

## Managing Truckload Weight Distribution



Total shipping cost goes down as quantity per shipment goes up. The quantity of a light product such as empty plastic containers that can be hauled in one shipment on a standard 53-foot trailer is limited only by the trailer's cubic capacity. The quantity of a heavy product such as beverages is limited by vehicle weight restrictions.

Maximizing the quantity of heavy freight in a shipment requires two separate tasks:

1. Approach the legal maximum gross vehicle weight without exceeding it.
2. Balance the weight of the load evenly between the truck's drive axles and the trailer's tandem axles in order to comply with axle weight restrictions.

The first task depends only on the tare (empty) weight of the vehicle and the weight of the load. When the freight is palletized, the second task can be achieved by selectively varying the number of pallets per row, and/or weight per pallet.

The forces exerted on the drive and tandem axles by a load depend only on its mass (weight) and horizontal *center of gravity*, aka *balance point*: the position where a seesaw support would theoretically balance it perfectly from nose to rear.

Freight Seesaw™ calculates this position for any pallet pattern of twenty rows or less on same-sized pallets.

Freight Seesaw™		Clear	■	■	%
Pallet Size	□				
48 x 40	1	■			
Load Length	2	■ ■			
528	3	■ ■			
Pallets	4	■ ■			
19	5	■ ■			
▲	6	■ ■			
264	7	■			
	8	■ ■			
	9	■ ■			
	10	■			
	11	■ ■			
	12				
	13				
	14				

Once a range of good balance points has been narrowed down for a given rig, subsequent balance point calculations can predict axle weights well enough to lessen the chance that a reload will be needed after scaling. Another notable benefit—one that is often overlooked—is balanced freight increases fuel efficiency.



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