

# H<sup>®</sup> ASSEMBLY INSTRUCTIONS

## STEERTEK™ NXT Front Steer Axle

**SUBJECT:** Kingpin Bushing Reaming /  
Honing Procedures

**LIT NO:** 59310-079

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**REVISION:** C

### INTRODUCTION

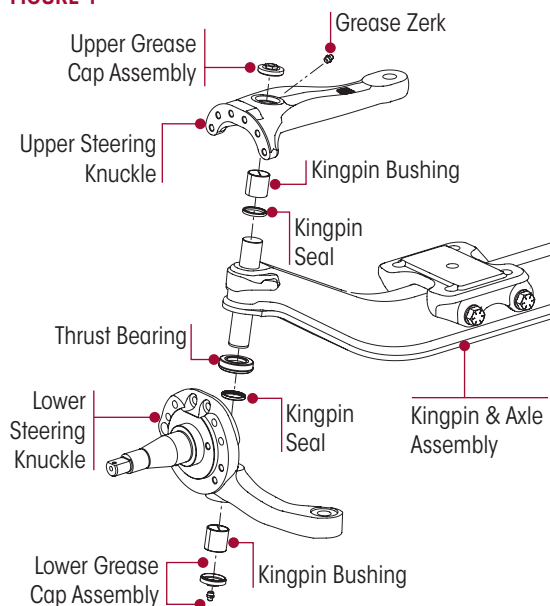
This publication is intended to assist maintenance personnel in performing proper reaming or honing procedures for new aftermarket replacement kingpin bushings installed, on an as-needed basis, on **STEERTEK™ NXT** front steer axles equipped on approved vocational, bus or on-highway vehicles. These procedures help ensure the inner diameters of such replacement bushings are properly sized to fit the respective axle kingpins.

### CAUTION

A TECHNICIAN USING A SERVICE PROCEDURE OR TOOL WHICH HAS NOT BEEN RECOMMENDED BY HENDRICKSON MUST FIRST SATISFY THEMSELVES THAT NEITHER THEIR SAFETY NOR THE VEHICLE'S SAFETY WILL BE JEOPARDIZED BY THE METHOD OR TOOL SELECTED. INDIVIDUALS DEVIATING IN ANY MANNER FROM THE INSTRUCTIONS PROVIDED ASSUME ALL RISKS OF POTENTIAL PERSONAL INJURY OR DAMAGE TO EQUIPMENT INVOLVED.

Proper maintenance, service and repair are important to the reliable operation of the suspension and axle. For detailed instructions on preventive maintenance, component replacement and torque specifications on these components, refer to the applicable Hendrickson Technical Publications (available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com)) specific to the respective vehicle manufacturer at hand.

**FIGURE 1**



### STEERING KNUCKLE

STEERTEK NXT axles, with capacities ranging from 10,000 to 14,600 pounds, feature two-piece steering knuckles (see Figure 1). These knuckles are designed with serviceable kingpin bushings and seals.

### KINGPIN BUSHING

Prior to reaming or honing new aftermarket replacement kingpin bushings, perform the (1) steering knuckle disassembly, (2) kingpin preparation and measurement, (3) kingpin bushing removal, (4) steering knuckle bore measurement, and (5) kingpin bushing installation procedures as found in the applicable Hendrickson STEERTEK NXT • AIRTEK NXT • SOFTEK NXT • SOFTEK Technical Publications (available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com)).

### REAMING / HONING PROCEDURE

Once new replacement kingpin bushings are installed, they will need to be properly sized to fit the respective kingpins using one of the following two methods:

#### ■ Method A – Reaming or Method B – Honing

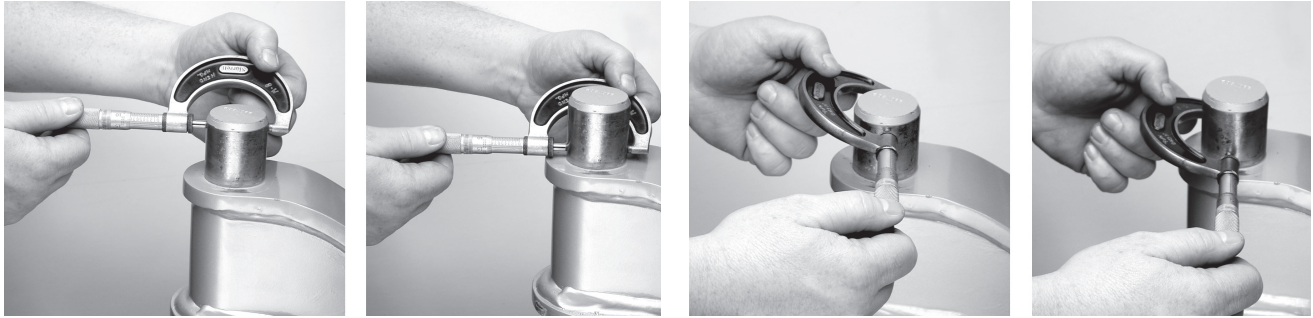
### NOTE

Bushing inner diameter size is to be 0.001" larger than the measured kingpin outer diameter size.

1. Clean and polish the kingpin using a fine (220 grit or higher) emery cloth and parts solvent to remove all grease and debris.

2. Inspect the kingpin for wear or damage using a micrometer. Measure both the upper and lower sections at two points, 90° apart, see Figure 2. If any measurement is below 1.802", the axle must be replaced.

**FIGURE 2**



DO NOT BURNISH THE KINGPIN BUSHINGS. BURNISHING WILL DAMAGE THE BUSHINGS AND VOID ANY APPLICABLE WARRANTY.



WHEN INSTALLING THE STEERING KNUCKLE COMPONENTS IN A VISE, IT IS NECESSARY TO PROTECT THE MACHINED SURFACES FROM GOUGES OR MARRING BY USING BRASS JAWS (SOFT JAWS). FAILURE TO DO SO CAN CAUSE PREMATURE PART DAMAGE, DAMAGE TO THE STEERING KNUCKLE COMPONENTS, LOSS OF WARRANTY, LOSS OF VEHICLE CONTROL, CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

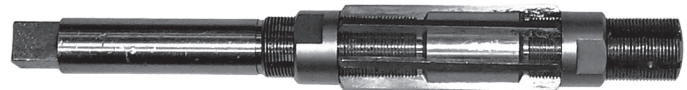


PRIOR TO STEERING KNUCKLE INSTALLATION ENSURE THAT ALL RESIDUAL LOCTITE MATERIAL IS REMOVED FROM THE MOUNTING BOLTS AND THE THREAD BORES IN THE STEERING KNUCKLES, AND NEW LOCTITE 277 OR EQUIVALENT IS APPLIED TO HELP ENSURE THAT THE BOLTS SUSTAIN THE PROPER TORQUE REQUIREMENT. FAILURE TO DO SO CAN CAUSE LOSS OF VEHICLE CONTROL RESULTING IN PERSONAL INJURY OR PROPERTY DAMAGE.

## METHOD A – REAMING

### You will need:

- Vise with brass jaws (soft jaws)
- Extension pilot tool (McMaster-Carr part no. 3004A32)
- Adjustable straight flute reamer (McMaster-Carr part no. 3141A28) with cutting diameter of: 1.802"-1.812"



**NOTE:** Hendrickson does not supply these tools. Contact tool manufacturer at [www.mcmaster.com](http://www.mcmaster.com).

### NOTE

Prior to reaming, re-assemble the steering knuckle, see Figure 3.

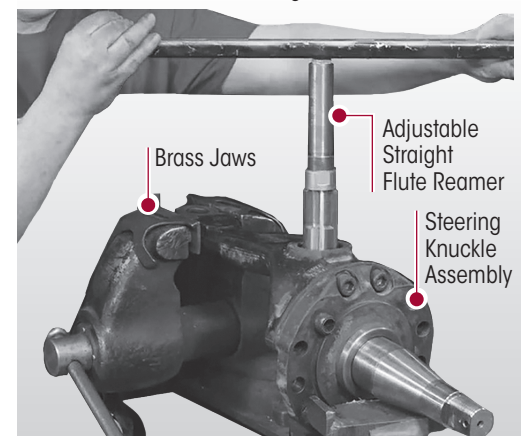
1. Place the steering knuckle (equipped with replacement kingpin bushing(s)) in a vise with brass jaws (soft jaws), see Figure 3.
2. Install the reamer onto the end of the extension pilot tool and position the extension pilot tool through the kingpin bushing.

### SERVICE HINT

The pilot tool helps keep the reamer straight during the reaming process.

**FIGURE 3**

**STEERTEK NXT Axle – Steering Knuckle in Vise Shown**



3. Slide the reamer into the steering knuckle until the blades touch the kingpin bushing inner diameter surface.
4. Rotate the reamer with a light **DOWNWARD** pressure. **DO NOT** apply too much force. Rotate the reamer smoothly, see Figure 3.

**SERVICE HINT**

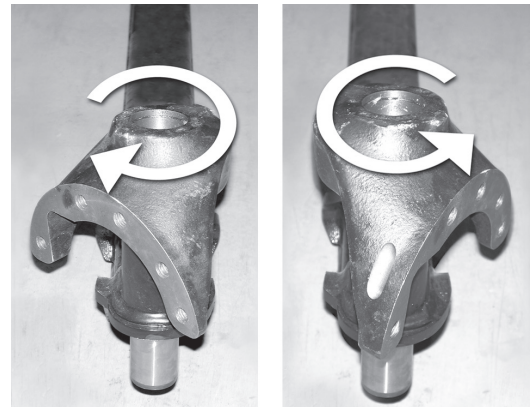
To remove the reamer, rotate the tool in the opposite cutting direction.

5. Remove the steering knuckle from the vise and repeat Steps 1 through 4 for the other mating steering knuckle equipped with a replacement kingpin bushing.
6. Clean and remove all loose kingpin bushing material created by the reaming operation from the steering knuckle(s). Take special attention to remove material from the grease channels and dimples.
7. Clean the  $\frac{5}{8}$ " brake backing plate bolts with a wire wheel and run a tap through the threads of the steering knuckle and then flush out with brake cleaner and dry with compressed air.
8. Lightly lubricate the mating kingpins with penetrating oil.
9. Temporarily install the steering knuckle on the mating kingpin to check for a close slip fit and free rotation.

**NOTE**

If the steering knuckle does not fit onto the kingpin, **DO NOT** force it.

10. Rotate the steering knuckle back and forth to verify there is no binding on the kingpin, see Figure 4.
11. If either of the bushings are too tight, repeat Steps 1 through 10 until proper clearance is achieved.
12. After verifying that the kingpin is free of binding, remove the steering knuckle assembly. Proceed with the Kingpin Seal Installation procedure.

**FIGURE 4****METHOD B – HONING****You will need:**

- 1  $\frac{3}{4}$ " to 2  $\frac{3}{4}$ " precision-finish cylinder hone (McMaster-Carr part no. 7362A45). The cylinder must be manually adjustable.

**NOTE:** Hendrickson does not supply these tools. Contact tool manufacturer at [www.mcmaster.com](http://www.mcmaster.com).



1. Assemble the cylinder hone with clean, dry honing stones.

**SERVICE HINT**

If the honing stones are damaged or oily, they should be replaced.

2. Ensure the wiper blocks are clean and dry, see Figure 5.
3. Place the steering knuckle (equipped with replacement kingpin bushing(s)) on a work surface.
4. Size the precision cylinder hone slightly smaller than the kingpin bushing inner diameter and insert it into the kingpin bushing, see Figures 5 and 6.
5. Increase the precision cylinder hone's diameter until there is just enough pressure on the kingpin bushing inner diameter to hold the hone in place.
6. Connect a power drive to the precision cylinder hone, see Figure 7.

FIGURE 5

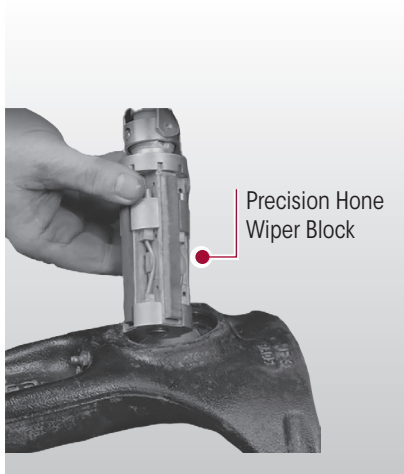
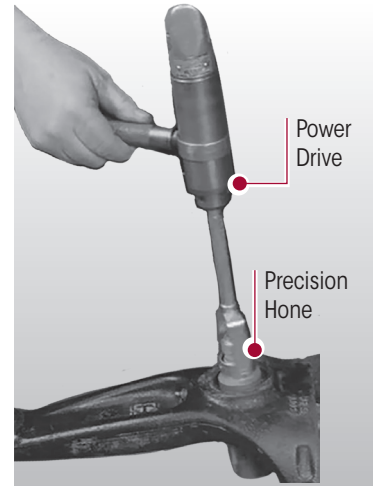


FIGURE 6



FIGURE 7



7. Using the power drive, rotate the precision cylinder hone about ten revolutions in the kingpin bushing. The power drive should rotate at a speed of **less than 30 revolutions per minute (RPM)**.
8. Stop the power drive rotation.
9. Reduce the precision cylinder hone's diameter and remove it from the kingpin bushing.
10. Remove steering knuckle from the work surface. Repeat Steps 1 through 9 for the other steering knuckle.
11. Clean and remove all loose kingpin bushing material created by the honing operation from the steering knuckle(s). Take special attention to remove material from the grease channels and dimples.
12. Perform Steps 7 through 10 in the Method A – Reaming section.
13. If either of the bushings are too tight, repeat Steps 1 through 12 in the Method B, until proper clearance is achieved.
14. After verifying that the kingpin is free of binding, remove the steering knuckle assembly. Proceed with the Kingpin Seal Installation procedure.

## STEERING KNUCKLE

After the kingpin bushings have been properly sized, the steering knuckles will be ready for kingpin seal installation and re-assembly onto the STEERTEK NXT axle. Follow the Kingpin Seal Installation and Steering Knuckle Assembly procedures in the applicable Hendrickson STEERTEK NXT • AIRTEK NXT • AIRTEK • SOFTEK NXT • SOFTEK Technical Publications (available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com)).

For more information, contact Hendrickson Tech Services at 855-743-3733 (toll-free U.S. and Canada), 630-910-2800 (outside U.S. and Canada) or email: [wdtechservices@hendrickson-intl.com](mailto:wdtechservices@hendrickson-intl.com).

The latest revision of this publication is available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com).

Actual product performance may vary depending upon vehicle configuration, operation, service and other factors. All applications must comply with applicable Hendrickson specifications and must be approved by the respective vehicle manufacturer with the vehicle in its original, as-built configuration. Contact Hendrickson for additional details regarding specifications, applications, capacities, and operation, service and maintenance instructions.

Call Hendrickson at **630.910.2800** or **855.RIDERED (855.743.3733)** for additional information.



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