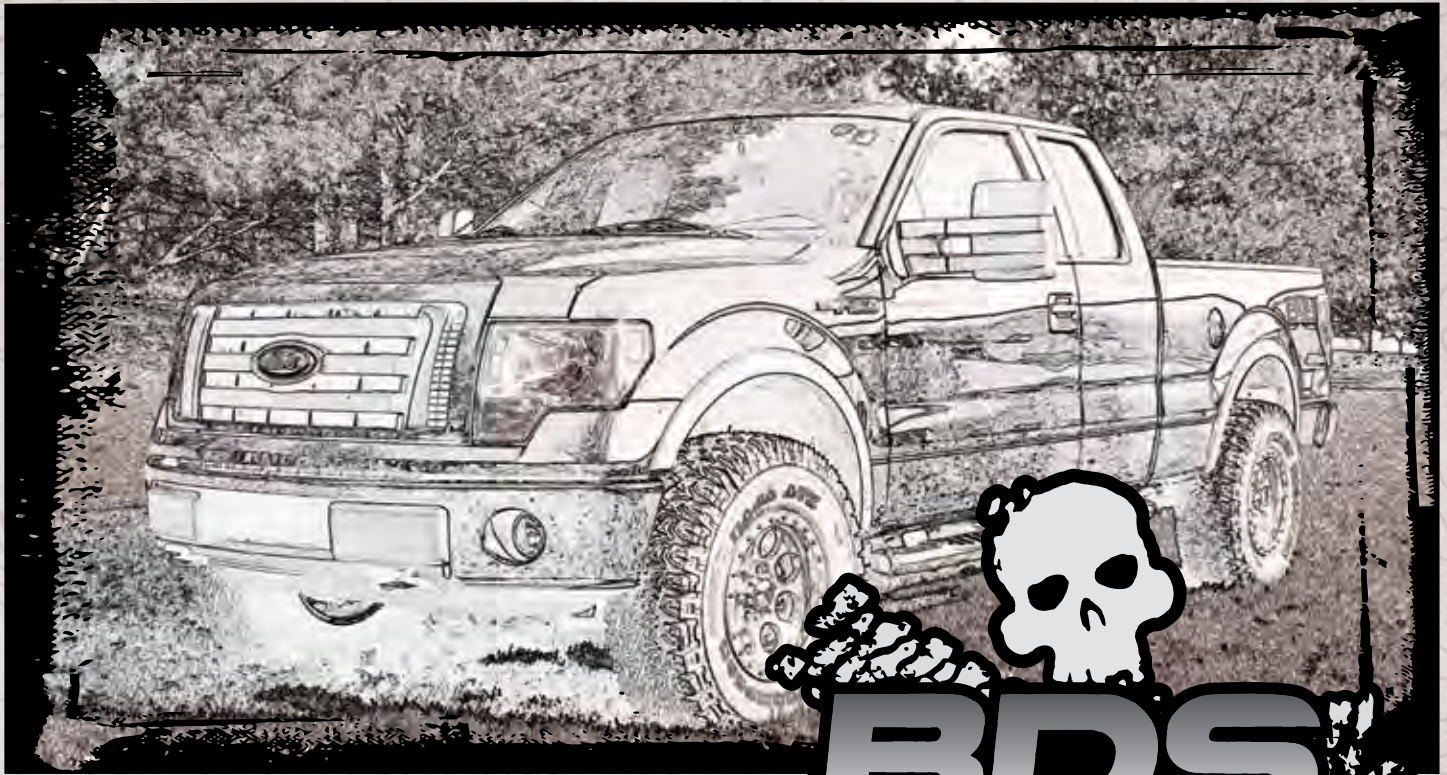


Installation instructions



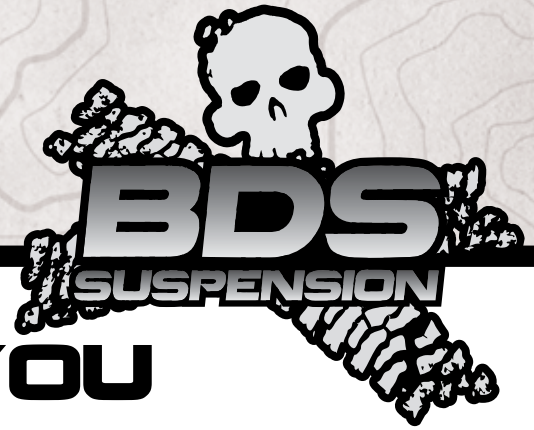
Part#: 013250 - 2014-2016

***For 09-13 models, see attached
instructions starting on page 12**

2.5" Strut Spacer Lift

Ford F150 2WD or 4WD | 2014-2016

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.



TRACTION CONTROL

In an effort to reduce the risk of rollover crashes the National Highway Traffic Safety Administration (NHTSA) established the Federal Motor Vehicle Safety Standard (FMVSS) No. 126 requiring all new passenger vehicles under 10,000 lbs GVWR include an electronic stability control (ESC) system as standard equipment. Effective August 2012 this law requires aftermarket products to be compliant with these same standards.



TIRES AND WHEELS

2.5" Lift:

35x12.50x17 with 5.5" of backsparing and trimming of bumper valance

33x12.50x17 with Stock - 5.5" of backsparing - no trimming required.



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

013250		
Part #	Qty	Description
02080	2	Strut Top Spacer
02082	2	Preload Spacer
659	1	Bolt Pack
	6	7/16"-14 x 2" bolt grade 8 yellow zinc
	6	7/16"-14 nut - yellow zinc (non locking nut)
	6	7/16" split lock washer - yellow zinc
	6	7/16" SAE Washer - yellow zinc

013109 - Optional Rear 1" Block Kit		
Part #	Qty	Description
02084	2	1" Bolt-on Block
120400FCP	4	1/2" x 4" Center Pin/Nut
4043	4	9/16" x 3-1/8" x 10-1/2" U-Bolt/Nuts/Washers



TROUBLESHOOTING INFORMATION FOR YOUR VEHICLE

1. A high quality strut compressor is recommended, if one is not available, it is recommended to take the struts to a shop that has one and allow a trained technician to install the preload spacers.

**TECH
TIPS**

INSTALLATION INSTRUCTIONS

PRE-INSTALLATION

1. Park the vehicle on a flat, clean surface and block the rear wheels for safety.



Tip

This kit is designed as a two-piece lift system. The combination of a bolt-on strut mount and spring preload ring yields 2.5" of lift. Installation of the preload ring requires disassembly of the struts. This should be done with caution and with the proper tools. If you do not have a proper quality strut compressor tool the struts can be removed from the vehicle and taken to a shop to have the preload ring installed. In addition, the preload rings can be omitted and thus not require disassembly of the struts. If the installation is completed with just the bolt-on strut mount installed the system will yield 2" of lift.

SPECIAL TOOLS

Strut Compressor
30mm & 27mm socket



Caution

2011 and newer models equipped with EPAS (Electronic Power Assist Steering), disconnect the power steering control module connector to avoid arcing of the contacts in the internal power relay from a hammer blow or impact wrench.



Caution

2014 model trucks are slightly different than 2009-2013 model trucks. Pay particular attention to the strut spacer orientation on 2014 model year in step #17.

FRONT INSTALLATION

2. Raise the front of the vehicle and support with jack stands under the frame rails.
3. Remove the wheels.
4. Disconnect the driver's and passenger's side front sway bar links from the sway bar. Save sway bar link nuts. (Fig 1)

FIGURE 1



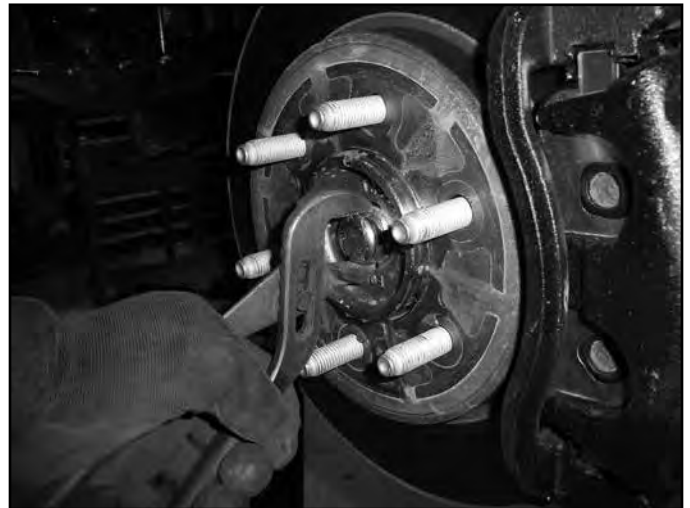
COMPLETE THIS PORTION OF THE INSTALLATION ON ONE SIDE AT A TIME

5. Disconnect the front brake line and ABS line from the steering knuckle. Save bolts. (Fig 2)

FIGURE 2



FIGURE 3



6. Locate the small dust cap on the hub. (Fig 3) Carefully remove the cap using a pair of channel lock (or any wide jaw style) pliers. Save dust cap.
7. Remove the CV retaining nut (which was covered by the dust cap). Save nut.
8. Remove the steering tie rod end nut from the tie rod end at the steering knuckle. Thread the nut back on a couple of turns by hand. Strike the knuckle near the tie rod end to dislodge it from the knuckle. (Fig 4) Remove the nut and remove the tie rod end from the knuckle. Save nut.

FIGURE 4



9. Remove the upper ball joint nut and thread back on a couple of turns by hand. Strike the knuckle near the ball joint to dislodge it from the knuckle. (Fig 5) Remove the nut and remove the ball joint from the knuckle. Save nut. Allow the knuckle to rest back away from the front strut.

FIGURE 5



10. Support the lower control arm with an appropriate jack. Remove the three upper strut mounting nuts at the frame. (Fig 6) DO NOT remove the center strut rod nut. Save nuts.

FIGURE 6



11. Remove the lower strut mount bolt/nut at the lower control arm. (Fig 4) Lower the control arm and remove the strut from the vehicle. Save lower strut hardware.
12. Place alignment marks on the upper strut mount, isolator, spring, strut body and lower coil seat for reference when the strut is reassembled. (Fig 7A, B, C)

FIGURE 7A

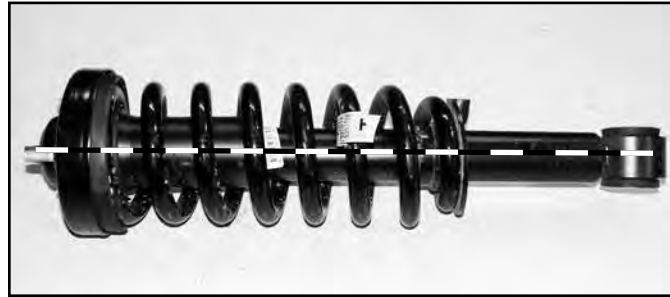


FIGURE 7B



FIGURE 7C



! Caution *Coil Spring is under extreme pressure. Improper removal/installation of coil spring could result in serious injury or death. Use only a high-quality spring compressor and carefully read and follow the manufacturer's instructions.*

13. Using an appropriate strut compressor, compress the coil spring and remove the upper strut nut. (Fig 8) Remove the strut and upper strut mount/isolator from the coil spring.

FIGURE 8



14. Working on the upper strut mount, remove the rubber isolator (Fig 9) from the strut mount and install the provided preload ring (02082 - Fig 10). Reinstall the rubber isolator and line up the align marks made earlier.

FIGURE 9



FIGURE 10



15. Rotate the top plate 180 degrees. This will allow the lower bar pin to reassemble in the lower control arm smoothly. Note the before and after strut pictures.
16. Reassemble the strut. Make sure to line up all of the alignment marks. Fasten the strut rod with the original nut. Torque nut to 35 ft-lbs.
17. Install the 7/16" bolts into the holes marked "D" only. Attach strut spacer on top of the factory strut. Tighten to 40 ft-lbs. (Fig 11, 12, 13).

FIGURE 11



FIGURE 12



FIGURE 13



18. Install the modified strut assembly into the upper frame mount by aligning the studs in the new spacer with the original mounting holes. Loosely fasten the strut with the provided 7/16" nuts and washers. Note: The driver's side will have the correct notation on the spacer, the passengers side notation will be incorrect due to model year changeover in 2014.
19. Install the bottom of the strut back into the original mount with the factory hardware, leave hardware loose. With the lower hardware installed, go back and torque the new upper hardware to 40 ft-lbs.
20. With the strut installed, reconnect the knuckle to the upper ball joint with the original nut. While connecting the upper ball joint, be sure that the CV shaft properly aligns into the hub. (Fig 14) Torque ball joint nut to 85 ft-lbs.

FIGURE 14



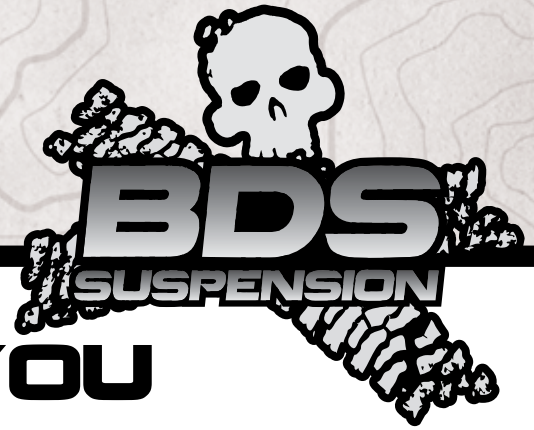
21. Be sure the CV is properly seated in the hub and reinstall the original retaining nut. Torque nut to 20 ft-lbs. Reinstall the hub dust cap by tapping in place with a small hammer.
22. Reconnect the brake line and ABS line to the steering knuckle with the original bolt. Torque bolt to 10 ft-lbs.
23. Attach the steering tie rod end to the steering knuckle with the original nut. Torque to 100 ft-lbs.
24. With both sides complete, reconnect the sway bar links to the sway bar with the original hardware. Torque to 30 ft-lbs.

25. Install the wheels and lower the vehicle to the ground. Torque lug nuts to 150 ft-lbs in a crossing pattern.
26. Bounce the front of the vehicle to settle the suspension. Torque the lower strut mounting bolts to 80 ft-lbs.
27. Check all hardware for proper torque. Check hardware after 500 miles.
28. The vehicle will need a complete front end alignment.

REAR INSTALLATION (OPTIONAL KIT #013109)

1. Block the front wheels for safety.
2. Raise the rear of the vehicle and support with jack stands under the frame rails.
3. Remove the rear wheels.
4. Support the rear axle under the differential with a floor jack.
5. Disconnect the rear shocks from the axle mounts. Save hardware.
6. Remove the passenger's side u-bolts and lower the axle away from the leaf spring. Remove the factory block from the axle and set aside.
7. Using (2) c-clamps, clamp the leaf pack on each side of the center pins. Remove the two center pins from the leaf pack.
8. Install the new provided 1" bolt-on block (02084) with the two new center pins. Run the pins up through the block and leaf pack. Fasten with the provided nuts and torque to 50 ft-lbs.
9. Reinstall the factory block on the axle and raise the axle/block up to the spring. Align the center pin heads in the block holes. Fasten the axle to the spring with the new provide u-bolts, nuts and washers. Snug u-bolts.
10. Repeat the block installation on the driver's side.
11. Reattached the factory shocks to the axle mounts with the factory hardware. Torque bolts to 60 ft-lbs.
12. With both sides complete, install wheels and lower the vehicle to the ground. Torque lug nuts to 150ft-lbs in a crossing pattern.
13. Bounce the rear of the vehicle to settle the suspension. Torque u-bolts to 100-120 ft-lbs.

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



THANK YOU

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BEFORE YOU START

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FOR YOUR SAFETY

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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.

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.



TRACTION CONTROL

In an effort to reduce the risk of rollover crashes the National Highway Traffic Safety Administration (NHTSA) established the Federal Motor Vehicle Safety Standard (FMVSS) No. 126 requiring all new passenger vehicles under 10,000 lbs GVWR include an electronic stability control (ESC) system as standard equipment. Effective August 2012 this law requires aftermarket products to be compliant with these same standards.



TIRES AND WHEELS

FITMENT GUIDE

2.5" Lift:

35x12.50x17 with 5.5" of backspacing and trimming of bumper valance
33x12.50x17 with Stock - 5.5" of backspacing - no trimming required.



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

013250

Part #	Qty	Description
02080	2	Strut Top Spacer
02082	2	Preload Spacer
659	1	Bolt Pack
	6	7/16"-14 x 2" bolt grade 8 yellow zinc
	6	7/16"-14 nut - yellow zinc (non locking nut)
	6	7/16" split lock washer - yellow zinc
	6	7/16" SAE Washer - yellow zinc



013109 - Optional Rear 1" Block Kit

Part #	Qty	Description
02084	2	1" Bolt-on Block
120400FCP	4	1/2" x 4" Center Pin/Nut
4043	4	9/16" x 3-1/8" x 10-1/2" U-Bolt/Nuts/Washers

TROUBLESHOOTING INFORMATION FOR YOUR VEHICLE

1. A high quality strut compressor is recommended, if one is not available, it is recommended to take the struts to a shop that has one and allow a trained technician to install the preload spacers.

**TECH
TIPS**

INSTALLATION INSTRUCTIONS

PRE-INSTALLATION

1. Park the vehicle on a flat, clean surface and block the rear wheels for safety.



Tip This kit is designed as a two-piece lift system.

The combination of a bolt-on strut mount and spring preload ring yields 2.5" of lift. Installation of the preload ring requires disassembly of the struts. This should be done with caution and with the proper tools. If you do not have a proper quality strut compressor tool the struts can be removed from the vehicle and taken to a shop to have the preload ring installed. In addition, the preload rings can be omitted and thus not require disassembly of the struts. If the installation is completed with just the bolt-on strut mount installed the system will yield 2" of lift.

! Caution 2011 and newer models equipped with EPAS (Electronic Power Assist Steering), disconnect the power steering control module connector to avoid arcing of the contacts in the internal power relay from a hammer blow or impact wrench.

! Caution 2014 model trucks are slightly different than 2009-2013 model trucks. See separate instruction sheet for complete installation on a 2014 and newer model.

SPECIAL TOOLS

Strut Compressor
30mm & 27mm socket

FRONT INSTALLATION

2. Raise the front of the vehicle and support with jack stands under the frame rails.
3. Remove the wheels.
4. Disconnect the driver's and passenger's side front sway bar links from the sway bar. Save sway bar link nuts. (Fig 1)

FIGURE 1



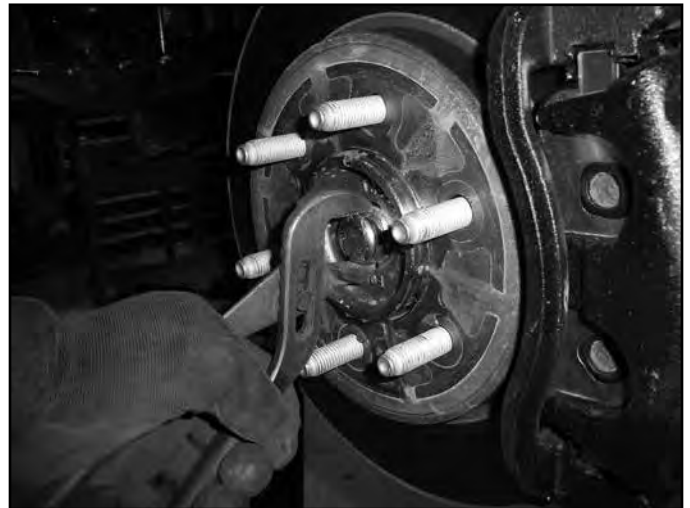
COMPLETE THIS PORTION OF THE INSTALLATION ON ONE SIDE AT A TIME

5. Disconnect the front brake line and ABS line from the steering knuckle. Save bolts. (Fig 2)

FIGURE 2



FIGURE 3



6. Locate the small dust cap on the hub. (Fig 3) Carefully remove the cap using a pair of channel lock (or any wide jaw style) pliers. Save dust cap.
7. Remove the CV retaining nut (which was covered by the dust cap). Save nut.
8. Remove the steering tie rod end nut from the tie rod end at the steering knuckle. Thread the nut back on a couple of turns by hand. Strike the knuckle near the tie rod end to dislodge it from the knuckle. (Fig 4) Remove the nut and remove the tie rod end from the knuckle. Save nut.
9. Remove the upper ball joint nut and thread back on a couple of turns by hand. Strike the knuckle near the ball joint to dislodge it from the knuckle. (Fig 5) Remove the nut and remove the ball joint from the knuckle. Save nut. Allow the knuckle to rest back away from the front strut.

FIGURE 4



FIGURE 5



10. Support the lower control arm with an appropriate jack. Remove the three upper strut mounting nuts at the frame. (Fig 6) DO NOT remove the center strut rod nut. Save nuts.

FIGURE 6



11. Remove the lower strut mount bolt/nut at the lower control arm. (Fig 4) Lower the control arm and remove the strut from the vehicle. Save lower strut hardware.
12. Place alignment marks on the upper strut mount, isolator, spring, strut body and lower coil seat for reference when the strut is reassembled. (Fig 7A, B, C)

FIGURE 7A

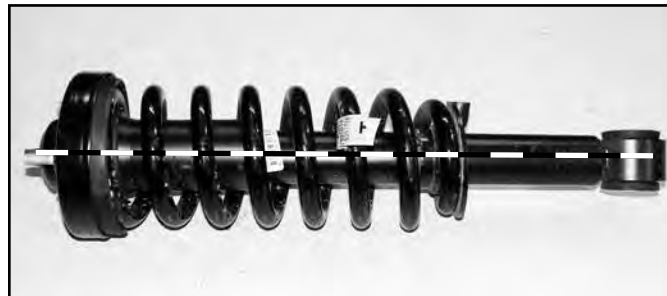


FIGURE 7B



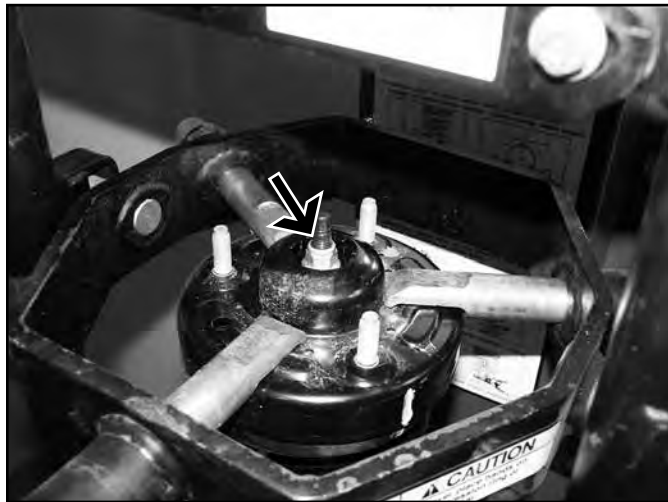
FIGURE 7C



! Caution *Coil Spring is under extreme pressure. Improper removal/installation of coil spring could result in serious injury or death. Use only a high-quality spring compressor and carefully read and follow the manufacturer's instructions.*

13. Using an appropriate strut compressor, compress the coil spring and remove the upper strut nut. (Fig 8) Remove the strut and upper strut mount/isolator from the coil spring.

FIGURE 8



14. Working on the upper strut mount, remove the rubber isolator (Fig 9) from the strut mount and install the provided preload ring (02082 - Fig 10). Reinstall the rubber isolator and line up the align marks made earlier.

FIGURE 9



FIGURE 10



15. Reassemble the strut. Make sure to line up all of the alignment marks. Fasten the strut rod with the original nut. Torque nut to 35 ft-lbs.
16. 2009-2013 model years: Locate the new strut spacers. Install the 7/16" x 2" bolts into the holes for correct side (P = Passenger, D = Driver). (Fig 11a, 11b, 11c)

FIGURE 11A

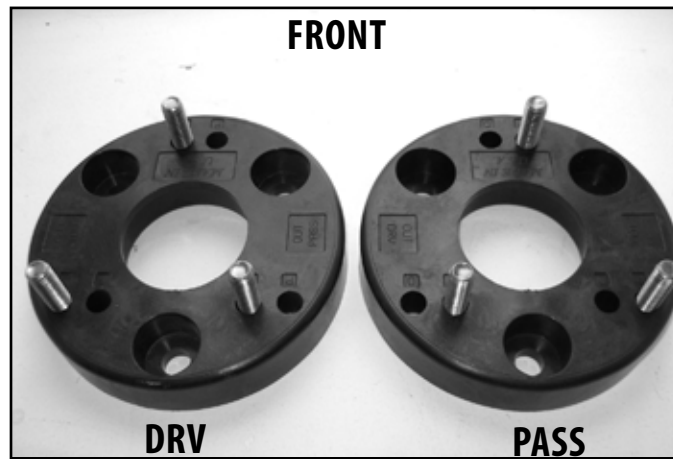


FIGURE 11B



FIGURE 11C- DRV SIDE SHOWN



- 2009-2013 model years: Install the new spacer on the strut and fasten with the original mount nuts. The spacers are labeled to indicate which side will face 'out' on the vehicle once they are installed. The studs need to be opposite of the factory studs and the assembly will only fit on the strut one way. (Fig 12)

FIGURE 12 - PASS SIDE SHOWN



- Install the modified strut assembly into the upper frame mount by aligning the studs in the new spacer with the original mounting holes. Loosely fasten the strut with the provided 7/16" nuts and washers.
- Install the bottom of the strut back into the original mount with the factory hardware, leave hardware loose. With the lower hardware installed, go back and torque the new upper hardware to 40 ft-lbs.
- With the strut installed, reconnect the knuckle to the upper ball joint with the original nut. While connecting the upper ball joint, be sure that the CV shaft properly aligns into the hub. (Fig 14) Torque ball joint nut to 85 ft-lbs.

FIGURE 14



- Be sure the CV is properly seated in the hub and reinstall the original retaining nut. Torque nut to 20 ft-lbs. Reinstall the hub dust cap by tapping in place with a small hammer.
- Reconnect the brake line and ABS line to the steering knuckle with the original bolt. Torque bolt to 10 ft-lbs.
- Attach the steering tie rod end to the steering knuckle with the original nut. Torque to 100 ft-lbs.
- With both sides complete, reconnect the sway bar links to the sway bar with the original hardware. Torque to 30 ft-lbs.
- Install the wheels and lower the vehicle to the ground. Torque lug nuts to 150 ft-lbs in a crossing pattern.
- Bounce the front of the vehicle to settle the suspension. Torque the lower strut mounting bolts to 350 ft-lbs.
- Check all hardware for proper torque. Check hardware after 500 miles.
- The vehicle will need a complete front end alignment.

REAR INSTALLATION (OPTIONAL KIT #013109)

1. Block the front wheels for safety.
2. Raise the rear of the vehicle and support with jack stands under the frame rails.
3. Remove the rear wheels.
4. Support the rear axle under the differential with a floor jack.
5. Disconnect the rear shocks from the axle mounts. Save hardware.
6. Remove the passenger's side u-bolts and lower the axle away from the leaf spring. Remove the factory block from the axle and set aside.
7. Using (2) c-clamps, clamp the leaf pack on each side of the center pins. Remove the two center pins from the leaf pack.
8. Install the new provided 1" bolt-on block (02084) with the two new center pins. Run the pins up through the block and leaf pack. Fasten with the provided nuts and torque to 50 ft-lbs.
9. Reinstall the factory block on the axle and raise the axle/block up to the spring. Align the center pin heads in the block holes. Fasten the axle to the spring with the new provide u-bolts, nuts and washers. Snug u-bolts.
10. Repeat the block installation on the driver's side.
11. Reattached the factory shocks to the axle mounts with the factory hardware. Torque bolts to 60 ft-lbs.
12. With both sides complete, install wheels and lower the vehicle to the ground. Torque lug nuts to 150ft-lbs in a crossing pattern.
13. Bounce the rear of the vehicle to settle the suspension. Torque u-bolts to 100-120 ft-lbs.