

# DIVISIBLE LOAD OVERWEIGHT PERMITS

## A CUSTOMERS GUIDE

The purpose of this narrative is to provide customers with the various terms and concepts unique to Divisible Load Overweight Permits. Developing a working knowledge of the permit types and the requirements associated with them will provide a customer with a more satisfying experience when applying for Divisible Load Overweight permits.

### What is a Divisible Load?

It is important to understand exactly what a divisible load is and how it differs from loads that are considered “non-divisible.”

A “divisible load” any cargo being carried which can be separated into units of legal weight without affecting the physical integrity of the load. Examples of divisible loads include: aggregate (sand, top soil, gravel, stone), logs, scrap metal, fuel, milk, trash/refuse/garbage, etc.

A “non-divisible load” is one piece or item which cannot be separated into units of less weight without affecting the physical integrity of the load. Examples of non-divisible loads include, but are not limited to single poles, girders, columns, wood or metal trusses, buildings, houses. By statute, a non-divisible load includes bulk milk, coiled steel, transformers, wind farms and sealed shipping containers. Non-divisible loads are permitted by the Special Hauling Permit Unit, another component of the Central Permit Office.

### Why would someone want or need a Divisible Load Overweight Permit?

A Divisible Load Overweight Permit is a legal document that grants permission to the permittee to operate a vehicle, or combination of vehicles to haul a Divisible Load at weights exceeding the limitations of Section 385-8, 9 and 10 of the New York State Vehicle and Traffic Law. The vehicle, combination of vehicles, and load must be of legal dimensions. If the intent is to operate in excess of the legal weight of the vehicle or combination of vehicles, the owner of the vehicle or combination of vehicles must obtain a Divisible Load Overweight Permit from the New York State Department of Transportation. (Legal weight is discussed further on in this document.

**Note:** Operation in excess of the legal weight of a vehicle or combination of vehicles can result in tickets issued by law enforcement and in additional action taken by the New York State Department of Transportation that could include a civil penalty, suspension and/or a hearing before an Administrative Law Judge.

### What is “legal weight”?

“Legal weight” is the weight at which a vehicle or combination of vehicles can operate without the need for a Divisible Load Overweight Permit and is used as your legal registered weight.

The calculation of the legal weight of a vehicle or combination of vehicles can be determined by either the New York State Bridge Formula or the Federal Bridge Formula.

- For vehicles weighing less than 71,000 lbs., the maximum weight will be the maximum allowed by either the New York or the Federal Bridge Formula.
- For vehicles weighing 71,000 lbs. or more, the maximum weight may not exceed the amount set by the Federal Bridge Formula, not to exceed 80,000 lbs.

**State Bridge Formula:**  $34,000 + (1,000 \times \text{Overall Wheelbase in feet, rounded to the nearest foot})$

State Bridge formula Example: 4 axle dump truck with a 20 foot overall wheelbase;  $34,000 + (1,000 \times 20) = 54,000$  pounds.

**Federal Bridge formula:**  $W = 500 ((L \times N / N - 1) + 12N + 36)$

- **W** = the overall gross weight on any group of two or more consecutive axles to the nearest five hundred pounds.
- **L** = distance in feet from the center of the foremost axle to the center of the rearmost axle of any group of two or more consecutive axles.
- **N** = the number of axles in any group under consideration
  - Except that two consecutive sets of tandem axles may carry a gross load of thirty-four thousand pounds each, providing the overall distance between the first and last axles of such consecutive sets of tandem axles is thirty-six feet or more.

Federal Bridge formula Example: 5 axle combination vehicle with a 50 foot overall wheelbase ( L=50, N=5)

$$W = 500 \times (50 \times 5) / 5 - 1 + 12 \times 5 + 36$$

$$W = 500 \times (250 / 4) + 60 + 36$$

$$W = 500 \times (62.5 + 60 + 36)$$

$$W = 500 \times 1,096$$

$$W = 79,250$$

- Per Federal Bridge policy, 79,250 would be rounded down to 79,000 pounds.
- 79,000 Pounds would then be used for your Legal Maximum registered weight if you were not operating under a Divisible Load Overweight permit.
- The same vehicle combination if applying for a Divisible Load Overweight permit would be eligible for up to a maximum Gross Permit weight of 102,000 pounds.

**Do Divisible Load Overweight Permits get issued to trucks, trailers or both?**

Divisible Load Overweight Permits are issued to the power unit (truck or tractor). Trailers may be attached to the permitted power unit.

A trailer that is not combined with a permitted power unit results in the permit being voided for that trip by law enforcement, if discovered. In such a case, it is considered that there was no permit for that trip. The weighing of the combination is based on the gross legal weight and legal weight of the axles and axle groupings. Fines can be substantial. Additional action by NYSDOT can result in civil penalties, suspensions and or hearings before an Administrative Law Judge.

**How many trailers combinations can I have?**

An unlimited number of trailers can be combined with a power unit. At this time, however, the computer system has a limitation of 98 combinations. Once there are over 98 combinations a second permit is created to accommodate the additional combinations. This is the only time a power unit will appear on more than one permit.

The customer can elect either of two Trailer Options for the permit.

**Option I** – This option allows one power unit to be combined with an unlimited number of differently configured trailers (each combination of a power unit and trailer will be shown on a separate permit document.) Trailers may have different axle spacings, axle weights, gross axle weight ratings, number of tires and different number of axles. The cost of each trailer is \$20.00, except the first one on the permit which was included in the initial permit fee when the permit was first issued.

**OR**

**Option II** – This option allows one power unit to be combined with an unlimited number of like-configured trailers (up to twenty combinations of a power unit and trailers or semi-trailers will be shown on a separate permit document.) The axle spacing, number of axles, recommended axle weight, number of tires and tire size of each trailer **MUST ALL BE THE SAME**. The cost of each trailer under this option is \$10.00 eac

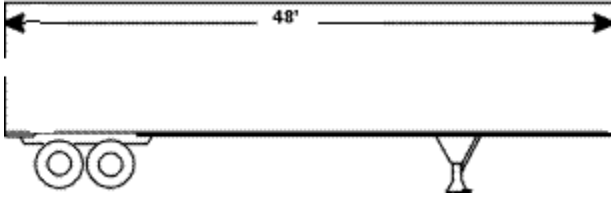
### What length can trailers be for Divisible Load Overweight Permits?

The longest trailer allowed are fifty-three (53) foot trailers but use of these length trailers are limited to Interstates and Qualifying Access Highways only and are only available for certain permit types.

\*Please refer to the "Types of Divisible Load Overweight Permits" form – Perm 69, for detailed permit type information.

### How is trailer length measured?

The trailer length is measured from the foremost point of the trailer body to the rearmost point of the trailer body. On the Divisible Load Overweight application you will need to convert the measurement from feet to inches.



### What is a "combination vehicle"?

A "combination vehicle" is defined as two or more vehicles coupled together. When used in discussing Divisible Load Overweight Permits, "combination" refers to the power unit (truck or tractor) and one trailer.



### What is a "tractor"?

A "tractor" is defined as a motor vehicle designed and used as the power unit in combination with a trailer, or two such trailers in tandem.



**What is a “single unit vehicle”?**

A “single unit vehicle” is one vehicle with a steering axle and drive axle(s) and perhaps a lift axle, which is operated without a trailer. For example, a dump truck, a roll off truck, a flatbed truck or a box truck. Another term used to describe this type of vehicle is “straight truck.”



**What is a “truck”?**

A truck is generally defined as any self-propelled commercial motor vehicle. However, a truck tractor is designed and/or used for the transportation of property. A truck tractor means a self-propelled commercial motor vehicle designed and/or used primarily for drawing other vehicles.



### What is a Sani-van?

Any motor vehicle which is so designed that it contains a rear compaction unit and is intended for use in the collection of refuse, commonly known as garbage trucks.



Rear load

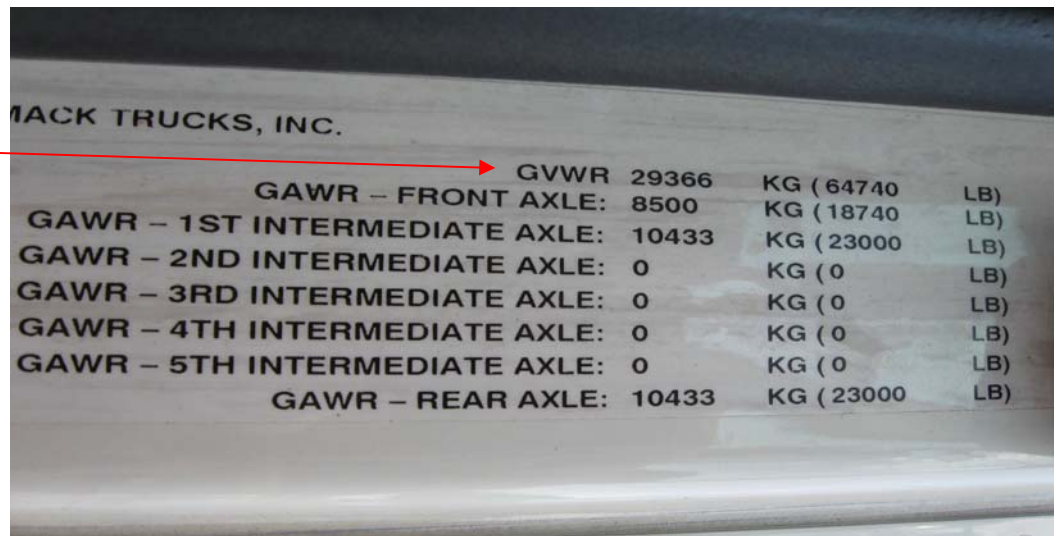


Front Load

### What is “Gross Vehicle Weight Rating”?

The “Gross Vehicle Weight Rating” is the value specified by the manufacturer as the loaded weight of a single motor vehicle. This value is traditionally on a data plate affixed to the driver’s side door jamb. When applying for a Divisible Load Overweight permit, use the weight listed in pounds (LB)

Gross Vehicle Weight Rating (GVWR)



JACK TRUCKS, INC.				
	GVWR	29366	KG ( 64740	LB)
GAWR – FRONT AXLE:	8500		KG ( 18740	LB)
GAWR – 1ST INTERMEDIATE AXLE:	10433		KG ( 23000	LB)
GAWR – 2ND INTERMEDIATE AXLE:	0		KG ( 0	LB)
GAWR – 3RD INTERMEDIATE AXLE:	0		KG ( 0	LB)
GAWR – 4TH INTERMEDIATE AXLE:	0		KG ( 0	LB)
GAWR – 5TH INTERMEDIATE AXLE:	0		KG ( 0	LB)
GAWR – REAR AXLE:	10433		KG ( 23000	LB)

**What is “Gross Axle Weight Rating”?**

Gross axle weight rating is the value specified by the manufacturer as the maximum loaded weight of an individual axle or a grouping of axles. These values are traditionally on a data plate affixed to the driver’s side door jamb. In the event the data plate is missing or cannot be read, the applicant may consider contacting the manufacturer of the vehicle for the specifications or bringing the vehicle to a dealer or suspension shop to have the gross axle weight ratings and gross vehicle weight rating certified. While the rating information is required on a permit application, the applicant is not required to submit physical proof of that information. Rather, the applicant attests to the accuracy of information by signing and dating the application.

When applying for a Divisible Load Overweight permit, use the weight listed in pounds (LB)

**Gross Axle Weight Rating (GAWR)**

TRUCK TRUCKS, INC.

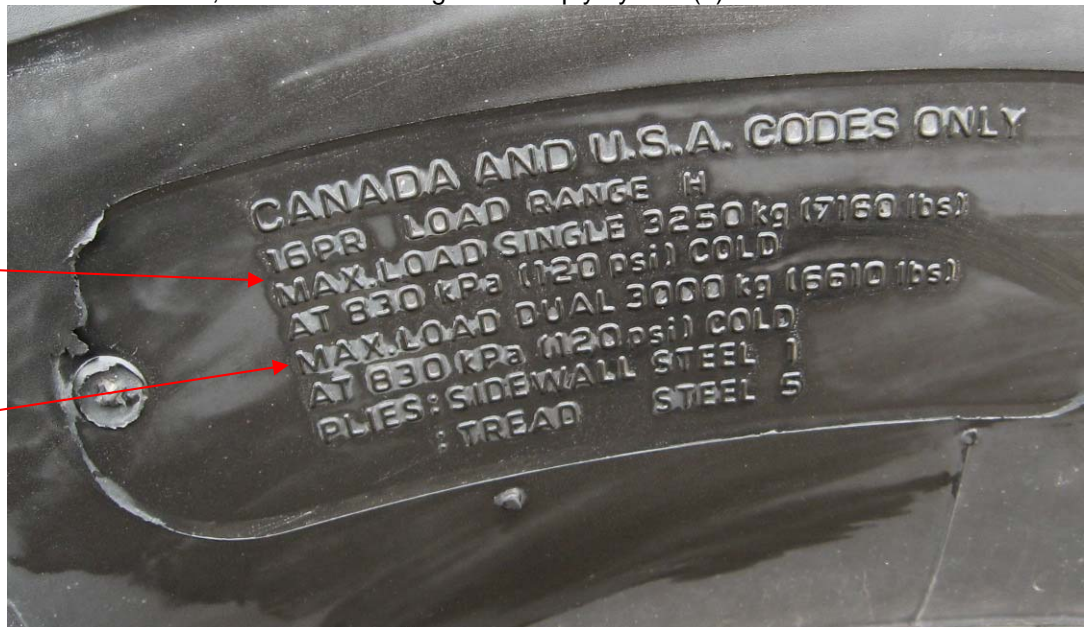
	GVWR	29366	KG (64740)	LB)
GAWR – FRONT AXLE:	8500		KG (18740)	LB)
GAWR – 1ST INTERMEDIATE AXLE:	10433		KG (23000)	LB)
GAWR – 2ND INTERMEDIATE AXLE:	0		KG (0)	LB)
GAWR – 3RD INTERMEDIATE AXLE:	0		KG (0)	LB)
GAWR – 4TH INTERMEDIATE AXLE:	0		KG (0)	LB)
GAWR – 5TH INTERMEDIATE AXLE:	0		KG (0)	LB)
GAWR – REAR AXLE:	10433		KG (23000)	LB)

**What is meant by “Sum of Manufacturer’s Tire Ratings”?**

The tire rating is the maximum load in pounds as stated by the tire manufacturer. This rating is located on the sidewall of the tire. To determine the Sum of the Manufacturer’s Tire Ratings, if there are only 2 tires on an axle, multiply the single tire rating by two (2). If there are 4 tires on an axle, use the dual rating and multiply by four (4).

**Single Rating**

**Dual Rating**



**Tire Sidewall Tire Ratings**

**What is a “steering axle”?** (1)

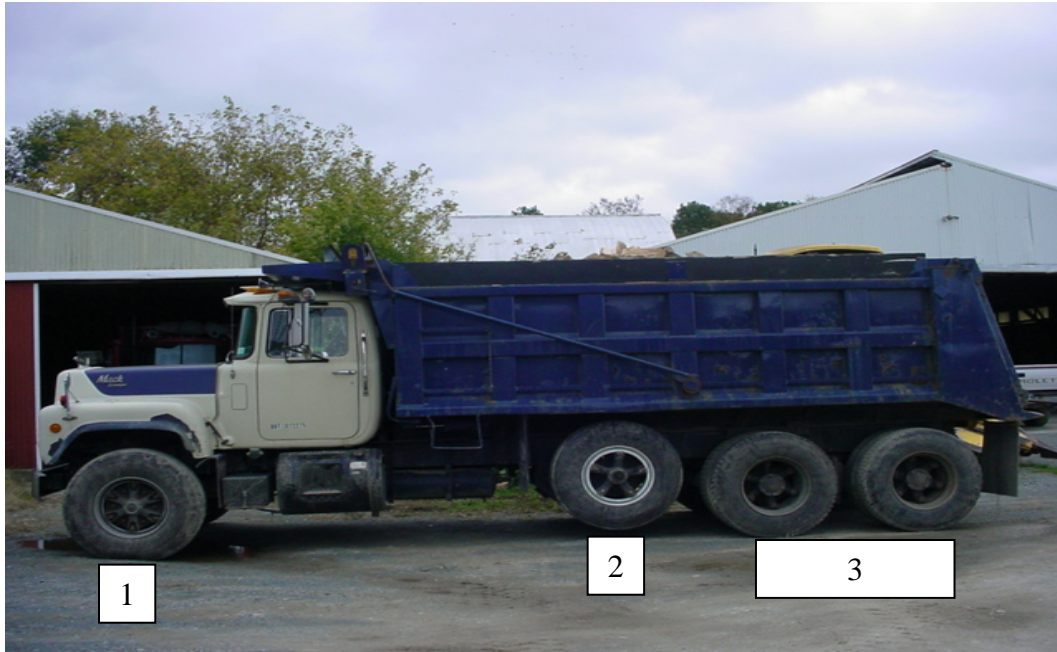
This is the front/first axle on a vehicle which the driver of the vehicle controls by turning the steering wheel.

**What is a “lift axle”?** (2)

A lift axle is an axle generally having an air or hydraulic cylinder suspension system that can be activated independently to assume a portion of the load that would otherwise be carried by adjacent axles. Lift axles are sometimes referred to as drop axles, pusher axles or tag axles.

**What is meant by “drive axle(s)”?** (3)

The “drive axle(s)” refers to the axle(s) which propel the vehicle.



**What are “super single” tires?**

“Super single” tires are ones constructed to provide reduced rolling resistance and a weight saving advantage over dual tires. While there are benefits and drawbacks to the use of super singles, for 2006 model year and newer and all year vehicles for Type 9, they are not allowed except on axles that are steerable or trackable. All other axles are required to have 2 tires on each side of the axle (duals).



**What is meant by “steerable or trackable” lift axle?**

A “Steerable” lift axle is one that has a self-steering mechanism that operates while a vehicle is in motion.



A “Trackable” lift axle is one that steers/turns because of friction with the pavement. These axles generally have tie-bars that make the wheels turn at the same rate.



**What are “air pressure controls”?**

The “air pressure controls” are regulation devices that control the amount of downward pressure that is exerted on a lift axle as part of the axle’s load carrying capacity. This is NOT the control that lowers/raises the lift axle.





**What is “Overall Wheelbase”?**

Overall Wheelbase is the distance from the center of the first (steering) axle to the center of the last axle of a vehicle or combination of vehicles. When used in discussing Divisible Load Overweight Permits, this is known as the “outer bridge.”

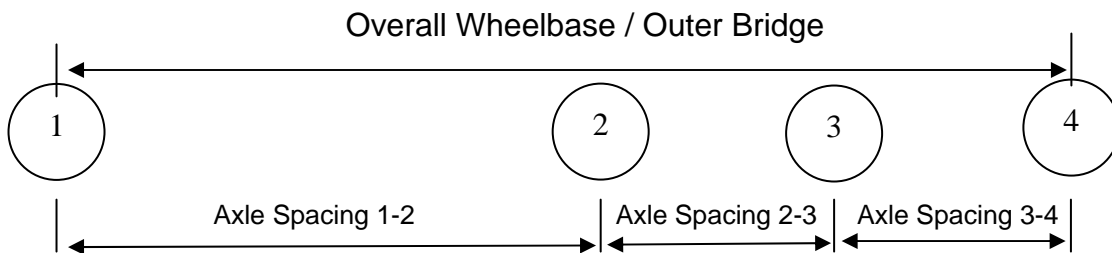
**What is meant by “axle spacing”?**

Axle spacing is the distance from the center of one axle to the center of the next adjacent axle. The measurement should be in inches.

A term related to both wheelbase and axle spacing is “inner bridge.” Inner Bridge Spacing is the sum of all axle spacing excluding the steering axle (Axle 1).

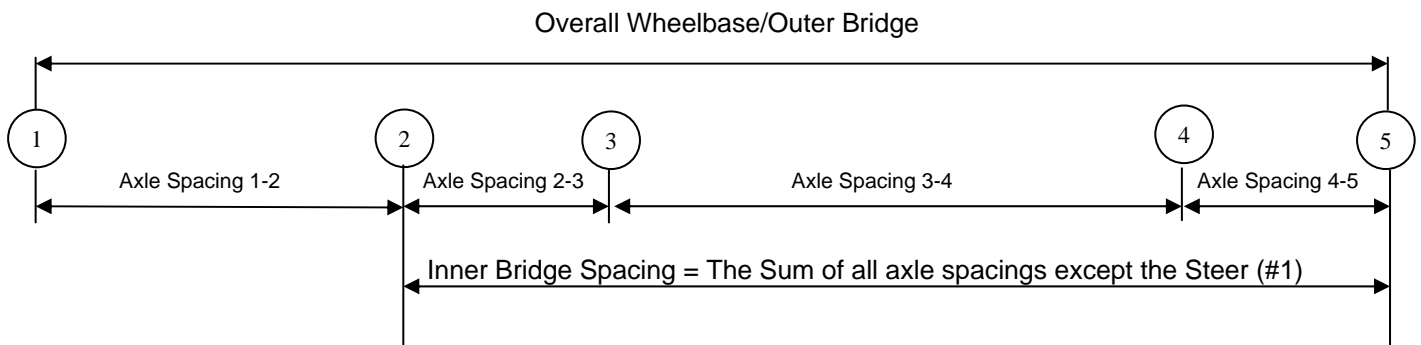
The two following illustrations display wheelbase and axle spacing as applied to a Single Unit Vehicle and to a Combination Vehicle.

**SINGLE UNIT VEHICLE - Overall Wheelbase and Axle Spacing**



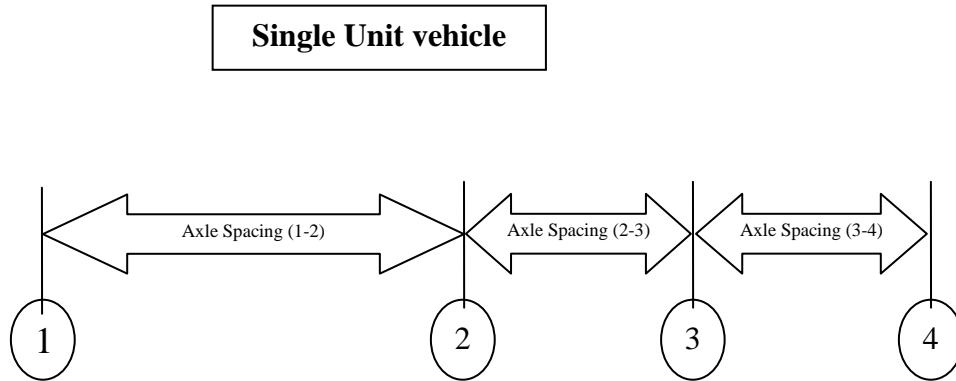
Axle Spacing = the Measurement in Inches From The Center of One Axle to The Center of The Next Adjacent Axle

**COMBINATION VEHICLE - Overall Wheelbase and Axle Spacing**



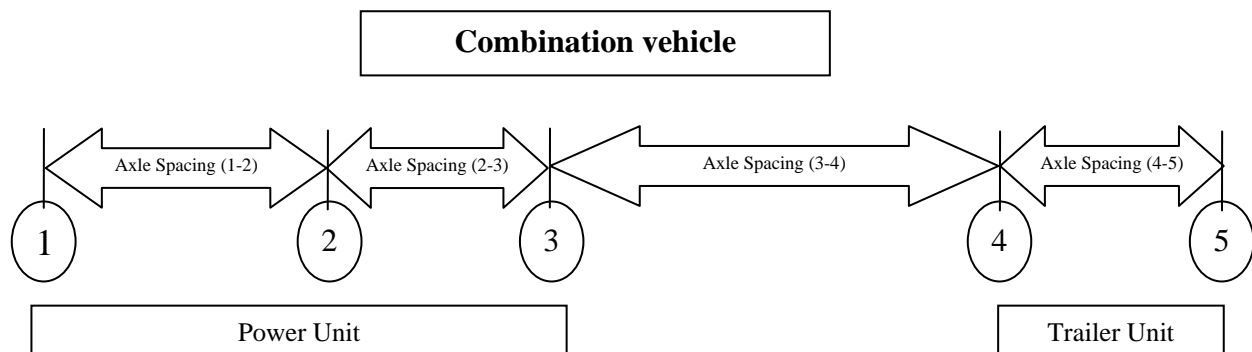
Axle Spacing = The Measurement in Inches From The Center of One Axle to The Center of The Next Adjacent Axle

## How to Measure Axle Spacing When Applying for a Divisible Load Overweight Permit



**Figure 1**

- Axle Spacing measurement is from center of hub to center of hub starting with axle #1 (steer) and measuring in inches to the next axle #2. (See Figure 1).
- The process is continued for the remaining axle spacing's; (2-3), (3-4).
- The measurements are then recorded on the permit application, new or amendment, in the Axle Spacing column to the right of the corresponding requested axle spacing; (1-2), (2-3), (3-4).
- For combination vehicles (see Figure 2), power unit with a trailer, the same process is followed for axle spacing's; (1-2), (2-3), (3-4), (4-5).
- The total number of axle spacing's you will have to measure will vary from vehicle to vehicle and combination to combination



**Figure 2**

**What is a “single axle”?**

Any axle located more than 119 inches from any other axle is considered to be a single axle, except for the steering axle.

*\* For Type 9 permits ONLY, an axle is considered a single axle at 109 inches or greater.*

**What is an “axle group”?**

An axle group is made up of two or more consecutive axles, with two or more wheels per axle, in which every axle is spaced at least 46 inches from center of axle to center of adjacent axle and not more than 9 feet 11 inches (119”) between adjacent axles. Typical axle groups are tandem, tridem and quad.

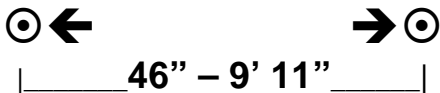
**What is a “pseudo axle”?**

A pseudo axle results when two consecutive axles are spaced less than 46 inches apart, center of axle to center of axle. For permitting purposes, those two axles are counted as one axle.



**What is a “tandem axle group”?**

A tandem axle group is two consecutive axles spaced 46 inches to 9 feet 11 inches (119”) apart (inclusive), center of axle to center of axle.



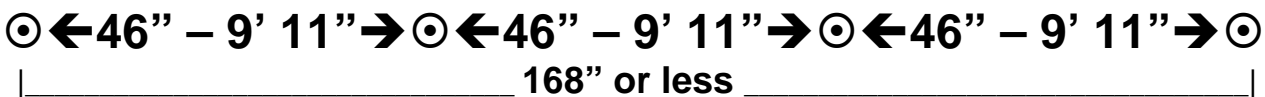
**What is a “tridem axle group”?**

Three consecutive axles spaced 142 inches or less between the center of the first and the center of the third axles is considered a tridem axle group.



**What is a “quad axle group”?**

Four consecutive axles spaced 168 inches or less from the center of the first and the center of the fourth axles is considered a quad axle group.



### **What is meant by “Infrastructure Friendly Vehicle” (IFV)?**

In an effort to minimize the damage to pavement by overweight vehicles, the Department implemented new requirements referred to as Infrastructure-Friendly Vehicle (IFV) requirements which became effective for 2006 model year and newer vehicles. (Model Year is that designated by the vehicle manufacturer in the Vehicle Identification Number.)

These new vehicle requirements are as follows:

1. All lift axles must be steerable or trackable;
2. Any air pressure controls for lift axles must be located outside the cab of the power unit and beyond the reach of occupants of the cab while the power unit is in motion;
3. All axles, other than steerable or trackable axles, must be equipped with two tires on each side of the axle; and,
4. All vehicles should be constructed to facilitate a uniform distribution of load within tandem, tridem, and four axle groupings such that no axle in the grouping carries less than 80% of the weight of any other axle in such grouping. In determining permitted weights, the lowest Gross Axle Weight Rating within a grouping shall be used to limit the weights allowed on all other axles within the grouping. (This requirement is commonly referred to as the “80% Rule.”)

To qualify for Type 9 permits, the vehicles (power units and/or trailers), regardless of model year, must meet all of the above requirements without exception.

### **IMPORTANT DATE REMINDERS for Model year 2005 or older vehicles (2004, 2003, 2002 etc.):**

- As of January 1, 2015 all permitted vehicles (power units and/or trailers) must comply with requirements 1, 2 and 3.
- As of January 1, 2020 all permitted vehicles (power units and/or trailers) must comply with requirement 4.

### **How is the 80% rule applied? (IFV requirement #4 above)**

For 2006 model year and newer vehicles and all combinations under a Type 9 permit, no one axle in a grouping can carry less than 80% of any other axle in the grouping. The lowest rated axle will control the permitted weight on the other axles within the group. This applies to tandem (2 axle), tridem (3 axle) and quad (4 axle) groupings. The rating of the axle is based upon the lesser of the manufacturer’s gross axle weight rating and the sum of the manufacturer’s tire rating on that axle. The following examples will demonstrate how the 80% rule affects the permitted weights on the various groupings.

#### **Tandem group**

Steering axle: 20,000 lb. GAWR

Lift Axle: 13,000 lb. GAWR

Drive Axle: 23,000 lb. GAWR

The lift axle can only carry 57% of what the drive axle is rated to carry and will be used to determine what the drive axle can be permitted for.

$$13,000 \times 1.25 = 16,250$$

By multiplying the lowest rated axle in the group by the factor of 1.25 the permitted weight for the drive axle will be 16,250 lb. regardless of what that axle is rated for. The result is permitted weight for the tandem grouping at 29,250 lb. vs. the maximum permitted weight allowed for such a grouping of 47,000 lb. on a Type 1 permit.

### **Tridem group**

Steering axle: 20,000 lb. GAWR

Lift Axle: 13,500 lb. GAWR

First Drive Axle: 23,000 lb. GAWR

Second Drive Axle: 23,000 lb. GAWR

The lift axle can only carry 59% of what the drive axle is rated to carry and will be used to determine what the drive axle can be permitted for.

$$13,500 \times 1.25 = 16,875$$

By multiplying the lowest rated axle in the group by the factor of 1.25 the permitted weight for the two drive axles will be 16,875 lb. each regardless of what those axles are rated for. The result is permitted weight for the tridem grouping at 47,250 lb. vs. the maximum permitted weight allowed for such a grouping of 57,000 lb. on a Type 1 permit.

### **Quad group**

#### Tractor

Steering axle: 12,000 lb. GAWR

First Drive Axle: 23,000 lb. GAWR

Second Drive Axle: 23,000 lb. GAWR

#### Trailer

Lift Axle: 13,500 lb. GAWR

Trailer Axle #2: 23,000 lb. GAWR

Trailer Axle #3: 23,000 lb. GAWR

Trailer Axle #4: 23,000 lb. GAWR

The lift axle can only carry 59% of what the other axles in the grouping are rated to carry and will be used to determine what those axles can be permitted for.

$$13,500 \times 1.25 = 16,875$$

By multiplying the lowest rated axle in the group by the factor of 1.25 the permitted weight for the three other trailer axles in the grouping will be 16,875 lb. each regardless of what those axles are rated for. The result is a total weight for the tridem grouping at 64,125 lb. which is higher than the maximum permitted weight allowed for such a grouping on Types 1A, 7 and 9. In such a case only the maximum permitted weight for the grouping would be allowed.