

H TECHNICAL PROCEDURE

TRAILER SUSPENSION SYSTEMS AXLE/BEAM WELDMENT

SUBJECT: Replacement Procedures

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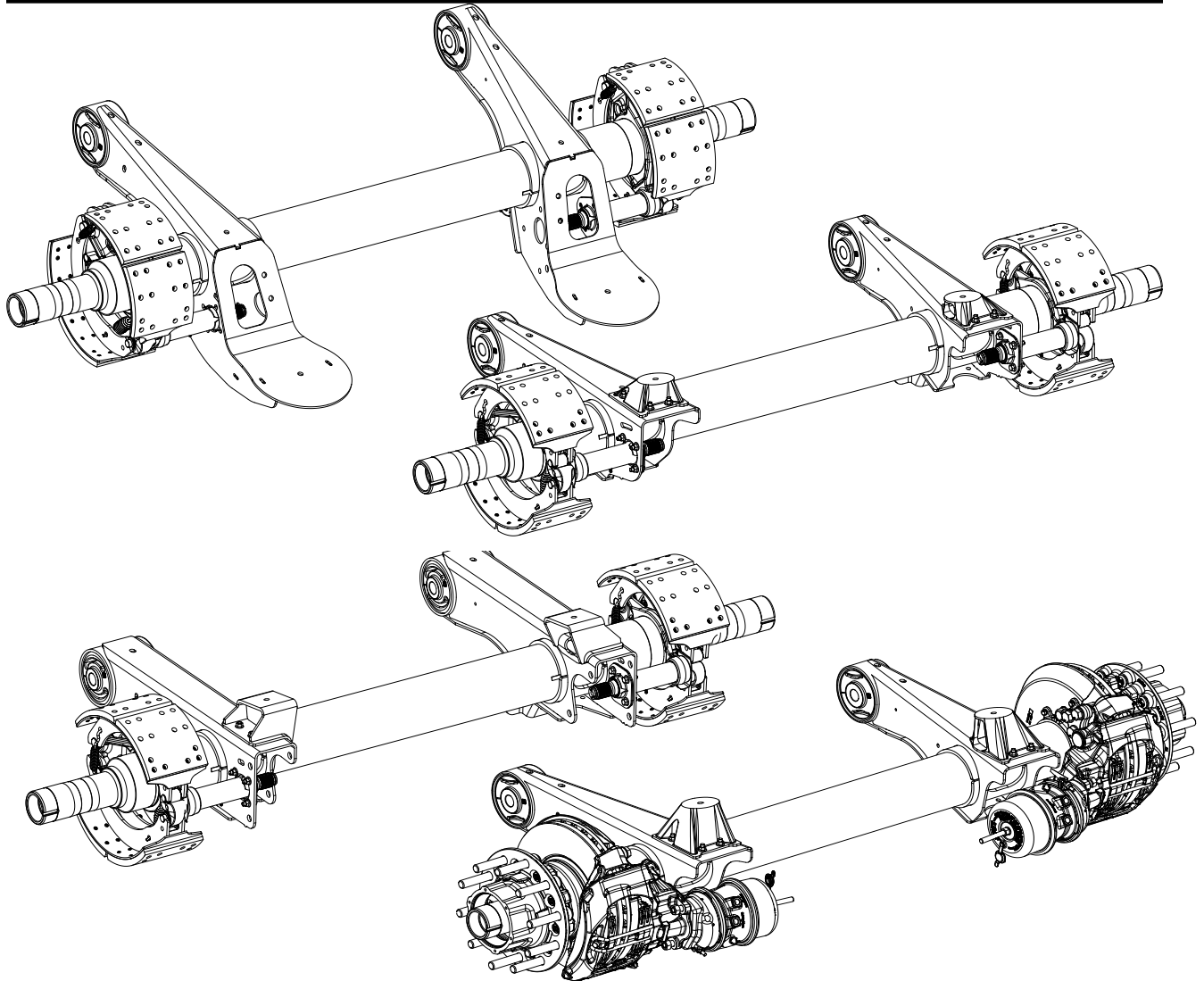


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IMPORTANT SAFETY NOTICES

Hendrickson literature number **T12007** *Technical Procedure General Safety Precautions and Information*, available at www.Hendrickson-intl.com/TrailerLit, includes important preparation, precautionary and safety information pertaining to the procedures included in this document.

To help prevent personal injury and equipment damage; warnings, cautions and other related statements included in **T12007** must be read carefully and applied during the performance of the procedures included in this document.

Improper maintenance, service or repair can cause damage to the vehicle and other property, personal injury, unsafe operating conditions and potentially void the manufacturer's warranty.

RELATED LITERATURE

If you suspect your version of this or any other Hendrickson manual is not "up-to-date", the most current version is free online at:

www.Hendrickson-intl.com/TrailerLit

Available Hendrickson documentation can be viewed or downloaded from this site.

All Hendrickson online documentation is in PDF format that requires PDF reader software to open. A free application is downloadable from Adobe at <http://get.adobe.com/reader/>.

Other related literature may include:

NAME	DESCRIPTION
B31	<i>Torque Specifications</i>
L459	<i>Checking Trailer Ride Height</i>
L551	<i>Shock Absorber Inspection Procedures</i>
L578	<i>Preventive Maintenance Guide</i>
L579	<i>Alignment Procedures</i>
L583	<i>Comprehensive Warranty Statement</i>
L635	<i>INTRAAX® Shock Mount Assembly Procedure</i>
L974	<i>Drum Brake Maintenance Procedures</i>
L1073	<i>Trailer Primary Suspension information INTRAAX®/CONNEX®</i>
T12007	<i>Technical Procedure General Safety Precautions and Information</i>
T71004	<i>Hub and Rotor Assembly, Caliper Mounting</i>
T72009	<i>MAXX22T™ ADB Installation and Maintenance Procedures</i>

NAME	DESCRIPTION
Bendix	<i>Bendix Air Disc Brake Product Support</i>
HalDEX	<i>HalDEX Air Disc Brake Product Support</i>
Wabco	<i>Wabco Air Disc Brake Product Support</i>

Table 1: Related literature

Hendrickson reserves the right to make changes and improvements to its products and publications at any time.

INTRODUCTION

A HALFTRAAX™ or HTRAAX is an axle/beam weldment configured as an aftermarket replacement for an INTRAAX®, INTRAAX-SP, VANTRAAX® or ULTRAA-K® axle. The replacement can be configured with or without brakes or RTR® READY-TO-ROLL® wheel-end components and TIREMAAX® tire pressure control system. It will not include shocks, air springs or frame brackets.

Follow the procedures in this manual to replace an existing axle/beam weldment with an aftermarket HALFTRAAX.

NOTE: DO NOT service a suspension or any components that are under warranty without first contacting Hendrickson Trailer Technical Services.

REMOVING EXISTING AXLE/BEAM WELDMENT

Ensure the trailer is secure as stated in **T12007**.

1. **Release** parking brakes.
2. Using a jack capable of lifting the entire trailer, **raise** the trailer until the wheels of the affected axle assembly clear the surface.
3. **Support** the trailer with jack stands to prevent possible damage to the equipment or injury if slippage from the jack should occur.
4. **Remove** wheels from both ends of the axle to be replaced.
5. **Remove** brake components as needed.
 - A. For drum brakes, **remove** drums and hub assembly according to manufacturer's documented procedures. If Hendrickson, refer to applicable literature listed online at www.Hendrickson-intl.com/TrailerLit Brake & Wheel-end Components.



NOTE: Retract the brakes to remove the brake drum. Follow the brake chamber manufacturer's procedure and cautions for manual brake chamber release.

- B. For Air Disc Brake (ADB), remove brake calipers at both ends of the axle. See Hendrickson literature number T71004 and ADB manufacturer's documentation for more details. Discard used fasteners.

NOTE: Vendor documents are listed at www.Hendrickson-intl.com/TrailerLit.

6. Perform these steps if the Height Control Valve (HCV) is mounted on the affected axle: (If not applicable, skip to Step C.)
 - A. Record the position of the HCV control arm so it can be properly rotated into position after the new HALFTRAAX is installed.

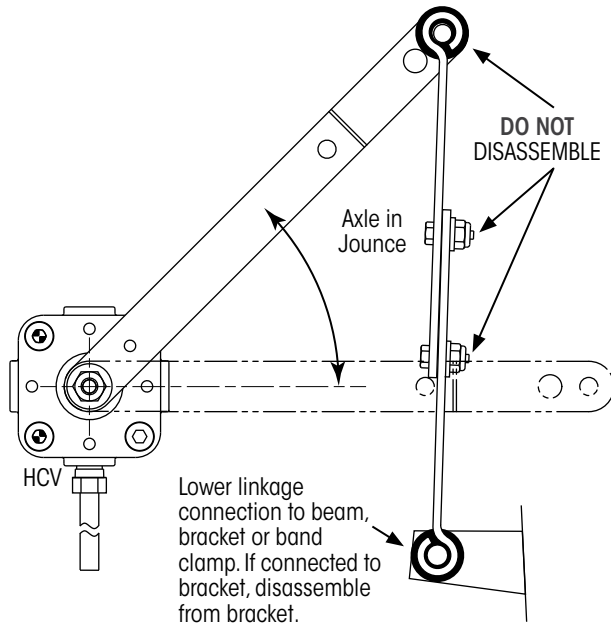


Figure 1: HCV linkage lower connection

- B. Remove HCV linkage (Figure 1) from the lower connection only. **DO NOT** disassemble linkage.

NOTE: If the HCV linkage is connected to a lower bracket, the bracket will be removed when applicable component fasteners are removed. In this case, disconnecting the linkage from the bracket is optional.

If the lower bracket is a band clamp, care must be taken to relocate the clamp at the same location and rotation on the new HALFTRAAX axle. Ride height may need to be readjusted after installing the new HALFTRAAX. Refer to Hendrickson literature number L459 *Checking Trailer Ride Height*.

- C. For drum brakes, if exchanging drum brake shoes, remove both sets of brake shoes using the procedure outlined in Hendrickson literature number L974, heading *BRAKE SHOE REMOVAL - ALL MODELS*. Discard used brake hardware.
 - D. For Disc Brakes, if exchanging brake calipers, remove both calipers using the procedure in T72009 MAXX22T™ ADB Installation and Maintenance Procedures, REPLACING THE BRAKE and ADB manufacturer's documentation for more detail.

NOTICE

Hendrickson recommends the use of new mounting hardware when installing brake shoes.

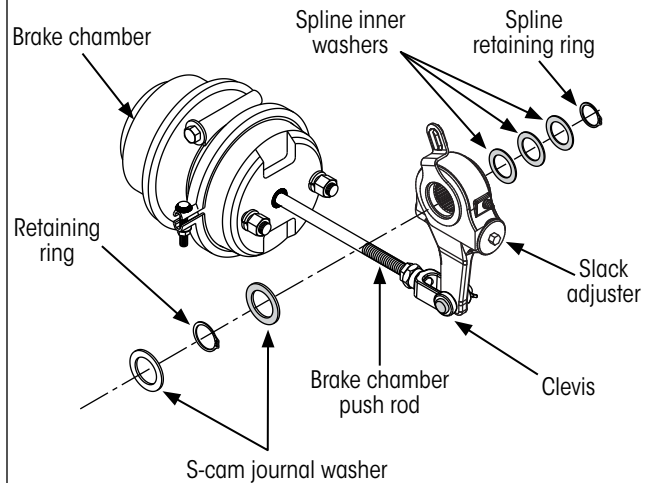


Figure 2: Brake chamber clevis

7. If exchanging brake chambers and slack adjusters:

- A. Remove the cotter and clevis pins from the brake chamber clevis at the slack adjusters (Figure 2).
 - B. Remove slack adjuster and mounting hardware (Figure 2, shaded) from the camshaft using the



procedure outlined in Hendrickson literature number L974, heading S-CAM REPLACEMENT PROCEDURES. Discard used brake hardware.

IMPORTANT: Removing camshafts and camshaft hardware is optional after the affected axle assembly has been removed from the trailer.

NOTE: Hendrickson recommends the use of new hardware when installing camshafts.



Figure 3: Brake chamber (drum brake)

8. If replacing brake chambers, **remove** the air lines from the brake chambers (Figure 3) and plug the lines to prevent contaminants from entering the air system.

CAUTION **DO NOT** remove air lines from brake chambers if system air is being used. Component damage or personal injury could occur.

NOTE: Removal of the air lines is not required if the brake chambers can be stored out of the way. Brake chambers should not be allowed to hang from the air lines.

9. **Remove** brake chambers by removing the nuts from the mounting studs (Figure 3). If applicable, retain HCV lower bracket for later reinstallation.

10. **Use** a floor jack, or equivalent, to **raise** the affected axle assembly.

CAUTION Care must be taken when raising and lowering the jack. The axle is attached at the pivot joint, which tends to move on the jack while being raised or lowered. Caution should be exercised to ensure the HALFTRAAX assembly does not slip off the jack, causing component damage or injury.

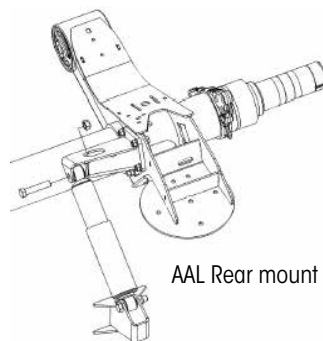


Lower air spring mounting hardware varies with suspension type

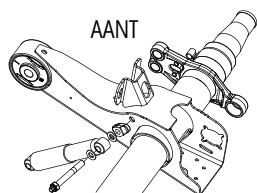
Figure 4: Air spring bottom fastener(s)

11. **Remove** the air spring lower mounting nut from the suspension beams (Figure 4). If applicable, retain HCV lower bracket for later reinstallation.

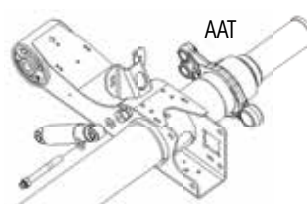
NOTE: Removal of the air springs from the trailer is not required.



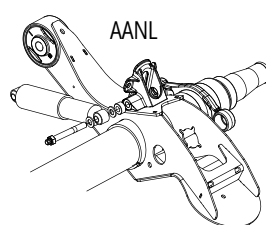
AAL Rear mount



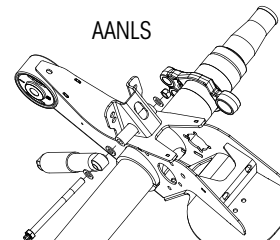
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Figure 5: Sample lower shock mount hardware

12. **Remove** lower shock mounting hardware (Figure 5) to disconnect shocks from the beams.



NOTE: Removing shocks from the trailer is not mandatory. The shocks are only required to be disconnected from the suspension beams. They may hang from the upper shock mounting until the new HALFTRAAX® is installed. See Hendrickson literature numbers [L551 Shock Absorber Inspection](#) and [L635 INTRAAX® Shock Mount Assembly](#).

13. **Lower and remove** the floor jack(s). The end of the suspension beams should rest on the surface.
14. **Using** a floor jack, or equivalent, **support** affected axle assembly beams.

CAUTION After pivot bolts and alignment collars are removed, the suspension beams are free to drop out of the frame brackets. Support the suspension beams during pivot bolt removal to prevent personal injury or damage to components.

15. **Remove** the pivot connection. Refer to Hendrickson literature number [L579 Alignment Procedure](#).

NOTE: L579 will also be referenced for pivot connection reassembly and axle alignment.

16. **Remove and save** the alignment collars for reuse.
17. **Remove** suspension beams from the frame brackets. It may be necessary to pry down on suspension beams at the pivot connection until they are clear of the frame brackets. **Discard** bushing tube spacers.
18. **Removal of the affected axle is complete.** Check frame brackets and trailer sub-frame for damage if the suspension was involved in an accident. **Repair or replace** defective material.

INSTALL HALFTRAAX®

1. **Clean and inspect** reusable parts (hubs, drums, calipers, lining, etc.) for wear or damage. **Repair or replace** as needed.

NOTE: Where applicable, Hendrickson recommends use of new brake shoe mounting kits, camshaft kits and QUIK-ALIGN® pivot bolts.



Figure 6: Bushing tube spacer installation

2. Using masking tape, **attach** bushing tube spacer to the pivot bushings (Figure 6). The tape will hold the bushing tube spacers in place during reassembly.



Figure 7: New HALFTRAAX™ secured to transmission jack

3. **Position** a jack, preferably a transmission jack, under the center of the HALFTRAAX (Figure 7). **Secure** the HALFTRAAX to the jack if possible. **Move** the assembly into an installation position under the trailer.
4. **Raise** the HALFTRAAX assembly with the jack and **attach** shock absorbers to suspension beams using new mounting hardware (Figure 5).
5. **Torque** bolts to specifications listed in Hendrickson literature number [B31](#).



Figure 8: HTRAAX in frame bracket

6. **Carefully guide** the suspension beams and bushing tube spacers into the frame bracket (Figure 8). The masking tape (Figure 6) may remain on the bushing tube spacers during installation.
7. **Line up** the holes in the bushings with the alignment slots in the frame brackets.



Figure 9: Installing new pivot connection hardware

8. **Reinstall** new pivot connection hardware for both sides (Figure 9). Refer to Hendrickson literature number L579 *Alignment Procedure*.

NOTICE **DO NOT** over tighten the pivot joint hardware, ensure the hardened washers are free to spin.

9. **Guide** the air spring bottom mounting studs into the mounting brackets on the suspension beams (Figure 4).
 10. **Install** lower air spring nut and, if applicable, HCV lower bracket.
 11. **Torque** nut to specifications listed in Hendrickson literature number B31.
- NOTE:** The transmission jack can be replaced with a floor jack for the remaining operations.
12. **Install** applicable brake components. Care must be taken to follow all notes, cautions and warnings.
 - A. If drum brakes, **follow** procedures in Hendrickson literature number L974.
 - B. If ADB, **follow** procedures in Hendrickson literature number T71004 and ADB manufacturer's documentation for more details.

IMPORTANT: If ADB, the hub and rotor are installed before brake components.

13. **Install** hubs and brake drums or hub rotor assembly using the component manufacturer's installation procedures. **Adjust** the wheel bearing using the procedure in the applicable wheel-end manual.
14. **Mount** the brake chamber on the mounting bracket or caliper (Figure 3). If applicable, install HCV lower bracket.
15. **Torque** nuts to specifications listed in Hendrickson literature number B31.
16. If used, **remove and store** the brake chamber release tool following the brake chamber manufacturer's procedure. The brake chamber manufacturer's warnings and cautions must be observed.
17. If removed, **install** the brake chamber air lines and **tighten** the fittings.

CAUTION **DO NOT** use thread tape on fittings in the air system. Contamination of the air system could occur.

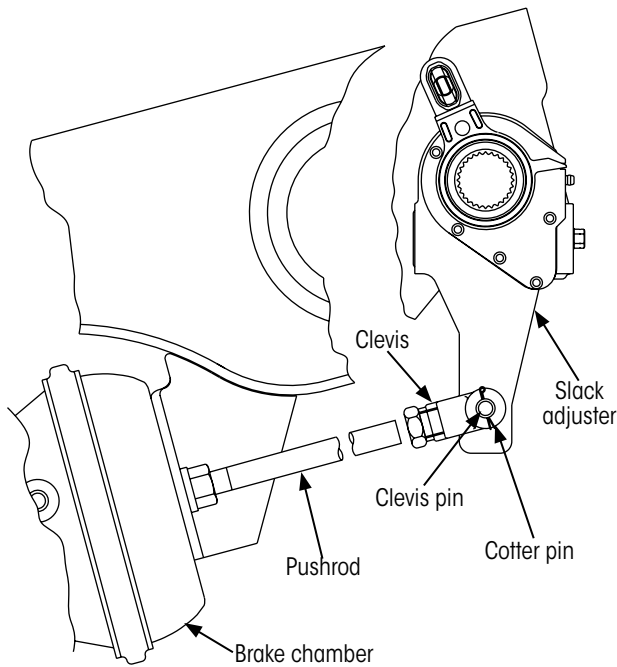


Figure 10: Brake chamber/slack adjuster connection

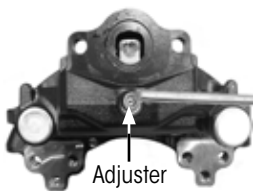
- 18. For drum brakes Attach the clevis of the brake chamber pushrod to the slack adjuster using the clevis pin (Figure 10).
- 19. Install cotter pin in the clevis pin.
- 20. Attach HCV linkage to HCV lower bracket or mount.

IMPORTANT: Adjustment of the height control valve linkage may be necessary after installation of the HALFTRAAX is completed.

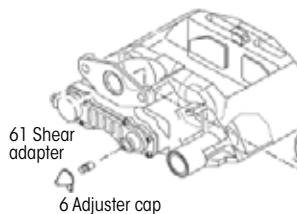
- 21. Install tires and wheels.
- 22. Adjust slack adjusters following the slack adjuster manufacturer's adjustment procedure.
- 23. For disc brakes, adjusting calipers, refer to T72009 MAXX22T ADB INSTALLATION AND MAINTENANCE PROCEDURES, page 18 INSTALLING BRAKE PADS and manufacturer's documentation for more detail.

MAXX22T, WABCO PAN
Haldex DB22LT

Bendix ADB
Haldex DBLD



Adjuster



61 Shear adapter

6 Adjuster cap

Figure 11: Adjust caliper

- 24. Lower axle assembly and remove the jack.
- 25. Align trailer following the procedure in Hendrickson literature number L579 Alignment Procedures.



Figure 12: Trailer connections

- 26. Complete final checks of the suspension and brake system by supplying air to the trailer (Figure 12).
- 27. Inflate air springs and check:
 - A. For air leaks.
 - B. Ride height, **adjust** if necessary. Refer to Hendrickson literature number L459 Checking Trailer Ride Height.
 - C. Fluid level in wheel-end hubs.
 - D. **Ensure** pivot joints are tight and the TORQ-RITE nuts are sheared. Refer to Hendrickson literature number L579 Alignment Procedure.
- 28. Road test the trailer and check for proper brake and suspension operation.
- 29. Check for air and fluid leaks.

For assistance in the United States and Canada, call Hendrickson Trailer Technical Services at 866-RIDEAIR (743-3247) or e-mail HTTS@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 866.RIDEAIR (743.3247) for additional information.



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