belltech®

INSTALLATION GUIDE

PART NUMBER: 2350
LOWERING SPINDLE
FORD F-150 2WD | 1997-2003
FORD SVT F-150 LIGHTNING 2WD | 1999-2004
FORD EXPEDITION / NAVIGATOR 2WD | 1997-2002

-2" FRONT LOWERED RIDE HEIGHT

****MUST USE 18" WHEELS OR LARGER, FITS MOST 18" WHEELS. MUST CHECK FOR INTERFERENCE****

300 W. PONTIAC WAY. CLOVIS, CA 93612
PHONE: 800-445-3767 | EMAIL: INFO@BELLTECH.COM

THANK YOU

Thank you for choosing our high quality Belltech product. We have spent a great deal of time developing our line of products so that you will receive maximum performance with minimal difficulty during installation. Soon your vehicle will be on the road looking and feeling much improved.

Please take a moment to read all instructions and warnings prior to installation of your new Belltech product and before operating your vehicle. If you have any questions or concerns regarding any step in the installation process, please do not hesitate to call or email our customer support specialists who are trained to help you through any portion of this process.

Before You Begin:

It is of the utmost importance that you confirm all of the components listed on the parts list is in the kit. You can find this list located on the last page(s) of your instructions. Do not begin installation if any part is missing. Instead, please call our Belltech customer service specialists.

Belltech Customer Support:

Phone: 1-800-445-3767

Email: info@belltech.com

Safety Information:

Warning: Do not work under a vehicle supported only by a jack. Place support stands securely under the vehicle in the manufacturer's specified locations unless otherwise instructed.

Proper use of safety equipment and eye/face/hand protection is absolutely necessary when performing any of the following instructions.

We strive for an exceptional experience for all our valued customers. If for any reason you need assistance with your Belltech products, please do not return the product to the store you purchased from, but rather call our dedicated customer service experts, from 7am to 5pm PST.

We recommend that a qualified mechanic, at a properly equipped facility, perform this installation.

It is very helpful to have an assistant available during installation.

Before Driving Your Vehicle:

It is important to double check all brake hoses, cables, and other components to be sure there is no interference. You must also check for wheel/tire to chassis/body interference. If any issues are found, review your installation instructions to be sure no steps were missed and any problems are corrected.

Make sure your vehicle is aligned immediately following installation.

Check all hardware and torque at intervals for the first 10, 100, and 1000 miles.

Some of Belltech's products are designed to improve your vehicle's off-road performance. Leveling/lifting your vehicle may result in an altered center of gravity. It is crucial to use extreme care when operating your vehicle to prevent rollover and/or loss of control.

Any changes in your vehicle's suspension may result in transformed handleability. Please test-drive your vehicle in a remote location so you can become accustomed to the revised driving characteristics.

Perform headlight check and adjustment.

Failure to drive any modified vehicle in a safe manner may result in harm or death.

Never operate your modified vehicle under the influence of drugs, alcohol, or lack of adequate sleep.

Always wear your seatbelt.

DIFFICULTY:

INSTALLATION TIME: 1-2 Hours + Alignment

RECOMMENDED TOOLS:

- Properly rated floor jack
- Support stands
- Wheel chocks
- Metric socket wrench set
- Metric wrench set
- Screwdriver set
- Pliers
- Tape measure
- Medium weight hammer
- Torque wrench rated up to 200 ft lbs.

SPECIALTY TOOLS:

- Tie rod end removal tool
- Ball joint separator tool
- Abrasive cutter or grinder

FITMENT GUIDE

Must use 18" wheels or larger. It is important to note this kit fits **most** 18" wheels. Please be sure to check for interference.

Not all possible wheel sizes and backspacing can be tested. Cautiously check wheel assembly to spindle, suspension component, and fender/body clearance before tightening lug nuts and rotating the wheel assembly. Belltech is not responsible for any wheel, tire, suspension component, and/or body damage caused by failure to check for interference.

INSTALLATION PREPARATION:

Before beginning the installation process, measure the hub to fender heights for your vehicle and record them in the "Before" section. After your vehicle has been modified, record the new measurements in the, "After" section. This way, you can compare the resulting height to the original. When taking the measurements, measure vertically from the center of the wheel to the inner edge of the fender.

Before:

LF:_____

RF:_____

LR:_____

RR:_____

After:

LF:_____

RF:_____

LR:_____

RR:_____

JACKING, SUPPORTING, AND PREPARING THE VEHICLE

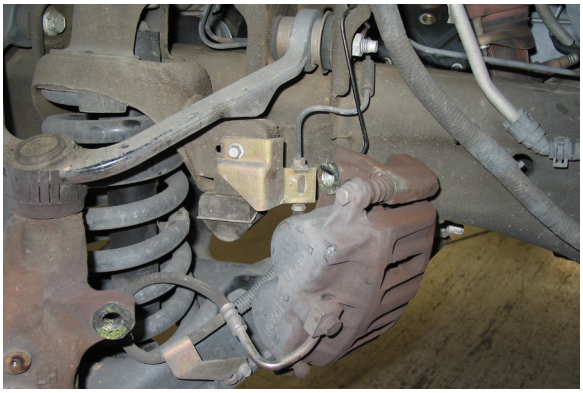
1. Park your vehicle on a smooth, level, concrete or seasoned asphalt surface.
2. Block the rear wheels of the vehicle using wheel chocks. Make sure the vehicle's transmission is in "PARK" (automatic) or 1st gear (manual).
3. Activate the parking brake.
4. Loosen, but do not remove, the front wheel lug nuts.
5. Lift the front of the vehicle off the ground using a properly rated floor jack. Lift the vehicle so the front tires are approximately 6-8 inches off the ground.
6. Place support stands rated for the vehicles weight. The stands should be positioned in the factory specified locations. (Refer to the owners manual). Prior to lowering the vehicle onto stands, make sure the support stands will contact the chassis. It is very important that the vehicle is properly supported to prevent any harm to ones self or to the vehicle.
7. Lower the vehicle slowly onto the stands.
8. Remove the front wheels.

Technician reminder:

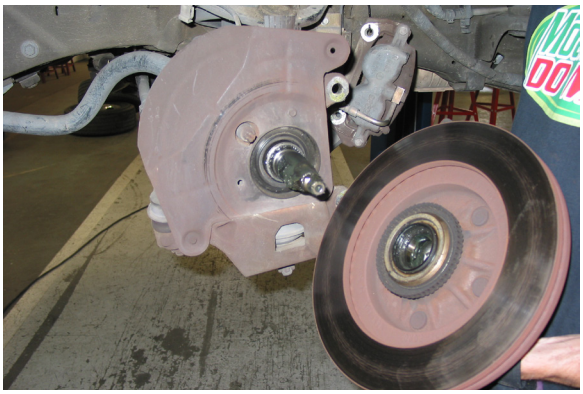
Never work under a vehicle supported only by a jack. It is necessary to place support stands securely under the vehicle in the manufacturer's specified locations unless otherwise instructed.

OEM SPINDLE REMOVAL

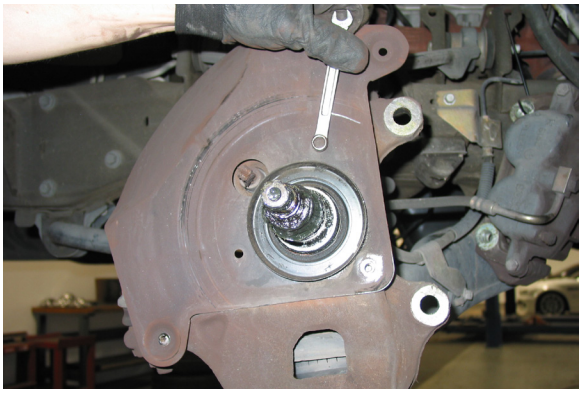
9. Remove the 18mm bolts from brake caliper assembly and detach from the spindle. With a metal hook, wire, or zip tie attach the caliper to the chassis to prevent damage to the brake line and clear the work space.

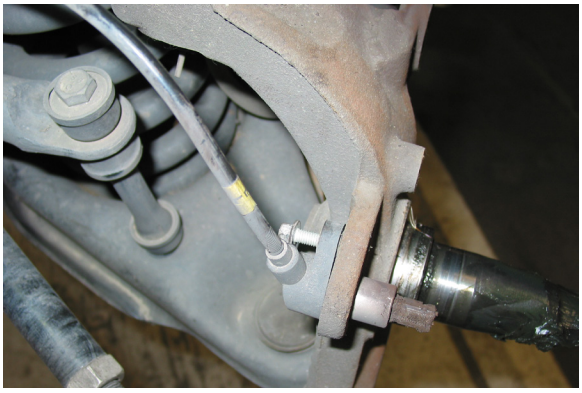
10. Remove the hub and rotor assembly from the spindle by removing the grease cap, cotter pin, spindle nut, and washer from the spindle pin. Carefully slide the rotor assembly off the spindle pin, do not let the outer bearing fall out of the hub.

11. Remove the three 8mm bolts from the dust shield. Detach the shield and gasket from the face of the spindle.



12. Remove the 8mm bolt from the wheel sensor at the steering spindle. Detach the clip holding the sensor line to the upper control arm. Place the sensor away from the work space.

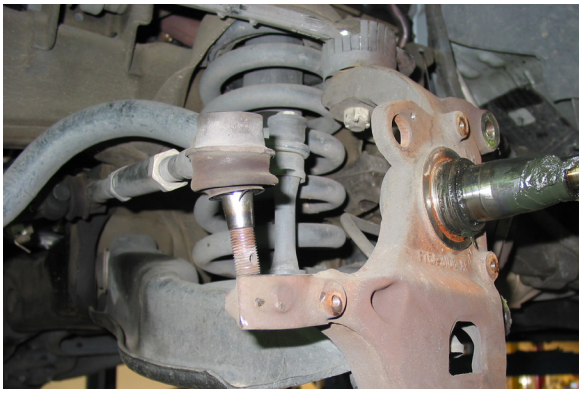


OEM SPINDLE REMOVAL CONTINUED

Technician reminder:

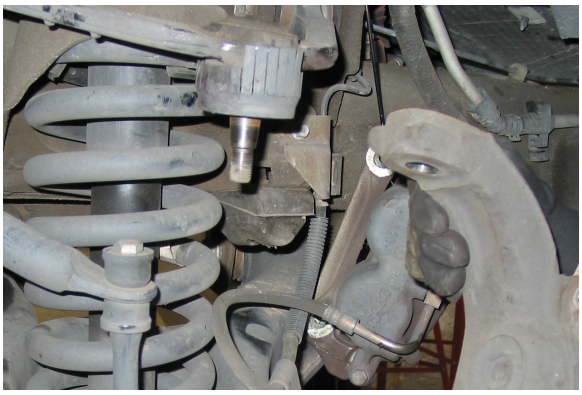
Use a lever or puller style ball joint removal tool. If needed, use a large hammer to forcefully strike the side of the ball joint boss. This striking action will usually free the ball joint with one swing. Do not use of a fork style ball joint separator as it will damage the ball joint and cut the grease cup.

13. Remove the 22mm tie rod end nut. Use a tie rod end remover to carefully detach the tie rod end from the spindle. Alternatively, you can leave the nut on the ball joint and strike the spindle with a hammer to dislodge the tie rod end. Do not hit the boot.



14. Place a floor jack under the lower control arm and lift until a slight compression of the suspension is achieved. Turn the spindle to access the lower ball joint without interference. Use caution when lifting the lower control arm as it is under extreme load. Ensure the base is stable and the lower control does not to slip out.

15. Break the 21mm upper control arm ball joint nut loose but do not remove it. This will keep the arm from swinging up and to keep it in place while removing the lower ball joint. Use a puller tool to detach the ball joint from the spindle. Alternatively, you can leave the nut on the ball joint and strike the spindle with a hammer to dislodge the ball joint. Do not hit the boot.

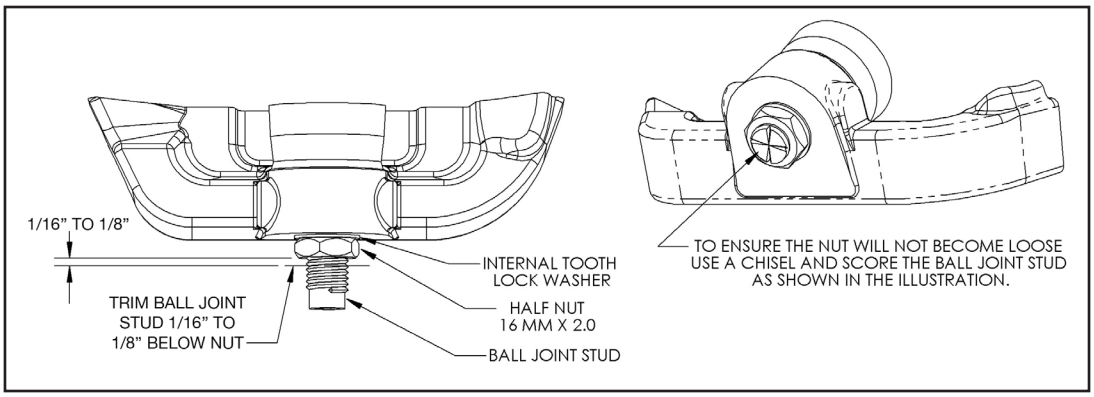


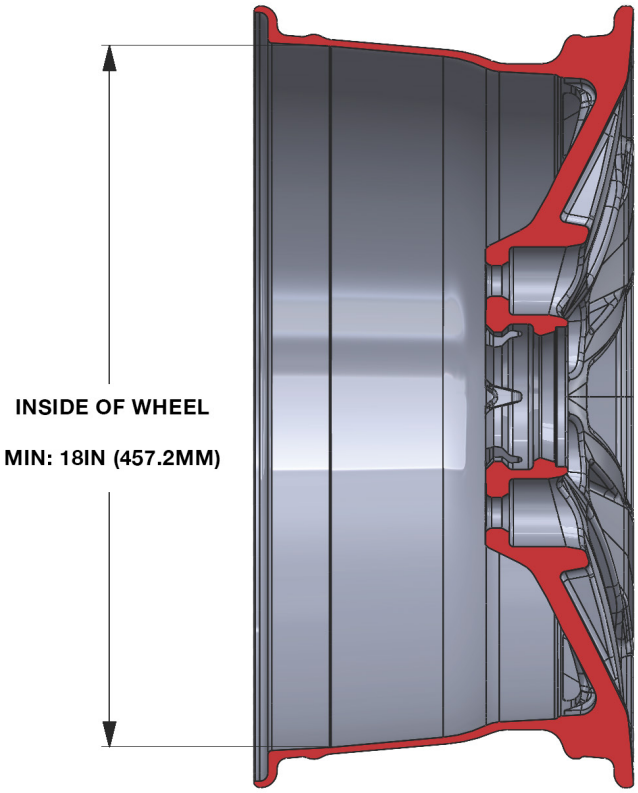
16. Remove the 24mm lower control arm ball joint nut. Use a puller tool to detach the ball joint from the spindle. Alternatively, you can leave the nut on the ball joint and strike the spindle with a hammer to dislodge the ball joint. Do not hit the boot.

17. After both ball joints are dislodged, remove the upper ball joint nut and lift the upper control arm to free the spindle. Remove the lower ball joint nut and slide the spindle off the lower ball joint.

Technician warning:

For 18” wheels you MUST use the supplied half nut and lock washer on the lower ball joint then trim the ball joint stud for adequate wheel clearance. The supplied lock washer and nut should be installed and torqued to 60 ft lbs. Before the ball joint stud is trimmed, ensure you leave between 1/16” to 1/8” of the stud extended out from the nut depending on your wheel clearance, this may be adjusted. Once the proper length is trimmed off, use a chisel or punch to score the edge of the threads to prevent the possibility of the nut becoming loose.



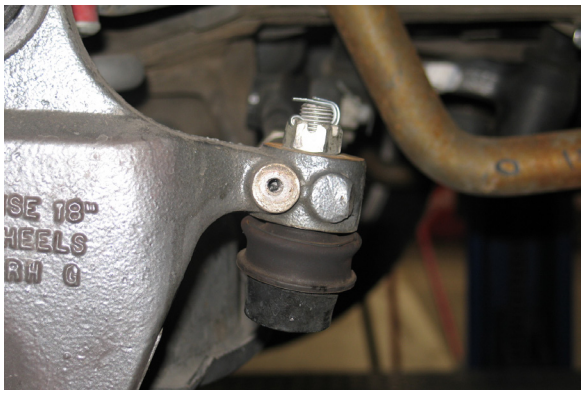


BELLTECH SPINDLE INSTALLATION

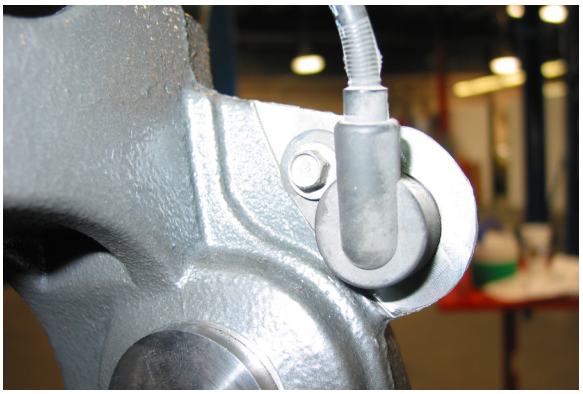
18. Attach the new Belltech spindle to the upper and lower ball joints and loosely thread the original nuts in place.
19. Tighten the upper ball joint nut in place and torque to 67 ft lbs. Secure it with a supplied cotter pin.
20. Tighten the original lower ball joint nut and torque to 98 ft lbs. for the original nut; secure it with a supplied cotter pin. For the supplied half nut, torque to 60 ft lbs.
21. Attach the tie-rod end to the spindle, inverted, placed in from the bottom with the stud protruding up. Torque the original nut to 70 ft lbs. Secure it with a supplied cotter pin.

Technician reminder:

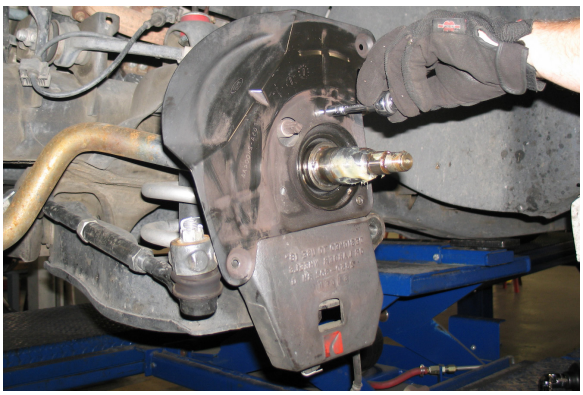
The Belltech lowering spindle uses an inverted tie rod for improved performance.



22. Attach the wheel speed sensor to the spindle with the original bolt. Ensure the sensor is free from dirt or grease before installation.

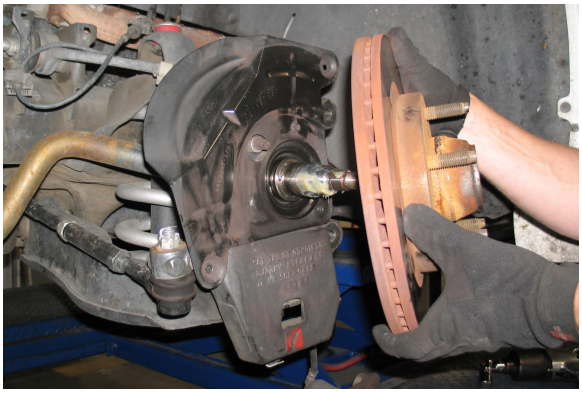


23. Place the gasket and dust shield onto the face of the spindle. Secure the dust shield with the original bolts; torque to 9 ft lbs.



BELLTECH SPINDLE INSTALLATION CONTINUED

24. Before mounting the hub and rotor assembly, take time to determine that the bearings are in good condition and are packed with enough grease. Inspect the inner bearing cavity of the rotor to determine that it is sufficiently coated with grease. When in doubt, repack the bearings and coat the inner bearing cavity. Place the hub and rotor assembly onto the new spindle.



25. Place the outer wheel bearing onto the spindle and use the supplied washer and castle nut. To torque the castle nut, tighten to 30 ft lbs. while rotating the rotor. Loosen the castle nut two turns. Tighten to 20 ft lbs. while rotating the rotor. Loosen the castle nut half a turn. Finally, torque to 17 ft lbs. while rotating the rotor.

26. Insert the cotter pin into the hole in the spindle pin. Bend the ends of the cotter pin against the nut and cut them off; install the grease cap.

27. Use the original bolts to attach the brake caliper assembly onto the spindle. Torque the two bolts to 150 ft lbs.

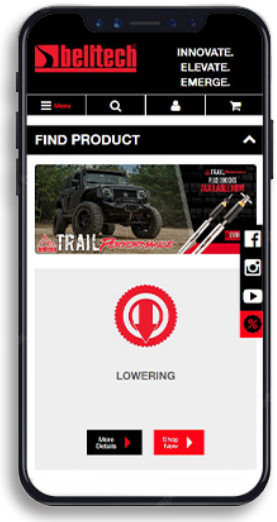
28. Rotate the steering spindle in both directions to check if the brake line and sensor cable have proper clearance. If needed, adjust as necessary.

FINALIZING THE INSTALLATION

29. Mount the wheels and tighten the lug nuts.
30. Lift the vehicle and remove the support stands.
31. Carefully lower the vehicle onto the flat ground.
32. Torque the lug nuts to 100 ft lbs.
33. Check that all components and fasteners have been properly installed and torqued.
34. Read and perform all tasks in the “Before Driving Your Vehicle” section of page 1 of your instructions.

THANK YOU FOR CHOOSING BELLTECH.

You are now a part of the Belltech family and we are eager to catch a glimpse of your newly modified vehicle. Give us a shout out and let us know how much you love our product. Don’t forget, we offer other Belltech related merchandise for you and your vehicle on our website www.belltech.com



belltechsuspension

Belltech Suspension

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If you have any questions, concerns, or warranty related issues regarding your Belltech product, please call or email our experienced customer service specialists.

Belltech Customer Support:

Phone: 1-800-445-3767

Email: info@belltech.com

KIT CONTENTS

DROP SPINDLE SET		
Part number	Description	Qty
2350-350	LH MACHINED SPINDLE	1
2350-450	RH MACHINED SPINDLE	1
2350-777	HARDWARE KIT	1

HARDWARE KIT		
Part number	Description	Qty
115012	16MM X 1.5” HALF NUT	2
115009	5/8” INTERNAL TOOTH LOCK WASHER	2
112600-95	3/4” BEARING WASHER	2
112601-95	3/4”-20 CASTLE NUT	2
2100-110	COTTER PIN PACK	1