TECHNICAL BULLETIN

Oshkosh Load Span Tag Axle (LSTA)

SUBJECT: Axle Weldment Replacement Kit & Installation Procedure
LIT. NO: TB–H807
DATE: July 2018 **REVISION:** C

INTRODUCTION

AXLE WELDMENT REPLACEMENT KIT NO. 016816–00 CONTENTS

Description	Qty.
Axle Weldment Subassembly R–016191–00, Includes Kingpins	1
¾" Fastener Kit No. 016826–00	2
Contents:	
¾"–10 UNC x 4" Hex Cap Screw	2
¾"–10 UNC x 6½" Hex Cap Screw	2
¾"–10 UNC Nylon Locknut	4
¾" Washer	4
Cotter Pin	2
Stabilizer Spacer (Length 1.76")	2
½" Washer	2
½" Lock Washer	2
½"–13 x 1" Hex Cap Screw	2
⅞" Fastener Kit No. 016825-00	1
Contents:	
⅞"–14 UNF x 9" Hex Cap Screw	4
⅞"–14 UNF Hex Nut	4
⅞" Washer	8
Medium Strength Threadlocker Loctite® # 242	1
NOTE: All fasteners are Grade 8	

This publication is intended to assist with the identification and replacement of axle weldment components on a limited number of Load Span Tag Axle (LSTA) assemblies manufactured by Hendrickson and equipped on Oshkosh S–Series front discharge mixers. The applicable LSTA assemblies were manufactured between March 25, 2008 and January 30, 2017. The new production version of the LSTA assembly (Hendrickson Part No. BAH13Z–XXK) is not affected.

LSTA Assemblies

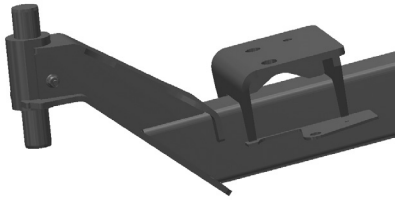
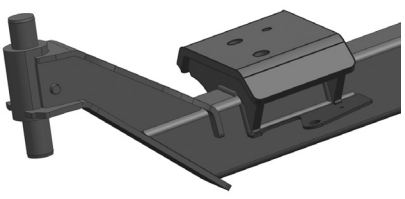
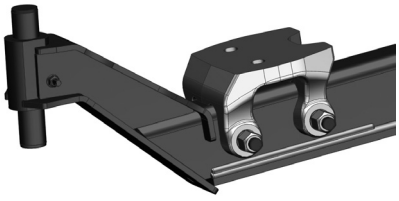
Manufactured between 03/25/2008 and 01/30/2017

Hendrickson Part No.	Oshkosh Part No.	Affected Serial Numbers
BAH13X–XXK	3724561	HAUX119723 through HAUX125012 HO0812030001 through HO1605044962
BAH13Y–XXK	4317305	HO1610114483 through HO1701090014

Hendrickson has learned the above–referenced axle weldment components may develop slowly progressive cracks in the axle seat connections under various service conditions. Such cracks will be clearly visible during routine vehicle inspections. If this condition is allowed to progress over time, such cracks could result in damage to the LSTA connections to the adjacent suspension trailing arms. Therefore, Hendrickson is offering to all applicable owners, at no charge, an Axle Weldment Replacement Kit (No. 016816–00) for affected LSTA assemblies. This kit includes the same new LSTA subassembly (including bolt–on cast axle seats) that is used in Part No. BAH13Z–XXK.

FIGURE 1

LSTA ASSEMBLY VERSIONS

BAH13X–XXK	BAH13Y–XXK	BAH13Z–XXK New Production Version
Original Fabricated Axle Seat	Revised Fabricated Axle Seat	Bolt-on Cast Axle Seat
		

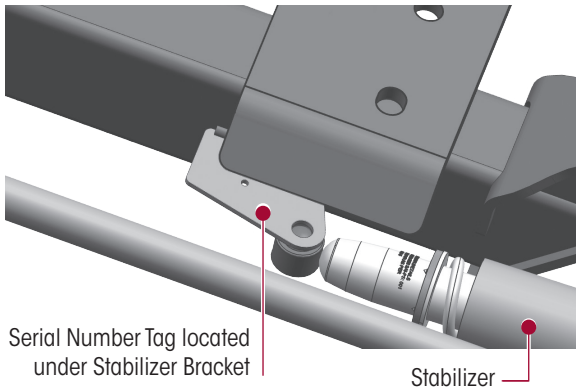
HENDRICKSON
The World Rides On Us®

⚠ WARNING 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.

INSPECTION

Locate the Oshkosh vehicle identification tag and the Hendrickson serial number tag (See Figure 2) to determine whether an Oshkosh S–Series front discharge mixer in your fleet is equipped with an affected LSTA.

FIGURE 2



AXLE REPLACEMENT

Immediately contact Hendrickson Technical Services (phone: 800.660.2829 or e-mail: liftaxletech@hendrickson-intl.com) to:

- Report whether any affected LSTA's in your fleet show signs of any of the above–referenced cracks or other damage that may develop in the axle seat connections or adjacent components;
- Order an Axle Weldment Replacement Kit (No. 016816–00); and
- Advise whether your fleet may have sold to another party an Oshkosh S–Series front discharge mixer equipped with an affected LSTA. (Please identify the names and contact information of any/all such parties.)

DO NOT attempt to repair any cracks or other damage that may develop in the axle seat connections or adjacent components. Hendrickson will work with Oshkosh and the vehicle owner to coordinate the installation of an Axle Weldment Replacement Kit per the following procedure. The replacement will take approximately six (6) hours to accomplish and will be completed at no charge. Alternatively, the vehicle owner may install the Axle Weldment Replacement Kit by following this procedure, and Hendrickson will reimburse the installation cost of such service kit.

DO NOT re–use, discard or destroy any affected axle weldment components removed from the subject Oshkosh S–Series front discharge mixers. Rather, all such axle weldments should be returned to Hendrickson. When your fleet orders an Axle Weldment Replacement Kit, Hendrickson will make arrangements to pick up all affected axle weldments to be replaced.

YOU WILL NEED:

- ½" Drive Impact Gun
- 1⅛" and 1 5⁄16" Impact Socket
- 7⁄16", 1⅛" Open / Box–end Wrench
- Grease Gun and Gease
- Mallet
- Pliers
- Brass Punch
- Jack Stands
- Flat Blade Screwdriver
- Torque Wrench Capable of Reaching 570 ft. lbs.
- Digital Protractor
- Loctite® # 242

DISASSEMBLY

1. Chock the drive wheels.
2. Place the vehicle on a flat and level surface.

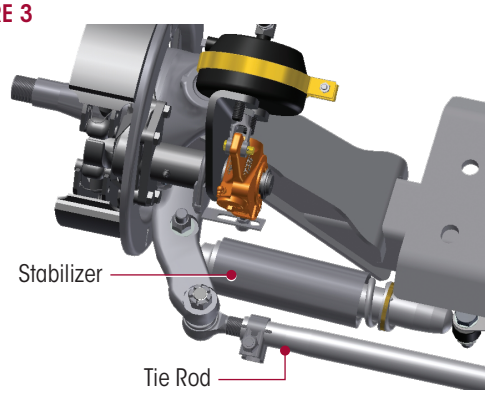
3. Remove air lines to brakes on LSTA.
4. Remove the fenders, wheels/tires, and brake drums. **Do Not** remove the hubs.
5. Keep the axle on truck trailing arms.
6. Drop the trailing arms until axle is 12"–18" from the ground.
7. Support the axle with jack stands.

⚠ WARNING

THE STABILIZER IS EQUIPPED WITH A COIL SPRING THAT CONTAINS STORED ENERGY ONCE INSTALLED ON THE AXLE. PRIOR TO AND DURING STABILIZER REMOVAL AND INSTALLATION, THE STABILIZER MUST BE PROPERLY COMPRESSED AND RESTRAINED. FAILURE TO DO SO MAY ALLOW THE STABILIZER TO RELEASE THE STORED ENERGY, RESULTING IN POSSIBLE DAMAGE TO COMPONENTS AND/OR PERSONAL INJURY.

8. Using the appropriate tools, restrain stabilizers to restrain the stabilizer coil springs.
9. Remove the stabilizers with 1⅛" socket and wrench (See Figure 3).
10. Remove the cotter pin, castle nut and tie rod with 1⁵⁄₁₆" impact socket (See Figure 4).
11. Remove the snap ring from the upper kingpin housing and knuckle (See Figure 5).

FIGURE 3



NOTE
Wheel–end hub is not shown for illustration purposes only.

12. Use the flat blade screw driver to remove the grease caps and zerk fittings from the upper kingpin housing and lower knuckle.

FIGURE 4

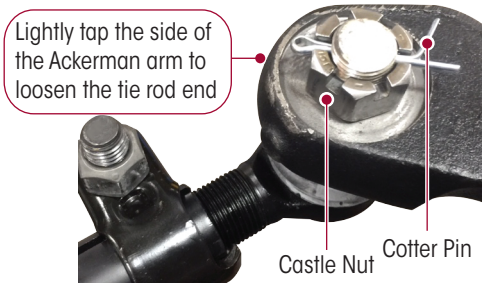
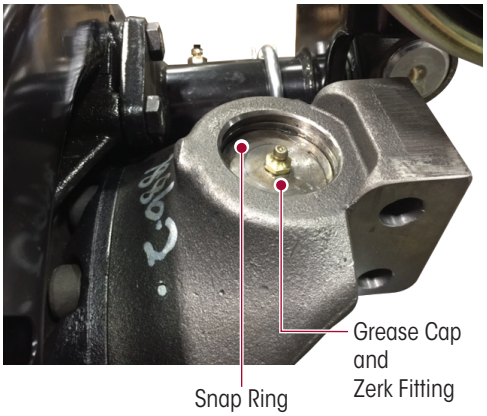


FIGURE 5



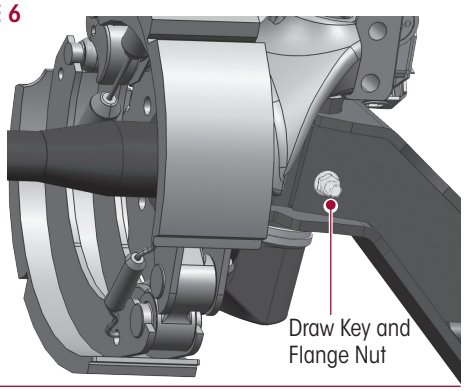
13. Remove draw key (See Figure 6).

⚠ WARNING

IF UPPER KINGPIN ASSEMBLY, KNUCKLE, AND BRAKE ASSEMBLY ARE NOT SECURED, THEY COULD MOVE/FALL AS THE KINGPIN EXITS THE KINGPIN HUB. THIS COULD RESULT IN PERSONAL INJURY.

14. Support and secure the knuckle assembly to prevent movement when removing the kingpin.

FIGURE 6



NOTE
Wheel end hub is not shown for illustration purposes only.

SERVICE HINT Prior to disassembly of the upper kingpin assembly, knuckle and brake assembly, note the orientation of the shims shown in Figure 9.

15. Remove the upper kingpin assembly, knuckle, wheel hub and brake assembly as one unit (See Figure 9).
16. Use a brass punch and mallet to drive out the kingpin through the bottom knuckle assembly (See Figure 9).

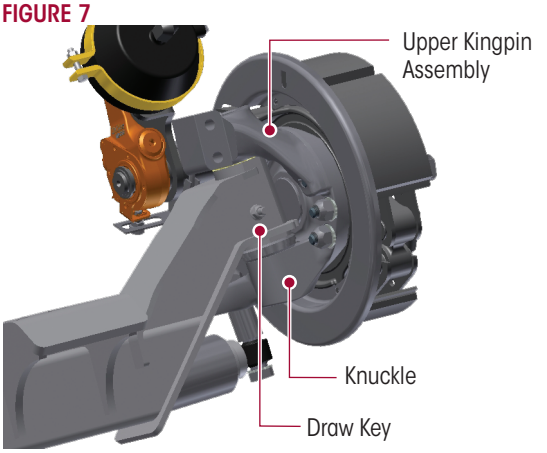
NOTE If the kingpin is frozen in the kingpin hub or difficult to remove, contact Hendrickson Technical Services by phone 800.660.2829 or e-mail: liftaxletech@hendrickson-intl.com.

17. Ensure to gather and re–use the thrust bearing and shims during re–assembly.

SERVICE HINT Prior to disassembly of the axle from the trailing arms, note quantity and orientation of the caster shims shown in Figure 8.

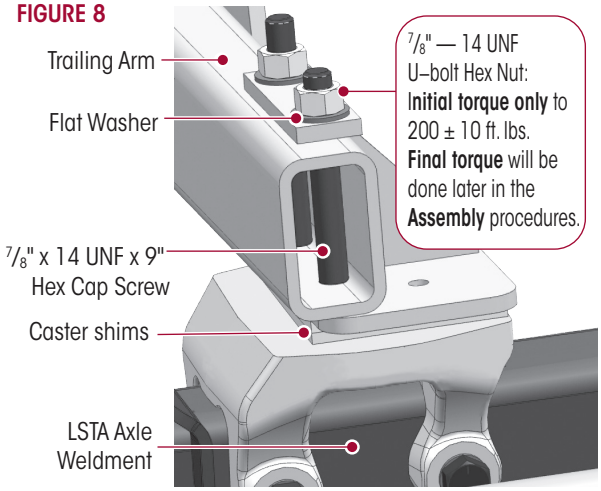
18. Remove the old axle from the trailing arms after **BOTH** kingpins are removed.

FIGURE 7



NOTE
Wheel end hub is not shown for illustration purposes only.

FIGURE 8



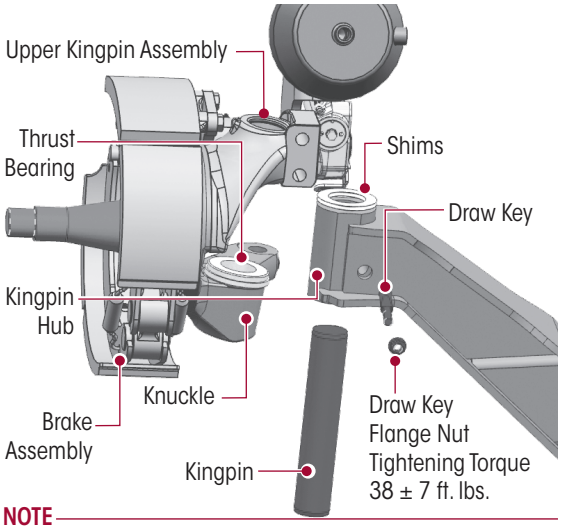
ASSEMBLY

1. Slide the new axle weldment in place.
2. Install the flat washer onto the 7/8"–14 UNF x 9" hex cap screw.
3. Insert the cap screw through axle seat, shims, and trailing arms (See Figure 8).

SERVICE HINT **Place caster shims in the same orientation as when removed. The bolts should pass through the holes in the caster shims – not the slots (if present).**

4. Install 7/8" flat washer and hex nut onto the cap screw and loosely tighten the hex nut to approximately 200 foot–pounds. **DO NOT FULLY** tighten at this stage; the final torquing of this joint is to be completed after verification of the caster angle at the end of the assembly procedure.

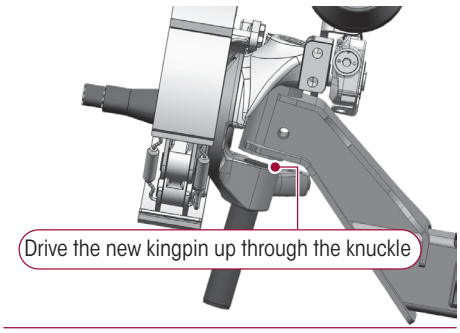
FIGURE 9



NOTE
Wheel end hub is not shown for illustration purposes only.

5. After the new axle has been set in place and secured, slide the upper kingpin assembly, knuckle, hub and brake assembly in place (See Figure 9).
6. Use the brass punch and mallet to drive the new kingpin up through the knuckle (See Figure 10).

FIGURE 10



NOTE
Wheel–end hub is not shown for illustration purposes only.

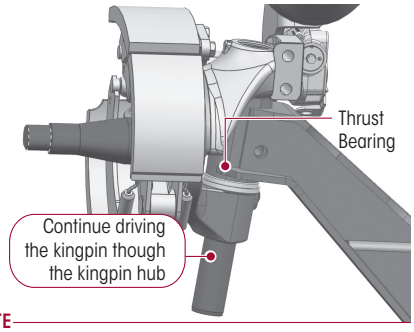
FIGURE 11

NOTE

Ensure the numbers on the end of the kingpin are facing up as shown in Figure 11 and that the draw key slot aligns with the draw key hole.

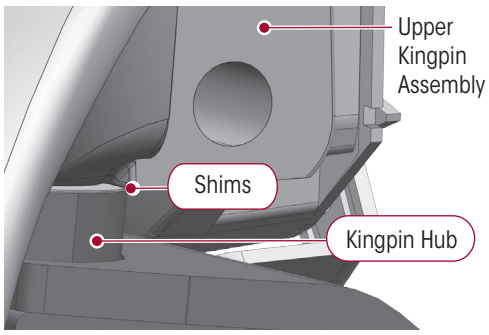
7. Once through the knuckle, place the thrust bearing on the kingpin, between the knuckle and kingpin hub. Continue driving the kingpin though the kingpin hub (See Figure 12).
8. Prior to when the kingpin goes into the upper kingpin housing, place the shims on the kingpin. Place between the kingpin hub and upper kingpin housing (See Figure 13).

FIGURE 12



NOTE
Wheel–end hub is not shown for illustration purposes only.

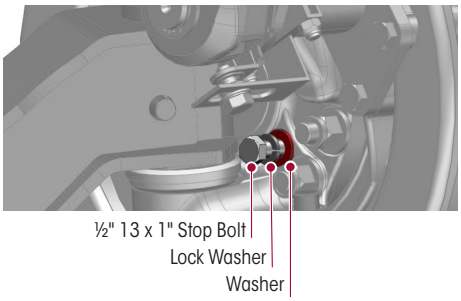
FIGURE 13



9. Continue driving the kingpin into the upper kingpin housing.
10. Drive the kingpin up until the draw key slot lines up with the draw key hole.
11. Install the draw key and flange nut and tighten to 38 ± 7 foot–pounds of torque.
12. Install the grease caps, snap rings and zerk fittings.
13. Apply NLGI#2 grease to the kingpins using the zerk fittings.
14. Remove the wheel–cut stop bolt and lock washer.
15. Install the flat washer (supplied in kit) and re–install lock washer and the wheel–cut stop bolt (See Figure 14). Tighten fastener to 25 to 30 foot–pounds of torque.
16. Use the appropriate tools to install both stabilizers with the original 1.76" spacers (Part No 006645).
17. Install the ¾" stabilizer fasteners and "snug" the nuts (supplied in the kit). **DO NOT** torque the nuts at this time.

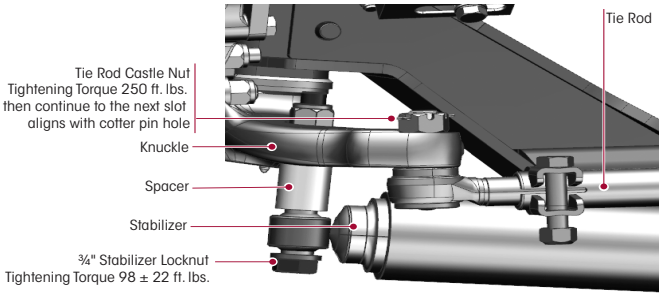
18. Install the tie rod. Tighten tie–rod castle nut to 250 foot–pounds of torque, then continue turning castle nut until a slot aligns with the cotter pin hole (See Figure 15).

FIGURE 14



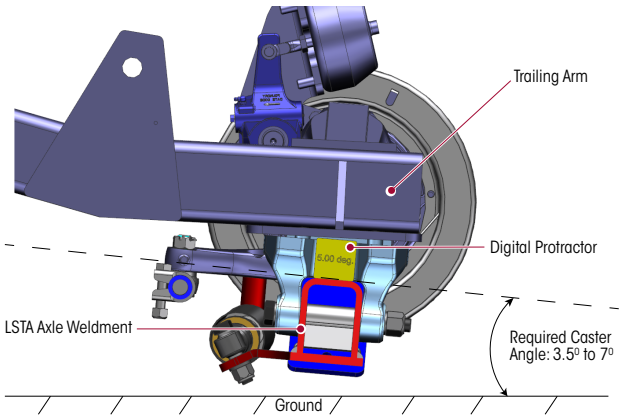
19. Install the cotter pin (supplied in the service kit).
20. Ensure both lift axle wheel ends are in the straight ahead position.
21. Tighten the stabilizer fasteners to 98 ± 22 foot–pounds torque (See Figure 15).
22. Install the drums, wheels/tires and tighten the lug nuts to 475 foot–pounds torque per the vehicle manufacturer's specifications.
23. Install the fenders and tighten the ⅝"-11 x 4.0" long spiralock bolt fasteners to 210 foot–pounds torque.
24. Check toe and re–set to the Hendrickson recommended 1/16"-⅛" toe–in.

FIGURE 15



25. Lower LSTA and pressurize system to a DOWN EMPTY pressure setting.
26. Check caster angle with a **Digital Protractor** (See Figure 16).

FIGURE 16



27. If the caster angle is between 3.5 and 7 degrees, remove each of the 7/8" nuts and washers one at a time and apply Loctite® 242 to the threads of the bolt and then torque each nut to 570+/-10 foot–pounds (See Figure 17).

28. If the caster angle is less than or greater than 3.5 to 7 degrees, follow these procedures:
    a. Support the axle. Remove the LSTA mounting nuts and washers (See Figure 17).

Note: Each caster shim is equal to two degrees. Oshkosh Part Number: 2073420

    b. Install caster shims as necessary. Oshkosh recommends that a maximum of three (3) shims be used in this application. If the caster angle cannot be achieved according to these guidelines, please contact Hendrickson Technical Services (phone: 800.660.2829 or e-mail: liftaxletech@hendrickson-intl.com).
    c. Re–install the LSTA's mounting washers and nuts and loosely tighten to 200 foot–pounds. **DO NOT** perform final torque at this stage; the torquing of this connection is to be completed after verification of the caster angle at the end of the assembly procedure.
    d. Re–check caster angle. Repeat steps A, B and C if the caster angle is not between 3.5 and 7 degrees.
    e. Once the proper caster angle has been achieved: one at a time, remove the 7/8" nuts, apply Loctite® 242 to the threads of each bolt, replace the nut, and then torque each nut to 570+/-10 foot–pounds (See Figure 17).

FIGURE 17