

H TECHNICAL PROCEDURE

PRE-ORDER PROCEDURES: DRIVELINE CLEARANCE

SUBJECT: MEASURING A FULLY ARTICULATED DRIVELINE

LIT NO: TP-H854

DATE: FEBRUARY 2021

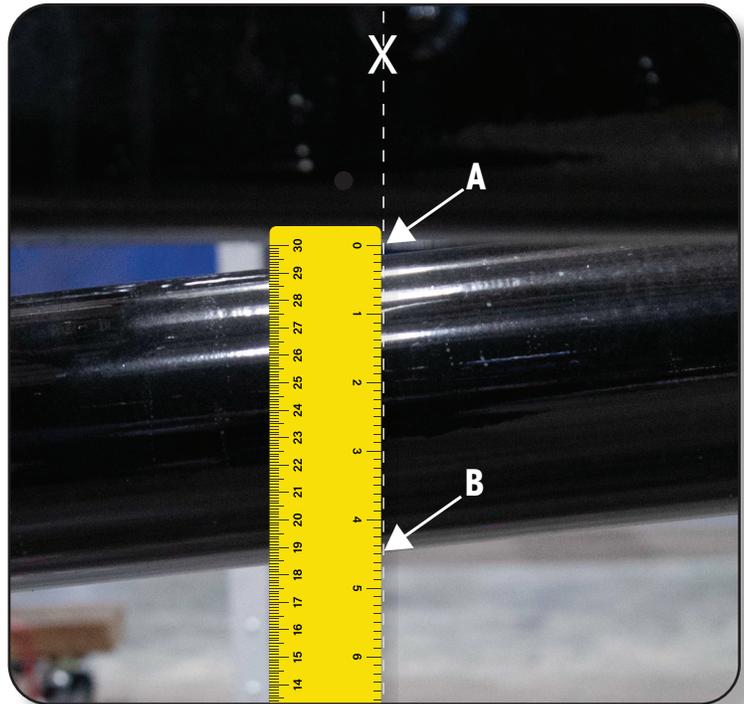


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INTRODUCTION

The proper selection and configuration of your Hendrickson auxiliary lift-axle suspension system is essential to the safe and efficient operation of your vehicle. Variance in driveline and truck design require that owner-operators pay particular attention to a number of pre-sale factors that will ultimately determine how well your vehicle and lift axle will work together. This publication will focus on the important issue of driveline clearance. Should you have any questions regarding the following guidelines and procedures, please contact **Hendrickson Technical Support & Warranty** liftaxletech@hendrickson-intl.com

WARNING

SAFETY PRECAUTIONS

PLACE THE VEHICLE ON A LEVEL FLOOR AND CHOCK THE FRONT WHEELS TO HELP PREVENT THE VEHICLE FROM MOVING. RAISING THE TRUCK FOR THE PROCEDURES OUTLINED IN TP-H854 REQUIRES THE USE OF PROPER LIFTING AND JACK EQUIPMENT. DO NOT WORK AROUND OR UNDER A RAISED VEHICLE SUPPORTED ONLY WITH FLOOR JACKS OR OTHER LIFTING DEVICES. FAILURE TO DO SO CAN CAUSE DEATH, PERSONAL INJURY OR DAMAGE TO COMPONENTS.

IMPORTANT NOTES!

Technical Procedure **TP-H854** has as its goal to assist you in providing measurements related to driveline clearance that are required in Hendrickson Ordering Guides and when communicating with Hendrickson Sales and Technical Service personnel. This publication demonstrates the proper method of measuring the distance from the bottom of a truck's frame rail to the bottom of a FULLY ARTICULATED DRIVELINE at the intended location of the lift axle's center point. A FULLY ARTICULATED DRIVELINE is understood as the maximum travel of the truck's driveline, which can be achieved under all operating conditions.

CAUTION

IMPROPER MEASUREMENT CAN LEAD TO DAMAGE TO YOUR VEHICLE AND LIFT AXLE!

In order to properly determine this measurement before a suspension is ordered, Hendrickson requires that a truck with **DUAL DRIVE AXLES** be lifted by its rear drive axle until the suspension "bottoms out", i.e. the rear drive axle lifts off of the ground and the front drive axle tips forward and then also leaves the ground, thereby allowing the driveline to reach its maximum travel. **ONLY THEN CAN AN ACCURATE MEASUREMENT BE COMPLETED.**

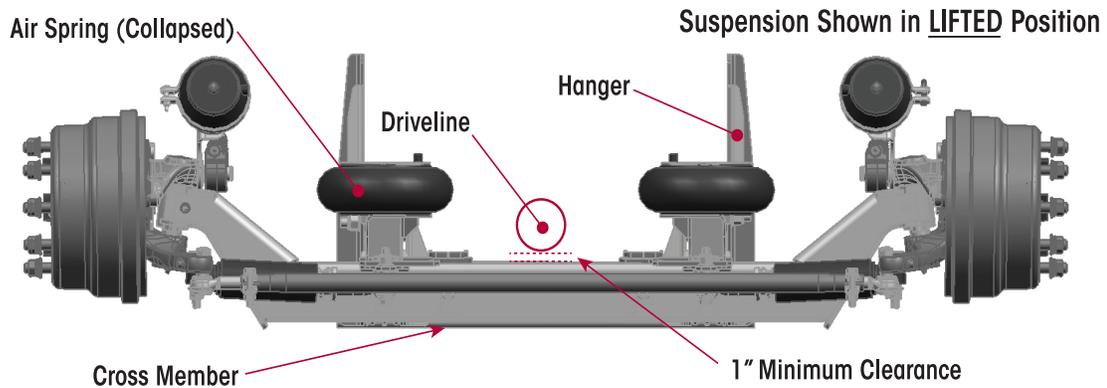
If your truck has a **SINGLE DRIVE AXLE**, you must lift the truck by its frame to allow the suspension to extend until the drive tire is off of the ground.

Another option is to calculate this measurement by utilizing data from the manufacturer of your truck, keeping in mind that you need the driveline measurement at the intended location of the lift axle's center point.

For demonstration purposes, **TP-H854** displays a new dual drive axle truck with bare rails in order to clearly show the procedures for measuring a FULLY ARTICULATED DRIVELINE. Variance in truck and suspension design or installed equipment does not change the principles of these technical procedures.

DRIVELINE CLEARANCE BASICS

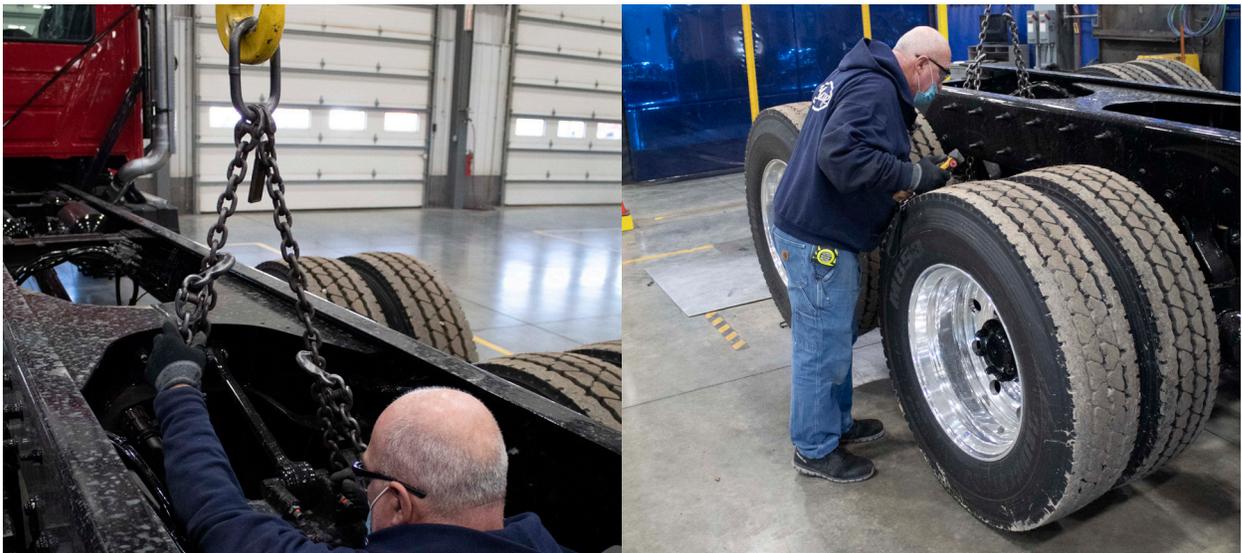
In the figure on page 3, the clearance between the driveline and the axle weldment must be a minimum of 1 inch when the lift axle is in the raised position. A one-inch clearance is the minimum recommended if (!) we know the maximum travel of the truck's FULLY ARTICULATED DRIVELINE. Please pay particular attention to the following guidelines and procedures to assure proper measurement of this essential dimension.



MEASUREMENT PROCEDURES

Required Tools and Materials:

- Truck jack or overhead crane
 - Wheel blocks
 - Measuring tape
1. You must determine the future location for the lift axle suspension system (i.e. the location of its axle center). Please refer to your local DOT or <https://www.hendrickson-intl.com/Bridge-Laws> for assistance with this.
 2. Once you have determined the location for the lift axle, mark the axle's center point on the outside rail of the truck; this mark is where you will measure the fully articulated driveline in the next steps.
 3. Block the truck's front wheels to prevent movement.
 4. You are now ready to lift the truck's rear drive axle to achieve the driveline's maximum travel. In the following photographs, the truck's rear drive axle is being lifted by a chain and crane sufficient for the weight of the truck. Whatever method you employ, make sure that your lifting equipment is rated for the weight and conditions.



5. Remember, the wheels of the front drive axle must leave the ground in order for the driveline to "bottom out". Note: in the photo above the front tires are about 1/2 inch off of the ground. The "bottom out" point of your driveline can vary.
6. Next, at the marked future location of the lift axle's axle center ("X"), measure the distance from the bottom of the frame rail to the bottom of the driveline as seen in the photo on the next page:

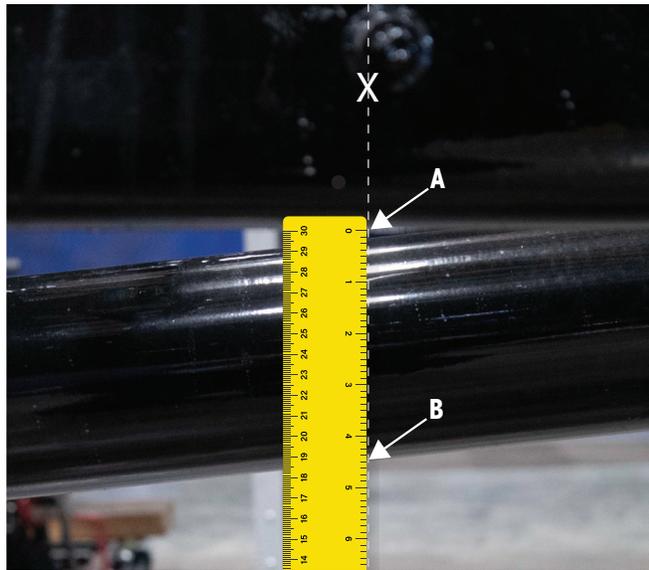


In the image to the right, "X" is the marked position on the truck's side rail of the axle center of the lift axle suspension that will be installed.

The measurement we are taking is from the bottom of the truck's rail to the bottom of the driveline.

Align the edge of your ruler on the center point of the "X". The measurement will be taken from point A to point B.

For demonstration purposes, the photo to the right shows a FULLY ARTICULATED DRIVELINE with a drop of 4.5 inches.



- Record this measurement for when you fill out Hendrickson's Ordering Guides or when communicating with a Hendrickson Technical Service or Sales representative regarding pre-sale specifications. The image below is an example of a Hendrickson Ordering Guide that requires the measurement of a FULLY ARTICULATED DRIVELINE.

STEP 3c To verify Clearance for your application, please provide us with the following information:			
Frame rail height:		Is this a "Pusher" application (lift axle in front of drive axle)?:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
At axle location, bottom of frame rail to bottom of fully articulated driveline*			
Notes: *For this it is necessary to lift the rear tandem axle until the front tandem axle is lifted off the ground to measure the driveline's farthest distance from the frame.			

CALL HENDRICKSON AT **1.800.660.2829 OR 1.800.668.5360** IN CANADA FOR ADDITIONAL INFORMATION AND APPLICATION SPECIFICATIONS.



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