

Demystifying Deficit Weight & Bumping

by

Jim Bramlett, SmartFreightWare

December 2011

The purpose of this white paper is to provide shippers insight into defect weight and bumping; and demonstrate how these little known National Motor Freight Carrier rules can be used to decrease shipping costs.





Demystifying Deficit Weight & Bumping

Introduction

Understanding the interstate rating system published by National Motor Freight Classification (NMFC) is necessary for anyone who is moving freight with LTL carriers across North America. This is easier said than done. Calculate LTL shipping costs can be both overwhelming and confusing. Calculating a base rate alone is a multi-step algorithmic process; matching distinct shipment characteristics with numerous external factors. The base rate is only the beginning of an actual shipping charge. Once a base rate is calculated it is bumped up against some tariff base and then discounted some percentage ranging from 30% to 75%. Final shipping costs can include various accessorial charges and ever changing fuel surcharges.

With such a complex rating system those that are able to master it, and understand how it affects their operation, can often times use certain little known shipping rules as a competitive advantage; either offering lower shipping costs to their customers and/or turning shipping into a profit center for the company. With a large majority of shippers often mystified by the concepts of defect weight and bumping, this white paper was written as an attempt to expose these little known carrier secrets.

Before we jump into deficit weight and bumping it is probably best to explain how LTL base rates are calculated. The base rate of a freight charge is based on many factors, including:

1. The Distance the Shipment is Moving
Sounds simple enough right? Wrong. Distance is directionally affected by demand and availability of trucks headed where you want your shipment to go.
2. The Shipment's Weight
Rates are structured so that the more a shipment weighs, the less you pay per hundred pounds. NMFC's published weight breaks are as follows:

Weight Break	Tariff Symbol
0-499 lbs.	LC5
500-999 lbs.	5C
1,000-1,999 lbs.	1M
2,000-4,999 lbs.	2M
5,000-9,999 lbs.	5M
10,000-19,999 lbs.	10M



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- 3. The Density of the Commodity being Shipped
- 4. The Commodity's Susceptibility to Damage
- 5. The Value of the Commodity
- 6. The Commodity's Loadability and Handling Characteristics

Used to Establish the NMFC Classification of a Commodity

The LTL class rating system is a complex algorithmic calculating process that was designed to price freight with inherently different freight 'characteristics'. Commodities with comparable freight 'characteristics' are assigned to 1 of 18 freight classes ranging from 50 to 500. The higher the class, the higher the rate for every hundred pounds you ship.

Now that we have a general idea as to how a LTL base rate is calculated we can explore deficit weight and bumping and discuss how a shipper might be able to take advantage of these little known rules. Both are techniques that allow shippers to artificially increase the weight of a shipment to take advantage of lower overall shipping charges. Let's explore each.

Deficit Weight

Deficit weight is applied to a shipment by the carrier when it is less expensive to rate a shipment at an artificially higher weight. To do this, a shipment whose weight is close to the next weight break is artificially increased to the next weight break, decreasing the cost per pound. The net result is a lower cost for the shipment.

Deficit Weight Example:

Probably the best way to explain this is to provide a real example. Let's assume you are shipping a class 70 item weighing 900 pounds between Kansas City and Chicago. Using FedEx Freight rates, the non-discounted price per hundredweight falling in the 5C (500lbs. - 999lbs.) weight break would be \$91.42.

$$900\text{lbs.} \times \$91.42 / 100 = \$822.78$$

A similar shipment of the same commodity, moving from and to the same origin and destination, bumped against the same FedEx tariff, but weighing 1000lbs. falls into the next tiered weight break of 1M (1,000lbs. - 1,999lbs.); decreasing the cost per hundred weight \$16.06 from \$91.42 to \$75.36.

$$1,000\text{lbs.} \times \$75.36 / 100 = \$753.60$$

The key point is that LTL carriers make this calculation and if it is advantageous for the shipper, it applies the lower rate. The shipper doesn't do anything and they get this advantage.



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Bumping

Similar to deficit weight, bumping is when the actual density of a density based article (as classified by NMFC) is artificially increased to take advantage of a lower class. The main differences are:

- 1.) Bumping applies only to density based articles, whereas deficit weight can apply to all articles.
- 2.) Unlike deficit weight, it is up to the shipper to determine when bumping is advantageous and bumping must be indicated on the BOL.

Density-based commodity classifications are used when the shipping characteristics of a product can vary dramatically, especially due to the density of the product. For example, hangers are a density based item as they can be plastic or metal with varying dimensions. Coolers also are density based as they are constructed of various materials (density) and with various dimensions.

Here are some other examples of density-based commodities:

Candles	Baskets		Fiberboard		Canopies		Skylights	
	Fenders	Cloth	Filters	Cookware	Fireplaces	Candy	Hats	Displays
Games		Masks		Cabinets		Toilets		Plastic
	Brooms		Stoves		Hoses		Heaters	

Common density-based commodity ratings look like this:

Density (lbs/ft3)	Class
<1	Class 400
1 to <2	Class 300
2 to <4	Class 250
4 to <6	Class 150
6 to <8	Class 125
8 to <10	Class 100
10 to <12	Class 92.5
12 to <15	Class 85
15 to <22.5	Class 70
22.5 to <30	Class 65
Equal to or >30	Class 60

Bumping Example:

Ice machines in general are classified by NMFC as a density based product. All ice machines either fall into class 200 (density less than 9), or class 100 (density equal to or greater than 9).



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Using FedEx Freight rates with a 70% discount from Kansas City to Chicago, the following shipment provides an example of how a shipper might engage the bump rule to save money.

<u>Weight (lbs.)</u>	<u>Dimensions</u>	<u>Cubic Feet</u>	<u>Density</u>	<u>Class</u>	<u>Charge</u>
816	48x72x48	96	8.5	200	\$676.82

By artificially increasing the shipments weight 58lbs. the density simultaneously increased from 8.5 lbs./ft³ to 9.1 lbs./ft³, bumping the commodity classification from class 200 to class 100, and ultimately reducing the freight charge by 44%.

<u>Weight (lbs.)</u>	<u>Dimensions</u>	<u>Cubic Feet</u>	<u>Density</u>	<u>Class</u>	<u>Charge</u>
874	48x72x48	96	9.1	100	\$374.64

Bumping is not calculated by the carrier and doesn't always work. One has to do the math to determine if it makes sense to bump. There are a couple of important carrier rules when considering bumping.

- 1) Only density-based commodities can be bumped
- 2) You can only bump to the next lowest class
- 3) You may not bump to an FAK rating
- 4) The following must be noted on the bill of lading:
 - a. Actual cube of the shipment
 - b. Actual weight of the shipment
 - c. Density group (sub) embracing the actual density
 - d. Declared density
 - e. Declared weight for billing purposes
 - f. Not required but recommended – "This shipment is being "bumped" per item 171 in NMFC 100 Series (NMFC)

In some instances, bumping can single handedly be a competitive differentiator for a sophisticated shipper with density based commodities. However, it is necessary for the shipper to fully understand the impact bumping can have on its operation. The biggest setback is that the manual calculation to determine if bumping is or is not going to work for any particular shipment takes a lot of time. Understanding and following the established carrier rules are a necessity because of the penalties for not doing so. Other variables (i.e. released liability) can be impacted as a result of bumping and should be considered.

Conclusion

Deficit weight and bumping are fantastic ways to lower shipping costs. Deficit weight is automatically calculated by the carrier. To take advantage of bumping, the shipper must make the calculations to determine its feasibility and must report it on the bill of lading. For more information on how deficit weight and bumping might affect your business contact SmartFreightWare.



Another much less sophisticated approach to bumping would be to add a couple of bricks to the pallet.

Jim Bramlett is a 33 year transportation and logistics veteran, and COO of SmartFreightWare, a shipping software and consulting company helping clients optimize and minimize shipping costs through technology and knowledge.

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