



059310-011



# H ASSEMBLY INSTRUCTIONS

## STEERTEK™ NXT • STEERTEK™ Axle

**SUBJECT:** Kingpin Bushing and Thrust Bearing Service Kits

**LIT NO:** 59310-011

**DATE:** May 2020

**REVISION:** E

### INTRODUCTION

This publication is intended to assist maintenance personnel with the installation of Kingpin Bushing and Thrust Bearing Service Kits to service STEERTEK™ NXT • STEERTEK front steer axles equipped on AIRTEK® NXT • AIRTEK • SOFTEK® NXT • SOFTEK suspension systems or approved proprietary vehicle OEM suspensions.

Proper maintenance, service, and repair are important to the reliable operation of the suspension and axle.



For complete safety and service instructions, see (1) the particular Hendrickson AIRTEK NXT • AIRTEK • SOFTEK NXT • SOFTEK • STEERTEK NXT • STEERTEK Technical Publications (available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com)) applicable to your make of vehicle and (2) applicable vehicle OEM technical publications.

### STEERING KNUCKLE & KINGPIN

Refer to the Steering Knuckle Disassembly, Kingpin Preparation and Measurement procedure in the appropriate AIRTEK NXT • AIRTEK • SOFTEK NXT • SOFTEK • STEERTEK NXT • STEERTEK Technical Publication (available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com)) applicable to your make of vehicle.

A TECHNICIAN USING A SERVICE PROCEDURE OR TOOL WHICH HAS NOT BEEN RECOMMENDED BY HENDRICKSON MUST FIRST SATISFY HIMSELF THAT NEITHER HIS 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.

### Kingpin Bushing Service Kits

STEERTEK NXT	STEERTEK
60961-628 Axle Set, Includes *60961-629 Composite and *60961-630 Roller	60961-009 Axle Set, Includes *60961-039 Composite and *60961-040 Roller
 Shown 60961-628	 Shown 60961-040

### Thrust Bearing Service Kits

60961-631 Axle Set, Includes *60961-632 Composite and *60961-633 Roller	60961-041 Axle Set, Includes *60961-042 Composite and *60961-043 Roller
 Shown 60961-631	 Shown 60961-043

CONTENTS	CONTENTS
Applicable Thrust Bearing Service kit	Applicable Thrust Bearing Service Kit
Grease Cap Assembly, Upper and Lower	Grease Cap Assembly
Kingpin Bushing	Kingpin Bushing
Kingpin Seal	Kingpin Seal
5/8"-11 UNC Socket Head Cap Screw	5/8"-11 UNC Socket Head Cap Screw
Loctite Tube	Loctite Tube
Grease Zerk	Kingpin Shim
	Retaining Ring
<b>NOTE:</b> *Each kit is intended for service of one steering knuckle assembly.	

### CAUTION





**SPECIAL TOOLS**

**KINGPIN BUSHING TOOL — ADJUSTABLE STRAIGHT FLUTE REAMER**

The dimension of cutting diameter must facilitate a range of 1.802"-1.812"

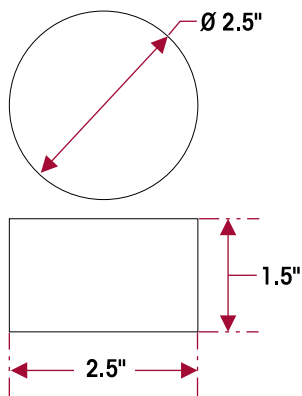


**SHOP MADE TOOLS**

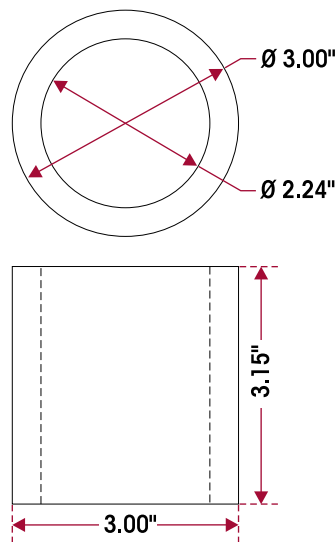
These shop made tools are designed to install and remove kingpin bushings. Bushing tools are made from cold rolled steel or equivalent. Drawings are for reference only. Hendrickson does not supply these tools.

**STEERTEK NXT**

**\*Bushing Driver**



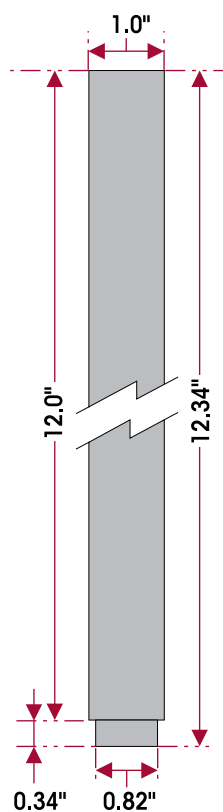
**Bushing Receiving Tool  
(for press bushing replacement)**



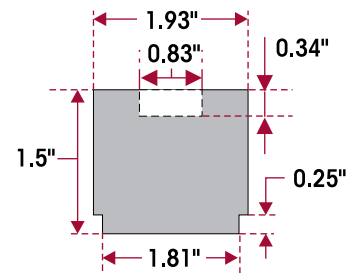
**NOTE:** \*The bushing driver is necessary to sink the kingpin bushing flush into the steering knuckle bore.

**NOTE:** Kingpin Handle is used for both bushing installer / remover and seal installer tools

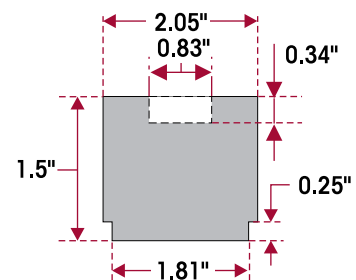
**Kingpin Handle**



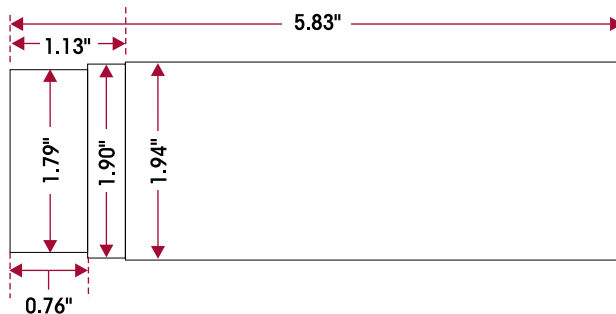
**Bushing  
Installer / Remover Tool  
(to seat bushing)**



**Seal Installer Tool  
(to seat seal)**



**STEERTEK**





## WARNING

### KINGPIN BUSHING

BEFORE APPLYING HYDRAULIC PRESSURE TO ANY TOOLING SET-UP, ALWAYS CHECK TO ENSURE THE PRESS PLATE, TOOLS, AND COMPONENTS BEING WORKED ON ARE POSITIONED PROPERLY, I.E. "IN LINE" WITH THE RAM OF THE PRESS. IMPROPER POSITIONING CAN CAUSE PERSONAL INJURY OR COMPONENT DAMAGE.

## CAUTION

PRIOR TO APPLYING HYDRAULIC PRESSURE TO REMOVE OR INSTALL THE KINGPIN BUSHING, SUPPORT THE LOWER STEERING KNUCKLE AS SHOWN IN FIGURE 1. IMPROPER SUPPORT TO THE STEERING KNUCKLE CAN CAUSE COMPONENT DAMAGE.

### REMOVAL

**You will need:** (see Special Tools on Page 2)

- A hydraulic shop press with a minimum forcing capacity of 2.5 tons (or an arbor press) or optional method - use hand tools
- Kingpin handle, bushing installer/remover, driver and receiving tools

### NOTE

If a shop press is not available to remove/install the kingpin bushings, an acceptable optional method is to use a hammer along with the shop made tools (kingpin bushing driver, receiving tool, kingpin handle, bushing installer/remover and seal installer tools) on a work bench.

### NOTE

To remove the kingpin bushing, always drive the bushing from the non-machined side of the steering knuckle.

FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4

1. Remove the threaded grease cap and grease Zerk.
2. With the machined side of the steering knuckle face down (axle side down), ensure that each part of the steering knuckle assembly is squarely supported on the bushing receiving tool before applying hydraulic pressure to press out the kingpin bushings, see Figures 1 and 2.
3. From the non-machined side of the steering knuckle, use the kingpin bushing installer/remover tool (see Special Tools Section of this publication) to drive the kingpin bushing and kingpin seal out of the steering knuckle, see Figure 3.
4. Clean the parts and inspect for reassembly, see Figure 4.



## KINGPIN BUSHING REAMING

**You will need:** (see Special Tools on Page 2)

- Vice with brass jaws (soft jaws)
- Adjustable Straight Flute Reamer

### CAUTION

REAM THE KINGPIN BUSHINGS WITH AN ADJUSTABLE STRAIGHT FLUTE REAMER. (SEE SPECIAL TOOLS IN THIS PUBLICATION) DO NOT HONE OR BURNISH THE KINGPIN BUSHINGS. HONING OR BURNISHING WILL DAMAGE THE BUSHINGS AND VOID ANY APPLICABLE WARRANTY.

### WARNING

WHEN INSTALLING 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.

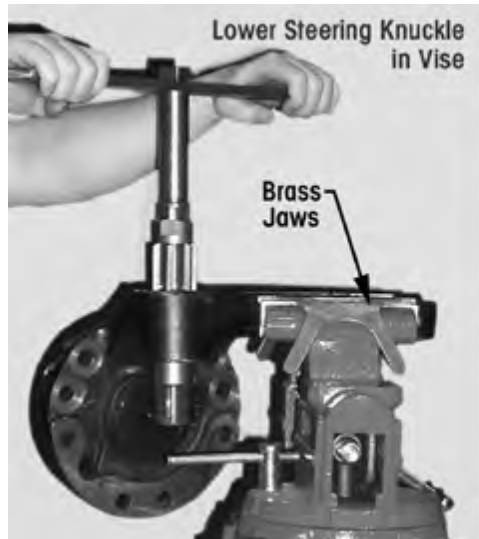
1. Install the upper/lower steering knuckle in a vise with brass jaws.

### SERVICE HINT

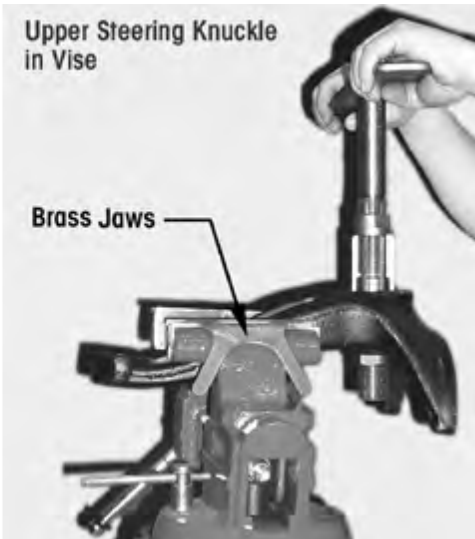
It is acceptable to mount the upper/lower steering knuckle in a vise either vertically or horizontally when performing the reaming procedure.

2. Install the reamer into the upper/lower steering knuckle until the blades touch the kingpin bushing.
3. Rotate the reamer with light downward pressure. Rotate the reamer smoothly. **DO NOT** apply too much pressure, see Figures 5 and 6.

**FIGURE 5**



**FIGURE 6**



4. Slide the reamer out of the upper/lower steering knuckle. If it is necessary to remove the reamer from the top, rotate the reamer opposite of cutting rotation.

### WARNING

PRIOR TO INSTALLATION ENSURE THAT ALL RESIDUAL LOCTITE® MATERIAL IS REMOVED FROM THE MOUNTING BOLTS AND THE THREAD BORES IN THE UPPER 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.

5. Clean and remove all kingpin bushing material from the knuckle assembly. Take special attention to remove material from the grease channels and dimples.
6. Clean the 5/8" brake backing plate bolts with a wire wheel and run a tap through the threads of the upper/lower steering knuckle and then flush out with brake cleaner and dry with compressed air.

### NOTE

The Hendrickson Genuine part, socket head cap screw comes with a pre-applied Loctite compound.

7. Temporarily install the upper/lower knuckle on the kingpin to check for fit.



8. Rotate the upper/lower knuckle back and forth to verify there is no binding on the kingpin, see Figures 7 and 8.
9. If the bushing is too tight repeat Steps 1 through 8 until the proper clearance is achieved.

## NOTE

Bushing size is to be 0.001" larger than the kingpin size.

10. Proceed to Kingpin Seal installation.

## KINGPIN SEAL

### INSTALLATION

**You will need:** (see Special Tools on Page 2)

- Vise with brass jaws (soft jaws)
- Kingpin handle and seal installer tool

## WARNING

WHEN INSTALLING 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.

1. Place the upper/lower steering knuckle in a vise with brass jaws or place on a suitable workbench. The steering knuckle will have the machined surface facing up (axle side up).
2. Lay the kingpin seal into the bore of the steering knuckle. The seal lip should face outward or toward the axle, see Figure 9.
3. Use a kingpin bushing driver tool and press seal firmly into the upper/lower steering knuckle.
4. **STEERTEK NXT** — Double Lip design, see Figure 10. Install the kingpin seal until it bottoms out in the kingpin bore.
5. **STEERTEK** — Single Lip design, see Figure 11. Install the kingpin seal until it makes contact with the kingpin bushing.

FIGURE 7



FIGURE 8



FIGURE 9  
Magnification  
of lip seal  
Lip seal faces  
toward axle



FIGURE 10  
**STEERTEK NXT**  
Magnification of the  
kingpin bushing  
and a **DOUBLE**  
lip seal installed in  
the steering knuckle.



FIGURE 11  
**STEERTEK**  
Magnification of the  
kingpin bushing and  
a **SINGLE** lip seal  
installed in the  
steering knuckle.





**STEERING KNUCKLE**

**ASSEMBLY**

To install the remaining items in the Service Kit, follow the Steering Knuckle Assembly procedure in the appropriate Hendrickson AIRTEK NXT • AIRTEK • SOFTEK NXT • SOFTEK • STEERTEK NXT • STEERTEK Technical Publication available online at [www.hendrickson-intl.com](http://www.hendrickson-intl.com).

Refer any questions on this publication, contact Hendrickson Tech Services:



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