



# INSTALLATION GUIDE

**PART NUMBER: 2508**

**DROP SPINDLE SET**

**GM 1500 TRUCK 2WD / 4WD / AWD | 1999-2006**

**GM 1500 SUV 2WD / 4WD / AWD | 2000-2006**

**-2" FRONT LOWERED RIDE HEIGHT**

**\*\*MUST USE 17" WHEELS OR LARGER, FITS MOST 17" 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](mailto: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.

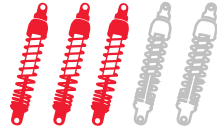
Failure to drive any modified vehicle in a safe manner may result in harm or death.

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

Always wear your seatbelt.



**DIFFICULTY:**



**INSTALLATION TIME:**

2-3 Hours + Alignment

## RECOMMENDED TOOLS:

- Properly rated floor jack
- Support stands
- Wheel chocks
- Metric socket wrench set
- Metric wrench set
- Hex key set
- Screwdriver set
- Tape measure
- Pliers
- Chisel or punch
- Hammer or rubber mallet
- Torque wrench rated up to 150 ft lbs.

## SPECIALTY TOOLS:

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



## FITMENT GUIDE

**Must use 17" wheels or larger.** It is important to note this kit fits **most 17" 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. Detach the brackets connecting the hydraulic brake line to the top of the steering knuckle and on the upper control arm using a 10mm socket. Disconnect the ABS sensor line from the connector behind the shock and with a screwdriver and/or pliers detach the plastic hold down clips on the frame, control arm, and brake line bracket to free the sensor wire from the suspension.



10. Remove the 18mm bolts holding brake caliper assembly from the steering knuckle. With a metal wire or bungee cord attach the caliper to the chassis to prevent damage to the brake line. Next, remove the brake rotor and set aside.



11. **4WD ONLY:** Remove the drive shaft nut in the center of the hub assembly with a 36mm socket.



12. Remove the three 15mm bolts on the backside of the hub assembly, detach it from the steering knuckle.



## OEM SPINDLE REMOVAL CONTINUED

13. Remove the hub assembly and backing plate.

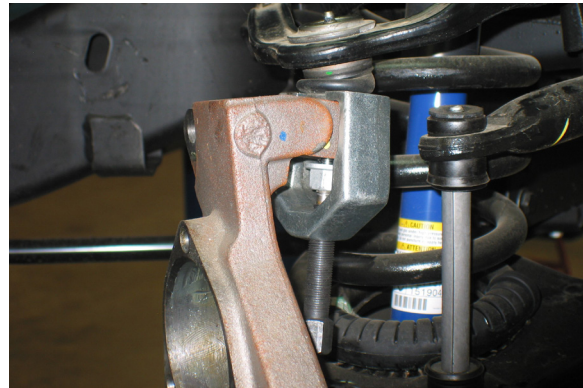


14. With a 18mm socket, break loose the upper control arm ball joint nut but keep the nut partially threaded on the stud to keep the arm from swinging up and to keep it in place while removing the lower ball joint. Using a ball joint separator tool, free the upper control arm ball joint from the steering knuckle.

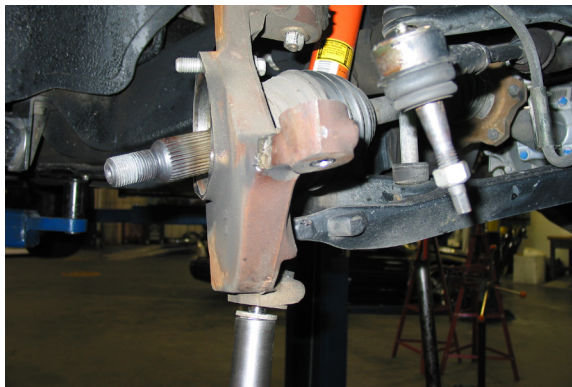


### Technician reminder:

Use a jack or other lifting device to raise the lower control arm while removing the spindle ball joints. Be cautious when lifting the lower control arm because it is under extreme load. Ensure the lifting device base is stable and the portion connected to the lower control arm can't slip out.



15. Remove the 18mm tie rod end nut and detach the outer tie rod from the steering knuckle using the same ball joint removal tool.
16. With a 24mm socket, break loose but do not remove the lower ball joint nut. Depending on the type of ball joint removal tool you have available, it might be necessary to use a large hammer and forcefully strike the lower ball joint boss. This striking action will usually free the ball joint with one swing.



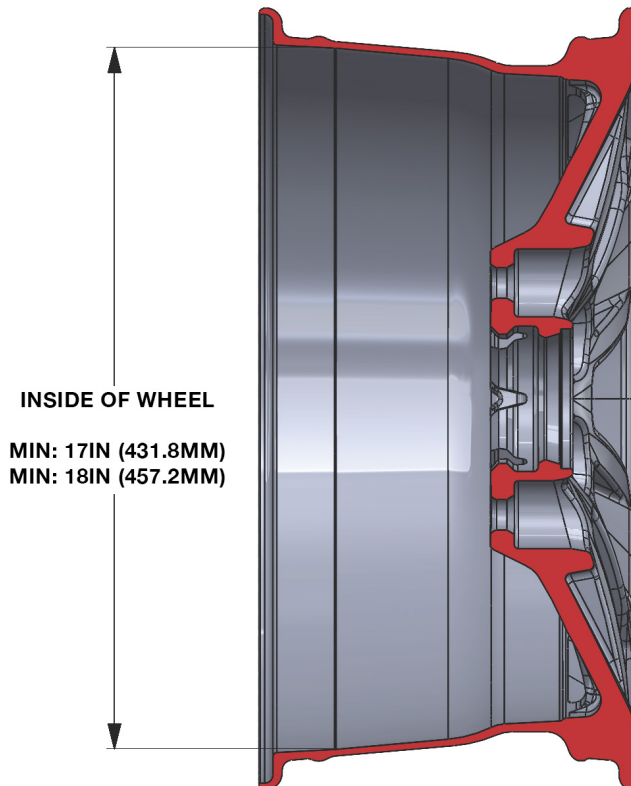
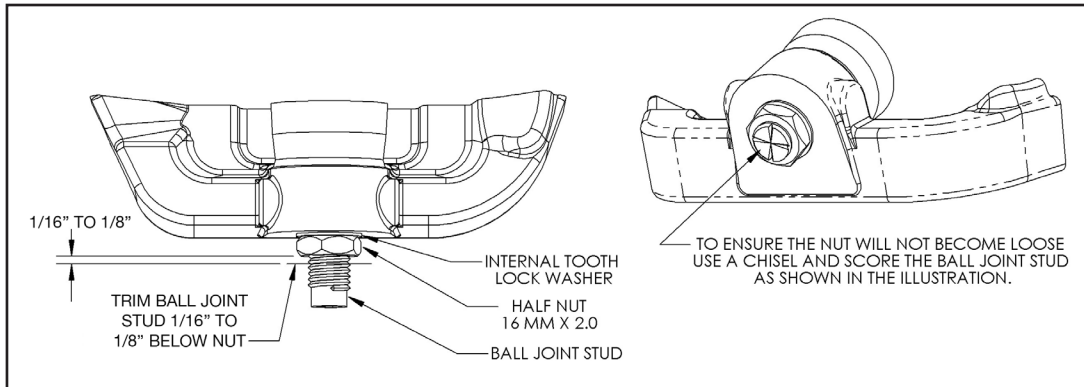
17. Remove the steering knuckle from the vehicle.

# BELLTECH SPINDLE FITMENT GUIDE



## Technician warning:

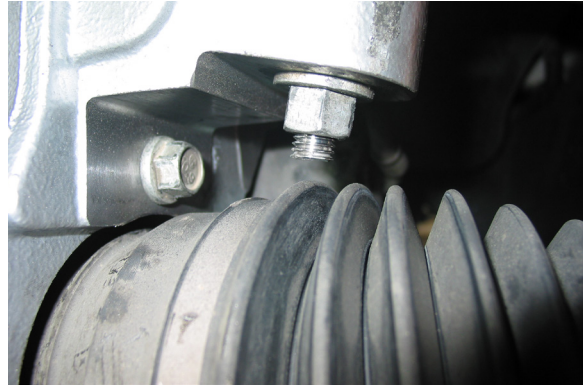
For 17" or 18" wheels you MUST use the supplied half nut and lock washer on the lower ball joint then trim the ball joint stud for adequate wheel clearance. The supplied lock washer and nut should be installed and torqued to 60 ft lbs. Before the ball joint stud is trimmed, ensure you leave between 1/16" 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. **4WD ONLY:** Trim 3/8" to 1/2" off the lower portion on the upper control arm ball joint for clearance to the drive shaft grease boot.



19. Place the upper hub bolt from the back of the new Belltech spindle. This must be done before the upper ball joint is attached.



## Installation Note:

If you are installing a 3" lowering spring, along with this 2" spindle, for a total of 5" of lowering, please jump to **LOWERING THE FRONT OF YOUR VEHICLE 5"** on page 10 and complete that section. After that section is completed, return here and proceed forward.

20. Attach the new Belltech spindle to the upper and lower ball joints and loosely thread the nuts in place. (**4WD ONLY:** Make sure to place the drive shaft end inside the hub opening without damage to the splines).



## Technician reminder:

Use a jack or other lifting device to raise the lower control arm while attaching the ball joints. Use caution when lifting the lower control arm as it is under extreme load from the spring. Ensure the lifting device base is stable and seated properly to the lower control arm to prevent it from slipping out.

21. Tighten the upper ball joint nut and torque to 37 ft lbs.



## BELLTECH SPINDLE INSTALLATION CONTINUED



### Installation warning:

This image shows an example of lower ball joint fitment at the backside of spindle 2508 with a stock 17" wheel.

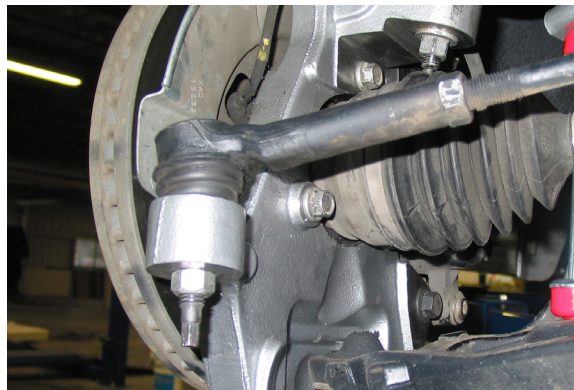
Not all possible wheel sizes and backspacing can be tested. Cautiously check wheel assembly to spindle, suspension component, and fender/body clearance before tightening lug nuts and rotating the wheel assembly. Belltech is not responsible for any wheel, tire, suspension component, and/or body damage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



22. Torque the lower ball joint to 74 ft lbs. for the OEM nut or 60 ft lbs. for the supplied half nut.

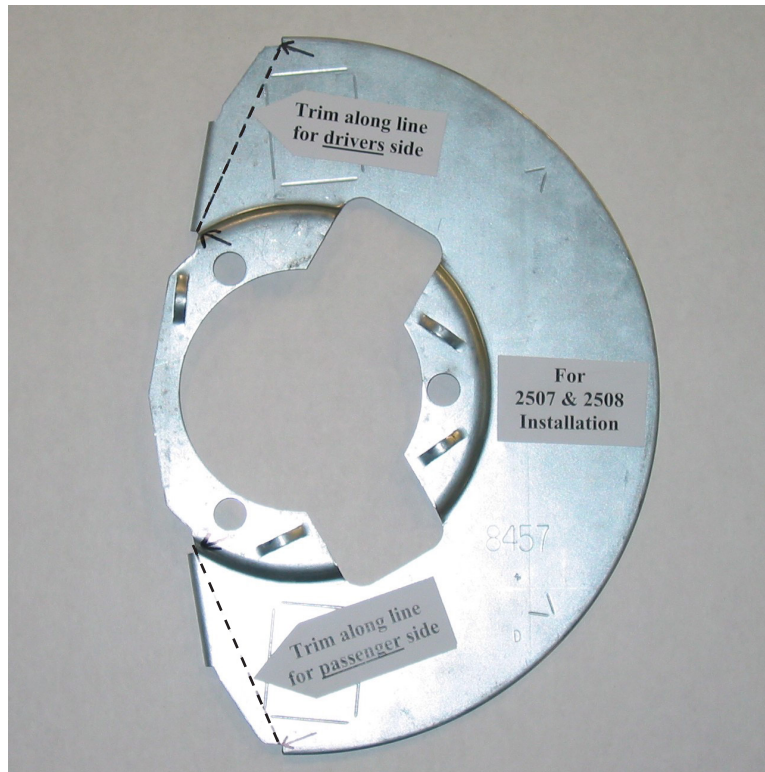


23. Attach the steering tie rod end to the spindle and torque to 37 ft lbs.



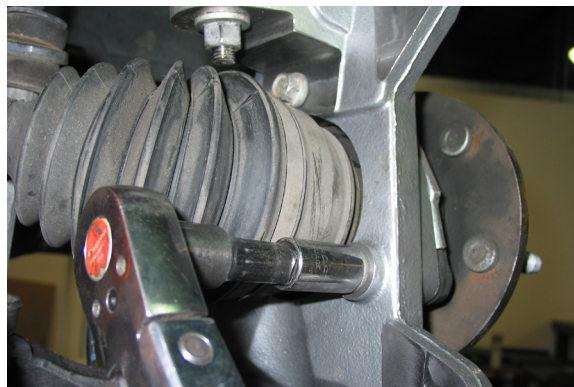
## BELLTECH SPINDLE INSTALLATION CONTINUED

Some vehicles may be equipped with a larger brake caliper & backing plate. If the vehicle has the backing plate that is shown in the image below, it will need to be trimmed as shown.



24. Install the backing plate and hub assembly onto the knuckle.

25. Thread in the three stock hub bolts from the backside of the steering knuckle and torque to 133 ft lbs.



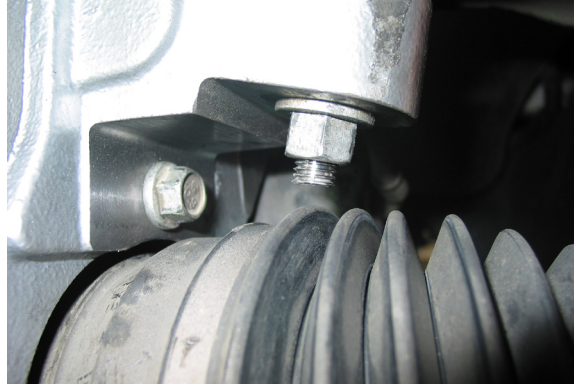
26. **4WD ONLY:** Torque the drive shaft hub center nut to 175 ft lbs.





## BELLTECH SPINDLE INSTALLATION CONTINUED

27. **4WD ONLY:** Rotate the hub to ensure the upper ball joint stud or nut does not contact the drive shaft boot.



28. Mount the brake rotor and attach the brake caliper assembly. Torque the original bolts to 130 ft lbs.



29. Attach the brake line brackets, ABS sensor connector, and the hold down clips in their original locations at the top of the spindle and the control arm.



30. Rotate the spindle in both directions to confirm the brake line and ABS line have enough slack. If either is too tight, then you pull it through the bracket to give it the proper amount of slack.

## LOWERING THE FRONT OF YOUR VEHICLE 5"

When lowering your vehicle with spindle 2508 and a combination of any 3" lowering coil spring, for a total of 5", you must follow the installation procedure below. This procedure will show you how to correct the upper ball joint angle by inverting the control arm, thus changing the angle of the ball joint in relation to the upper ball joint boss to prevent premature wear or possible failure to the ball joint. This procedure will require a hydraulic press, die grinder and possibly some fabricated tools. **PLEASE** read through them before you proceed. It might be necessary to have a qualified shop perform this procedure.

1. Remove the upper control arm from the vehicle.



2. With a flat head screwdriver, pry the blade between the rubber grease cup and ball joint housing. Rotate the screwdriver slightly to remove the grease cup. You may need to do this in several places to completely remove it from the ball joint. Ensure not to damage the cup, it will need to be reinstalled later.



3. Remove the grease cup and wipe the excess grease off the ball joint



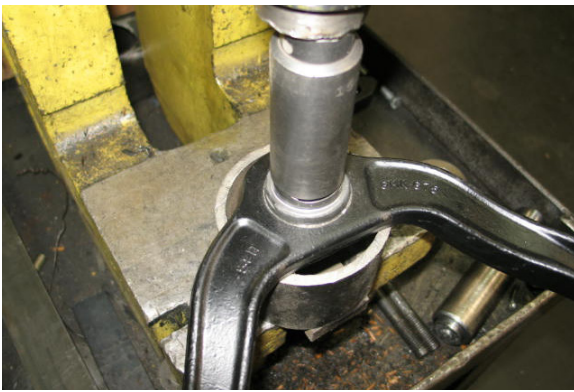


## LOWERING THE FRONT OF YOUR VEHICLE 5" CONTINUED

4. Use a deep socket or tubing to insert over the length of the ball joint stud. It may be necessary to construct a spacer for this process.



5. Press the ball joint out of the control arm. Ensure not to damage the ball joint during this process.

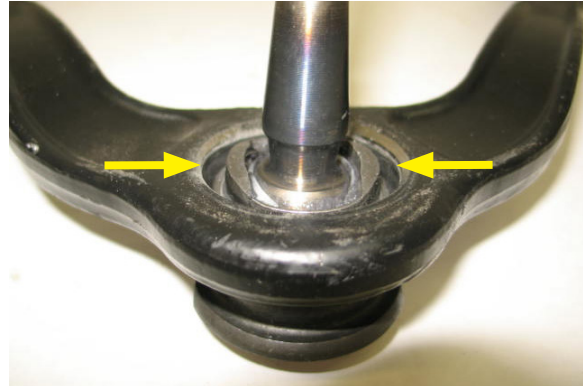


6. With a die grinder or chamfer type tool break the inner edge of the ball joint through hole like the opposite side. This will allow the ball joint to set flush when pressed back in; the chamfer allows clearance for the inner radius on the ball joint.



## LOWERING THE FRONT OF YOUR VEHICLE 5" CONTINUED

7. Before pressing the ball joint in from the other side make sure the ball joint is clocked in the correct position. This is identified by the two flat marks on the end of the ball joint, the flat marks must be perpendicular to the centerline on the rubber bushings. This also identified by the inside of the ball joint, line up the two relieved areas perpendicular to the centerline of the rubber bushing.



### Technician reminder:

If the ball joint is not clocked in the correct position, it will cause ball joint damage and you may need to replace the entire control arm.

8. With the ball joint now inverted from its original orientation and clocked in the correct position, press it into the control arm so that it sets flush against the bottom.



9. Place the grease cup back on the ball joint. With a large set of pliers, press the grease cup base back on the ball joint shoulder.



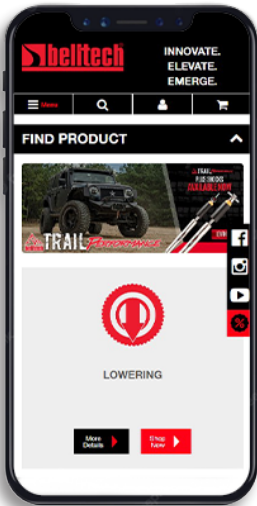
10. The ball joint inversion is complete, reinstall your upper control arm on the original side. Return to page 6, step 20 in the Belltech spindle installation.

# FINALIZING THE INSTALLATION

31. Mount the wheels and tighten the lug nuts.
32. Lift the vehicle and remove the support stands.
33. Carefully lower the vehicle onto the flat ground.
34. Torque the lug nuts to 140 ft lbs.
35. Check that all components and fasteners have been properly installed and torqued.
36. 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](http://www.belltech.com)



[belltechsuspension](https://www.facebook.com/belltechsuspension)



[Belltech Suspension](https://www.youtube.com/BelltechSuspension)



[@belltechsuspension](https://www.instagram.com/belltechsuspension)

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](mailto:info@belltech.com)

# KIT CONTENTS



Drop Spindle Set		
Part number	Description	Qty
2508-325-992	LH MACHINED SPINDLE	1
2508-425-992	RH MACHINED SPINDLE	1
115007	HALF NUT 16MM X 2.0	2
115009	INTERNAL TOOTH LOCK WASHER 5/8	2