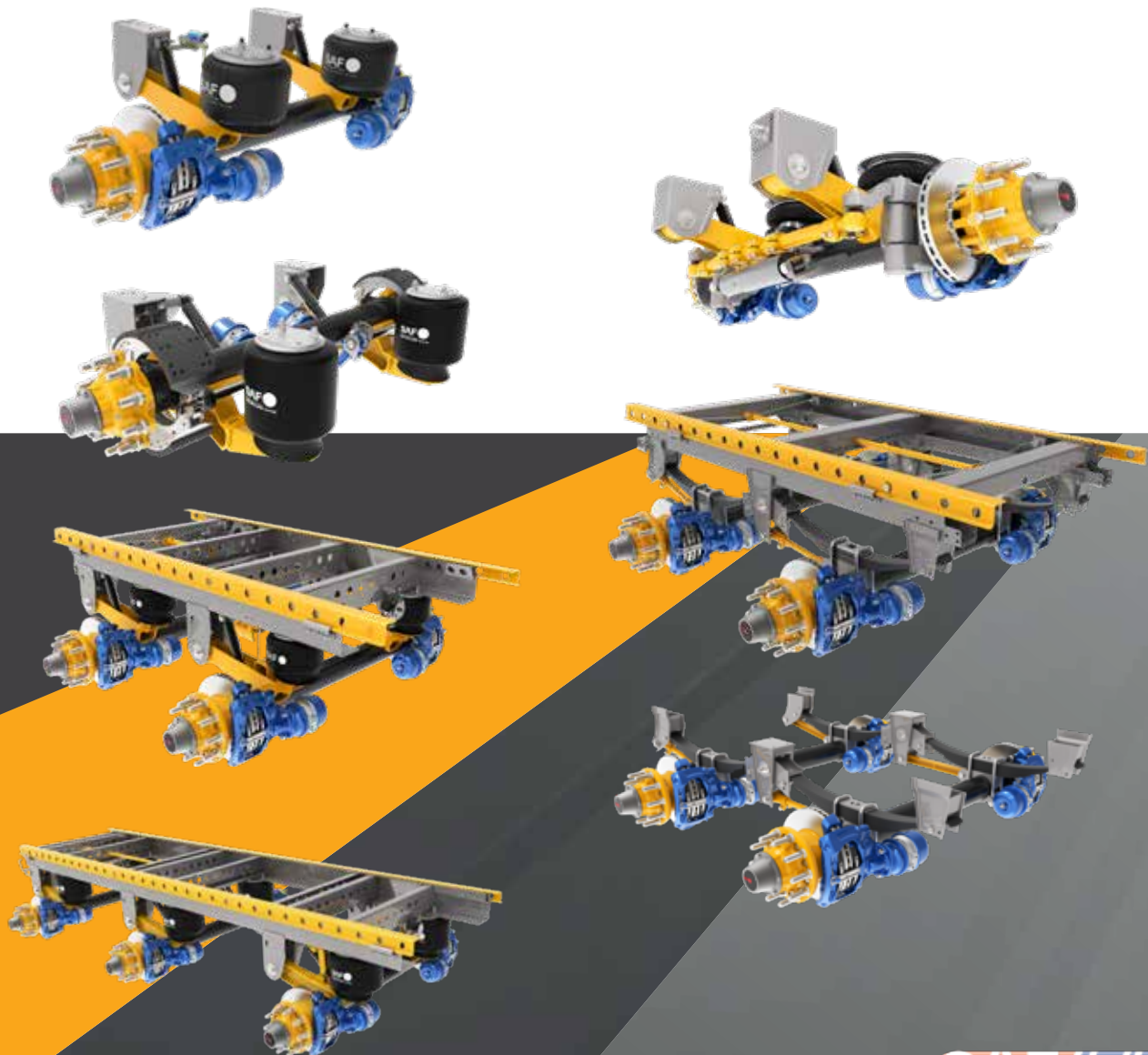


SAF Trailer Air & Spring Ride Suspension Application Guide

Air and Spring Ride Trailer Suspension Solutions
for On and On/Off Highway Trailer Applications



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Introduction

This guide provides you with recommendations for on and on/off highway use and other information necessary for the proper selection of a trailer air or mechanical suspension system. For further recommendations for trailer applications not covered in this guide, contact SAF-HOLLAND Trailer Suspension Application Engineering - 888.396.6501.

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1. Short Haul Applications

Short haul applications such as city pick-up, delivery and milk run pick-up's (typically 30 miles (50km) or less) result in a particularly harsh environment for the operation of tractor trailers. As a result, even though the particular application may meet all of the criteria of a category (e.g. "Standard Duty"), the next higher category will be required (e.g. "Moderate Duty").

2. Inner City Fuel Hauling

Inner city fuel haul applications result in a particularly harsh environment for the operation of tractor trailers. As a result, even though the particular application may meet all of the criteria of a category (e.g. "Standard Duty"), the Severe Duty On-Road category must be used.

3. Dump Trailers

Axle Stops

Trailers used for dump applications with 3 or more axles must have axle stops installed on the rear axle. The load transfer to the rear axle during the loading operation will transfer enough weight to the rear axle to exceed its load rating and potentially damage its longevity. Axle stops are also recommended for tandems. (Axle stops are not provided by SAF-HOLLAND, but are to be incorporated into the trailer design.)

Dump Air

Before discharging a load, the pressure in the air suspension should be "dumped" to allow the load to be transferred to the axle stops. This will ensure trailer stability during the discharging of the load and enhance the life of the air springs and shocks.

4. Low Boy Equipment Trailers

Axle Stops

Trailers used for float/lowboy applications with 3 or more axles must have axle stops installed on the rear axle. The load transfer to the rear axle during the loading operation will transfer enough weight to the rear axle to exceed its load rating and potentially damage its longevity. (Axle stops are not provided by SAF-HOLLAND but are to be incorporated in the trailer design.)

Dump Air

Before loading or unloading, the pressure in the air suspension should be "dumped" to allow the load to be transferred to the axle stops. This will ensure trailer stability during the moving of the load and enhance the life of the air springs and shocks.

5. Severe Environments

Some areas of the country are particularly difficult on the operation of a trailer. This would include most logging roads, chip van environments, steep mountain or steep grades (e.g. 20% or greater) where the vehicle is subjected to extreme conditions. In these applications there are times where alternate components should be considered. Included in this list of alternative components would be shocks with heavy-duty valving and air springs with aluminum pedestals. Please contact your local SAF-HOLLAND representative for additional details.

6. Lift Axles

Raising the lift axle of a fully loaded trailer will result in a load transfer to the remaining axles. The resulting increase in the load carried by the primary suspension causes the air springs to compress and diminish the lift axle's tire clearance. If the load on the primary suspension exceeds the suspension's capacity, the primary air springs can compress fully causing the lift axle's tires to remain in contact with the ground.

Always consult your local SAF-HOLLAND representative when combining lift axles with primary suspensions in multi-axle combinations. Lift axle applications must have a minimum of 4" of up-travel.

NOTE: SAF-HOLLAND does not recommend lifting an axle on a laden trailer. Most jurisdictions have limitations on the lifting of an axle.

7. SwingAlign™ Axle Alignment

SwingAlign™ is standard on all CBX Air Ride Suspensions for the industry's fastest, most accurate and easiest axle alignment. With SwingAlign™ axle re-alignment can be performed without the need to loosen the torque on the front pivot bolt. Axle alignment procedures are now faster than ever before, and without the need for any special tools or welding. SwingAlign™ is standard on the road-side of the suspension.

8. Mixing Suspensions - Full-Air Applications

SAF-HOLLAND recommends the same air suspension capacity be used on all trailer axles to ensure proper axle load equalization (i.e. if a CBX25 25k is used on the primary suspensions, a CBX25 25k or CBX25u 25k should be used on the lift or steer axles).



AIR SUSPENSIONS - SLIDING FRAME APPLICATION GUIDE

SUSPENSION SYSTEMS All CBX Suspension Models Feature Trailing Arms Welded to Axles					DRY VAN AND REEFER TYPE (non-paper haul)			DRY VAN PAPER HAULER				
					Tandem 49" Axle Spacing	Tri-Axle		Tandem 49" Axle Spacing	Tri-Axle			
						60" Axle Spacing	72" Axle Spacing		60" Axle Spacing	72" Axle Spacing		
Style	Model (axle rating/ suspension)	Ride Heights ¹	Liftable ²	Axles	ON-HIGHWAY – Less Than 10% Off-Highway (paved roads, maintained unpaved roads)							
CBXA AeroBeam	CBXA40 (23K/40K)	16, 16.5, 17, 18"	Yes Front	2	R							
CBX	CBX46 (23K/46K)	16, 16.5, 17, 18"	Yes Front	2	O				R			
	CBX50 (25K/50K)	16, 16.5, 17, 18"	No	2	O				O			
	CBX69 (23K/69K)	16, 16.5, 17, 18"	Yes Front	3		R	R			R	R	
Style	Model (axle rating/ suspension)	Ride Heights ¹	Liftable ²	Axles	ON/OFF-HIGHWAY – More than 10% off-highway (Rough and Unmaintained Roads)							
CBXA AeroBeam	CBXA40 (23K/40K)	16, 16.5, 17, 18"	Yes Front	2								
CBX	CBX46 (23K/46K)	16, 16.5, 17, 18"	Yes Front	2								
	CBX50 (25K/50K)	16, 16.5, 17, 18"	No	2	R				R			
	CBX69 (23K/69K)	16, 16.5, 17, 18"	Yes Front	3								

R - Min. Required suspension and axle for listed application.

O - Optional suspension and axle for listed application.

Blank - Suspension and axles are not intended for the application.

1 - 16" and 16.5" ride heights are non-liftable.

2 - Auto-PosiLift for smart axle lift system.

Refer to page 7 - Application duty usage approval required from SAF-HOLLAND Trailer Suspension Application Engineering.

MECHANICAL SUSPENSION - SLIDING FRAME APPLICATION GUIDE

SUSPENSION SYSTEMS ULX and ZFX Models Feature Leaf Springs Assembled to Axles					VAN (Non Live Floor)		FRAME						
					Dry Van Reefer Van		Platform		Curtainside	Equipment Lowboy	Extendable Axle	Container	Logging Chassis
							Straight Frame	Drop Frame					
Style	Model (axle rating/ suspension/)	Ride Heights	Axle Included	Axles	ON-HIGHWAY – Less than 10% off-highway (Paved Roads, Maintained Unpaved Roads)								
ULX	ULX40 (23K/40K)	13.25 - 18"	Yes	2	R								
UltraLite	40 (- /40K)	13.25 - 18"	No	2	R								
ZFX	ZFX40 (23K/40K)	14-16"	Yes	2		R		R		R	R		
Z-Frame	40 (- /40K)	14-16"	No	2		R		R		R	R		

R - Min. Required suspension and axle for listed application.

O - Optional suspension and axle for listed application.

Blank - Suspension and axles are not intended for the application.

Refer to page 7 - Application duty usage approval required from SAF-HOLLAND Trailer Suspension Application Engineering.

Standard-Duty – On-Highway - Less Than 10% Off-Highway

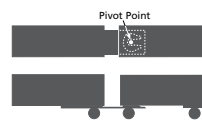
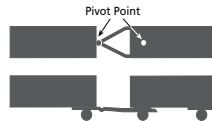
Road Type: **Less than 10% Off-Highway**
(maintained concrete or asphalt roads)

Weight (GCW): **Less than 95,000 lbs.** (43,000 kg.)
Gross Combination Weight (GCW)

Trailer Type and Axle Limitation:
Single Trailer
Tandem axle only

“A” Train—Maximum of 3 axles
(Trailer and dolly converter)

“B” Train—Maximum of 3 axles
(Lead and “pup” trailer)



Note: Any trailer used for “short haul” (e.g. city pickup and delivery) is to be considered “Moderate Duty”

Recommended Models

- Air Ride
- CBXA40
- CBXAN23
- CBXU23

Mechanical

- ULX40
- UltraLite
- ZFX40
- Z-Frame
- DXL
- DuraLite

Moderate-Duty – Less Than 10% Off-Highway

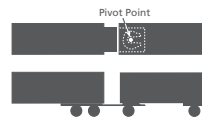
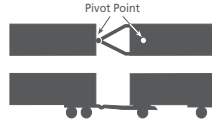
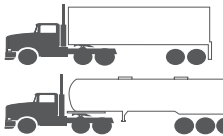
Road Type: **Less than 10% Off-Highway** (gravel or crushed rock roads)
with balance On-Road (maintained concrete or asphalt roads)

Weight (GCW): **Less than 115,000 lbs.** (52,000 kg.)
Gross Combination Weight (GCW)

Trailer Type and Axle Limitation:
Single Trailer
Tandem and Tri-axle only

“A” Train—Maximum of 4 axles
(Trailer and dolly converter)

“B” Train—Maximum of 4 axles
(Lead and “pup” trailer)



Note: Any trailer used for “short haul” (e.g. city pickup and delivery) is to be considered “Moderate Duty”

Recommended Models

- Air Ride
- CBX46
- CBX50
- CBX69
- CBX23-317
- CBXAS23
- CBXAS25
- CBXU25
- CBXAS-SSA25

Mechanical

- DLX
- DuraLite

Severe-Duty – Less Than 10% Off-Highway

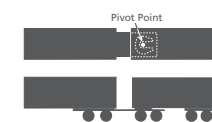
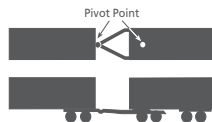
Road Type: **Less than 10% Off-Highway** (gravel, crushed rock, hard packed dirt, or unimproved / unmaintained roads)

Weight (GCW): **More than 115,000 lbs.** (52,000 kg.)
Gross Combination Weight (GCW)

Trailer Type and Axle Limitation:
Single Trailer—No Axle Limitations

“A” Train—No Axle Limitations

“B” Train—No Axle Limitations



Recommended Models

- Air Ride
- CBXAS25
- CBXU25
- CBXAS-SSA25
- CBXU25/30
- CBXAS-SSA25/30
- CBXAS30

Severe-Duty – More Than 10% Off-Highway

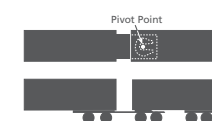
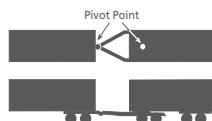
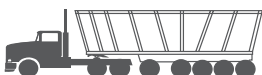
Road Type: **More than 10% Off-Highway** (gravel, crushed rock, hard packed dirt, or unimproved / unmaintained roads)

Weight (GCW): **More than 115,000 lbs.** (52,000 kg.)
Gross Combination Weight (GCW)

Trailer Type and Axle Limitation:
Single Trailer—No Axle Limitations

“A” Train—No Axle Limitations

“B” Train—No Axle Limitations



Recommended Models

- Air Ride
- CBXU25/30
- CBXAS-SSA25/30
- CBXAS30

Engineering Your Road to Success

The SAF-HOLLAND® Group is one of the leading international manufacturers of suspension-related assemblies and components for trailers, trucks and buses. Our innovative products increase the efficiency, safety and environmental friendliness of commercial vehicles, contribute to the success of our customers. With around 3,000 employees worldwide, we are at the forefront of shaping the future of the transportation industry.



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