

TECHNICAL PROCEDURE

TRAILER SUSPENSION SYSTEMS

SUBJECT: Checking Trailer Ride Height

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This publication describes the procedure for checking and adjusting a Hendrickson trailer suspension ride height. The suspension is designed to enhance suspension performance and maintain load equalization among the axles at the designated ride height.

Operating an air-ride suspension outside its specified ride height can reduce ride quality, damage cargo and increase suspension wear. To take full advantage of the benefits, 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-ride 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-ride 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*

VERIFYING DESIGNED KINGPIN HEIGHT

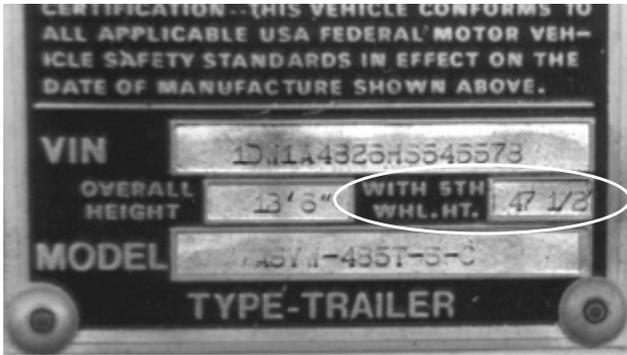


Figure 4: Sample trailer VIN plate

1. **Determine** the designed kingpin height by checking the trailer VIN plate (Figure 4) or contacting the trailer manufacturer.



Figure 5: Measure from ground to kingpin

2. **Measure** the trailer kingpin height, as shown in Figure 5.

NOTE: If measuring 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.

MEASURING RIDE HEIGHT

A suspension's 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) with air in the air springs.

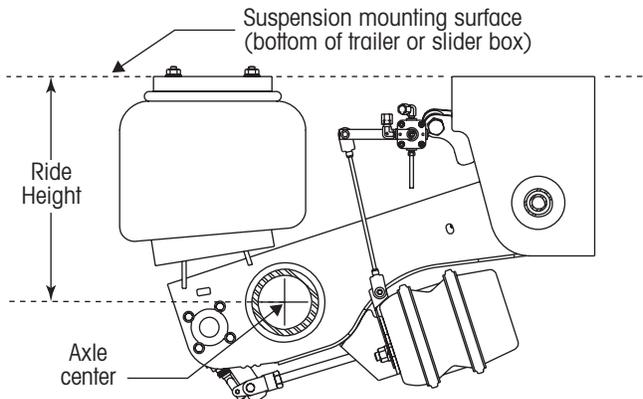


Figure 6: Ride height defined

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:

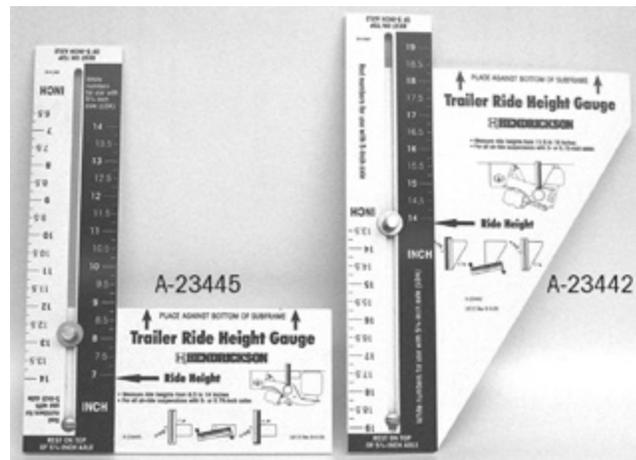


Figure 7: Hendrickson ride height gauges



1. Using a Hendrickson Ride Height Gauge (Figure 7) -



Figure 8: Using gauge to measure ride height

Measure the distance between the axle and the mounting surface of the suspension. Ride height gauges work with both 5-inch and LDA™ Large-Diameter Axles. Ensure the proper scale on the ride height gauge is being used.

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).

2. Using a tape measure -

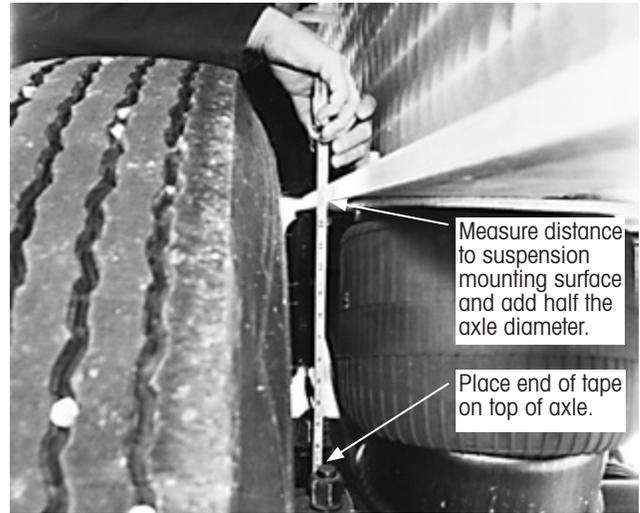


Figure 9: Measuring ride height

- A. **Measure** the distance from the top of the axle to the mounting surface of the suspension (Figure 9).
- B. **Add** half of the axle diameter to this measurement to determine the suspension's ride height.

EXAMPLE A: Measuring Ride Height:

On 5-inch axles add 2½ inches to the measured distance.

On LDA add 2⅞ inches to the measured distance.



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 tag¹.

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 10: 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™** circumference is approximately 18⁷/₁₆ inches.
- **5-inch** axle circumference is approximately 15³/₄ inches.

¹ For more details about suspension ID tag information and locations, refer to L977 *Trailer Suspension and Axle Systems Identification* at www.Hendrickson-intl.com/TrailerLit.

COMPARING MEASURED RIDE HEIGHT TO DESIGNED RIDE HEIGHT

Once ride height has been measured, compare the value with the designed ride height listed 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
HIS slider with INTRAAX	Front cross member on HS slider box.
HS slider with HT	Front cross member on HS slider box.
HT primary	Front of roadside frame bracket or inside of curbside beam.
INTRAAX® primary fixed	Inside of curbside beam or possibly the roadside beam.
T primary	Front of roadside frame bracket.
ULTRAA-K® slider	On roadside slider box side rail above front frame bracket.
K-2® slider with HT suspensions	On roadside slider box side rail above front frame bracket.
VANTRAAX® (K-2) slider	On roadside slider box side rail above front frame bracket.

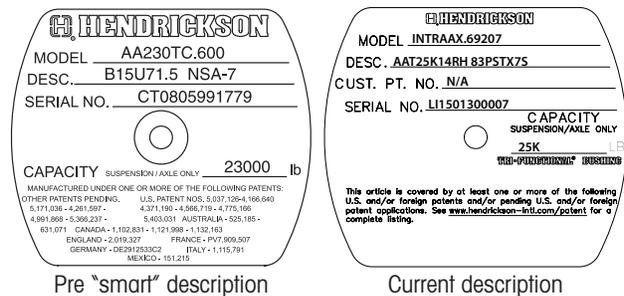


Figure 11: Typical suspension ID tag on INTRAAX suspensions

The ID tag (Figure 10, Figure 11 and Figure 12) contains four lines of important information: model number, model description, serial number and, if applicable, customer part number. 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.



Legacy



Current

Figure 12: Typical suspension ID tags

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.. B15 U71.5..
INTRAAX description (current)	AAT25K 14 RHS77N
ULTRAA-K®	UTKNT40K 9 16 RHL77
VANTRAX®	HKNT40K 9 16 RHL77

If you cannot determine the ride height from the information on the identification tag, contact the Hendrickson Trailer Technical Service department in the United States and Canada at 866.RIDEAIR (743.3247) or email HTTS@Hendrickson-intl.com. They will help you determine the designed ride height of your suspension.

ADJUSTING SUSPENSION RIDE HEIGHT

For optimal suspension performance, the actual 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 13) at the lower bracket.
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: Ensure reservoir pressure is at a minimum of 90 psi. This ensures adequate pressure to open the pressure protection valve (PPV).

NOTE: A delay of 5 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, **lock** the control arm in the neutral position by inserting the wooden centering pin through the control arm and into the hole in the valve body.
4. **Reconnect** the height control valve linkage to the lower bracket. **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.
5. **Remove the wooden centering pin.**

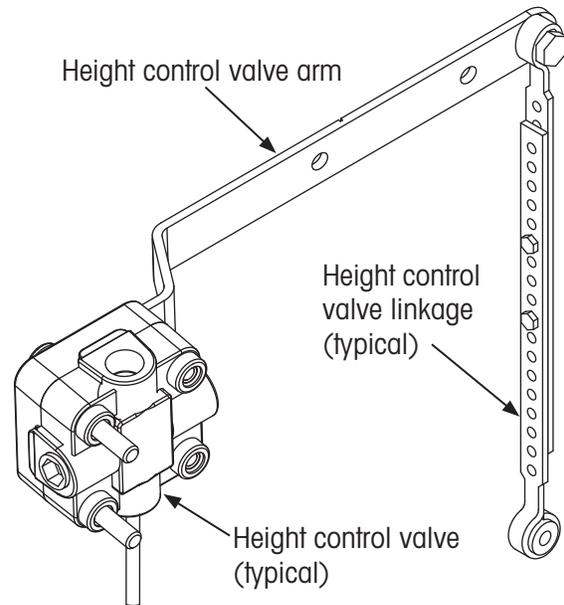


Figure 13: Typical height control valve components

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



www.hendrickson-intl.com

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