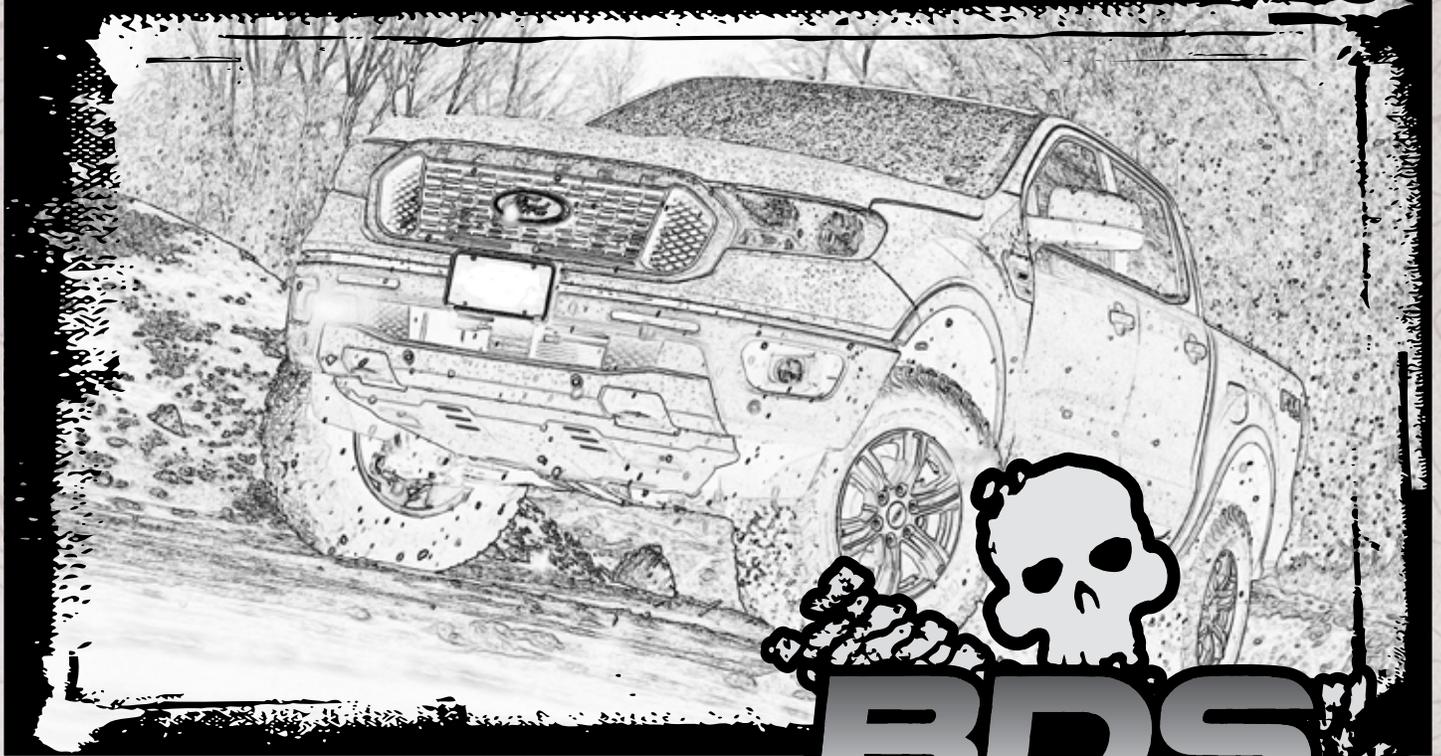


INSTALLATION GUIDE



Part#: 013203

HARDCORE LIMITED LIFETIME WARRANTY

2" Strut Spacer / Preload Lift

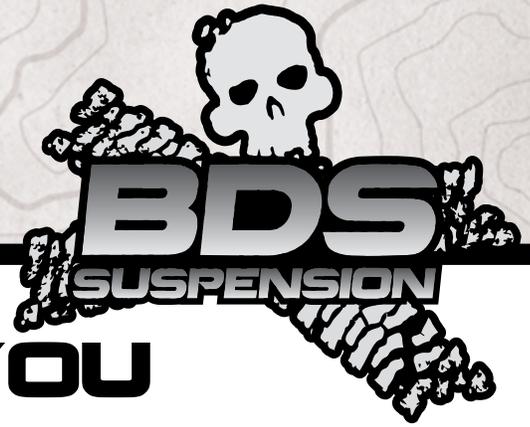
Ford Ranger 4wd | 2019

Rev. 022119

491 W. Garfield Ave., Coldwater, MI 49036 • Phone: 517-279-2135

Web: www.bds-suspension.com • E-mail: tech-bds@ridefox.com

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.



Visit 560plus.com for more information.

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" Lift:

285/70 R17 with stock BS on stock wheels
285/65 R18 with stock BS on stock wheels

285/55 20x9 with 6.5" BS *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

BDS013203		
Part #	Qty	Description
03628	2	Strut Top Spacer
03644	2	Preload Spacer
455	1	Bolt Pack
	6	10mm-1.5 Top Lock Flange Nut

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.
2. Aftermarket wheels must have a minimum of 93.1 mm center bore

**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" 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.



Caution 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.

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 steering knuckle. Save sway bar link nuts. (Fig 1)

FIGURE 1



SPECIAL TOOLS

Strut Compressor
36mm socket

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

5. Disconnect the front brake line from the steering knuckle and the frame (Fig. 2A & B) and ABS line (Fig. 2C) from the steering knuckle. Save bolts.

FIGURE 2A

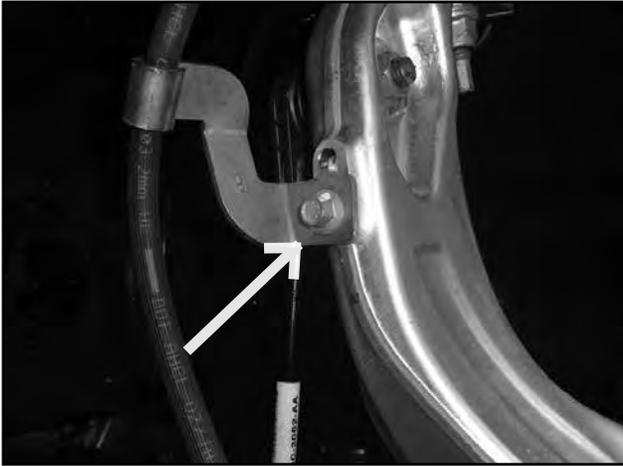
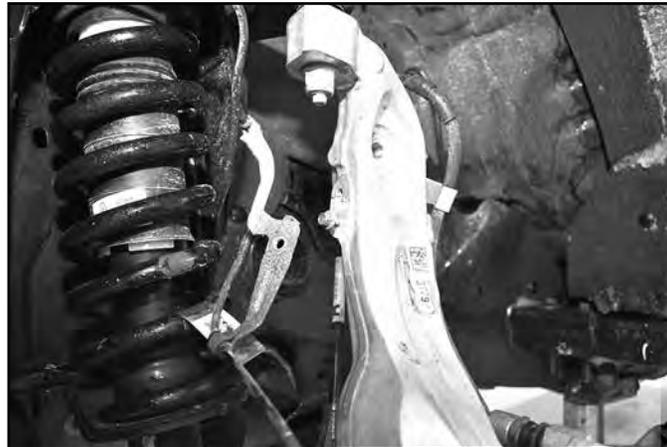


FIGURE 2B



FIGURE 2C



6. Remove the CV retaining nut. Save nut.

FIGURE 3



7. 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



8. 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.



Tip A bungee strap can be used to hold the knuckle from falling forward and pulling the CV shaft out.

FIGURE 5A



FIGURE 5B



9. 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. Discard the hardware.

FIGURE 6



10. Use an air hammer to dislodge the CV shaft from the hub. Be careful not to hit the threads on the CV shaft.

FIGURE 7



11. Remove the lower strut mount nuts at the lower control arm (Fig. 8A). Lower the control arm and remove the strut from the vehicle (Fig 8B). Save lower strut hardware. Make sure not to overextend any brake or ABS lines. The ABS sensor may need to be removed from the steering knuckle to gain enough slack.

 **Tip** Leave the lower control arm bolts tight to aid in keeping the knuckle assembly from failing.

 **Tip** If a bungee strap was used to support the knuckle it can be removed now. Slowly lower the lower control arm until the strut is removed being careful not to dislodge the CV shaft from the inner joint. The CV shaft can easily be pulled out from the inner joint.

FIGURE 8A

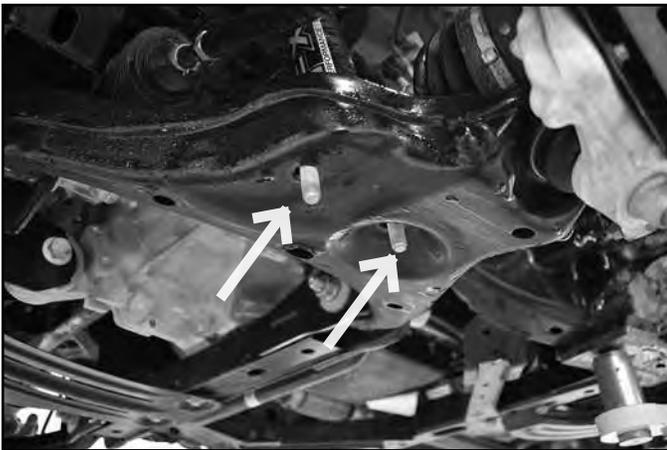


FIGURE 8B



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 9A, B, and C).

FIGURE 9A

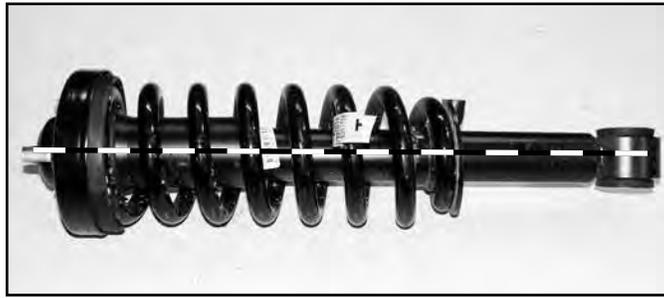


FIGURE 9B



FIGURE 9C



! 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 10)

FIGURE 10



14. Remove the lower strut assembly from the strut compressor, the top hat and spring can remain in the strut compressor.
15. Remove the dust boot, bump stop, plastic ring, and the lower spring seat from the strut body (Fig. 11A and B). After fully disassembled the strut should be the same as Figure 11C.

FIGURE 11A



FIGURE 11B

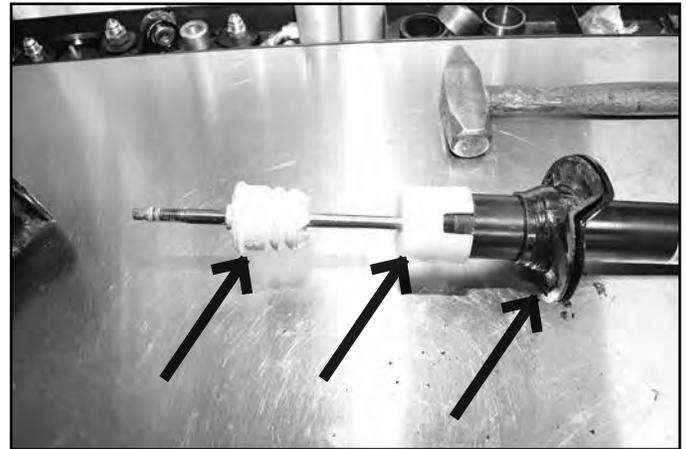


FIGURE 11C



16. Install the preload spacer ring on the strut body such that the groove in the preload spacer goes over the snap ring on the strut body (Fig. 12A.)



Tip *The preload spacer ring may need to be tapped down the strut body. The lower spring seat can be used to help seat the preload spacer all the way down to the snap ring.*

17. Reinstall the lower coil seat, plastic ring, bump stop, and dust boot in reverse order (Fig. 12B).

FIGURE 12A



FIGURE 12B



18. 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.

 **Tip** *More preload will need to be put into the spring to reinstall the strut nut.*

19. Install the upper strut spacer on the strut (Fig. 13). The strut spacer will only install one with with the alignment pin on the strut.

FIGURE 13



20. Install the bottom of the strut back into the original mount with the factory hardware, leave hardware loose.
21. Push down on the lower control arm assembly and 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 10mm nuts from BP 455.

 **Tip** *Be careful again to not dislodge the inner CV joint.*

22. Torque the new upper hardware to 40 ft-lbs. Torque the factory lower hardware to 78 ft-lbs.
23. 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 32 ft-lbs.

FIGURE 14



24. Be sure the CV is properly seated in the hub and reinstall the original retaining nut. Torque nut to factory specs.
25. Reconnect the brake line bracket and ABS line to the steering knuckle and frame with the original bolts and nut. Torque hardware to 10 ft-lbs.
26. Attach the steering tie rod end to the steering knuckle with the original nut. Torque to factory specs.
27. With both sides complete, reconnect the sway bar links to the sway bar with the original hardware. Torque to 32 ft-lbs.
28. Install the wheels and lower the vehicle to the ground. Torque lug nuts to 120 ft-lbs in a crossing pattern.
29. The vehicle will need a complete front end alignment.
30. Check all hardware for proper torque. Check hardware after 500 miles.



WE WANT TO SEE YOUR RIDE!

Grab photos of your BDS-equipped truck in action and send them in for a chance to be featured. Send it in to our Bad Ass Rides customer gallery at bds-suspension.com/bar and post them on the BDS Fan Page on Facebook at facebook.com/BDSSuspensions. Don't forget about your BDS swag! BDS offers t-shirts, hoodies, decals and more available on the BDS website or through your local BDS distributor.

TIME TO HAVE SOME FUN

Thank you for choosing BDS Suspension.

For questions, technical support and warranty issues relating to this BDS Suspension product, please contact your distributor/installer before contacting BDS Suspension directly.