

# H<sup>®</sup> ASSEMBLY INSTRUCTIONS

## STEERTEK™ NXT High-capacity Front Steer Axle and Suspension System

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

**LIT NO:** 59310-080

**DATE:** September 2025

**REVISION:** A

### INTRODUCTION

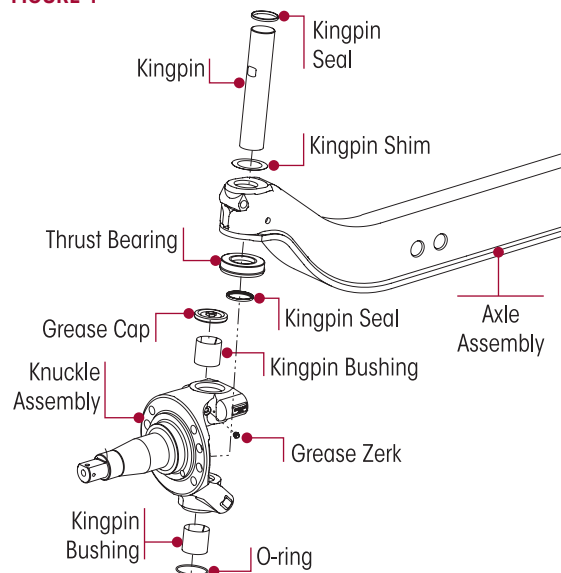
This publication is intended to assist maintenance personnel in performing proper reaming or honing procedures for new aftermarket replacement kingpin bushings installed, on an as-needed basis, on **STEERTEK™ NXT High-capacity** front steer axle and suspension systems equipped on approved vocational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



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**



### KNUCKLE ASSEMBLY

STEERTEK NXT High-capacity axles, with capacities from 16,000 to 24,000 pounds, feature a one-piece knuckle (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) knuckle disassembly, (2) kingpin preparation and measurement, (3) kingpin bushing removal, (4) knuckle bore measurement, and (5) kingpin bushing installation procedures as found in the applicable Hendrickson STEERTEK NXT High-capacity 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. Inspect the kingpin for wear or damage. Measure the kingpin with a micrometer. **Kingpin minimum diameter is 2.0"**. Replace if below this threshold, see Figure 2.

- Set up the adjustable straight flute reamer to match kingpin dimension, see Figure 3. The dimension of cutting diameter must facilitate a **range of 2.0" to 2.001"**.

FIGURE 2

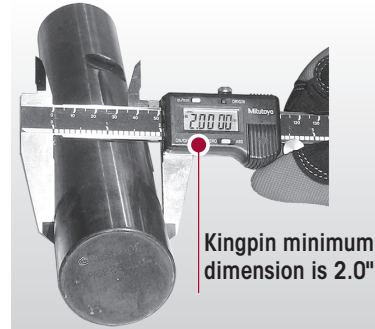
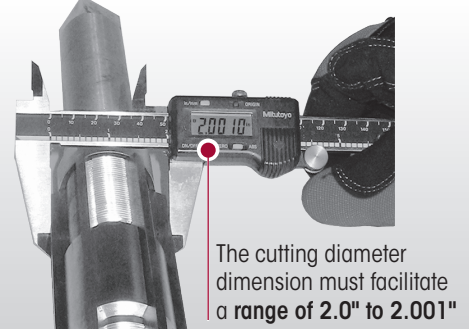


FIGURE 3



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



WHEN INSTALLING THE 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 KNUCKLE COMPONENTS, LOSS OF WARRANTY, LOSS OF VEHICLE CONTROL, CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

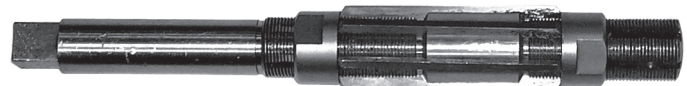
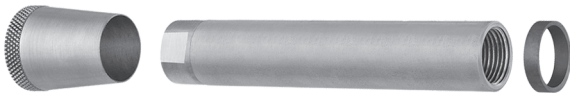


PRIOR TO KNUCKLE INSTALLATION ENSURE THAT ALL RESIDUAL LOCTITE MATERIAL IS REMOVED FROM THE MOUNTING BOLTS AND THE THREAD BORES IN THE KNUCKLES, AND NEW LOCTITE 277 OR EQUIVALENT IS APPLIED TO HELP ENSURE THAT THE BOLTS SUSTAIN THE PROPER TORQUE REQUIREMENT. FAILURE TO DO SO CAN CAUSE LOSS OF VEHICLE 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: 2.000"-2.010"



**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 knuckle assembly, see Figure 4.

- Place the knuckle (equipped with replacement kingpin bushing(s)) in a vise with brass jaws (soft jaws), see Figure 4.
- 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.

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

### SERVICE HINT

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

- Turn the knuckle over in the vise and repeat Steps 1 through 4, then remove the knuckle from the vise.
- Clean and remove all loose kingpin bushing material created by the reaming operation from the knuckle(s). Take special attention to remove material from the grease channels and dimples.

7. Clean the 5/8" brake backing plate bolts with a wire wheel and run a tap through the threads of the 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 knuckle and the mating kingpin on the axle assembly to check for a close slip fit and free rotation.

## SERVICE HINT

Prior to assembly of the knuckle to the axle, insert the kingpin into the knuckle to ensure proper reaming or honing of the bushing. The kingpin should slide into the upper and lower kingpin bushings with little to no resistance. If the kingpin does not slide easily repeat the reaming / honing procedure, see Figure 5.

## NOTE

If the kingpin does not fit into the kingpin bushing, **DO NOT** force it.

FIGURE 4

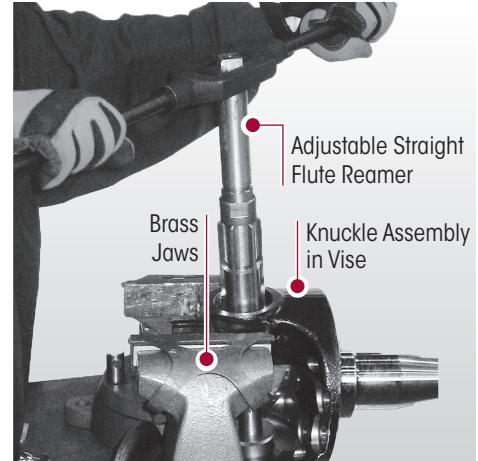
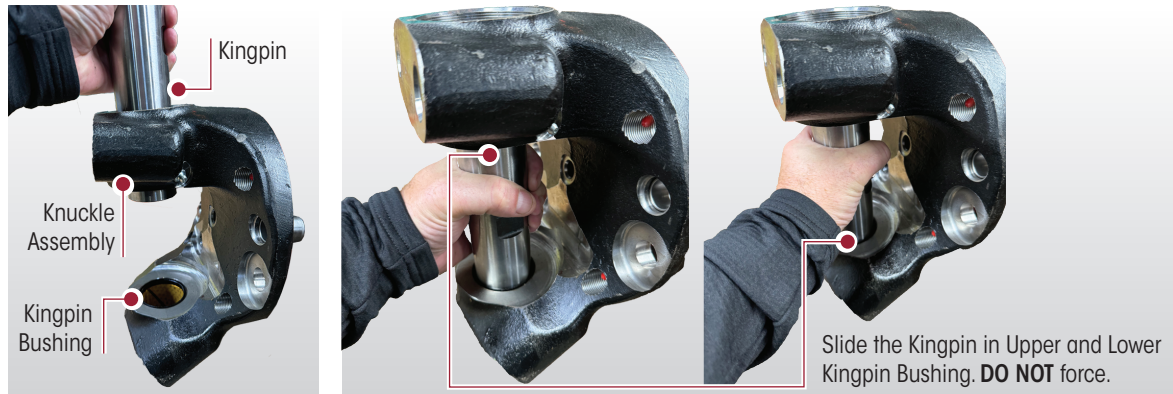


FIGURE 5



10. Rotate the knuckle back and forth to verify there is no binding on the kingpin.
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 knuckle assembly. Proceed to kingpin seal installation and re-assembly onto the STEERTEK NXT High-capacity axle. Follow the Kingpin Seal Installation and Knuckle Assembly procedures in the applicable Hendrickson STEERTEK NXT High-capacity for Vocational Technical Publications (online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com))

## METHOD B – HONING

### You will need:

- 1 3/4" to 2 3/4" precision-finish cylinder hone, The cylinder must be manually adjustable. (McMaster-Carr part no. 7362A45).

**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.

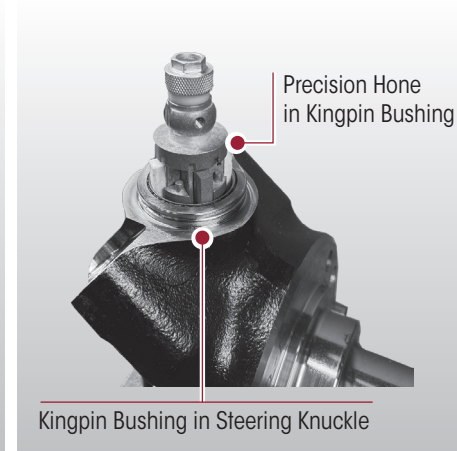
2. Ensure the wiper blocks are clean and dry, see Figure 6.
3. Place the knuckle (equipped with replacement kingpin bushing(s)) on a work surface.
4. Size the precision cylinder hone slightly smaller than the kingpin bushing inner diameter and insert it into the kingpin bushing, see Figures 6 and 7.

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 8.
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.

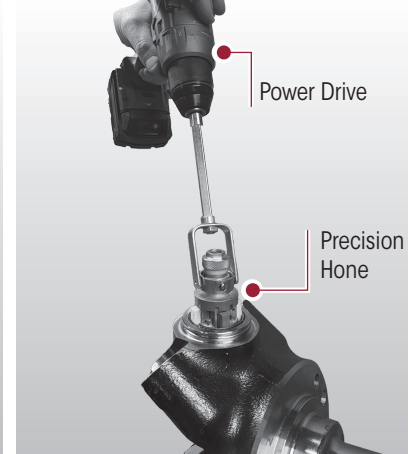
**FIGURE 6**



**FIGURE 7**



**FIGURE 8**



10. Remove knuckle assembly from the work surface. Repeat Steps 1 through 9 for other knuckle.
11. Clean and remove all loose kingpin bushing material created by the honing operation from the 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 knuckle assembly. Proceed to kingpin seal installation and re-assembly onto the STEERTEK NXT High-capacity axle. Follow the Kingpin Seal Installation and Knuckle Assembly procedures in the applicable Hendrickson STEERTEK NXT High-capacity for Vocational Technical Publications (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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59310-080 Rev A 09-25

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Printed in United States of America