# H APPLICATION GUIDE TRAILER SUSPENSION SYSTEMS

LIT NO: L707 DATE: January 2020

 $\textbf{REVISION:} \ \mathsf{M}$ 



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This guide provides general suspension model recommendations for specific applications, as well as necessary ride height and capacity information. The model recommendations listed are guidelines based on trailer design and usage patterns typical of the given trailer type and may not be suitable for every application. Lift axle recommendations are also provided based on suspension model, total number of axles and country of use. For additional assistance regarding specific trailers or applications, contact the Hendrickson Trailer Commercial Vehicle Systems product engineering department in the United States at 866-RIDEAIR (743-3247), in Canada at 905-789-1030 or in Mexico at +52 (81) 8288 1300.



## A- SUSPENSION TYPE HENDRICKSON PRIMARY SUSPENSION APPLICATION GUIDE

					P	rimary (I	Fixed) S	uspensi	on Appli	cation G	uide					
Note:         Note: <th< th=""><th></th><th></th><th></th><th></th><th></th><th>Van Type</th><th>Trailers</th><th></th><th></th><th></th><th></th><th>Frame Typ</th><th>e Trailers</th><th></th><th></th><th></th></th<>						Van Type	Trailers					Frame Typ	e Trailers			
MAT 220.         R        R         R         R<	Suspe	nsion	Single Axle⁴		Refrig.	Frame Van Furniture	Highway		Trailer Straight	Trailer Drop		-ment Trailer	-ible Tandem	-ible Multi-	-tainer	Logging Chassis
Mat         And         Image         Image <thimage< th=""> <thimage< th="">         Imag</thimage<></thimage<>	Category	Model		l	Cho	art A For	Highway	Use, Goo	d Paved	Roads, W	ell Maint	ained Un	paved Ro	ads	l	
NH MARY AN 30K         AX 25K         R         R         I         I         I         I         I         I         R         I         R         I         R         I         R         I <thi< th=""></thi<>		AANT 23K	R		0		R	R	R		R		R		R	
Malor         Malor <t< td=""><td></td><td>AAT 23K</td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		AAT 23K		1												
AREXI 30:         Image: state in the	INTRAAX® Top Mount	AAT 25K		R										R		
MARS 20K         Image: state of the s		AAT 30K														
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NYTACK (M. 28.         Image: State (M. 28.)         Im		AANLS 20K				R										
Method         All 28K         I <thi< th=""> <th< td=""><td></td><td>AANL 23K</td><td>0</td><td></td><td>0</td><td>ļ</td><td>0</td><td>0</td><td>0</td><td>R</td><td>0</td><td> </td><td></td><td></td><td>0</td><td></td></th<></thi<>		AANL 23K	0		0	ļ	0	0	0	R	0				0	
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HT*26 (Minimized Minimized Minimi			0	0		0				R	0	K	0	0		
thrade         O <td>UT™ Corico</td> <td></td> <td></td> <td>ļ</td> <td></td>	UT™ Corico			ļ												
HT Sories         HT 200         C         O	Top Mount		0		0		0	0	0		0		0		0	
Lincle         Ni 2001         Image: state of the stat		HT300		0										0	ļ	
H1250US         O         O         I         O         I         O         O         R         O         O         I         I           H1260VS         I         <	HT Series Liftable	HT250T			0		0	0	0		0		0	0	0	
HT Series HT Series HT Solvs         Impact Series         Impact HT Solvs         Impact Series         Impact HT Solvs         Impact Series         Impact HT Solvs         Impact Series		HT190U														
Intractor         Intractor <t< td=""><td>Ī</td><td>HT250US</td><td>0</td><td>0</td><td></td><td>0</td><td></td><td></td><td></td><td>0</td><td>0</td><td>R</td><td>0</td><td>0</td><td></td><td></td></t<>	Ī	HT250US	0	0		0				0	0	R	0	0		
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AZNT 23K         AZNT 23K         AZ		HT300YB														
NTRAAX SP Pid. Z03K         AZL 23K         Image: Side set of the subservision demands are increased.		HT300US														
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NAZL 46K         Image: state stat		AAZL 23K								0						
Category         Model         Chart B For Switchback, Washboard, Rough and Poorly Maintained Roads; Areas with Underdeveloped Infrastructure           NTRAAX poor         An 25k         R         R         Q         R	Sliders								R							
INTRAX TOP Mount         AT 25K         R										Ű	Ũ		ů			
NTRAA Top Mount         AT 30K         I	Category					k, Washb	oard, Rou			intained		reas with				ture
Mount         Inclusion         In	INTRAAX Top		R	R	0			R	R		R		R	R	R	┞───
INTRAX Low Mount or Liftable         AAL 25K         O         O         R         O         C         I	Mount															
INTRAX Low Liftoble         AAL 30K         Image: Constraint of the constraint							K									К
Liftable         AAEDL 30K         Image: Constraint of the c	INTRAAX Low		0			К			0	К	0	К				<u> </u>
HT Top Mount         HT 300         R         R         O         O         O         O         O         O         R         O         R         O         O         O         O         O         R         O         R         O         O         O         O         O         O         R         O	Liftable						0									0
HT300US       Image: Constraint of the category of the category type.       Image: Constraint of the category of the category type.       Image: Constraint of the category t	HT Top Mount		R	R	0			0	0		0				0	
History       Comparison       R         Explanation of Chart Use and Legend         R       These are the most commonly recommended suspension for this trailer type, however, this may not be correct for all applications: <ul> <li>Lesser capacity suspensions are not recommended</li> <li>Higher capacity suspensions in the category can freely be used and should be used as suspension demands are increased.</li> </ul> O         *O* is an optional suspension for each suspension category type.           These suspensions are not intended for use in this application.           Comparison						0					0				0	0
R       These are the most commonly recommended suspension for this trailer type, however, this may not be correct for all applications: <ul> <li>Lesser capacity suspensions are not recommended</li> <li>Higher capacity suspensions in the category can freely be used and should be used as suspension demands are increased.</li> </ul> O         *O* is an optional suspension for each suspension category type.           These suspensions are not intended for use in this application.           Contract	Mouili															
R       Lesser capacity suspensions are not recommended         Higher capacity suspensions in the category can freely be used and should be used as suspension demands are increased.         O       *O* is an optional suspension for each suspension category type.         These suspensions are not intended for use in this application.	Explanation of Chart Use and Legend															
O       "O" is an optional suspension for each suspension category type.         These suspensions are not intended for use in this application.	R	• Lesser	capacity su	spensions a	re not recom	mended										
These suspensions are not intended for use in this application.	0			-	• •											
See footnotes on bottom of page 4	-				-											
	See footno			(i												

## HENDRICKSON PRIMARY SUSPENSION APPLICATION GUIDE (CONTINUED)

Primary (Fixed) Suspension Application Guide																
					Open To	op Traile	rs					Shell Ty	pe Traile	rs²		Skeleton Type Trailers
Suspe	nsion	Chip Van Logging Use	Transfer Trailer Tilt or Walking Floor	Belt Unload Rear Discharge	Grain Trailer Hopper Style Highway Use	Grain Trailer Hopper Style Farm Use	Dump Trailer <sup>1</sup> (Rear Discharge)	Dump Trailer (Side Discharge)	r Trailer' Hopper Hopper Tandem Oil Trailer 3+axie (Bottom Tandem 3+ Axie Tanker with and/ ge) Dis- Axie axies single B-Train charge) B-Train B-Train eye compression of the state of the s				Tanker 3+ axles and/or B-Train and/or Compressed /Liquified gases	Auto Hauler		
Category	Model				Char	t A For H	lighway U	se, Good P	aved Roa	ds, Well	Maintain	ed Unpa	ved Road	ls		
	AANT 23K			R	R				R	R		R				
	AAT 23K															
INTRAAX® Top Mount	AAT 25K		R			R	R	R			R		R	R	R	
	AAT 30K			ļ												
	AAEDT 30K			ļ												
	AANLS 20K															R
	AANL 23K			0	0				0	0		0				
INTRAAX Low Mount or Liftable	AAL 23K															<b> </b>
LITTODIE	AAL 25K		0			0		0			0		0		0	
	AAL 30K AAEDL 30K															
	CXU 23K			0	0	0			0							
CONNEX® Underslung	CXU 25K			0	0	0			0							
	HT190T								0							
HT <sup>™</sup> Series	HT230T			0	0				0							
Top Mount	НТЗООТ		0			0	0	0	0	0	0	0	0		0	
HT Series Liftable	HT250T			0	0				0							
	HT190U															0
	HT250US			0	0	0			0							
HT Series Low Mount	HT250YS															
	HT300YB															
	HT300US									0	0	0	0		0	
	AAZNT 23K															
INTRAAX SP Plat. Z Rail	AAZL 23K			ļ												
Sliders	AAZNT 46K															
-	AAZL 46K															
Category	Model				Switchba		board, Roug	h and Poor			is; Areas	with Unde	erdevelop	iea Infras	aruciure	
INTRAAX	AAT 25K		R	R		R	<b>ļ</b>		R	R						<b> </b>
Top Mount	AAT 30K															
	AAEDT 30K AAL 25K	R	0	0		0	R	R	0	0	R	R	R	R	R	R
INTRAAX Low Mount or	AAL 25K AAL 30K		0						0							71
Low Mount or Liftable	AAE JOK	0						0			0	0	0		0	
HT Top Mount	HT300	R	0	0		0	0	0		0	0	0	0	0	0	
	HT300US	0						0		0	0	0	0		0	0
HT Low Mount	НТЗООҮВ														, j	<u> </u>
Explanation of Chart Use and Legend																
These are the most commonly recommended suspension for this trailer type, however, this may not be correct for all applications:																
R	<ul> <li>Lesser capacity suspensions are not recommended</li> <li>Higher capacity suspensions in the category can freely be used and should be used as suspension demands are increased.</li> </ul>															
0	"O" is an opti	onal suspen	sion for each	n suspension	category type	e.										
	These suspensions are not intended for use in this application.															
Son fontant	otes on bottom of page 4															

See footnotes on bottom of page 4

## HENDRICKSON SELF-STEER SUSPENSION SYSTEM APPLICATION GUIDE

	Self-Steer Suspension System Application Guide														
			vertor lies	Van Type Trailers					Frame Type Trailers						
Suspension		Single Axle⁴	Tandem Axle⁴	Van Type Frt. Van Refrig. Van	Drop Frame Van Furniture Van	Chip Van Highway Transprt	Livestock	Platfrm Trailer Straight Frame	Platfrm Trailer Drop Frame	Curtainside	Equipment Trailer Lowboy	Extendible Tandem Axle	Extendible Multi-Axle	Container Chassis	Logging Chassis
Category	Model				Chart	A For H	ighway Use	, Good P	aved Roa	ds, Well Ma	intained Un	paved Road	s		
CONNEX® ST Self-Steer	CXSL 25K		See L1250 CONNEX ST Application Guide												
			Ske								Skeleton				

	Open Top Trailers									Shell Type Trailers <sup>2</sup>						Skeleton Type Trailers
Suspen	ision	Chip Van Logging Use	Transfer Trailer Tilt or Walking Floor	Belt Unload Rear Discharge	Grain Trailer Hopper Style Highway Use	Grain Trailer' Hopper Style Farm Use	Dump Trailer¹ (Rear Discharge)	Dump Trailer' (Side Discharge)	Dump Trailer (Bottom Discharge)	Bulk Hopper Tandem Axle	Bulk Hopper 3+ axles and/or B-Train	Tanker Tandem Axle	Crude Oil Tanker	Pup Trailer with single lunette eye	Tanker 3+ axles and/ or B-Train and/or Compressed/ Liquified gases	Auto Hauler
Category	Model		Chart A For Highway Use, Good Paved Roads, Well Maintained Unpaved Roads													
CONNEX® ST Self-Steer	CXSL 25K						See	L1250 CO	NNEX ST Ap	plication	Guide					
						Exp	lanation a	of Chart Us	se and Leg	jend						
R	These are the most commonly recommended suspension for this trailer type, however, this may not be correct for all applications:															
0	"O" is an optional suspension for each suspension category type.															
	These suspensions are not intended for use in this application.															

## **GENERAL NOTES (PRIMARY SUSPENSIONS)**

#### Important application information (Footnotes for chart on pages 2-3):

- 1. Use of a suspension air exhaust (dump) valve is required for dump trailer applications.
- 2. Cap style bushing tube spacers are required for logging and tanker applications using AAT and AAL suspensions.
- 3. For severe operation conditions, the use of a higher capacity suspension is recommended.
- 4. High Control versions of suspension models are recommended for dollies, single axle pups and single axle/multi-trailer applications.

### Contact Hendrickson application engineering for:

- Suspensions used more than three per group
- Special applications/applications not shown
- INTRAAX® AAL and AAEDL in applications where axle loads may exceed the rated capacity such as rear position on end dumps (Do Not Use)
- Review of INTRAAX AANT and AANL applications
- Trailer applications unique to local markets and/or markets outside the USA, Canada and Mexico
- Use of HT<sup>™</sup> Series suspensions for liftable/steerable applications
- Oil/Gas Field applications

### Application information needed for suspension recommendations:

- Trailer type
- Area of operation
- Load per suspension
- Road conditions
- Duty cycle (24/7 or 8/5)
- Number of suspensions per trailer
  Ride height (bottom of frame to axle center)
- Number of lift axles, position on trailer and when they are lifted
- Wheel and tire sizes

Air Slider Suspension Systems Application Guide														
		Pup Tr	ailers	Dry Freight			Reefer				Miscellaneous <sup>8</sup>			
Category	Model	Single Axle	Tandem Axle	Single Axle	Tandem Axle 49"	Tandem Axle 1 02"	Tridem Axle 49", 60" & 72"	Single Axle	Tandem Axle 49"	Tandem Axle 1 02"	Tridem Axle 49", 60" & 72"	Liftable <sup>10</sup>	Drop Frame Tandem	Ramp Storage Tandem
	HKANT 23K	R		R				R						
VANTRAAX®	HKANT 40K		R		R				R					
Top Mount Narrow Pivot	HKANT 46K⁵		0		0	R			0	R				
	HKANT 69K23						R				R			
VANTRAAX	HKAT 50K <sup>6</sup>		0		0				0					
Top Mount	HKAT 69K25						09				09			
Wide Pivot	HKAT 75K25						09				09			
VANTRAAX	HKANL 23K <sup>7</sup>											R		
Low Mount	HKAL 46K												R	
or Liftable	HKARL 46K													R
ULTRAA-K® Top Mount Narrow Pivot	UTKNT 40K		R		R				R					
R	These are the most commonly recommended suspension for this trailer type, however, this may not be correct for all applications: Lesser capacity suspensions are not recommended. Higher capacity suspensions can freely be used and should be used as suspension demands are increased.													
0	Optional suspension fa	r each suspe	ension categ	ory type.										

5. The 46K is recommended for applications with higher continuous loading or use on unimproved road surfaces.

6. The 50K is required for trailers domiciled in Mexico.

7. The trailer must be designed to allow for sufficient clearance above the tire for liftable applications.

8. Contact Hendrickson for recommendations for applications not shown.

9. 49" spacing not available.

10. All VANTRAAX sliders can be used with an axle lift kit for minimal tire ground clearance. Contact Hendrickson for more information.

11. Capacity of primary suspension system: axle, brakes, wheels and tires rated separately.

## **B** – AVAILABLE RIDE HEIGHTS

### **INTRAAX® PRIMARY SUSPENSION SYSTEMS**

Model	Suspension Capacity <sup>11</sup>	Axle Rating 12	Ride Height 13,16
	pounds	pounds	inches
AANLS 20K	20,000	20,000	6.25 - 12
AANT 23K			12 - 19
AANL 23K	23,000	23,000	6.5 - 17
AAT 23K	23,000	23,000	13.5 - 19
AAL 23K			6.5 - 19
AAT 25K	25,000	25.000	13.5 - 19
AAL 25K	25,000	23,000	6.5 - 19
AAT 30K	30,000	25.000	13.5 - 19
AAL 30K	30,000	25,000	9 - 19
AAEDT 30K	20,000	20.000	14 - 17
AAEDL 30K	30,000	30,000	9 - 19

See footnotes on bottom of page 6

Model	Suspension Capacity <sup>14</sup>	Ride Height <sup>13,16</sup>
	pounds	inches
HT190T	20.000	14 - 17
HT190U	20,000	6 - 12
HT230T	23,000	14 - 19
HT250T <sup>15</sup>	23,000	12 - 19
HT250US	25.000	3.5 - 14
HT250YS	23,000	6.5 - 9
HT300T		15 - 23
HT300US	30,000	5.5 - 17
HT300YB		6.5 - 9

### **HT<sup>™</sup> SERIES PRIMARY SUSPENSIONS**

### **CONNEX® UNITIZED SUSPENSION SYSTEM**

Model	Suspension Capacity <sup>11</sup>	Axle Rating <sup>12</sup>	Ride Height 13,16		
	pounds	pounds	inches		
CXU 23K	23,000	23,000	5.5 - 6.5		
CXU 25K	25,000	25,000	5.5 - 6.5		

## **CONNEX® ST SELF-STEER SUSPENSIONS**

Model	Suspension Capacity <sup>11</sup>	Axle Rating <sup>12</sup>	Ride Height <sup>13,16</sup>		
	pounds	pounds	inches		
CXSL 25K	25,000	25,000	14 - 19		

- 12. Axle structure rating only: suspension, brakes, wheels and tires rated separately. For Raised-Center Axle (RCA) option, the axle is rated only for 23,000 pounds.
- 13. Suspension ride heights must be set within Hendrickson specifications in order to ensure proper suspension performance. Failure to maintain proper ride height settings can lead to suspension, axle or trailer damage. Varying ride heights between suspensions may impact equalization.
- 14. Capacity of primary suspension only, axle not included.
- 15. The HT250T is intended for use as a liftable suspension, in combination with other HT primary air suspension models. It may also be used in place of an HT230T when the application calls for high travel or lower ride height.
- 16. Due to the wide variety of suspension frame bracket options, there may be some ride heights that are not supported by certain frame bracket options. Please contact Hendrickson application engineering if considering other frame bracket options outside your current usage.
- 17. Capacity of slider suspension system includes slider box, suspensions and axles. Brakes, wheels and tires rated separately.

## INTRAAX® SP PLATFORM SLIDER SUSPENSION SYSTEMS

Model	Slider Capacity 17	Number of Axles	Axle Spacing	I-beam Centers	Ride Height <sup>13</sup>
	pounds		inches	inches	inches
AAZNT 23K	23,000	1	-		13.5 - 17
AAZNT 46K	46,000	2	49, 60, 72	37	13.3 - 17
AAZL 23K	23,000	1	-	38	6.5 - 12
AAZL 46K	46,000	2	49, 60, 72	43	0.0 - 12
AAZNT 69K23	69,000	3	60, 72	44	13.5 - 17

Model	Slider Capacity 17	Number of Axles	Axle Spacing	Box Width	Ride Height 13,18
	pounds		inches	inches	inches
HKANT 23K	23,000	1	N/A	42 48	16 - 17
HKANL 23K	23,000	1	N/A	48 54	
UTKNT 40K	40,000	2	49	48	16
HKANT 40K	40,000	2	49	42 48 54	16 - 17
HKANT 46K	46,000	2	49		
HKANT 46K Widespread	46,000	2	121	48 54	
HKAL Low Mount	46,000	2	49	42 48	10 - 11
HKARL 46K Ramp-Ready	46,000	2	49	48	9 - 12
HKAT 50K	50,000	2	49	42 48	16 - 19
HKANT 69K23 <sup>19</sup>	69,000	3	49 60 72	42 48 54	16 - 18
HKAT 69K25 <sup>19</sup>	69,000	3	60 72		
HKAT 75K25	75,000	3	60 72		

## **VANTRAAX® SLIDER SUSPENSION SYSTEMS**

## **ULTRAA-K® SLIDER SUSPENSION SYSTEMS**

Model	Slider Capacity 17	Number of Axles	Axle Spacing	Box Width	Ride Height 13,18
	pounds		inches	inches	inches
UTKNT 40K	40,000	2	49	48	16

18. To calculate total system height for HKANT, HKAT and ULTRAA-K sliders, add the suspension ride height and 8.5 in. for the slider box. For HKARL ramp-ready sliders, add the suspension ride height and 14 in. for the slider box.

19. For tri-axle sliders, the first value indicates slider box capacity, the second value indicates axle capacity. The higher capacity is intended for higher duty cycle applications. The maximum slider capacity should not be exceeded.

### **C– OTHER APPLICATION GUIDES AND LITERATURE**

More application information can be found in the following documents.

Lit #	Description
L388	Ride Height Settings
L633	Application Questionnaire
L544	VANTRAAX® Ordering Guide
L1226	ULTRAA-K <sup>®</sup> Ordering Guide
L602	INTRAAX® Ordering Guide
L802	INTRAAX SP Ordering Guide
L980	Hendrickson Trailer Axle Application Guide
L1250	CONNEX® ST Application Guide
L1251	CONNEX ST Ordering Guide
L555	HT <sup>™</sup> Series Ordering Guide
L1274	CONNEX Ordering Guide

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.



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L707 Rev M 01-20

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