

TECHNICAL PROCEDURE

CON-TECH BRIDGE AXLE

SUBJECT: Installation and Preventative
Maintenance Procedures

LIT NO: H751

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INTRODUCTION

Why use a Bridge Axle? Hendrickson suspensions and axles carry countless loads of freight and raw materials off-road and over the highways. Bridge Axles lengthen the distance from front steer axle to increase the GVW, in accordance with federal bridge laws. Hendrickson Bridge Axles also reduce weight over standard booster axles and allow for increased payload.

The Hendrickson Bridge Axle also helps to meet U.S. Department of Transportation FHWA-HOP-06-105.

For further information, contact:
U.S. Department of Transportation
Federal Highway Administration
Office of Freight Management and Operations
Phone: 202-366-9210
Fax: 202-366-3302
Web site: http://www.ops.fhwa.dot.gov/freight/publications/brdg_frm_wgths/

The following instructions are intended for use with Hendrickson Bridge Axles.

NOTE: Read the entire installation instruction document thoroughly before proceeding with a suspension installation.

It is very important that the proper Bridge Axle is selected for the vehicle application. The following criteria must be considered when selecting a bridge axle:

- trailer and fender interface compatibility
- required capacity
- loaded caster
- tire size

For additional information concerning bridge axle selection, or other suspension models contact the Hendrickson Auxiliary Axle System's Customer Service Department.

⚠ CAUTION: The vehicle manufacturer should be consulted before making any changes to the vehicle's frame. Typically, vehicle manufacturers do not permit cutting or altering the vehicle and doing so could void any applicable manufacturer warranty coverage.

SPECIAL NOTES

Non-functioning components are to be returned to Hendrickson Specialty Products - Auxiliary Axle

Systems, in exchange for replacement components, provided product warranty conditions are met.

Hendrickson auxiliary axles with factory installed axles may require toe setting adjustments. Also, check for sufficient wheel bearing lubrication (oil).

It is the responsibility of the installer to ensure that the vehicle will function properly under the increased weight conditions and loading that will exist when an additional axle is installed, particularly braking.

It is the responsibility of the installer to determine the correct location of the suspension in order to provide the proper vehicle load distribution. The load carried by each axle must not exceed the rated capacity of the components involved or the applicable State and Federal laws where the truck is to be operated.

It is the installer's responsibility to ensure that proper clearances exist:

- Between the trailing arms and bridge axle (if applicable)
- Around the tires—laterally, fore, aft, and vertically
- Around any moving components

No welding to any of the Bridge Axle components is permitted, except where specified by Hendrickson Specialty Products - Auxiliary Axle Systems.

No alteration of any of the Bridge Axle components is permitted.

Any installation deviations must be approved, in writing, by Hendrickson Specialty Products - Auxiliary Axle Systems Product Engineering Department. Failure to comply with these installation instructions without written permission will void the suspension warranty.

⚠ CAUTION: Subjecting aluminum components to certain acid washes may result in premature corrosion and warranty could be affected. It is recommended that you monitor which cleaning solvents are being used on your vehicle.

⚠ CAUTION: Acid washes also degrade the rubber, urethane and plastic parts or the axle assembly.



REQUIRED EQUIPMENT AND MATERIALS FOR INSTALLATION

The following equipment and materials are needed when installing a Hendrickson Bridge Axle:

1. Trammel bar.
2. Crane or other lifting device.
3. Compressed air supply.
4. Air impact gun.
5. Air fittings, tubing and associated tools.
6. Socket set and wrenches, including the following sizes:
 - 1-5/16"-Tie Rod
 - 1-1/8" - Steering Knuckle & Stop Bolt
7. Angle measuring instrument (magnetic protractor) for self-steer axle.
8. Wheel chocks.
9. Frame jacks or supports.

INSTALLATION INSTRUCTIONS

SAFETY FIRST

Be sure to read and follow all installation and maintenance procedures.

LIFTING

Practice safe lifting procedures. Consider size, shape and weight of assemblies. Obtain help or the assistance of a crane or lift truck when lifting heavy assemblies. Make sure the path of travel is clear.

PARTS HANDLING

When handling parts, be sure to wear appropriate gloves, safety glasses and other safety equipment to prevent serious injury.

UNPACK AXLE

Separate any kitted parts for use during installation.

PRE-INSTALLATION CHECKLIST AND PROCEDURES

Before beginning the installation:

1. Check that the new axle matches the specifications provided by your Production or Engineering Department.
2. On all Bridge Axle applications:
 - a. Verify that the axle spacing conforms to Federal and local bridge laws.
 - b. Verify that the Bridge Axle location is based on: front axle steer angle, vehicle wheel-base and maximum recommended auxiliary axle spacing.
 - c. Verify that the vehicle will have the proper load distribution after installation.

⚠ WARNING: ADEQUATE BRIDGE AXLE SUPPORT MUST BE PROVIDED. FAILURE TO PROVIDE ADEQUATE SUSPENSION SUPPORT COULD RESULT IN SUSPENSION DAMAGE AND/OR DAMAGE TO THE VEHICLE.

4. Confirm that the components listed on the axle assembly drawing have been provided in sufficient quantities. Contact the Hendrickson Auxiliary Axle Customer Service Department if any components are missing or damaged.

PRIOR TO INSTALLATION AXLE IDENTIFICATION

The serial number tag is an identification label attached to the suspension system. It contains a unique serial number and the model identification number for that specific axle. (Label is located on the rear center of the axle or side rail.)

S/N:	_____
Part#:	_____
WO#:	_____
Cust P/N#:	_____
<p>This article is covered by at least one or more U.S. and/or foreign patents and/or pending U.S. and/or foreign patents. See www.hendrickson-intl.com/patents for a complete listing.</p>	
<small>HENDRICKSON SERIAL-TAG CUBB #1001970 210322/1 8/8/12</small>	

Figure 1. Serial Tag

AXLE ADJUSTMENTS TOE SETTING

Toe is the relationship of the distance between the front of the tires and the distance between the rear of the tires on the same self-steer axle measured at spindle height. When the front distance is less than the rear distance, the wheels are in a "toe-in" condition. (See Figure 2)

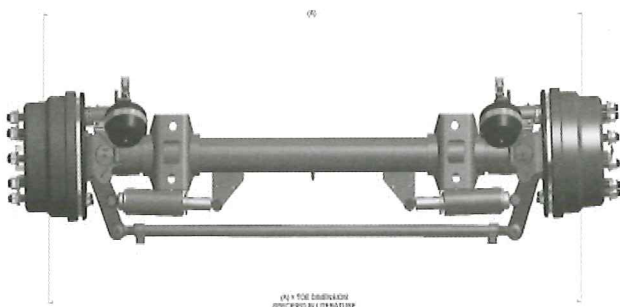


Figure 2. Determining TOE

1. Lift axle until tires are free to spin. Scribe a line on center tread of each tire while rotating tires.
2. Use a trammel bar or tape measure to measure the distance between the scribed lines on the front and rear of the tires at spindle height.

3. Loosen the tie rod clamp bolts. Rotate tie rod tube to provide a toe-in setting of $\frac{1}{16}$ " to $\frac{1}{8}$ " toe-in in the loaded condition.

NOTE: Setting toe on an Bridge Axle is often best performed in the unloaded state, off the ground. Confirm that the toe-in for the operating, loaded, condition has been achieved as it may differ between the unloaded and loaded state.

TURN ANGLE - MECHANICAL STOP

A mechanical turn angle stop (bolt) is an adjustable fastener that limits the steer axle's turn radius angle and allows users to avoid tire contact with vehicle accessories. Customer supplied axle(s) must have a turn angle stop. It is important that the stop is set so wheel interference does not occur.

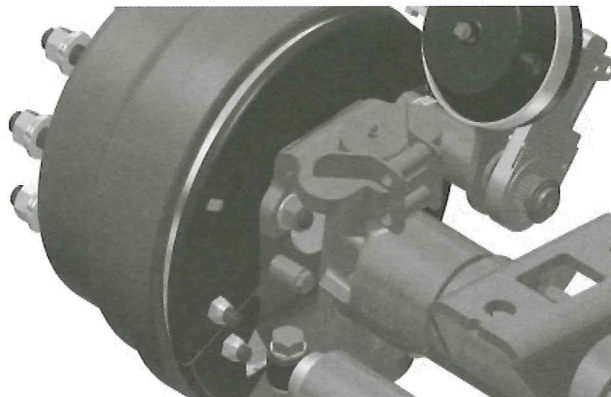


Figure 3. Axle Turn Limiting Stop Screw

1. Adjust the axle turn limiting stop screw for maximum turn angle (See Assembly Drawing) while providing adequate chassis clearance.
2. Torque the clamp bolts to Hendrickson Auxiliary Axle System's recommended values.

NOTE: Factory setting of turn limiting screw varies.

OPTIONS

AXLE CONTROLS

When operating a truck in reverse (backing), a conventional Bridge Axle **must** be raised into a non-steering configuration. See [H] HAC Series Air Kit Literature for all options.

MANUAL AND AUTOMATIC LIFT

An alternative method to locking the steering mechanism is to lift the suspension when reversing. Various manual and electric air control kits are available as options. Contact Customer Service for more details.

FINAL ASSEMBLY

1. Install all miscellaneous hardware and torque the mounting bolts as per the chassis manufacturers specifications.
2. Install wheels and torque lug nuts.
3. Check that the steer axle wheel bearings are filled with oil by inspecting hub cap fill level.
4. Install air brake lines for the steer axle brakes, per the chassis manufacturer's specifications.
5. Inspect brakes and adjust if necessary.

NOTE: Suspensions purchased from Hendrickson Auxiliary Axle Systems require brake adjustment, even if supplied with automatic slack adjusters.

FINAL INSPECTION

1. Check that all bolts are tightened to Hendrickson Auxiliary Axle System's recommended torque values. (See Appendix)
2. Check the air control system for leaks and proper valve function.
3. Move the Bridge Axle through its entire travel range including full wheel cut with wheels and tires installed to ensure adequate component clearances (i.e., fenders, brake chambers, etc.) have been provided.
4. Inspect the bridge axle for the following:
 - Wheels lug nuts are torqued.
 - Wheels rotate freely.
 - Brakes are properly adjusted.
 - Wheel hubs are sufficiently filled with the manufacturer's recommended lubricant.

PREVENTATIVE MAINTENANCE

Regular lubrication intervals should be followed to help prevent premature wear to the kingpin bushings.

GREASING AND LUBRICATION SPECIFICATIONS

COMPONENT	GREASING INTERVAL	GREASE
KINGPIN BREAK IN	5,000 miles or as needed	NLGI-1 or NLGI-2
KINGPIN BUSHINGS	10,000 miles or every 6 months	NLGI-1 or NLGI-2

KINGPIN LUBRICATION

On the Hendrickson Bridge Axle, the kingpin grease fittings are located on the top and bottom of the kingpin.

1. Prior to greasing the kingpins on the vehicle the suspension must be in a loaded condition.
2. Clean off all the grease fittings with a clean shop towel prior to lubrication.
3. Lubricate the kingpins through the grease fittings on the top and bottom of the steering knuckle.
4. Force the required lubricant into the upper and lower kingpin grease fittings until new lubricant flows from locations A and B. (See Figure 4)

NOTE: Greasing at the lower zerk should purge grease from the thrust bearing shell.

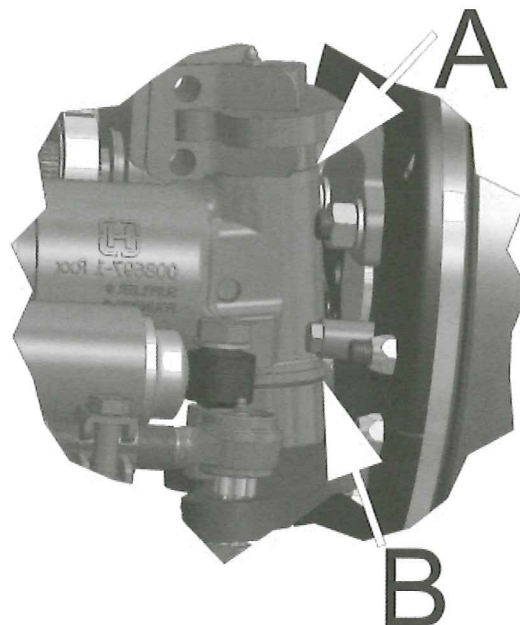


Figure 4. Kingpin Lubrication

KINGPIN BUSHING INSPECTION INSPECTION PROCEDURE

1. Chock the wheels to help prevent the vehicle from moving. Set the parking brake.
2. Raise the axle off the ground.

CHECKING THE UPPER KINGPIN BUSHING

3. Affix a magnetic base dial indicator on the axle and place the tip of the dial indicator on the inside of the upper kingpin connection as shown in Figure 5.

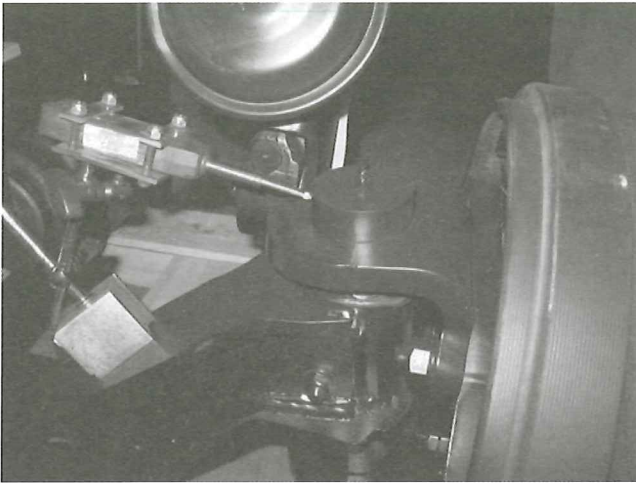


Figure 5. Upper Kingpin Bushing Check

4. Set the dial indicator to "0" zero.
5. Move the top of the tire in and out by applying reasonable, constant pressure and then releasing.
6. Check the reading on the dial indicator. If the dial indicator moves more than 0.025", the upper bushing is worn or damaged. Replace both bushings. Refer to the Kingpin Bushing Removal and Installation sections in this publication.

CHECKING THE LOWER KINGPIN BUSHING

7. Install a dial indicator so that the base is on the axle and the indicator tip is against the inside of the bottom of the knuckle.
8. Set the dial indicator to "0" zero.

IMPORTANT: If one bushing is worn or damaged, it is mandatory to replace both the top and bottom bushings on that knuckle assembly.

STEERING KNUCKLE INSPECTION AND ADJUSTMENT

CHECKING VERTICAL END PLAY (UP AND DOWN MOVEMENT)

1. Chock the tires to help prevent the vehicle from moving.
2. Set the parking brake.
3. Raise the axle off the ground.
4. If necessary, remove the wheels, hubs and drums.
5. Place a dial indicator on each side of the axle as follows:
 - a. Ensure wheels are positioned straight ahead.
 - b. Place the magnetic dial indicator base on the axle.
 - c. Place the tip of the dial indicator on top of the upper kingpin connection.
6. Place a jack and a wood block (with a hole that allows clearance for the lower kingpin grease fitting) under the lower kingpin grease cap area. (See Figure 6)
7. Set the dial indicator to "0" zero.



Figure 6 Vertical End Play Checking

8. Raise the jack until the dial indicator shows the end of vertical travel. Measure and record the dial indicator reading. Vertical (up and down) inspection clearance must be between 0.008" and 0.030".

ADJUSTING VERTICAL END PLAY

1. If vertical clearance is greater than 0.030", replace the thrust bearing.
2. After replacing the thrust bearing, if vertical clearance is greater than 0.018", install shims (Hendrickson part no. R-001764-1Q12) between the top of the axle and the bottom of the upper kingpin connection to obtain the proper clearance specification. See the Steering Knuckle Disassembly section.
3. If vertical clearance is less than 0.008", remove the shims from between the top of the axle and the bottom of the upper kingpin connection to obtain the proper clearance specification.
4. Repeat steps 2 or 3 until proper clearance is achieved.
5. Lower the jack.

STEERING KNUCKLE DISASSEMBLY

1. Remove the wheel and hub assembly.
2. Remove the brake components from the steering knuckle.
3. Remove the tie rod assembly. (See Figure 7)

⚠ WARNING: REMOVAL OF TIE ROD BOLTS ALLOWS SHOCKS TO FULLY EXTEND

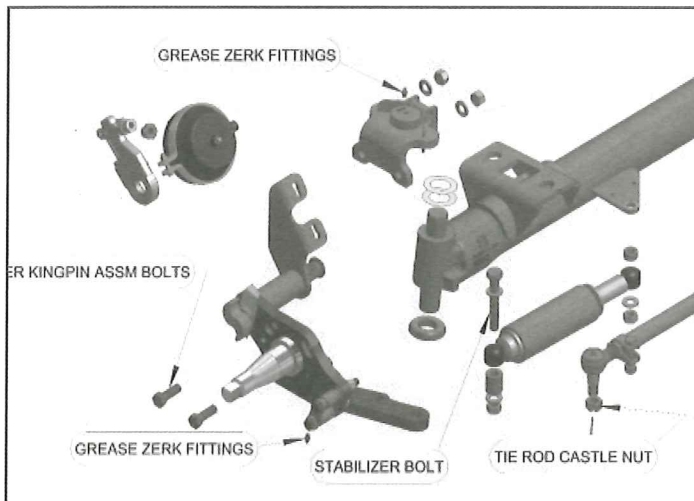


Figure 7 Knuckle Disassembly

4. Remove the stabilizer bolts.
5. Remove the bolts that connect upper kingpin assembly to the backbone.

⚠ WARNING: REMOVAL OF THE BOLTS WILL ALLOW THE BACKBONE TO SEPARATE FROM THE AXLE WHICH CAN RESULT IN COMPONENT DAMAGE AND/OR PERSONAL INJURY. BACKBONE MUST BE SUPPORTED BEFORE REMOVAL OF THE TWO BOLTS.

HINT: Remove the grease zerks from the knuckle assemblies. This will allow the knuckle assemblies to freely slide up and down the kingpins without creating back pressure.

5. Remove the backbone from the kingpin by sliding it down the kingpin.
6. Remove the upper kingpin assembly from the axle by sliding it up and off the kingpin.

KINGPIN PREPARATION AND MEASUREMENT**CLEANING THE GROUND OR POLISHED PARTS**

- Use a cleaning solvent to clean ground or polished parts and surfaces. DO NOT USE GASOLINE.

⚠ CAUTION: Do not use hot solution tanks or water and alkaline solutions to clean ground or polished parts. Damage to the parts will result.

CLEANING THE ROUGH PARTS

- Rough parts can be cleaned with the ground or polished parts. Rough parts can also be cleaned in hot solution tanks with a weak alkaline solution. The parts must remain in the hot solution tanks until they are completely cleaned and heated.

DRYING THE CLEANED PARTS

- Parts must be dried immediately after cleaning. Dry the parts with clean paper towels, clean rags or compressed air. Do not dry bearings by spinning with compressed air. Damage to the bearings will result.

PREVENTING CORROSION ON CLEANED PARTS

- Apply a light coating of oil to all cleaned and dried parts that are going to be reused. Do not apply oil to the brake lining or the brake drums. If parts are to be stored, apply an effective rust inhibitor to all surfaces.

⚠ WARNING: TO HELP PREVENT SERIOUS EYE INJURY, ALWAYS WEAR PROPER EYE PROTECTION WHEN YOU PERFORM VEHICLE MAINTENANCE OR SERVICE.

⚠ WARNING: SOLVENT CLEANERS CAN BE FLAMMABLE, POISONOUS AND CAUSE BURNS. TO HELP AVOID SERIOUS PERSONAL INJURY, CAREFULLY FOLLOW THE MANUFACTURER'S PRODUCT INSTRUCTIONS/GUIDELINES AND THE FOLLOWING PROCEDURES:

1. WEAR PROPER EYE PROTECTION.
2. WEAR PROTECTIVE CLOTHING.
3. WORK IN A WELL-VENTILATED AREA.
4. DO NOT USE GASOLINE, SOLVENTS OR OTHER MATERIALS THAT CONTAIN GASOLINE THAT CAN EXPLODE.
5. HOT SOLUTION TANKS OR ALKALINE SOLUTIONS MUST BE USED CORRECTLY. FOLLOW THE MANUFACTURER'S RECOMMENDED INSTRUCTIONS AND GUIDELINES CAREFULLY TO HELP PREVENT PERSONAL ACCIDENT OR INJURY.

1. Prepare and polish the kingpin by removing all grease and excess debris using a fine grit (220 grit or higher) emery cloth and parts solvent. (See Figures 8 through 11)

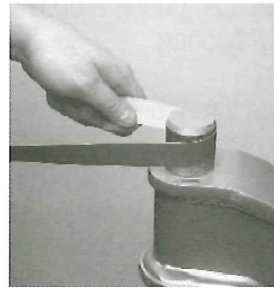


Figure 8.

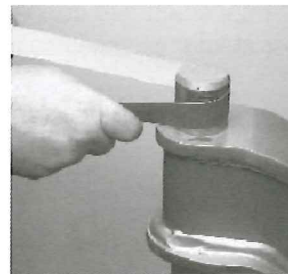


Figure 9.



Figure 10. Dirty Kingpin



Figure 11. Kingpin After Cleaning

2. Inspect the kingpin for wear or damage. Use a micrometer and measure the upper and lower kingpin in two locations. Positions must be 90 degrees (perpendicular) from each other. (See Figures 12 through 15) If the kingpin diameter is less than 1.802", kingpin replacement may be necessary. Contact the Hendrickson Customer Service Department at 800-660-2843.

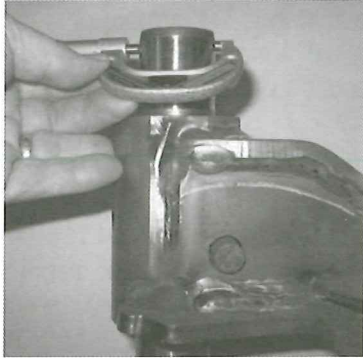


Figure 12.

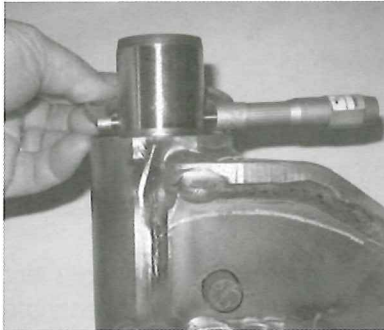


Figure 13.



Figure 14.



Figure 15.

FABRICATED KNUCKLE KINGPIN BUSHING INSTALLATION

1. A hydraulic press with a minimum forcing capacity of 5 tons will be required.

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

2. Install the backbone assembly or upper kingpin connection in the press.
3. Remove worn kingpin bushing housing
4. Install the new kingpin housing from the machined side (axle side) of the backbone ensuring squareness between the housing and the backbone.



Figure 16.



Figure 17.

BRIDGE AXLE (BA) AND TIE ROD STRUCTURAL INSPECTION

Periodic inspection of the Bridge Axle and tie rod are strongly recommended. Cleaning the BA and tie rod prior to the inspection will improve the ability to see all structural component condition.

Contact Hendrickson Auxiliary Axle Customer Service for replacement parts or parts kits (800) 660-2843.

ROUND TUBE TIE ROD ADJUSTMENT

In order for a steerable suspension system to steer or track correctly, it is necessary for the wheels to be in a "toe-in" condition. Toe is the difference between the foremost and rearmost point on the tires at spindle height. When the foremost distance is less than the rearmost distance, the wheel pair is said to have toe-in. Toe not only affects tire wear, but also straight-line stability and corner handling. Having a proper toe setting is important for directional stability. On steerable axles, the toe is pre-set during assembly, however sometimes it becomes necessary to adjust the toe. It is also necessary to verify the toe upon axle installation. For additional information regarding toe settings or lift axle systems, please contact the Hendrickson Customer Service Department at 800-660-2829.

To adjust the toe setting, follow these instructions.

DETERMINING THE TOE SETTING

⚠ WARNING: NEVER PERFORM MAINTENANCE ON A SUSPENSION WITHOUT FIRST RELEASING AIR PRESSURE FROM AIR SPRINGS. COMPONENT DAMAGE, INJURY OR DEATH CAN OTHERWISE RESULT.

1. Lift axle until tires are free to spin.
2. Support the suspension with jack stands.
3. Scribe a line on center tread of each tire while rotating tires.
4. Use a trammel bar or tape measure to measure the distance between the scribed lines on the front side of the tires at spindle height.
5. Use a trammel bar or tape measure to measure

the distance between the scribed lines on the back side of the tires at spindle height.

6. Subtract the distance between the front side and back side of the tires. This is the toe setting. Toe Setting = Rear Distance - Front Distance
7. If the toe setting is set in between 1/16" and 1/8", for a standard tie rod, no adjustment is required. If the toe setting is set in more or less than the 1/16" to 1/8" range, refer to the Adjusting the Toe Setting section of this publication as adjustment is necessary.

ADJUSTING THE TOE SETTING

1. Loosen the tie rod clamp bolts, stabilizer mounting u-bolts (if applicable) and nuts.
2. Rotate tie rod tube to provide a toe-in setting of 1/16" to 1/8".
3. Torque the clamp bolts to 50 ft-lbs.

STEERING KNUCKLE ASSEMBLY

After replacing the kingpin housings, it is necessary to reassemble the steering knuckle assemblies.

1. Install the thrust bearing on the lower kingpin, so the top side is up (the thrust bearing may be stamped "TOP" or the black seal will designate the top side), when the axle is in the operating position.
2. Pack the bearing dimples with multipurpose grease (NLGI Grade 2).
3. Install the backbone assembly on the kingpin. It will be necessary to support the backbone assembly with a bottle jack and a block of wood under the backbone assembly. (See Figure 18)

Hint: The easiest way to install the knuckle is with the zerk grease fitting not installed in the backbone assemblies. In this manner, it does not create back pressure. The assembly can then freely slide up and down on the kingpin.

4. Raise the bottle jack so that there is no free play between the backbone, thrust bearing and the bottom of the axle.
5. Install the upper kingpin connection on the upper kingpin. (See Figure 18)

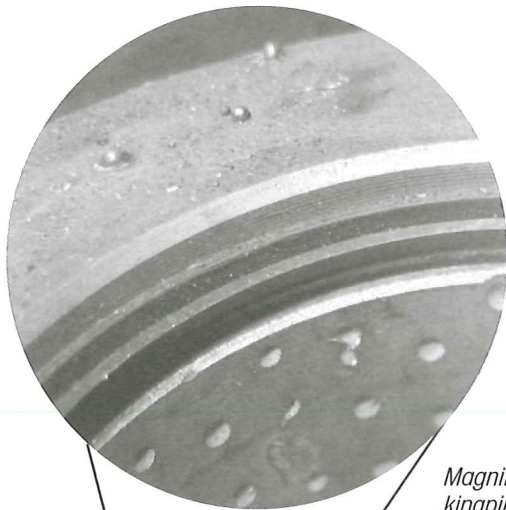


Figure 18.

Magnification of kingpin bushing and lip seal installed in steering knuckle.

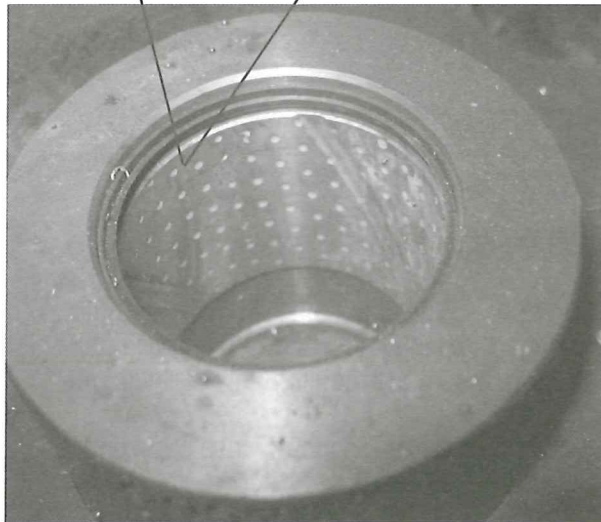


Figure 19.

5/8" Socket Head Cap Screws

5/8" Brake Backing Plate Bolts

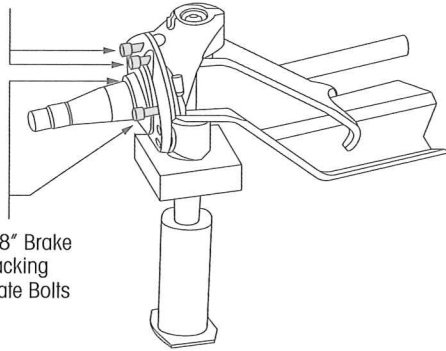


Figure 20.

NOTE: Two guide studs may be substituted in place of the brake backing plate bolts.

6. Install the two new 3/4"-10 x 2.25" Grade 8 HEX bolts and secure with washer and nuts to finger tight.
7. Apply slight upward pressure on the upper kingpin connection.
8. Insert feeler gauges between the upper kingpin connection and the top of the axle. Check the clearance between the upper kingpin connection and the top of the axle. (See Figure 21)
9. Remove the brake backing plate bolts and socket head cap screws. (See Figure 20)
10. Remove the upper kingpin connection.
11. Install the appropriate amount of shims to achieve 0.008" to 0.018" clearance between the upper kingpin connection and the top of the axle.

EXAMPLE: If 0.050" clearance were measured, 0.040" shims would be required to obtain the required 0.008" to 0.018" clearance.

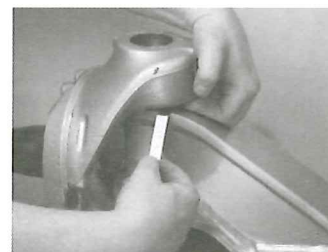


Figure 21.

12. Install the upper kingpin connection onto the kingpin.
13. Slide two 0.010" feeler gauges on each side of the kingpin between the axle and the upper kingpin connection.

⚠ WARNING: PRIOR TO INSTALLATION ENSURE THAT ALL RESIDUAL LOCTITE MATERIAL IS REMOVED FROM THE MOUNTING BOLTS AND THE THREADED HOLES IN THE UPPER KINGPIN CONNECTION, 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.

14. Install the hex head bolts and tighten to 175-200 ft-lbs torque.

NOTE: The Hendrickson Genuine Part 3/4-10 x 2-1/2 GRADE 8 HEX bolt (PN: R-6110C125H4H8). Apply LocTite.

15. Once the final torque of the hex nuts has been obtained, remove the two 0.010" feeler gauges and lower the bottle jack.

Vertical End Play

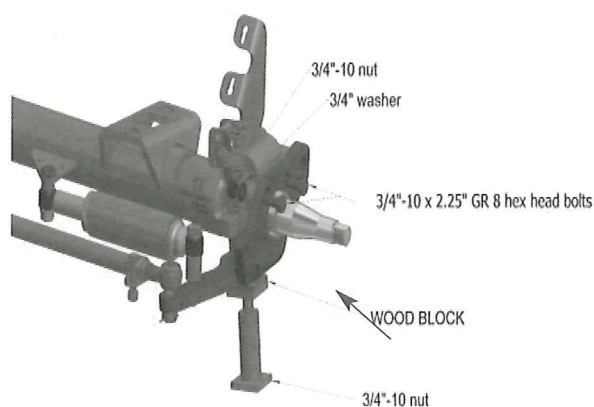


Figure 22.

16. Affix a magnetic base dial indicator on the axle and place the tip of the dial indicator on top of the upper kingpin connection. (See Figure 22)
17. Zero the dial indicator.

18. Raise the bottle jack until there is no clearance between the backbone and the bottom of the axle.
 19. Check the reading on the dial indicator. The specification for vertical travel on the steering knuckle assemblies is 0.008" to 0.018".
 20. If the clearance is not within the required specification, repeat steps 3 through 9 until the proper clearance is obtained by adding or removing shims.
 21. If the vertical travel is not within the specification, repeat steps 3 through 16 until the proper vertical travel is obtained.
 22. Remove the bottle jack to remove the load off the knuckle assembly and continue assembling the wheel ends.
 23. Install the tie rod cross tube into the tie rod arm.
 24. Tighten the castle nuts to 185 ft-lbs torque, then rotate the castle nut to the next castle slot and install the cotter pin.
 25. Tighten bolts to 140-160 ft-lbs torque.
- NOTE:** LocTite applied to knuckle assembly bolts is a critical procedure to ensure that these bolts sustain the torque requirement of the kingpin connection.
26. Install new o-rings on the grease caps and lubricate the o-rings with grease.
 27. Install zerk grease fittings and new retaining rings.

APPENDIX A

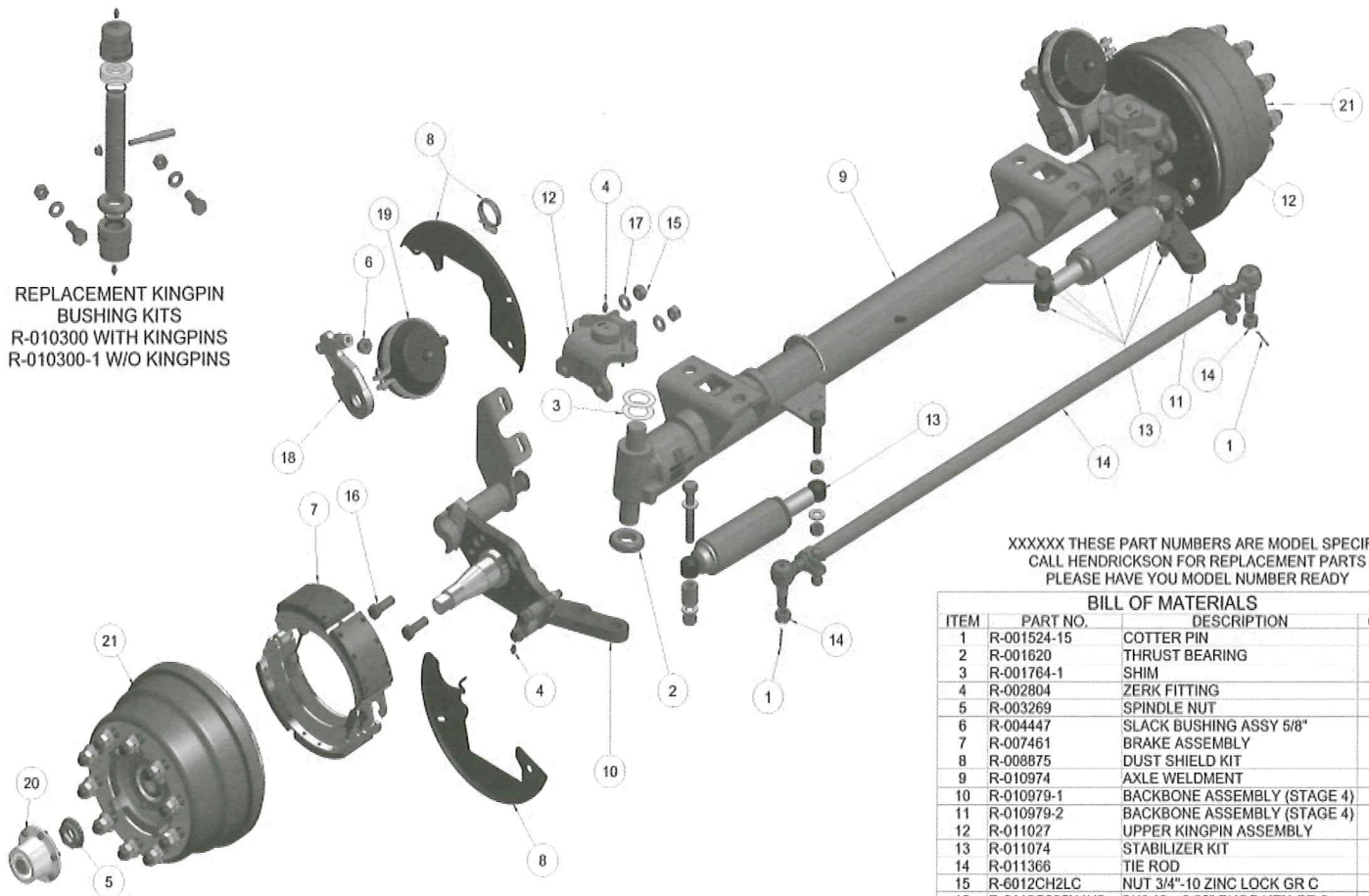
RECOMMENDED BOLT TORQUES

Refer to table below for bolt torque values.

For more information on torque values, refer to MacLean Vehicle Systems literature, *Axilok Unitized Wheel Bearing Nut System: Installation and Removal Procedures*.

TORQUE TABLE

Item	Part Number	Quantity	Torque
Stabilizer nut	6112C350H4H8	2	80-120 ft. lbs.
Stabilizer bolt	6112C550H4H8	2	
Tie rod castle nut	Included in tie rod end	2	180 ft. lbs.
Knuckle main nut	6012CH2LC	4	250-300 ft. lbs.
Knuckle main bolt	6112C225H4H8	4	
Brake anchor pin nut	6010CH2LC	2	160-200 ft. lbs.
Brake anchor pin bolt	6110C500H4H8	2	
Brake chamber mounting nut	Included in brake chamber	4	130-150 ft. lbs.
Jam nut	Included in brake chamber	2	33-90 ft. lbs.



BILL OF MATERIALS			
ITEM	PART NO.	DESCRIPTION	QTY
1	R-001524-15	COTTER PIN	2
2	R-001620	THRUST BEARING	2
3	R-001764-1	SHIM	4
4	R-002804	ZERK FITTING	4
5	R-003269	SPINDLE NUT	2
6	R-004447	SLACK BUSHING ASSY 5/8"	2
7	R-007461	BRAKE ASSEMBLY	2
8	R-008875	DUST SHIELD KIT	1
9	R-010974	AXLE WELDMENT	1
10	R-010979-1	BACKBONE ASSEMBLY (STAGE 4)	1
11	R-010979-2	BACKBONE ASSEMBLY (STAGE 4)	1
12	R-011027	UPPER KINGPIN ASSEMBLY	2
13	R-011074	STABILIZER KIT	1
14	R-011366	TIE ROD	1
15	R-6012CH2LC	NUT 3/4"-10 ZINC LOCK GR C	4
16	R-6112C225H4H8	3/4"-10 x 2.25" PHOS HEX GR 8	4
17	R-6212H2H	WASHER 3/4" ZINC HARDENED	4
18	R-A-14767	AUTO SLACK 5.5	2
19	R-A-14888	TYPE 20 BRAKE CHAMBER	2
20	XXXXXX	AXLE COMPONENTS	1
21	XXXXXX	HUB/DRUM 20/22	2

APPENDIX B BRAKE REPLACEMENT

⚠ WARNING: ADEQUATE SUSPENSION SUPPORT MUST BE PROVIDED! FAILURE TO PROVIDE ADEQUATE SUSPENSION SUPPORT COULD RESULT IN SERIOUS BODILY HARM OR FATAL INJURY. EYE PROTECTION STRONGLY RECOMMENDED

For replacement brake kits, contact the Hendrickson Customer Service Department at (800) 660-2843

1. Raise and support the suspension to which the brakes are to be replaced. Remove wheel, brake drum and axle end components to expose the brake shoes.
2. Remove the outer retaining spring and inner retaining spring.

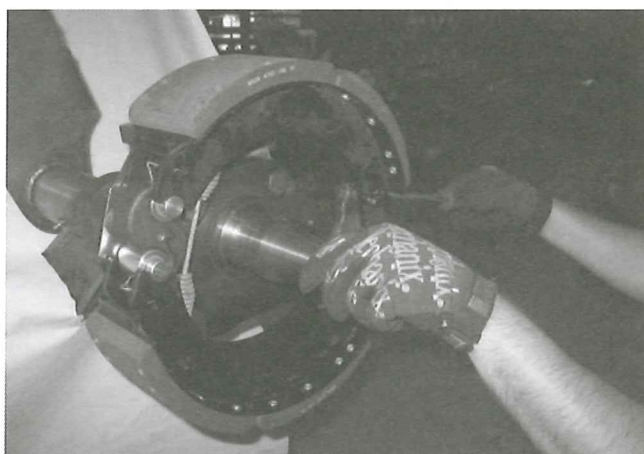
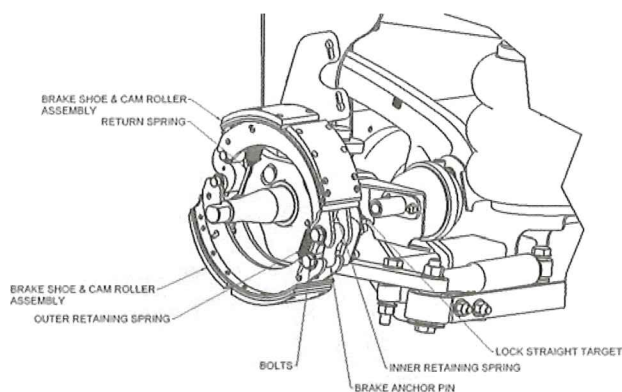


Figure 27. Removal of Outer and Inner Retaining Spring

3. Support the lower brake shoe assembly and remove the return spring. Set parts aside and remove the upper brake shoe.

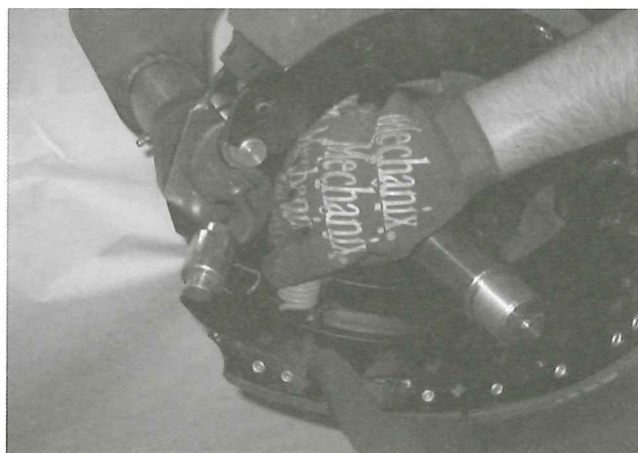


Figure 28. Removal of Return Spring

4. Remove the brake bolts and brake anchor pin. If lock straight target is present, note position for proper reassembly location.

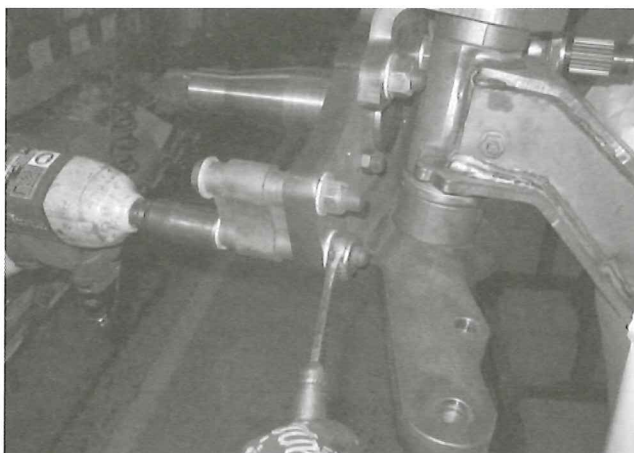


Figure 29. Removal of Brake Bolts and Anchor Pin

5. Replacement brake kit for each specific axle will have the necessary parts to be replaced. Discard worn or damaged parts. If a part is not included in the kit, contact customer service (800) 660-2843.
6. Install new parts in reverse order from step 4. Brake bolts through the anchor pin are to be installed with a torque of 160 ft-lbs.

When reinstalling the spring, be sure the spring is completely clipped into the mounting hole. Failure to do so could result in brake failure.

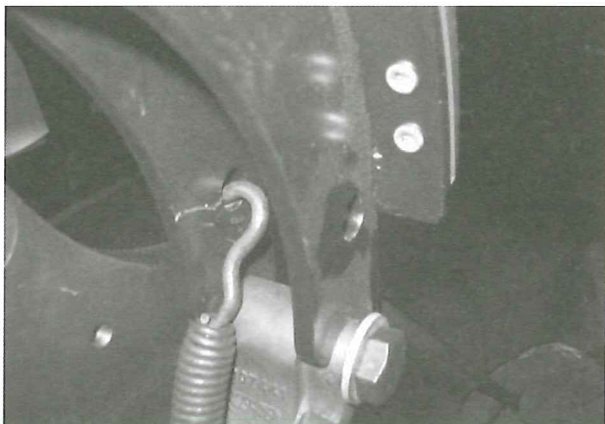


Figure 30. Spring Clipped Completely Into Mounting Hole

NOTES:

[illegible]

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