

H TECHNICAL PROCEDURE

PRIMAAX® EX • FIREMAAX® EX PRIMAAX® • FIREMAAX® Rear Air Suspension

SUBJECT: Pre-delivery & Preventive Maintenance
LIT NO: 17730-266
DATE: January 2021 **REVISION:** D

IMPORTANT

INTRODUCTION

Following appropriate inspection procedures is important to help ensure the suspension system and component parts are properly maintained for efficient operation and service life. Hendrickson recommends the PRIMAAX® EX • FIREMAAX® EX | PRIMAAX® • FIREMAAX® heavy-duty rear suspension be inspected at pre-delivery, the first 1,000 miles of service and regular preventive maintenance intervals. Off-highway and severe service operating conditions require more frequent inspections than on-highway service operations.

This inspection procedure helps maintenance personnel to determine if a component replacement is required. In particular, inspection procedures for the pivot and D-pin bushings are detailed later in this document.

Refer to the following Hendrickson Technical Procedure publications as applicable for complete PRIMAAX EX • FIREMAAX EX | PRIMAAX • FIREMAAX suspension inspection procedures, important safety notices, preventive maintenance details, and component replacement, available online at www.hendrickson-intl.com.

- 17730-238
- 17730-254 (Volvo)
- 17730-263 (Kenworth)
- 17730-279 (Mack)
- 17730-283 (International Truck)
- 17730-284 (Caterpillar)
- 17730-329 (Mack HDT)
- 17730-329 (Mack HDT)

SAFETY REMINDER

All applicable warnings and cautions should be read carefully to help prevent personal injury and to assure that proper methods are used. Improper maintenance, service or repair may damage the vehicle, cause personal injury, render the vehicle unsafe in operation, or void manufacturer's warranty.

Failure to follow the applicable safety precautions can result in personal injury and/or property damage. Carefully read and understand all safety related information within the applicable Hendrickson publications, on all decals, and in all such materials provided by the vehicle manufacturer before operating the vehicle, or conducting any maintenance, service or repair.

WARNING

LOAD CAPACITY

ADHERE TO THE PUBLISHED CAPACITY RATINGS FOR THE SUSPENSION. ADD-ON AXLE ATTACHMENTS AND OTHER LOAD TRANSFERRING DEVICES, SUCH AS LIFTABLE AXLES, CAN INCREASE THE SUSPENSION LOAD ABOVE ITS RATED AND APPROVED CAPACITIES, WHICH CAN RESULT IN COMPONENT DAMAGE AND ADVERSE VEHICLE HANDLING, PERSONAL INJURY OR PROPERTY DAMAGE.

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.



ALWAYS WEAR PROPER EYE PROTECTION AND OTHER REQUIRED PERSONAL PROTECTIVE EQUIPMENT TO HELP PREVENT PERSONAL INJURY WHEN PERFORMING VEHICLE MAINTENANCE, REPAIR OR SERVICE.

AREAS OF INSPECTION

NOTE Torque values shown in this publication apply only if Hendrickson supplied fasteners are used. If non Hendrickson fasteners are used, follow the torque specification listed in the vehicle manufacturer's service manual.

The inspection must include the following components:

- Air springs
- Air supply and fittings
- All fasteners
- Bushings: D-pin • Pivot
- Clamp group: Top pad, U-bolts and locknuts
- Frame hanger bracket
- Height control valve and air lines
- QUIK-ALIGN connections
- S-cam support tube bracket (if equipped)
- Shock absorbers
- Tire wear
- Transverse and longitudinal torque rods
- U-Beam assembly: Cross tube, Support beam, End cap (enhanced or detachable)

■ Signifies performance critical components.

HENDRICKSON RECOMMENDED INSPECTION INTERVALS

	PRE-DELIVERY INSPECTION	FIRST IN-SERVICE INSPECTION	PREVENTIVE MAINTENANCE
Visually inspect for proper installation, assembly, and function. Check for all of the following and replace components as necessary:			OFF-HIGHWAY Every 6 Months/1,200 Hours or 25,000 miles/ 40,000 km, whichever comes first ON-HIGHWAY Every 12 Months or 50,000 miles, whichever comes first
<ul style="list-style-type: none"> • Signs of unusual movement, loose or missing components • Signs of abrasive or adverse contact with other components • Damaged, or cracked parts • Improper suspension function or alignment 			
Visually inspect the overall condition of and for any signs of damage to:	Within the first 500 miles (500 km)	Within the first 1,000 miles (1,600 km) or 100 Hours	Every 12 Months / 2400 Hours
<ul style="list-style-type: none"> • U-Beam assembly • Air springs and air lines 			
Inspect fasteners for proper torque as recommended in this publication and as detailed in the *applicable Hendrickson publications:			
<ul style="list-style-type: none"> • QUIK-ALIGN fasteners and torque rod to top pad fasteners, see Figure 1 • Clamp group U-bolt fasteners, see Figure 2 • DO NOT re-torque integrated end cap, see Figure 3 			
Verify the lateral alignment of the drive axles are within the vehicle manufacturer's tolerances			
Verify ride height, refer to the Ride Height procedure in the *applicable Hendrickson publications.			

See vehicle manufacturer's applicable publications for other preventive maintenance requirements.

*Refer to the applicable Hendrickson PRIMAAX EX • FIREMAAX EX | PRIMAAX • FIREMAAX Technical Publication for your vehicle.

NOTE Figures 1 through 3 illustrate PRIMAAX EX • FIREMAAX EX suspension basic connections, refer to the appropriate PRIMAAX EX • FIREMAAX EX Hendrickson Technical Publication for your vehicle.



FIGURE 1

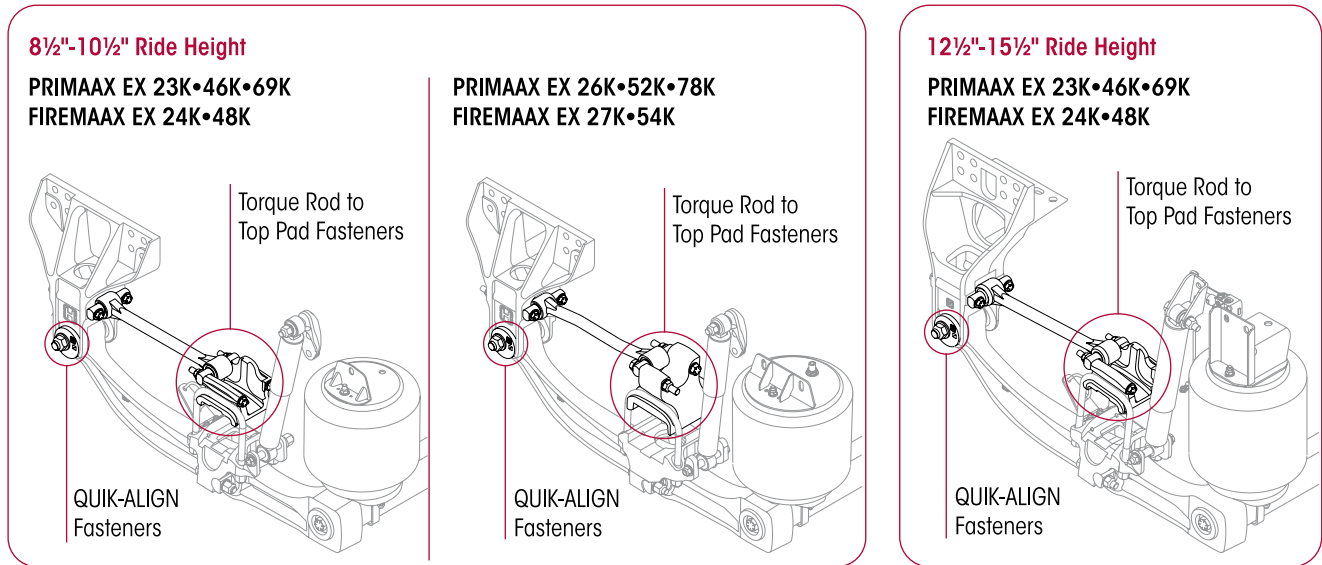


FIGURE 2

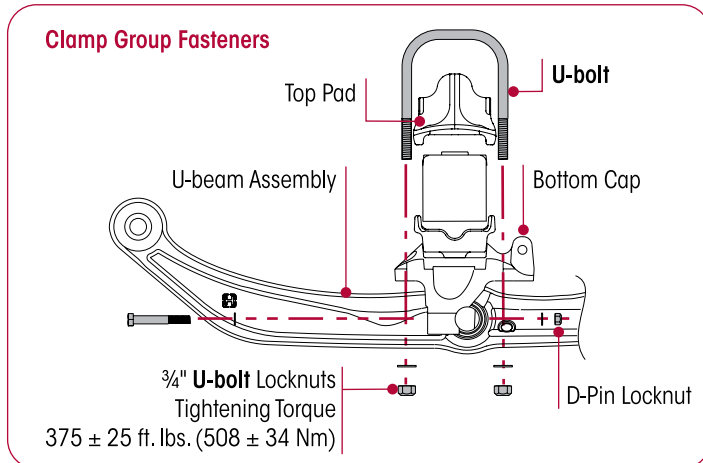
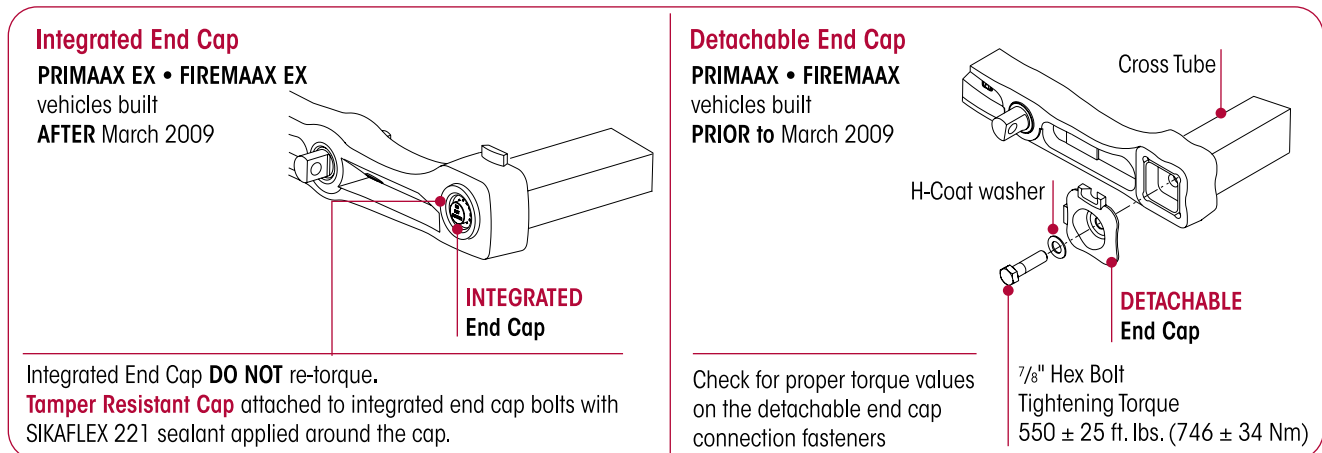


FIGURE 3



WARNING**PIVOT BUSHING**

THE PIVOT AND D-PIN BUSHINGS ARE CRITICAL COMPONENTS OF THE PRIMAAX EX • FIREMAAX EX • PRIMAAX • FIREMAAX SUSPENSIONS. IF ANY SUCH COMPONENTS APPEAR DAMAGED OR WORN THE COMPONENT MUST BE REPLACED. FAILURE TO REPLACE SUCH WORN OR DAMAGED COMPONENTS CAN RESULT IN THE DEFORMATION OF PARTS, LOSS OF CLAMP FORCE, BOLT FAILURE, LOSS OF THE AXLE'S ALIGNMENT, ADVERSE VEHICLE HANDLING, PROPERTY DAMAGE, OR PERSONAL INJURY.

The two types of pivot bushing inspections are visual and physical. The pivot bushing can be **visually** inspected by looking at the outer rubber flange(s) of the bushing. If the visual inspection warrants a **physical** inspection, it can be conducted in which disassembly is required.

VISUAL INSPECTION

If the pivot bushing rubber flange(s) are intact and there are no signs of **metal to metal** contact, the bushing does not require replacement.

- The support beam is designed with the pivot bushing centered in the support beam end hub. If the pivot bushing is not centered in the end hub, it is an indication that the pivot bushing could be worn and a pivot bushing physical inspection is required.
- If the pivot bushing shows signs of torn, separated or disconnected rubber, see Figures 4 and 5, this could be a result of axle misalignment. If this condition is evident, a pivot bushing physical inspection is required.
- If the outer rubber flange(s) is missing, or there are shards of rubber visible, (see Figure 6) this could be a result of axle misalignment. If this condition is evident, pivot bushing replacement is required.

FIGURE 4

FIGURE 5

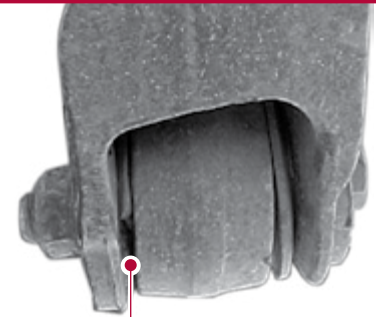
FIGURE 6

VISUAL INSPECTION – Torn, Disconnected or Missing Rubber Flange

Torn Rubber



Disconnected Rubber Flange

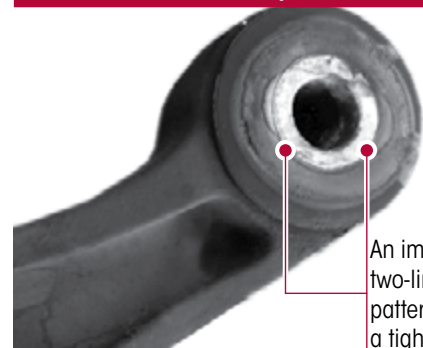


Missing Rubber Flange

PHYSICAL INSPECTION

1. Remove the U-Beam assembly, per the appropriate PRIMAAX EX • FIREMAAX EX | PRIMAAX • FIREMAAX Technical Procedure for your vehicle.
2. After removal, inspect the pivot bushing connection, examine the pivot bushing inner metal area.
3. No replacement is needed if the bushing exhibits a tight joint, see Figure 7. An imprinted two-line wear pattern on the bushing inner metal indicates the pivot bushing is securely clamped in the frame hanger.

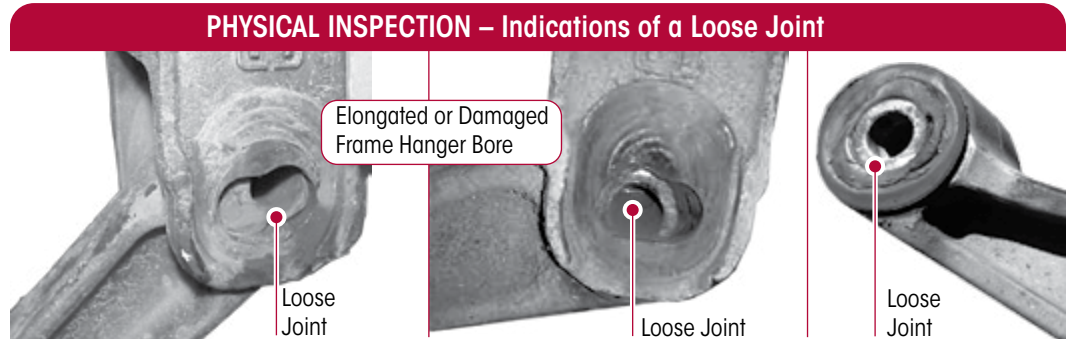
FIGURE 7

GOOD JOINT – No Replacement Needed

An imprinted two-line wear pattern exhibits a tight joint

4. Inspect pivot bushing and frame hanger, replacement is necessary if any indications of the following are apparent, see Figure 8:
 - Signs of rust, distorted, separated or torn rubber, elongated or damaged bore. This could be a result of axle misalignment or loose fasteners.

FIGURE 8



5. Inspect the frame hanger legs and the QUIK-ALIGN collars. If any of the following are present, the pivot bushing and one (1) or more of the mating components may require replacement:
 - Evidence of wear marks on the inside of the frame hanger legs indicating metal to metal contact or movement
 - The snout of the QUIK-ALIGN concentric or eccentric collar is elongated or damaged
6. Check the suspension alignment and adjust if necessary, refer to appropriate PRIMAAX EX • FIREMAAX EX | PRIMAAX • FIREMAAX Technical Publication for your vehicle.

D-PIN BUSHING

VISUAL INSPECTION

It is not necessary to disassemble the D-pin connection to perform a D-pin visual inspection. The D-pin bushing is designed with a layer of rubber in the bushing, it is acceptable to see a bead of rubber protruding from the bushing, see Figure 9.

D-pin bushing **REQUIRE** replacement only if:

- Metal to metal contact wear marks on the D-pin outer metal are evident, see Figure 10
- D-pin outer metal is distorted, see Figure 10

FIGURE 9

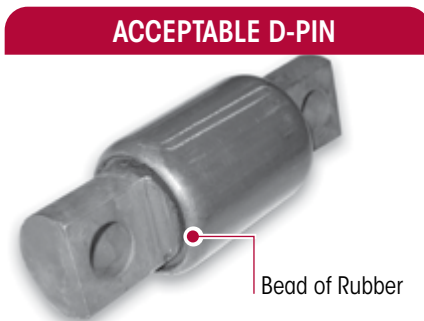
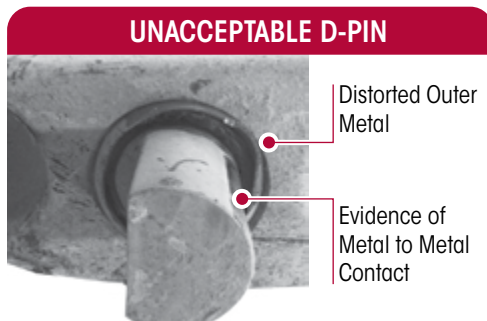


FIGURE 10



Refer to D-pin Component Replacement Section in the appropriate PRIMAAX EX • FIREMAAX EX | PRIMAAX • FIREMAAX Technical Procedure for your vehicle.



Hendrickson technical and parts support contact information:



Toll-free U.S. and Canada
1.866.755.5968
Outside U.S. and Canada
1.630.910.2800



Parts Identification
truckparts@hendrickson-intl.com
Technical Support
techservices@hendrickson-intl.com



1.630.910.2899



Additional Hendrickson
Product Information
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 **1.866.755.5968** (toll-free) or **1.630.910.2800** for additional information.



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