

# H<sup>®</sup> ASSEMBLY INSTRUCTIONS

## Thrust Bearing Service Kit

**SUBJECT:** Kit Nos. 60961-009,-039,-040,-041,-042,-043

**LIT NO:** 59310-017

**DATE:** September 2008

**REVISION:** B

### THRUST BEARING KIT CONTENTS

DESCRIPTION
Kingpin Seal
Thrust Bearing: Left Side (Composite) or Right Side (Roller) or Both Sides
5/8" Socket Head Cap Screw
Kingpin Shim
Loctite <sup>®</sup> (Red)

### INTRODUCTION

Since February 28, 2002, Hendrickson has equipped STEERTEK axles with different thrust bearing configurations for the left and right side steering knuckles on the STEERTEK axle.

- The *left* knuckle assembly is equipped with a composite thrust bearing installed on the kingpin. This style of bearing will provide better dampening characteristics for the STEERTEK axle.
- The *right* side knuckle assembly is equipped with a roller bearing installed on the kingpin. The roller bearing will provide better steering returnability and road feel.

The two bearings must not be interchanged, see Figure 1. Failure to install the composite bearing in the proper location will not allow the STEERTEK axle to achieve maximum dampening characteristics. Both bearings are installed with the seal against the underside of the axle. Prior to February 28, 2002, the STEERTEK axle has had two different configurations of thrust bearings. It is not necessary to update the STEERTEK axle with one of the current thrust bearing service kits unless there is a steering returnability, wandering, or grease purge concern. If a kingpin bushing component replacement is performed the replacement service kits will contain the corresponding thrust bearings.

The STEERTEK axle is a component of the AIRTEK<sup>®</sup> and SOFTEK<sup>®</sup> suspension systems. Please refer to the applicable Hendrickson AIRTEK/SOFTEK technical publication for further information regarding safety notices, proper inspection, maintenance and service of the STEERTEK axle and other AIRTEK/SOFTEK components.

**FIGURE 1**



## STEERING KNUCKLE INSTALLATION

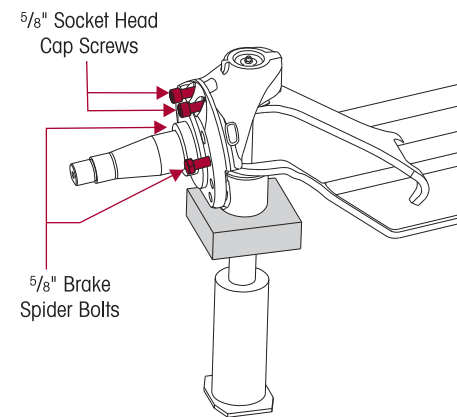
This publication is intended to assist maintenance personnel with the installation of Hendrickson's Thrust Bearing Service Kit Nos. 60961-009, -039, -40, -041, -042, -043.

### CAUTION

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 WILL ASSUME ALL RISKS OF CONSEQUENTIAL PERSONAL INJURY OR DAMAGE TO EQUIPMENT INVOLVED.

1. Install the thrust bearing on the lower kingpin with the seal facing up toward axle (the black seal will designate the top side). The composite thrust bearing is installed on the left side of the axle. The roller bearing is installed on the right side of the axle, see Figure 1.
2. Install the shim(s) on the upper kingpin.
3. Pack the bushing dimples on the upper and lower steering knuckles with multi purpose Lithium based grease (NLGI Grade 2) before installation.
4. Install the upper steering knuckle on the upper kingpin, see Figure 2.
5. Install the lower steering knuckle on the lower kingpin and install the old socket head cap screws loose into the top two threaded holes.

**FIGURE 2**

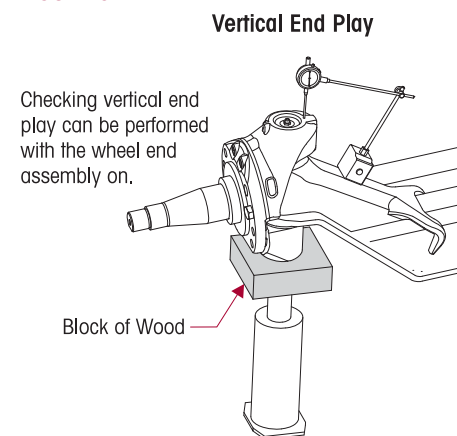


### SERVICE HINT

The easiest way to achieve this is with the grease caps not installed in the knuckle assemblies. This eliminates back pressure. The assembly can then freely slide up and down on the kingpin. If the grease caps are still installed, remove the grease zerks to avoid creating back pressure. Grease zerks will be re-installed at the end of the procedure.

6. Install a bottle jack under the lower steering knuckle and slightly raise the knuckle until it is possible to thread in the three (3) brake backing plate bolts by hand. These are for guide purposes only.

**FIGURE 3**



7. Snug the two socket head cap screws.
8. Lower the bottle jack so that all the vertical clearance is on the underside of the axle.
9. Affix a magnetic base dial indicator on the axle and place the tip of the dial indicator on top of the knuckle assembly, see Figure 3.
10. Zero the dial indicator.
11. Raise the bottle jack until there is no clearance between the knuckle assembly and the bottom of the axle, slightly lifting the axle.
12. Check threading on the dial indicator. The specification for vertical travel on the steering knuckle during assembly is 0.008" to 0.011".

13. If the clearance is above 0.011" loosen the two socket head cap screws. Push down on the upper steering knuckle assembly until the proper vertical clearance is achieved.
14. If the clearance is below 0.008", loosen the two (2) socket head cap screws. Pull up on the upper steering knuckle assembly until the proper vertical clearance is achieved. If the 0.008" minimum clearance is unattainable it may be necessary to remove a 0.005" shim.

**NOTE**

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

**WARNING**

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

15. Remove the old socket head cap screws, one at a time and install the new socket head cap screws and tighten to 175-200 foot pounds torque.
16. Recheck the vertical clearance with the dial indicator or a 0.010" feeler gauge, see Figure 4.

**FIGURE 4**

17. Remove the brake spider bolts, they should thread out freely.
18. Remove the bottle jack and continue assembling the wheel ends.

**IMPORTANT NOTE**

Loctite applied to the three brake backing plate bolts is a critical procedure to ensure that these bolts sustain the torque requirement of steering knuckle assembly.

19. Apply loctite to the three brake spider bolts prior to installation into the brake spider. Tighten brake spider bolts to the vehicle manufacturer's specifications.

**WARNING**

DO NOT GREASE KNUCKLES WITHOUT THE BRAKE SPIDER INSTALLED AND TIGHTENED TO PROPER TORQUE. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE RESULTING IN FAILURE AND LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

20. Install tie rod cross tube into the lower steering knuckle arm.
21. Tighten the castle nuts to 185 foot pounds torque then rotate the castle nut to the next castle slot and install cotter pin.
22. Install the drag link into the steering arm and tighten to vehicle manufacturer's specifications.
23. Install new o-rings on the grease caps and lubricate o-rings with grease.
24. Install grease caps and new retaining rings.
25. Install brakes, drums, wheels, tires and grease steering knuckles with the vehicle on the floor.
26. Remove jack and safety stands.

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