TECHNICAL PROCEDURE

TRAILER SUSPENSION SYSTEMS

SUBJECT: Checking Trailer Ride Height
LIT NO: L459
DATE: January 2007 **REVISION:** C

This publication describes the procedure for checking and if necessary adjusting your Hendrickson trailer suspension ride height. The suspension's designed ride height helps optimize suspension performance and helps maintain load equalization among the axles.

Operating an air suspension outside its specified ride height can reduce ride quality, damage cargo and increase suspension wear. To take full advantage of the benefits an air-ride suspension has to offer, each suspension on the trailer must be operated at its designed ride height.

PREPARATION

1. Place the trailer on a flat, level, debris-free surface.

2. Chock the trailer wheels (figure 1) and release the trailer parking brakes.

3. Check the air pressure in the trailer tires (figure 2).

   The tires must be at the manufacturer's recommended pressure when checking trailer ride height. If necessary, inflate or deflate the tires to match this recommended pressure.

4. Maintain air pressure in the trailer air suspension system (figure 3).

   Trailer ride height can be checked with the trailer coupled to or uncoupled from the tractor. If the trailer is uncoupled from the tractor, maintain pressure in the trailer air suspension system by applying shop air to the trailer emergency glad hand (figure 3). This ensures that the trailer parking brakes remain released.

Figure 1. Chock trailer wheels

Figure 2. Check air pressure in tires

Figure 3. Maintain air pressure to suspension

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VERIFYING DESIGNED KINGPIN HEIGHT

1. Determine what the designed kingpin height should be. Check the trailer ID tag on the trailer front bulkhead (figure 4) or contact the trailer manufacturer for the designed kingpin height.

2. Measure the trailer kingpin height. The trailer can be coupled to or uncoupled from the tractor for the kingpin measurement.

NOTE: If the measurement is being made with the trailer coupled to the tractor, the fifth wheel height of the tractor must be the same as the designed kingpin height of the trailer. If the tractor fifth wheel height is not the same as the trailer kingpin height, then uncouple the trailer from the tractor and make the measurement uncoupled.

NOTE: With the trailer uncoupled from the tractor, measure from the ground to the kingpin mounting plate (figure 5).

3. If necessary, adjust the landing legs to place the trailer at the designed kingpin height.

4. Verify the kingpin height by measuring from the ground to the kingpin mounting plate on both sides of the kingpin.

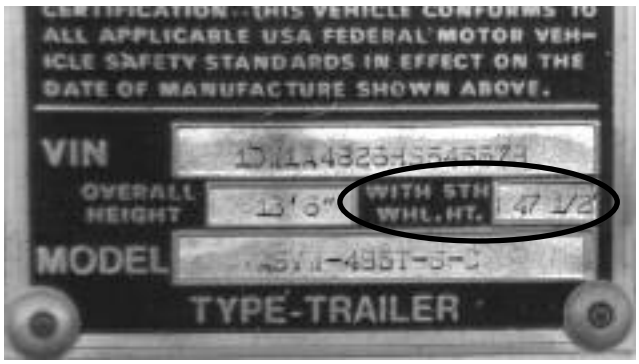


Figure 4. Typical trailer ID tag

Figure 5. Measure from ground to kingpin

MEASURING RIDE HEIGHT

A suspension's designed ride height is defined as the distance from the suspension mounting surface (the bottom of the trailer or slider box) to the center of the axle (figure 6).

Suspension ride height should always be measured on the axle with the height control valve (figure 6). There are two easy ways to measure suspension ride height:

1. Use the Hendrickson Ride Height Gauge (figure 7) to measure the distance between the axle and the mounting surface of the suspension. A ride height gauge works with both 5-inch and large-diameter axles (LDA™). Just make sure you are using the proper scale on the ride height gauge.

   To order a Ride Height Gauge, contact the Hendrickson customer service department at 866-RIDEAIR (866-743-3247) and specify part number A-23442 (Ride Height Gauge for conventional top-mount suspensions) or A-23445 (Ride Height Gauge for low-ride suspensions).

   OR

2a. Using a tape measure, measure the distance from the top of the axle to the mounting surface of the suspension (figure 8).

2b. Add half of the axle diameter to this measurement to determine your suspension's ride height. For example:
   On 5-inch axles — add 2½ inches to the measured distance.
   On LDA — add $2^{7}/_{8}$ (2.88) inches to the measured distance.

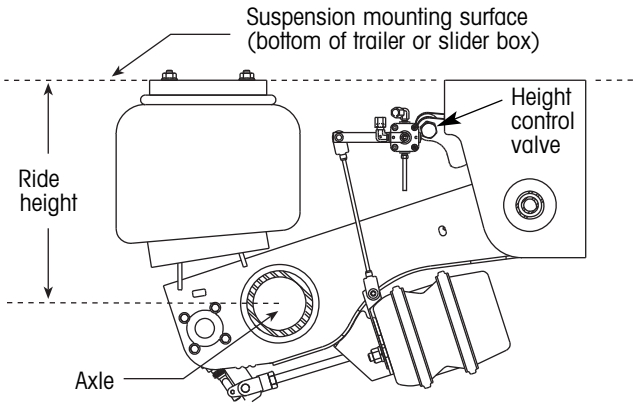


Figure 6. Ride height defined

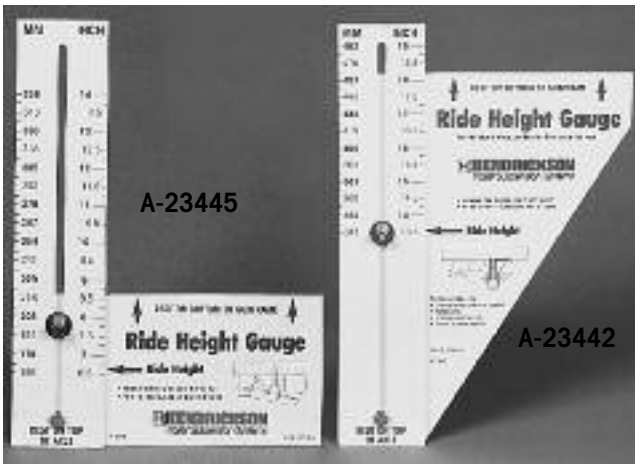


Figure 7. Hendrickson ride height gauges

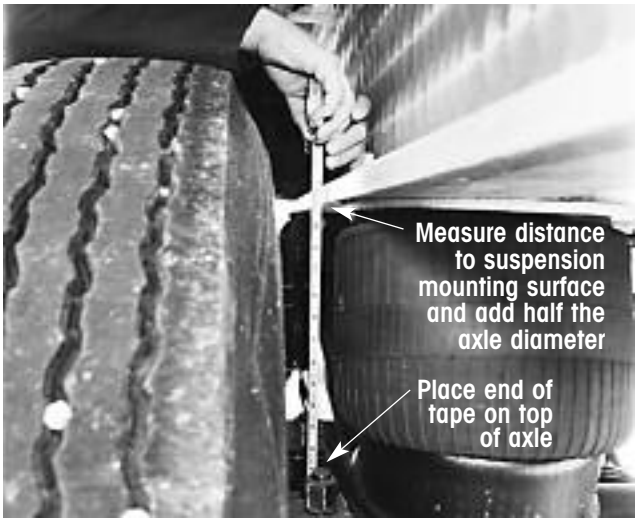
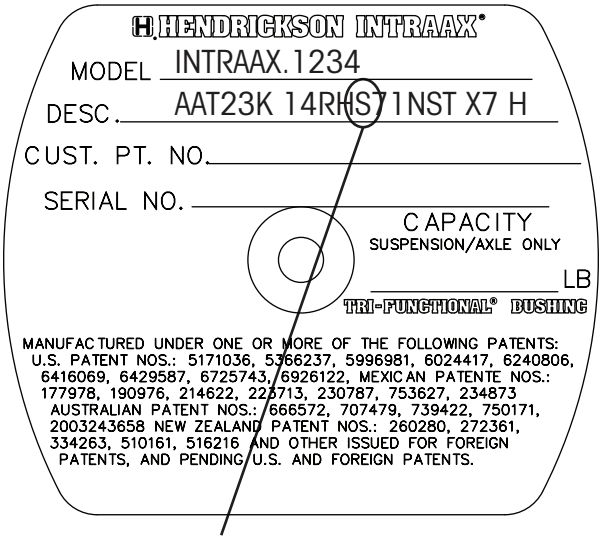


Figure 8. Measuring ride height

HOW TO DETERMINE WHICH AXLE IS ON YOUR SUSPENSION

To help identify the axle installed on your suspension, an additional character has been added to the model description line on the suspension identification tag. An example of this is shown below.



"**L**" indicates the LDA axle
"**S**" indicates the 5-inch axle
*If neither the L nor the S is present on the tag, the suspension is an older model with the original 5-inch axle

Figure 8a. Identifying axle type

Another easy method to quickly identify the axle on your suspension is to use a tape measure to determine the circumference of the axle.

- LDA axle circumference is approximately $18^{1}/_{16}$ inches
- 5-inch axle circumference is approximately 15¾ inches

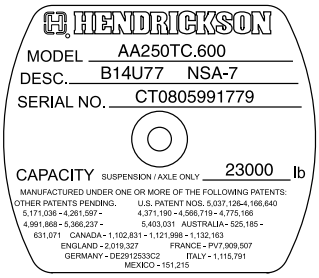
COMPARING MEASURED RIDE HEIGHT TO DESIGNED RIDE HEIGHT

Now that the measured ride height has been established, it can be compared with the designed ride height, which can be found on the suspension identification tag. Suspension identification tag locations vary by suspension model and can be found in the following locations:

Suspension System	Tag Location
T primary suspensions	Front of roadside frame bracket.
HT primary suspensions	Front of roadside frame bracket or inside of curbside beam.
INTRAAX® and QUAANTUM™ FX primary suspensions	Inside of curbside beam.
HS slider with HT suspensions	Front cross member on HS slider box.
HIS slider with INTRAAX suspensions	Front cross member on HS slider box.
VANTRAAX® (K-2®) slider with HT suspensions	On roadside slider box side rail above front frame bracket.
VANTRAAX (K-2) slider with INTRAAX suspensions	On roadside slider box side rail above front frame bracket. Also has blank INTRAAX tag on inside of curbside beam.

This tag contains four lines of important information: model number, model description, serial number and customer part number, if applicable (figures 8a, 9 and 10). In 2002, a new model naming system was implemented. This new naming system provides most of the suspension identification information in a "smart" format on the description line, whereas the previous system provided most of the suspension identification information on the model line.

Figure 9. Typical suspension ID tag on HT Series suspensions



Pre "smart" description

Current description

Figure 10. Typical suspension ID tag on INTRAAX suspensions

Read the designed ride height from the model line (HT and HS models) or the description line (early INTRAAX models, pre "smart" description INTRAAX models and current INTRAAX models) according to the following examples. The **BOLD** number in the following examples indicates ride height:

HT model:	HT230-**15**-025
HS model:	HS190T-**14**-4801A
INTRAAX description (early):	AA230TBA.. **14**A1A01..
INTRAAX description (pre "smart" descriptions):	AA230TC.. B**15**U71.5..
INTRAAX description (current):	AAT25K **14RH**S77N

If you cannot determine the ride height from the information on the identification tag, contact the Hendrickson technical service department at 800-455-0043 in the United States or 800-668-5360 in Canada. They will help you determine the designed ride height of your suspension.

ADJUSTING SUSPENSION RIDE HEIGHT

For optimal suspension performance, the measured ride height must equal the designed ride height. A ride height that measures lower than the designed ride height must be raised, while a ride height that measures higher than the designed ride height must be lowered. To adjust the suspension ride height:

1. Disconnect the height control valve linkage (figure 11).

2. Push the height control valve arm up to raise the ride height (add air to the air springs) or down to lower the ride height (remove air from the air springs) until the distance between the suspension mounting surface and the center of the axle equals the designed ride height.

NOTE: There must be a minimum pressure of 80 psi in the air reservoir in order to open the brake protection valve and allow air to flow through the height control valve.

NOTE: A delay of five to 10 seconds may occur before the height control valve allows air flow to or from the air springs.

3. With the suspension at the proper ride height, position the height control valve arm in the center (neutral) position.

4. Connect the height control valve linkage to the control arm. If necessary, adjust the linkage length so the control arm is held in the neutral position when the suspension is at the designed ride height.

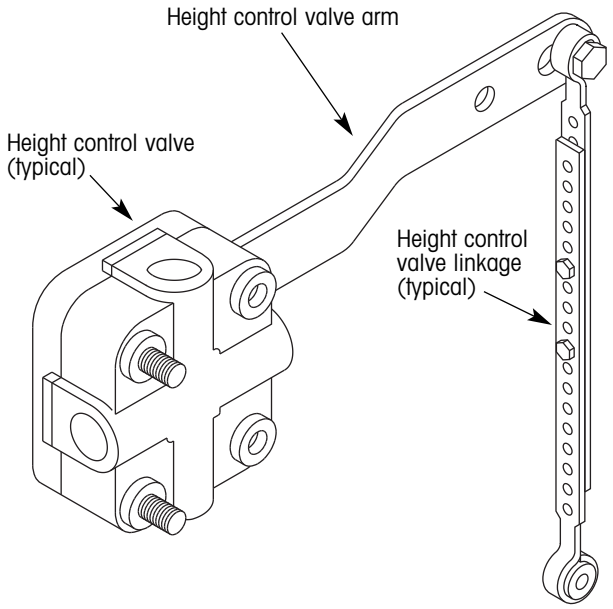


Figure 11. Typical height control valve components

NOTE: There are two types of height control valve linkage (figure 12):

Clamped-Type Linkage
Trim rod, if required, and insert into both the clamps and link ends. Tighten the clamps to hold the height control valve in the neutral position when the suspension is at the designed ride height.

Bolted-Type Linkage
Trim, if required, and fasten both links together with the supplied fasteners to hold the height control valve in the neutral position when the suspension is at the designed ride height. Ensure that the link rotates freely on the control arm fastener and does not bind. The linkage should be vertical when viewed from the front or back of the suspension.

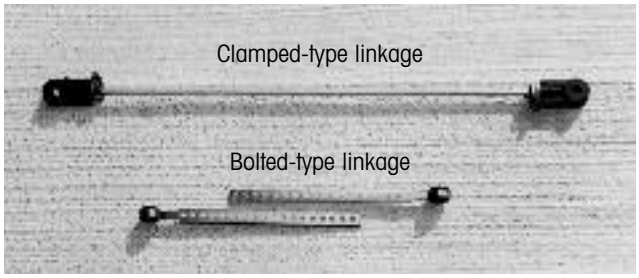


Figure 12. Height control valve linkage types

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