

Solutions “C”

Truck “C” Four axle (all dual tire rear axles)

The maximum allowable weight is computed by going to the gross weight chart. Go down the left side to 24 feet (the distance between the first and last axle of the truck), then go across to column 4 (which is the number of axles in the measurement) and you will find 58,000 pounds. This is the maximum allowable weight for this truck if the 58,000 pounds were to be legally distributed within the maximum allowable weights of the axles in the measurement (no overweight axles).

The steering axle weight is noted as “metric”. In order to find the maximum allowable weight, it is necessary to convert metric size to inches. Note the text box on sheet “C”. Since the metric tire size is 295mm, that number must be divided by 25.4 to find the measurement in inches. That number is 11.614 inches (Rounded to 11.6 on the tire weight chart handout). Since the steering axle is allowed 600 pounds of weight per inch of tire size we must multiply the 11.6 by 600 to get the weight per tire. That weight is 6960 pounds per tire. Assuming both tires are the same size, this weight 6960 multiplied by 2 gives the maximum allowable weight (13,920#) on the steering axle unless the rating is less. The tire rating is 3450 kilograms per tire. This also should be computed to “pounds” to determine if it exceeds the allowable 600 pounds per inch weight. To compute the metric to pounds take the 3450kg times 2.2 which converts the metric 3450kg to 7590 pounds per tire. This weight in pounds (7590) multiplied by 2, gives the maximum allowable “rated” weight as 15,180 pounds.

The tire rating allowable weight is 15,180 pounds.

The tire weight per inch allowable weight is 13,920.

13,920 is the lesser thus is the maximum allowable weight of the steering axle on this truck.

The last three axles on the truck are spaced 8 feet 10 inches apart. This is a tridem (3 axles spaced 9 feet or less). The measurement is over 8 feet yet less than 9 feet so it falls in the distance column as “8 plus”.

Go down the left side of the gross weight chart to the “8 plus” and follow over to the right to the 3 axle column (number of axles in this measurement). The legal weight of the tridem is 42,000 pounds.

The actual legal weight of this truck is the steering axle maximum allowable weight (13,920 pounds) added to the maximum allowable tridem weight (42,000 pounds) which totals 55,920 pounds. The 58,000 pounds which the chart allows for the 24 foot measurement cannot be attained because of the steering axle tire size, and possible rear group spacing limitations.

Restricted Weights

Look at the restricted gross weight table chart "I".

The steering axle weight on a 5 ton road would be 10,000 pounds. On a 7 ton road it would be 14,000 pounds. Since the maximum legal weight on the steering axle is 13,920 pounds adjustments would have to be made on the 5 ton routes only.

The tridem axle would be restricted to 23,889 on a 5 ton route, and 33,444 on a 7 ton route. Note that the chart addresses the axles in the tridem as a group, not 3 single axles. (3 non-tridem single axles would be allowed 14,000 [@ 7 ton] each equaling 42,000 pounds...this is not a correct way to determine restricted weight in a tridem). 5 ton 10,000 steering added to 23,889 tridem allows 33,889 maximum allowable. 7 ton 13,920 steering added to 33,444 tridem allows 47,364 maximum allowable. Gross weights in excess of these would indicate an overweight somewhere on the vehicle.

10% Weight Increases

The maximum weight possible is whatever the weight on the gross weight chart allows plus 10%. This truck is allowed 58,000 pounds by the chart. When a 10% increase is allowed, this truck cannot gross more than 63,800 pounds (58,000 + 5,800) and then only when the axles are within their legal limits. If it's not monitored, there are occasions where the axle weight increases may imply more gross weight than the increased chart limit would allow. Be careful!

The maximum allowable (non 10% increase) steering axle weight is 13,920 pounds. Add to that an additional 10% (1,392 pounds) computes to 15,312 pounds. The rated weight computed to 15,180 pounds. The 10% increase would be allowed up to the rated weight of 15,180. (Only 132 pounds short of the 10% allowed).

The 10% steering axle weight would be the rating of 15,180 pounds.

The 10% tridem axle weight would be 46,200#.

The maximum allowable (non 10% increase) tridem weight is 42,000 pounds. Add to that an additional 10% (4200 pounds) computes to 46,200 pounds. Again watch that tire ratings are not exceeded.

15,180 pounds on steering axle added to the 46,200 tridem allows 61,380 possible as a gross weight. (Note how you cannot just take normal allowable weights and increase them by 10%).

Registration Increase & permit?

If the registered weight on the cab card is exceeded by more than 1000 pounds or 4% (whichever is greater) the registered weight (license plate weight) must be increased to the weight hauled. This is always true.

A transportation permit is needed during harvest for any state highway but not valid on an Interstate highway.

During the winter weight increase a transportation permit is needed ONLY on an Interstate highway. (I-94, I-35 etc).

Always check with local agencies (city, county and township) prior to increasing any weights on their routes.