

# TECHNICAL PROCEDURE

## TRAILER SUSPENSION SYSTEMS

**SUBJECT:** Preventive Maintenance Guide

**LIT NO:** L578

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**REVISION:** D

### INTRODUCTION

This document recommends inspection areas and lubrication points on Hendrickson Trailer suspensions and components. Table 1 recommends inspection points and intervals for suspension components and systems. Table 2 recommends inspection and service after IDLE TIME or exposure to FLOOD. A list of relative literature is also included. The information in this document applies to Hendrickson products only.

For inspection and lubrication of vendor component products installed by Hendrickson, refer to VENDOR LITERATURE on page 3.

**NOTE:** Concepts and Functions is now included in literature T15001.

### PERIODIC INSPECTION SCHEDULE

The Hendrickson Trailer air suspension requires very little attention (Table 1). Using the information in this publication and other Hendrickson publications will ensure maximum air suspension component life.

**IMPORTANT:** This document includes minimal inspection requirements for normal on-highway applications. For trailers subjected to some off-road, abnormally rough or extreme conditions, **inspection and lubrication should be adjusted to ensure maximum suspension performance and integrity.**

**NOTE:** The frequency at which inspections are recommended is based on an average trailer usage of 100,000 miles (160,000 km) per year. Higher usage would require more frequent inspections.

### LUBRICATION POINTS AND FREQUENCY

There are few areas requiring lubrication for Hendrickson suspensions and axles. For literature providing lubrication details, refer to relative HENDRICKSON PUBLICATIONS, VENDOR LITERATURE and TMC on page 3.

The only Hendrickson components requiring lubrication are S-cam spider bushing and support bearing journal or cam tube. Each requires NLGI #2 EP chassis lubricant and should be replenished MONTHLY. Always apply grease until fresh lubricant appears at purge point.

### CONTACT HENDRICKSON

Methods of contacting Hendrickson Trailer Technical Services include:

#### EMAIL

For Hendrickson Trailer Technical Services, use the following e-mail address:

[HTTS@Hendrickson-intl.com](mailto:HTTS@Hendrickson-intl.com)

#### PHONE

Contact Hendrickson Trailer Technical Services directly in United States or Canada at **866-RIDEAIR (743-3247)**. From the voice menu, select **Technical Services/Warranty**.

**⚠️WARNING:** Always wear proper eye protection and other required PPE (personal protective equipment) when performing vehicle maintenance, repair or service. Follow federal, state and local safety regulations as appropriate.

# PREVENTIVE MAINTENANCE GUIDE



ITEMS TO CHECK <sup>1, 3</sup> (RECOMMENDED)	VISUAL, PHYSICAL LUBRICATION <sup>2</sup>	INSPECTION INTERVALS					REFERENCE LITERATURE	
		PDI	DAILY	MONTHLY	QUARTERLY	ANNUALLY	LIT. NO.	TITLE OR COMMENTS <sup>3, 4</sup>
Air springs	V			✓			L1155	Air Springs
Axle connections (welds & U-bolts, if equipped)	V				✓		L579	Alignment Procedures
Bolts	V	✓		✓			B31	Torque Specifications
<b>MAXX221™ ADB</b>							T72009	Installation and Maintenance Procedures
• Pad wear	V/P				✓			Also inspect during brake and wheel-end service.
• Rotor condition, separation cracks & excessive or abnormal wear	V/P			✓				
• Damage to adjuster, guide pin & piston boots	V/P			✓				
• Presence/Condition of adjuster & guide pin caps	V/P			✓				
<b>Brakes - Air disc</b>								<b>Contact vendor<sup>7</sup></b> or see TMC on page 3.
<b>Brakes - Drum</b>							L974	Drum Brake Maintenance Procedures
• Brake chamber, pushrod, & overall condition	V/P/L	✓		✓				Refer to fleet requirements for more details. Also see TMC on page 3.
• S-cam & Cam Tube	V/P/L	✓		✓				
• Slack adjuster	V/P/L	✓		✓ <sup>7</sup>				<b>Contact vendor<sup>7</sup></b>
Obvious signs of wear, damage or change in condition of suspension & axle components	V		✓				L1073 L1074	Primary Fixed Suspension Information Slider Suspension Information
Pivot connections	V	✓		✓			L1071	Pivot Bushing Inspection / Replacement Information
• Bushing tube spacers	V				✓		L750	Bushing Tube Spacer Inspection / Replacement Procedure
• TRI-FUNCTIONAL® Bushing	V/P				✓		B106	Pivot Bushing Inspection Procedures
Ride height	P	✓			✓		L459	Checking Trailer RH, see L388 RH Settings
<b>Self-steer axle</b>							T62001	Self-steer Axle Maintenance Procedures
• Tie rod ends	V/P/L	✓		✓			T60001	Decal: Self-steer Axle Lubrication
• Kingpin bushing, lock straight pivot arms	V/P/L	✓			✓			
• Lock straight air spring & chamber	V/P	✓			✓			
Shock absorbers	V				✓		L551	Shock Absorber Inspection Procedures
Shock mounting brackets & bolts	V				✓		L635	INTRAAX® Shock Mount Assembly Procedure
Slider	V/P					✓	L1074	Slider Suspension Information
<b>TIREMAAX® TIS (Tire inflation system)</b>							L818	TIREMAAX® EC TIS Installation, Service and Troubleshooting Procedures
• Indicator lamp operation (not constantly on)	V	✓	✓					
• Tires (low) / Listen for air leaks	V	✓					L995	TIREMAAX® CP TIS Installation, Service and Troubleshooting Procedures
• Check Tire Pressure	V/P				✓			
• Tire hose connections (damaged or loose)	V/P	✓			✓		T51002	TIREMAAX® CP and PRO Tire Inflation System Installation, Service and Troubleshooting
• Test lamp operation	V/P				✓			
• Complete system integrity check	V/P					✓		
Welds (all)	V	✓			✓		L64	Weld Procedures, also see L1073 & L1074
<b>Wheel-end component inspection<sup>5</sup></b>	<b>A<sup>6</sup></b>	<b>B<sup>6</sup></b>	<b>C<sup>6</sup></b>				Various	L496 (std) <sup>8</sup> , L776 (HUS), T72001 (HNP), T72002 (HXL7), T72004 (HLS), T72005 (HVS) <sup>8</sup> , T72006 (HXL3) <sup>8</sup> and T72007 (HXL5) wheel-end maintenance procedures available online. <sup>4, 7</sup>
• Lube level <sup>5</sup> and colorization	X			V/L	✓			
• Lubricant leaks (hubcaps & wheel seals)	X	X	X	V		✓		
• Smooth and quiet rotation	X	X	X	P		✓		
• WEM status (Applicable when equipped with HUS®3)			X	V		✓	L1162	Wheel-End Monitor (WEM™) Identification, Installation and Operation Instructions
• Hubcap integrity	X	X	X	V		✓		
• Check end play <sup>5</sup>	X	<sup>9</sup>	<sup>9</sup>	P				✓ <sup>5</sup>

1 The above checks should be done any time suspension is damaged or otherwise NOT functioning improperly.  
2 V = Visual Check, P = Physical Check (operation, measuring, access, disassembly or other physical contact may be required), L = Lubrication Point.  
3 For any inspection issues requiring service, refer to documents listed in the "Lit. No." column, T12002 *Suspension Troubleshooting Procedures* (includes list of relative TMC RPs) or T15001 *Air Ride Suspension Concepts and Functions* for assistance or PERIODIC INSPECTION SCHEDULE as needed.  
4 Relative literature for inspected items is available on the Hendrickson Trailer Suspension Literature web page at [www.Hendrickson-intl.com/TrailerLit](http://www.Hendrickson-intl.com/TrailerLit).  
5 While under warranty, Hendrickson Technical Services must be contacted prior to hubcap removal and servicing.  
6 A = Standard Service 1-year warranty wheel end package), B = Extended-Life wheel ends (HLS®, HVS®, HUS®, HXL3®, HXL5®, HXL7®), C = HUS®  
7 For information on vendor components, contact the vendor directly. Links to ADB and wheel end VENDOR LITERATURE is available at [www.Hendrickson-intl.com/TrailerLit](http://www.Hendrickson-intl.com/TrailerLit).  
8 If applicable and during warranty coverage of Standard 1-year, HVS and HXL3 wheel ends; topping off oil to the hubcap fill line is allowed. The oil type must be the same as originally filled by Hendrickson during suspension build. CONTACT HENDRICKSON for more details or questions.  
9 Servicing of wheel ends is not recommended while under warranty, unless necessary and after contacting Hendrickson Technical Services.

Table 1: Hendrickson trailer suspension systems recommended inspection points and schedule

**TABLE 1: INSPECTION**

Table 1 includes a list of recommended areas to inspect, periodic intervals and related literature.

**AREAS TO INSPECT**

Publication T12002 *Suspension Troubleshooting*, Appendix A, identifies various suspension components listed in Table 1 for inspection. Although the areas indicated are specific, a general inspection should include any point on the suspension where suspected wear or damage may occur.

For inspection of vendor components, some of which is included, refer to trailer OEM, TMC or **component vendor** documentation for more information.

**INSPECTION/LUBRICATION INTERVALS**

As stated on page 1, the following periodic intervals for inspection and lubrication can be modified according to trailer use. Inspection and lubrication may be required more often if:

- Required by OEM
- Required by component vendor; **contact vendor**.
- Trailer type and application demands are high
- Impact or other evidence of suspension damage.

**PDI**

**Pre-Delivery Inspections** are typically required by the trailer OE to be conducted prior to new trailer delivery to the customer. It is to be performed by the vehicle manufacturer or new trailer dealer and includes testing suspension and vehicle for proper operation. This should also be performed by a repair facility after replacing a suspension, slider box (AMBOX™) or axle/beam weldment (HALFTRAAX™).

**Daily**

This pre-operation inspection can detect worn, broken or loose parts before any serious problems occur. During a walk-around, check for any obvious problems or abnormalities.

**Monthly****Inspection**

This inspection is more comprehensive than the daily inspection and covers more areas.

Seals, hubcap and hubcap gaskets should be checked for condition and potential leaks.

**Lubrication**

S-cam spider bushing and support bearing journal or cam tubes should be greased at this time and during any service when grease points are easily accessible.

**Quarterly****Inspection**

Along with monthly inspection, perform quarterly inspections listed in Table 1.

**Lubrication**

Same as Monthly. As a minimum requirement, all lubrication points should be re-lubricated at this time interval, including slack adjusters.

**Annually****Inspection**

Along with Monthly and Quarterly, perform annual inspections listed in Table 1.

**Lubrication**

Same as Monthly.

**REFERENCES**

Several Hendrickson and vendor references provide inspection and lubrication information and details that are beyond the scope of this document.

**HENDRICKSON PUBLICATIONS**

References to Hendrickson Trailer literature can be found online at [www.Hendrickson-intl.com/TrailerLit](http://www.Hendrickson-intl.com/TrailerLit). Click on the hyperlinked literature number, listed in Table 1, to open.

**VENDOR LITERATURE**

References to vendor literature and contact information can be found online, starting at the vendor's home page. Some vendor literature is listed and linked in the "Brake & Wheel-End Components" section of [www.Hendrickson-intl.com/TrailerLit](http://www.Hendrickson-intl.com/TrailerLit).

**TMC**

The Technology & Maintenance Council (TMC) is a branch of the American Trucking Associations (ATA) ([www.trucking.org](http://www.trucking.org)). For the past 30+ years they have been defining and publishing recommended practices (RPs) for commercial vehicles and equipment. They are listed in the TMC Recommended Maintenance Practices Manual.

ITEMS TO CHECK (RECOMMENDED)	TYPE <sup>1</sup>	EVENT		COMMENTS
		IDLE TIME	AFTER FLOOD	
<b>INSPECTION <sup>2</sup></b>				
<b>Air springs</b>	V	✓	✓	Inspect while aired up at ride height.
<b>Brakes</b>	V/P	✓	✓	
<b>Bushing tubes</b>	V	✓		
<b>Bushing tube spacers</b>	V	✓		
<b>Air line hoses, tubing, fittings, valves, etc...</b>	V/P	✓	✓	Pests and insects will enter and nest in any small opening. Seals and gaskets can dry and become non-functional.
<b>Obvious signs of damage or wear</b>	V	✓	✓	
<b>Shock absorbers</b>	V	✓	✓	Refer to <a href="#">L551</a> .
<b>Wires</b>	V		✓	Exposure to moisture can corrode electrical connection and connectors.
<b>SERVICE <sup>2</sup></b>				
<b>Contamination <sup>3</sup></b>	V		✓	Where critical, remove all containments.
<b>Lubrication <sup>3</sup></b>	V/P/L	✓	✓	Ensure lubricant is fresh and moisture free at all grease fittings. Refer to items (L) and relative literature column of <a href="#">Table 1</a> for more details.
<b>S-cam and cam tubes</b>	P/L	✓	✓	
<b>Smooth wheel bearing rotation</b>	P	✓	✓	
<b>Change hub seals, gaskets and lubricant</b>	P/L		✓	Mandatory after flood, as needed after idle.
<sup>1</sup> V = Visual Check, P = Physical Check (some disassembly may be required), L = Lubrication Point. In addition, all systems should be operationally checked and tested. <sup>2</sup> Recommended checks before returning suspension to normal operation. Relative literature is listed in <a href="#">Table 1</a> . <sup>3</sup> Replacing lubricant purges any collected moisture and/or degraded lubricant.				

Table 2: Special event inspections & service

## TABLE 2: AFTER IDLE TIME OR FLOOD

Table 2 includes recommended inspections and service for trailers that have been idle or submerged in water.

### IDLE TIME

Trailer suspensions not operated (idle) for prolonged periods of time must be inspected prior to renewed operation (e.g. Trailer used for storage, etc...).

Normally, machined surfaces (bearing races, bearings, etc...) are protected by lubrications flowing onto, over and around during use. Lack of trailer motion causes lubricants to flow downward and away from these surfaces until it reaches a level pool in the hub. Metal surfaces are eventually unprotected and exposed to the environment.

Seals and gaskets not exposed to lubricant can degrade in performance. Check and replace as needed.

Surface cracks on rubber components do not effect performance. Refer to vendor for questions if needed.

### FLOOD

Oil and water do not mix. Lubricants continue to seek a level state, even while under water. All metal surfaces, wires and materials that are directly exposed to moisture, pollutants and other contaminants can lead to rust and corrosion.

Refer to PERIODIC INSPECTION SCHEDULE for any questions or issues relative to inspection or lubrication or [CONTACT HENDRICKSON](#).

Call Hendrickson at **866.RIDEAIR (743.3247)** for additional information.



[www.hendrickson-intl.com](http://www.hendrickson-intl.com)

#### TRAILER COMMERCIAL VEHICLE SYSTEMS

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