

# **H** TECHNICAL PROCEDURE

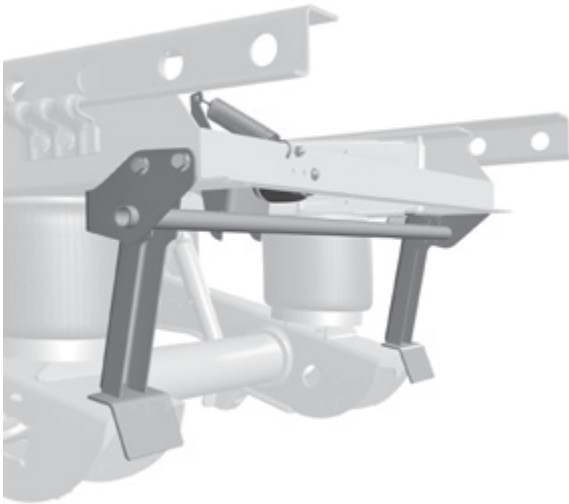
## TRAILER SUSPENSION SYSTEMS SURELOK®

**SUBJECT:** Operator's Manual

**LIT NO:** L498

**DATE:** December 2017

**REVISION:** C



SURELOK® prior to December 2015, shown engaged



SURELOK after November 2015, shown engaged

### TABLE OF CONTENTS

Introduction .....	2
Engaging SURELOK® .....	3
Disengaging SURELOK .....	3
Transporting a Trailer with SURELOK.....	4
Using SURELOK with Other Control Options .....	4
Troubleshooting .....	5

## INTRODUCTION

SURELOK® is a pneumatically-controlled trailer support system designed to hold the trailer at a constant height and minimize the amount of trailer movement that can occur with air suspensions during loading and unloading.

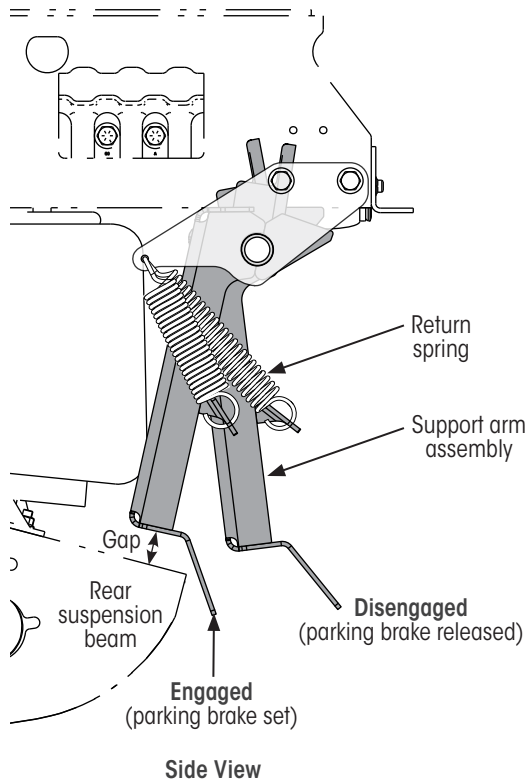


Figure 1: Position of SURELOK mechanical support arms when trailer parking brakes are applied and released

SURELOK works in conjunction with the trailer parking brakes to limit both vertical (“trailer drop”) and horizontal (“trailer walk”) movement.

When the trailer parking brakes are applied, mechanical spring tension (Figure 1) automatically pulls the SURELOK support arms into the engaged position above the trailer rear suspension beams.

When initially engaged, a small gap will exist between the bottom of the SURELOK support arms and the top of the rear suspension beams as shown in Figure 1.

**IMPORTANT:** Moving the trailer rearward with the trailer parking brake set will raise trailer deck height and increase the gap at the bottom of the SURELOK control arm. This increased gap can result in forward movement of the trailer known as “trailer walk”. Hendrickson recommends releasing the trailer brake anytime the trailer is moved.

Load changes (such as a lift truck driving in and out of the trailer) cause the height control valve (HCV) to respond and attempt to maintain the trailer at a constant height. In doing so, air will exhaust through the HCV, thus lowering the trailer and incrementally closing the gap, eventually causing the SURELOK support arms to rest on top of the suspension beams. With the support arms on the suspension beams, trailer height remains constant, helping to limit both “drop” and “walk”.

When loading is complete and the trailer parking brakes are released, an air actuator automatically retracts the SURELOK support arms to the disengaged position (Figure 1). When the air suspension has reinflated to the designed ride height (if exhausted), the trailer can be safely transported.

**NOTE:** Along with the operating instructions described in this document, drivers should adhere to local, state and federal regulations when docking a trailer. For example, if dock restraint systems are not used, trailers must be properly chocked to prevent movement as required in OSHA standards 29 CFR 1910.178(k)(1) and 29 CFR 1910.178(m)(7).

For general safety and precautionary statements, refer to Hendrickson literature number T12007, available at [www.Hendrickson-intl.com/TrailerLit](http://www.Hendrickson-intl.com/TrailerLit).

## RELATIVE 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](http://www.Hendrickson-intl.com/TrailerLit)

Other relative literature may include:

NAME	DESCRIPTION
L578	Preventive Maintenance Guide
L583	Comprehensive Warranty Statement
L715	SURELOK® Installation Procedures
L816	Trailer Loading Dock Terms And Solutions

Table 1: Relative literature

## ENGAGING SURELOK®

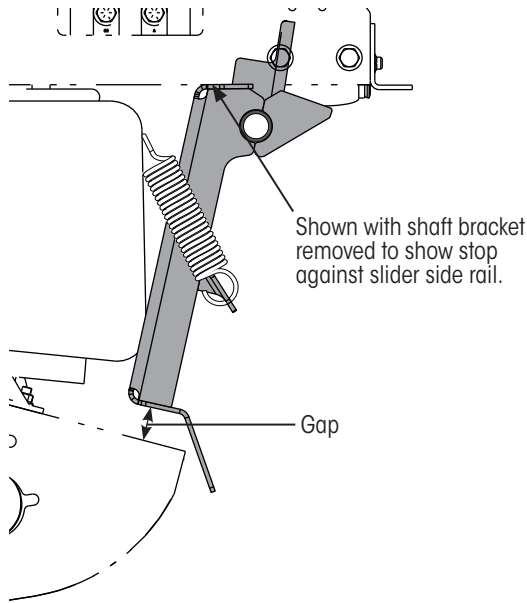


Figure 2: SURELOK engaged (parking brake set)

1. **Apply** the trailer parking brake and **chock** trailer wheels. SURELOK will automatically engage (Figure 2) when the trailer parking brake is applied.
2. **Visually check** to ensure both SURELOK arms are in the engaged position (e.g., the SURELOK arms must be positioned directly above the rear suspension beams as shown in Figure 2).

**NOTE:** A gap will remain between the bottom of the SURELOK support arms and the top of the suspension beams until the trailer load is increased enough to lower the support arms onto the beams.

**NOTE:** If SURELOK will not engage, refer to [TROUBLESHOOTING](#) on page 5.

**⚠ WARNING:** Stay clear of the trailer when SURELOK is in operation. Movement of suspension parts may result in personal injury.

**⚠ CAUTION** Never operate a trailer with SURELOK engaged. Damage to the suspension, trailer and cargo may occur.

When fully engaged, SURELOK will maintain the trailer at a constant height, allowing safe and confident loading and unloading.

## DISENGAGING SURELOK

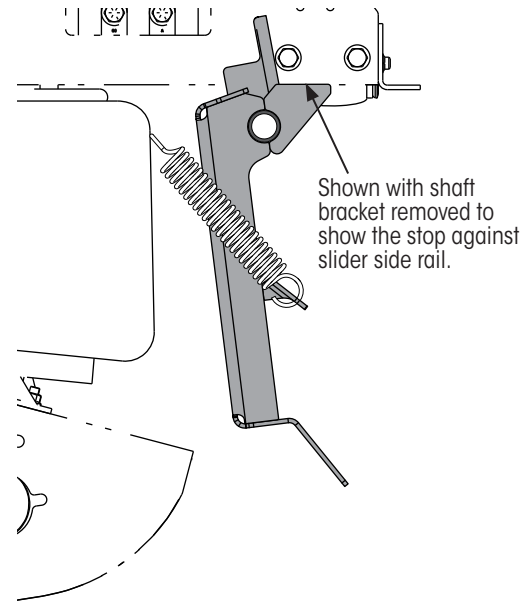


Figure 3: SURELOK disengaged (parking brake released)

1. **Remove** the trailer wheel chocks.
2. **Release** the trailer parking brake. SURELOK will automatically disengage (Figure 3) when the trailer parking brakes are released.
3. **Visually check** to ensure both SURELOK arms are in the disengaged position (e.g., the SURELOK arms must be retracted from and clear of the rear suspension beams as shown in Figure 3).

**⚠ WARNING:** Never work on SURELOK while it is in the disengaged position. Sudden or accidental engagement may result in personal injury.

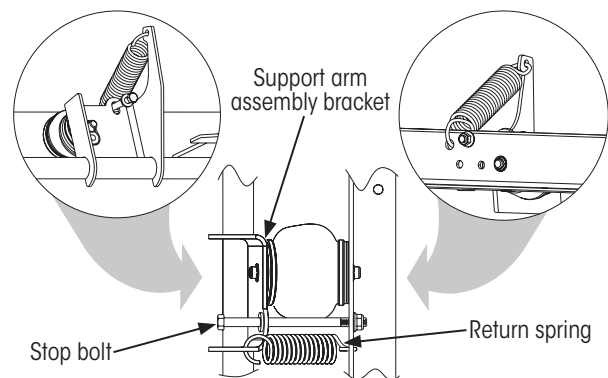


Figure 4: SURELOK with stop bolt, prior to December 2015

When disengaged, SURELOK includes a stop to control SURELOK movement. See Figure 3 (after November 2015) and Figure 4 (stop bolt, prior to December 2015).



**NOTE:** If SURELOK® will not disengage, refer to [TROUBLESHOOTING](#) on page 5.

## TRANSPORTING A TRAILER WITH SURELOK

Hendrickson's SURELOK ride height lock assembly is recommend for Trailer On Flat Car (TOFC), and does not require the use of a suspension dump valve or other air controls. The use of shock straps are not required for TOFC applications equipped with SURELOK.

Exhausting the trailer air springs is not recommended while a trailer is being transported via railway (TOFC) or by any other intermodal means. Simply removing

gladhands prior to lifting the trailer for transport will automatically engage SURELOK. Maintaining air in the air springs will ensure air springs maintain shape and function normally when the trailer is restored to normal operation.

## USING SURELOK WITH OTHER CONTROL OPTIONS

Some applications require additional controls with SURELOK that require SURELOK to be manually disengaged. [Table 2](#) shows how the Hendrickson manual bypass and manual bypass with dump kits function with SURELOK. Operational procedures are included with these kits.

SURELOK AIR CONTROL KIT <sup>1</sup>	TRAILER		SURELOK SUPPORT ARMS			SUSPENSION AIR SPRINGS					SURELOK ACTUATOR	
	PARKING BRAKE STATUS	SURELOK BYPASS VALVE POSITION	ENGAGED INITIALLY WITH GAP	ENGAGED WITHOUT GAP	DISENGAGED	REMAIN INFLATED	MUST BE MANUALLY EXHAUSTED	MUST BE MANUALLY INFLATED	ARE AUTOMATICALLY EXHAUSTED	ARE AUTOMATICALLY INFLATED	AIR APPLIED	AIR EXHAUSTED
<b>Standard SURELOK</b>	Applied	N/A	✓ <sup>2</sup>	✓ <sup>2</sup>		✓						✓
	Released	N/A			✓	✓					✓	
<b>SURELOK with Manual Bypass</b>	Applied	NORMAL	✓ <sup>2</sup>	✓ <sup>2</sup>		✓ <sup>3</sup>						✓
		BYPASS			✓	✓ <sup>3</sup>	✓ <sup>4</sup>				✓	
	Released	NORMAL			✓	✓ <sup>3</sup>		✓ <sup>5</sup>			✓	
		BYPASS			✓	✓ <sup>3</sup>					✓	
<b>SURELOK with Manual Bypass and Dump</b>	Applied	NORMAL	✓ <sup>2</sup>	✓ <sup>2</sup>		✓ <sup>3</sup>						✓
		BYPASS & DUMP			✓				✓ <sup>6</sup>		✓	
	Released	NORMAL			✓	✓ <sup>3</sup>				✓ <sup>7</sup>	✓	
		BYPASS & DUMP			✓						✓	

<sup>1</sup> Operational procedures are included with Hendrickson control kits.

<sup>2</sup> When the trailer parking brakes are applied and SURELOK is initially engaged, a small gap will exist between the bottom of the SURELOK support arms and the top of the rear suspension beams as shown in [Figure 1](#) on page 2. Load changes (such as a lift truck driving in and out of the trailer) will cause the height control valve (HCV) to respond and attempt to maintain the trailer at a constant height. In doing so, air will exhaust through the HCV, thus incrementally lowering the trailer and closing the gap, eventually causing the SURELOK support arms to rest on the suspension beams and fully support the load. This is the reason why the SURELOK support arms are shown in the above table as both "engaged initially with gap" and "engaged without gap" for all air control configurations.

<sup>3</sup> The suspension air springs will remain inflated unless the trailer air system is manually exhausted (dumped) by the operator.

<sup>4</sup> In a two step process, the operator uses the SURELOK bypass valve to bypass SURELOK, then uses a separate, remote or previously installed manual air suspension dump valve (not included in the Manual Bypass air control kit) to manually exhaust the suspension air springs.

<sup>5</sup> In a two step process, the operator closes the manual air suspension dump valve to allow the suspension air springs to reinflate, then turns the SURELOK bypass valve to NORMAL to return SURELOK to typical operation.

<sup>6</sup> In a single step, the operator uses the SURELOK bypass valve to simultaneously bypass SURELOK and exhaust the suspension air springs.

<sup>7</sup> In a single step, the operator turns the SURELOK bypass valve to NORMAL to simultaneously allow the suspension air springs to reinflate and to return SURELOK to typical operation.

*Table 2: Hendrickson SURELOK air control kit comparison*



### TROUBLESHOOTING

**⚠ WARNING:** Apply the trailer parking brake and chock the trailer wheels prior to attempting any corrective actions.

**⚠ CAUTION:** Follow recommended safety practices at all times while troubleshooting.

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
<b>SURELOK® does not engage</b>	Bypass valve in the BYPASS position or ball valve in the BYPASS & DUMP position	Turn the bypass or ball valve to the NORMAL / ON HIGHWAY position
	Return spring is broken	Inspect and replace the return spring
	Ride height is set too low	Adjust to the proper ride height <sup>1</sup>
	Debris (mud, ice, snow, etc.) on rear suspension beam or SURELOK arm	Remove debris <sup>2</sup>
	SURELOK arms bent or broken	Replace SURELOK assembly
	Cargo load too heavy	Move or transfer cargo load
	Manual air suspension dump valve (if equipped) is open	Close manual air suspension dump valve <sup>3</sup> (if equipped)
<b>SURELOK does not retract</b>	Parking brakes not released	Release parking brakes
	Air line flow restricted	Replace air line
	Cargo load too heavy	Move or transfer cargo load
	Air spring actuator leaking or defective	Replace air spring actuator
	SURELOK installed incorrectly	Correctly reinstall SURELOK
	SURELOK arms bent or broken	Replace SURELOK assembly
	Bolt and nut used to limit air spring actuator travel too tight	Loosen the flanged nut so that only two threads of the bolt are visible beyond the nut
	Trailer not at ride height <sup>4</sup>	Wait for the height control valve to lift the trailer high enough for the SURELOK arms to retract. If necessary, shift cargo load.
<sup>1</sup> Refer to Hendrickson Trailer Suspension Systems publication L388, Ride Height Settings and L459, Checking Trailer Ride Height for proper ride height settings and adjustment procedure. <sup>2</sup> Cycle parking brakes or manually remove the debris using proper safety procedures. <sup>3</sup> SURELOK must be disengaged whenever a manual air suspension dump valve is used to lower the overall height of the trailer. Improper use of a manual air suspension dump valve may cause damage to suspension parts. <sup>4</sup> The time required for the trailer to reach ride height is dependant on trailer load.		

### CONTACTING HENDRICKSON

For additional information not found in this document, refer to RELATIVE LITERATURE or contact Hendrickson Trailer Technical Services directly in the United States or Canada at 866-RIDEAIR (743-3247) or email

HTTS@Hendrickson-intl.com

Prior to contacting Technical Services, it is best to provide information found on the suspension ID Tag. Refer to Hendrickson Literature Number L977 *Trailer Suspension and Axle ID Guide* for ID tag location and details.





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



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