

Title:	Vehicle Lean			
Number:	SB_775	Release Date:	02/17/2026	
Revision Number:	Not Applicable	Revision Date:	Not Applicable	
Chassis Type:	Custom Chassis			
Component Description:	Not Applicable			

This is a Service Bulletin. Parts and labor associated with the information outlined in this bulletin are listed for informational purposes only and are not covered under warranty. Parts associated with this information can be purchased through the local dealer network.

Subject:

This service bulletin is a guide on how to correct a leaning vehicle to the Pierce standard of no more than one inch difference between the outermost edges of symmetrical vehicle features. Vehicle lean is most often the result of shifting or adding equipment to the vehicle.

Procedure:

The function of any suspension is to absorb road surface irregularities by reacting instantly to variations in force from the tires. When one side is loaded with more weight than the other, it is natural for the springs on the heavy side to compress, causing the vehicle to lean. The amount of lean depends on the spring rate of the suspension. Vehicles with higher capacity suspensions will lean less when subjected to the same variation in weight. Refer to the attached table to determine the general effect of a 200-pound side-to-side weight difference.

To ensure that a vehicle does not lean objectionably, careful consideration must be given to the weight and location of equipment. The following guidelines will help level a vehicle that has an objectionable lean:

1. Check Tire Pressure and Tread Condition. Tire pressure and tread wear can affect vehicle height by as much as +/- 0.25 inches. Ensure that all tires are inflated to recommended pressures and that tread wear is reasonably even from side to side.

NOTE: Tire PSI is set to vehicle weight not max rating on yellow fed tag.

2. Measure Vehicle Height. Inspect the vehicle on a surface that is both flat and level. Keep in mind that the variations in height are generally measured in fractions of an inch. The tolerance of concrete and asphalt surfaces over the length and width of fire apparatus are rarely within the limits required to provide accurate measurements. Follow TAK-4 ride height procedure in service manual. For straight axles customer support can supply "if structured" a reference print showing correct ride height.
3. Measure Axle Weights. Obtain weights from a certified scale for each wheel. Individual wheel weights are necessary to analyze the situation since the effects of weight on vehicle height will vary between the front and rear suspension. Occasionally the weights will reveal that a unit is heavy at the left front and the right rear. This situation may cause unexpected results during the process of shifting equipment weight and is a good reason individual wheel weights are essential to understanding any lean issue. Carefully note the condition of the vehicle during weighing on the form.
4. Transfer Load. Balance the spring loading by shifting equipment from the low side to the high side of the vehicle. Relocate heavy equipment closer to the longitudinal center of the vehicle whenever possible.
5. Remove Factory Installed Shims. It is likely that any lean induced by the weight from factory installed options (such as ladder racks, high side compartments, generators, etc.) was corrected before the vehicle left Pierce by adding shims between the spring pack and the axle pad. This action, although necessary to provide a level product as delivered, may complicate the leveling process once equipment is added. If accurate scale measurements indicated that the unit is equally loaded from side to side and an

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objectionable lean persists, inspect each spring for the presence of shims. These shims may be removed to reduce the lean if they are located on one of the high side springs.

6. Add Shims. If all the above actions have been taken, and an objectionable lean still persists, additional shims may be installed on the low side of the vehicle. Appropriate shim stock may be ordered from the Pierce customer service department or obtained locally from any reliable truck suspension shop. Shims must be installed in a manner that maintains the locating pin function between the axle and the springs. U-bolts should be replaced and tightened to the specified torque after 500 miles of road operation. See tables for part numbers.
7. Cab Lean. Shims can be used to level the cab side to side under the rear cab lockdowns typically to resolve this. If necessary, shims can be used under front cab pivots as well. See tables for part numbers
8. Contact Pierce Customer Service. Specific analysis from Pierce may be obtained if these procedures have been followed and the vehicle lean has not been remedied. Contact Pierce Customer Support

Front Suspension			
Chassis Model	Shim Thickness	Minimum Required Length	Pierce (P/N)
Saber/Enforcer	0.025	6.50"	3203477
	0.38"	6.50"	CS-FAB5-9665
Dash, Lance, Arrow (3.50" wide springs)	0.25"	8.00"	40-5122
	0.38"	8.00"	40-5124
	0.50"	8.00"	40-4374
	1.00"	8.00"	40-4176
	1.50"	8.00"	40-3801
Quantum, Dash 2000, Lance 2000 Vel/IMP	0.38"	6.63"	40-7706
Saber	0.38"	7.00"	40-6995
	1.00"	7.00"	40-5380
All Pierce Chassis (3.00" wide springs)	0.25"	9.00"	40-5121
	0.38"	9.00"	40-5123
	0.50"	9.00"	1237508
	0.75"	9.00"	40-9031
	1.00"	9.00"	40-4309
	1.50"	9.00"	40-3855

Rear Suspension			
Chassis Model	Shim Thickness	Minimum Required Length	Pierce (P/N)
All Pierce Chassis (3.00" wide springs)	0.25"	9.00"	40-5121
	0.38"	9.00"	40-5123
	0.50"	9.00"	1237508
	0.75"	9.00"	40-9031
	1.00"	9.00"	40-4309
	1.50"	9.00"	40-3855

Cab Lockdown Spacers		
Chassis Model	Description	Pierce (P/N)
All Pierce Chassis (3.00" wide springs)	SHIM,CAB LATCH,.125"	1088610
	SHIM,CAB LATCH,.25"	1088611
	SHIM,CAB LATCH,.50IN	1271651

If any additional support is needed, please open a technical support incident on www.pierceparts.com.

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LEAN SHEET

Job #:			
Chassis Model (circle)	Lance Dash Saber Arrow Quantum Other: _____		
Form Completed by:	Phone #	Date:	

SECTION A - TO BE COMPLETED WHEN REQUESTING FACTORY ANALYSIS OF **VEHICLE LEAN OR FRAME RAKE**

		Vehicle Lean and Frame Rake - Height Measurements	Distance (inches)		
			A	B	D
			Driver Side	Passenger Side	Expected Difference from Weight Variation
	Description	Exact Measurement Location to the ground except A-5& A-13			
A1	Front Bumper	Bottom Edge of Bumper Stainless			
A2	Front Cab	Bottom Edge of Cab Skin 2" Behind Front Door Hinge Pins			
A3	Rear of Cab to Ground	Bottom Edge of Cab Skin at the Rear-Most Corner of the Cab			
A4	Frame at Front axle	Bottom Flange of Frame Directly Ahead of Front Axle I-Beam			
A5	Frame to Spring at Front	Bottom of the Frame Flange to the Top Surface of the Front Spring			
A6	Walk-Way	Center Spot of the Bottom Edge of the Walkway			
A7	Pump Module Front	Bottom Edge of Running Board			
A8	Pump Module Rear	Bottom Edge of Running Board			
A9	Front of the Rear Body	Bottom Edge of Lower Compartment Frame			
A10	Tail Board	Top Edge of Rear Platform			
A11	Frame At Center	Bottom Flange of Frame at a Point Equal Distance Between Axles			
A12	Frame at Rear Axle	Bottom Flange of Frame Directly Ahead of Rear Axle			
A13	Frame to Axle at Rear	Bottom Flange of Frame to Bottom of Axle Seat			

SECTION B - TO BE COMPLETED WHEN REQUESTING FACTORY ANALYSIS OF **VEHICLE LEAN**

		Vehicle Lean - Weight Measurements	Weight (lbs)	
			Driver Side	Passenger Side
	Description	Condition		
B1	Front Axle	Individual Wheel Weights with Driver out of Cab		
B2	Rear Axle	Individual Wheel Weights with Driver out of Cab		
B3	Total			

SECTION C - TO BE COMPLETED WHEN REQUESTING FACTORY ANALYSIS OF **FRAME RAKE**

		Frame Rake - Weight Measurements	
			Weight (lbs)
	Description	Condition	
C1	Front Axle	Individual Wheel Weights with Driver out of Cab	
C2	Rear Axle	Individual Wheel Weights with Driver out of Cab	
C3	Total		

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TAK-4 LEAN SHEET

Job #:			
Chassis Model (circle)	Lance Dash Saber Arrow Quantum Other: _____		
Form Completed by:	Phone #	Date:	

SECTION A - TO BE COMPLETED WHEN REQUESTING FACTORY ANALYSIS OF **VEHICLE LEAN OR FRAME RAKE**

		Vehicle Lean and Frame Rake - Height Measurements	Distance (inches)		
			A	B	D
			Driver Side	Passenger Side	Expected Difference from Weight Variation
	Description	Exact Measurement Location to the ground except A-5& A-13			
A1	Front Bumper	Bottom Edge of Bumper Stainless			
A2	Front Cab	Bottom Edge of Cab Skin 2 Inches Behind Front Door Hinge Pins			
A3	Rear of Cab to Ground	Bottom Edge of Cab Skin at the Rear-Most Corner of the Cab			
A4	Frame at Front axle	Bottom Flange of Frame Directly Ahead of Front Axle I-Beam			
A5	Frame to Spring at Front	Bottom of the Frame Flange to the Top Surface of the Front Spring			
A6	Walk-Way	Center Spot of the Bottom Edge of the Walkway			
A7	Pump Module Front	Bottom Edge of Running Board			
A8	Pump Module Rear	Bottom Edge of Running Board			
A9	Front of the Rear Body	Bottom Edge of Lower Compartment Frame			
A10	Tail Board	Top Edge of Rear Platform			
A11	Frame At Center	Bottom Flange of Frame at a Point Equal Distance Between Axles			
A12	Frame at Rear Axle	Bottom Flange of Frame Directly Ahead of Rear Axle			
A13	Frame to Axle at Rear	Bottom Flange of Frame to Bottom of Axle Seat			

SECTION B - TO BE COMPLETED WHEN REQUESTING FACTORY ANALYSIS OF **VEHICLE LEAN**

		Vehicle Lean - Weight Measurements	Weight (lbs)	
			Driver Side	Passenger Side
	Description	Condition		
B1	Front Axle	Individual Wheel Weights w/Driver out of Cab		
B2	Rear Axle	Individual Wheel Weights w/Driver out of Cab		
B3	Total			

SECTION C - TO BE COMPLETED WHEN REQUESTING FACTORY ANALYSIS OF **FRAME RAKE**

		Frame Rake - Weight Measurements	
			Weight (lbs)
	Description	Condition	
C1	Front Axle	Individual Wheel Weights w/Driver out of Cab	
C2	Rear Axle	Individual Wheel Weights w/Driver out of Cab	
C3	Total		