

# **H** APPLICATION GUIDE

## CONNEX® ST

TRAILER SELF-STEER SUSPENSION SYSTEM

LIT NO: L1250

DATE: November 2019      REVISION: A



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## INTRODUCTION

Hendrickson presents this publication to aid in understanding Hendrickson's CONNEX® ST trailer self-steer suspension product offering and application requirements. The CONNEX ST self-steer suspension system helps trailer manufacturers and operators meet applicable regulatory needs for self-steer axle applications, including Ontario's SPIF regulations.

## PURPOSE

The purpose of this document is to provide original equipment manufacturers (OEMs) of medium and heavy-duty vehicles with application guidelines for CONNEX ST self-steer suspensions. The descriptions and specifications contained in this publication are current at the time of printing. Hendrickson reserves the right to discontinue or modify its models and / or procedures and to change specifications at any time without notice.

## QUESTIONS

For answers to questions concerning these guidelines, for information not covered in these guidelines or to request a Hendrickson Trailer Ordering Guide, contact:

Hendrickson Trailer Commercial Vehicle Systems  
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 Canton, OH 44707-2641  
 Telephone: 866-743-3247 (866-RIDE-AIR)  
 Website: [www.hendrickson-intl.com](http://www.hendrickson-intl.com)

## CHANGES TO GUIDELINES

These guidelines are subject to change at any time without prior notice at the discretion of Hendrickson. To get the most up-to-date version of these guidelines visit: [www.hendrickson-intl.com](http://www.hendrickson-intl.com).

## OTHER LITERATURE

Lit. #	Description
L1251	<i>CONNEX ST Ordering Guide</i>
L1247	<i>CONNEX ST Specifications</i>
L1243	<i>CONNEX ST Flyer</i>
T61001	<i>Self-Steer Suspension Installation Information and Requirements</i>
L579	<i>Alignment Procedure</i>
L578	<i>Preventative Maintenance Guide</i>

## ON/OFF HIGHWAY USE

This chart provides general recommendations for CONNEX® ST self-steer suspensions.

VAN TYPE TRAILERS		
Van Type Freight Van Van Refrigerated Van	Chip Van Highway Use	
FRAME TYPE TRAILERS		
Platform Trailer Straight Frame	Curtain-side	Extendible Multi-Axle
OPEN TOP TRAILERS		
Transfer Trailer Tilt Walking Floor	Belt Unload Rear Discharge	
Grain Trailer Hopper Style Highway Use	Grain Trailer Hopper Style Farm Use	
Dump Trailer (Rear and Side Discharge)		
SHELL TYPE TRAILERS		
Bulk Hopper 3+ Axles B-Train	Tanker 3+ Axles B-Train "High CG"	



### LOAD EQUALIZATION

Hendrickson's CONNEX® ST trailer self-steer suspension with 25,000 lbs. air springs equalizes within 1,102 lbs. (500 kg, SPIF-compliant) with INTRAAX® AAL 25K and AAT 25K air suspension systems. The low pressure option equalizes with INTRAAX AAL 30K and AAT 30K air suspension systems.

SUSPENSION LOAD VARIATION AT 80 PSI				
		INTRAAX® AAT / AAL 23K	INTRAAX AAT / AAL 25K	INTRAAX AAT / AAL 30K
CONNEX ST CXSL 25K	Axle Load	19,000 (lbs) 8,618 (kg)	21,000 (lbs) 9,525 (kg)	24,571 (lbs) 11,145 (kg)
Standard Pressure Air Spring	20,500 (lbs) 9,299 (kg)	-1,500 (lbs) -680 (kg)	500 (lbs) 227 (kg)	4,071 (lbs) 1,847 (kg)
Low Pressure Air Spring	25,000 (lbs) 11,340 (kg)	-6,000 (lbs) -1,814 (kg)	-4,000 (lbs) -1,814 (kg)	-429 (lbs) -194 (kg)

### LIFT OPTIONS

The UBL™ UNDER BEAM LIFT™ kit is available for all ride heights and beam spacings. The UBL kit comes standard with black primer. Galvanized is optional on UBL.

CONNEX ST CXSL 25K	
RIDE HEIGHT (inches)	AXLE LIFT (inches)
13.0	4.4
14.0	5.4
15.0	5.8
16.0	5.4
17.0	5.8
18.0	5.4
19.0	5.8

*Tire clearance may vary. See L801 Lifiable Suspension Guide for more information.*

### GROSS AXLE WEIGHT RATING

This section is intended to assist vehicle manufacturers in understanding the principles for determining vehicle Gross Axle Weight Rating (GAWR) in order to help ensure that properly rated components are specified for over-the-road vehicles.

GAWR is a term used to specify the load-carrying capacity of a single axle assembly. Federal law requires that vehicle manufacturers determine the GAWR for their vehicles and display this information on the front of appropriate over-the-road trailer equipment.

GAWR is determined by the lowest rated vehicle component from the following: axle beam, brakes, hubs, bearings, suspension, wheels and tires. For example, a vehicle built that has all of these components rated at 25,000 lbs. would have a GAWR of 25,000 lbs. However, if any single component has a lower rating, (e.g. brakes are rated at 20,000 lbs.) the GAWR must be established based on that lowest rated component. In this instance, the lowest rated component is the brake. Therefore, the vehicles GAWR is 20,000 lbs.

GAWR can be visualized as a chain of components in which GAWR is determined by the component with the lowest rating.

Ratings for the components within an individual Hendrickson-supplied axle \ suspension assembly, including the brakes, hubs and bearings, may vary and may not be equal to the nominal CONNEX ST rating. To calculate the brake rating refer to Hendrickson Literature, L809 Brake Certifications.

Hendrickson cannot determine the GAWR that a trailer manufacturer will assign to a vehicle, since Hendrickson does not furnish all of the components that will be installed. Vehicle manufacturers must address all of the components comprising GAWR.

Vehicle manufacturers must follow the instructions supplied by other component manufacturers to determine the ratings for components not produced by Hendrickson. Taking into consideration all of the components used to determine GAWR will help ensure that the vehicle manufacturer is in compliance with Federal regulations governing the determination of GAWR.



**RATING ADJUSTMENTS**

CONNEX ST CXSL 25K axle, beam and suspension are rated at 25,000 lbs. capacity when using a zero wheel offset configuration.

The use of offset tires can affect the capacity rating of the axle, beam and suspension. For applications where dual tires are utilized or an application that uses a zero offset single tire, the rated axle, beam and suspension capacity will not be affected. However, the use of an offset wheel in combination with super single tires does change the way in which the axle, beam and suspension are loaded and therefore affects how the axle, beam and suspension will be rated (Figure 1). Inset single tires move the point at which the axle is loaded in-board towards the center of the bearing set. Using this type of wheel will not affect the rated axle load, but can reduce bearing life. The use of a single outset tire configuration moves the load point out away from the center of the bearing set, which de-rates the axle rated capacity and also reduces bearing life. To determine the rating for an axle that uses offset wheels, see chart below.

AXLE, BEAM, AND SUSPENSION CAPACITY RATING		
WHEEL OFFSET (inches)	RATED LOAD (lbs)	% RATED LOAD
0.0	25,000	100%
0.5	24,752	99%
1.0	24,508	98%
2.0	24,035	96%

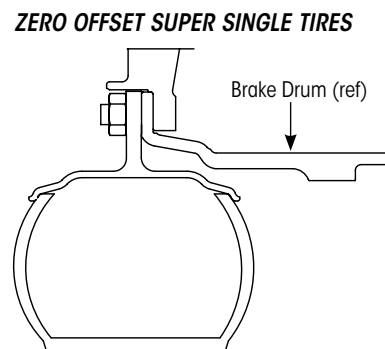
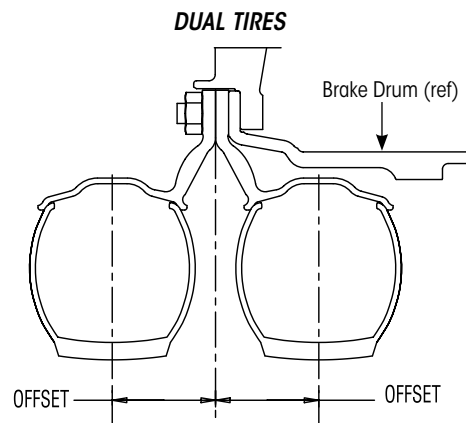
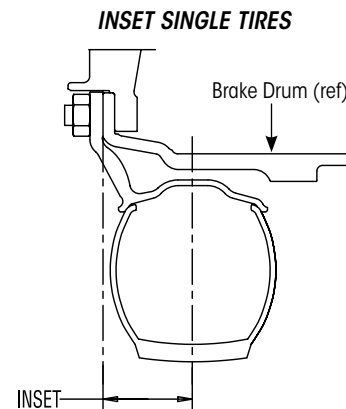
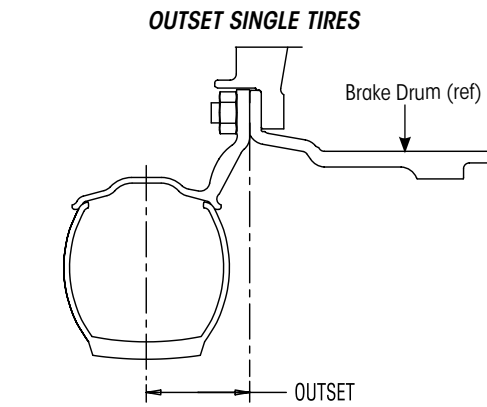


Figure 1



### AXLE TRACK / TIRE OUT-TO-OUT

For dual tires with HP spindles, track is measured from center to center of the dual wheel set-up. For axles using single tires, track is measured from the center of the tire or wheel to the center of the other tire or wheel. (figure 2)

For a 96" or 102" wide trailer, the following axle tracks are listed as references for non-steerable suspensions:				
SUSPENSION TYPE	Non-Steerable			
WHEEL STYLE / MATERIAL	Duals / Steel			
WHEEL SIZE: (Diameter x Width x Offset)	22.5 x 8.25 x 6.62		24.5 x 8.25 x 6.62	
TIRE SIZE	11R22.5		11R24.5	
AXLE TRACK	71.5	77.5	71.5	77.5
A (TIRE OUT TO OUT)	96.2	102.2	96.0	102.0

For a 96" wide trailer, the following axle tracks are recommended for steerable suspensions:			
SUSPENSION TYPE	CONNEX ST		
WHEEL STYLE / MATERIAL	Super Single / Aluminum		
WHEEL SIZE: (Diameter x Width x Offset)	22.5 x 12 x 0.56		22.5 x 14 x 0
TIRE SIZE	385 / 65R22.5	425 / 65R22.5	455 / 55R22.5
AXLE TRACK	80.0	77.5	77.5
B (TIRE OUT TO OUT)	95.5	94.5	94.6

For a 102" wide trailer, the following axle tracks are recommended for steerable suspensions:			
SUSPENSION TYPE	CONNEX ST		
WHEEL STYLE / MATERIAL	Super Single / Aluminum		
WHEEL SIZE: (Diameter x Width x Offset)	22.5 x 12 x 0.56		22.5 x 14 x 0
TIRE SIZE	385 / 65R22.5	425 / 65R22.5	455 / 55R22.5
AXLE TRACK	86.0	84.0	85.0
B (TIRE OUT TO OUT)	101.5	101.0	102.1

For a 96" or 102" wide trailer, the following axle tracks are recommended for steerable suspensions:				
SUSPENSION TYPE	CONNEX ST			
WHEEL STYLE / MATERIAL	Duals / Steel			
WHEEL SIZE: (Diameter x Width x Offset)	22.5 x 8.25 x 6.62		24.5 x 8.25 x 6.62	
TIRE SIZE	11R22.5		11R24.5	
AXLE TRACK	71.5	77.5	71.5	77.5
B (TIRE OUT TO OUT)	N/A	102.2	N/A	102.0

**NOTE:** Tables are a general guide; note that the tire and wheel combination displayed here may differ. Therefore it is the responsibility of the suspension installer to confirm specifications to conform to all necessary regulations.

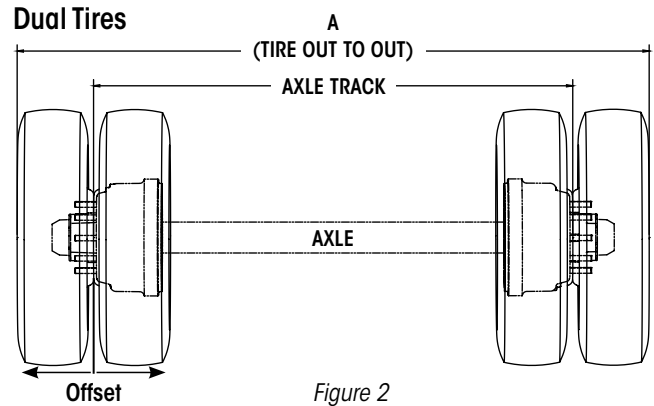
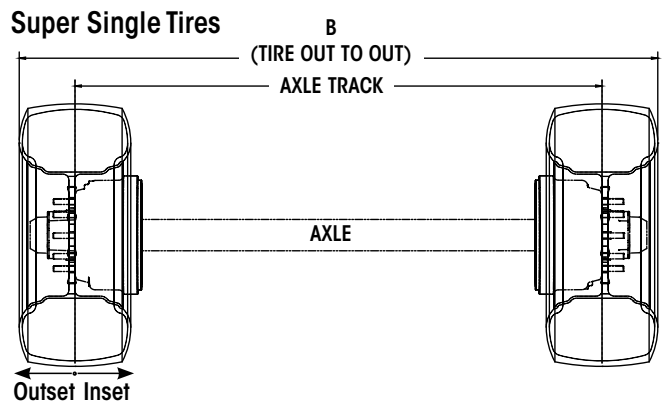


Figure 2



### REGULATORY COMPLIANCE

When operating in Ontario ensure regulations are adhered to: Ontario Regulation 413/05 (Vehicle Weights and Dimensions – For Safe, Productive and Infrastructure-Friendly Vehicles).

When operating in New York ensure regulations are adhered to: DLN# 13-02 (Divisible Load Notice).

When operating in Alaska ensure regulations are adhered to: 17 AAC 25 (Chapter 25 Operations, Wheeled Vehicles).

**NOTE:** Refer to all state and local regulations in area of operation regarding compliance to self-steer axle suspensions.





*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 330.489.0045 or 866.RIDEAIR (743.3247) for additional information.**



[www.hendrickson-intl.com](http://www.hendrickson-intl.com)

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L1250 Rev A 11-19

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Printed in United States of America