

Solutions “A”

Truck “A” Two axle

The maximum allowable weight is 40,000 pounds for a 10 ton route and 36,000 pounds for a 9 ton route. This is computed by looking at the gross weight table, going down the left side to the 21 foot measurement and looking across the top, go to the 2 axle column and go down. Note 36,000 (first column) or 40,000 pounds (10 ton column) ends at a 10 foot spacing. Any measurement beyond 10 feet also is 36,000 or 40,000 pounds as it is the maximum two axles can weigh (18,000 + 18,000) or (20,000 + 20,000) depending on 9 or 10 ton route.

The steering axle weight is 12,000 pounds. This is computed by taking the individual tire rating (6000 pounds) times 2 (2 tires) which equals 12,000 pounds (assuming neither tire exceeds the 6,000 limit.) Also the size (a 10 inch tires) needs to be multiplied by the 600# per inch of tire size. 600 pounds times 10 inches equals 6,000 pounds per tire (see the Minnesota Tire Weight Chart handout) There are two tires on the steering axle, so the maximum there is also 12,000 pounds. NOTE: The legal weight would be the less of the two computations in the event they are not the same. Example, a tire rated at 5,000 pounds per tire would limit the steering axle weight to 10,000 pound even though the 600# per inch of tire surface would allow 12,000. The “less” always applies.

The single axle weight for a 9 ton route is 18,000 pounds. (See Chart “I”)
The single axle weight for a 10 ton route is 20,000 pounds.

In this example, it is assumed each tire in the set of duals is a minimum 10 inch tire. Since a non-steering tire is only allowed 500# of weight per tire inch, this would allow 5,000 pounds for each tire on this truck. Since there are 4 tires on the axle the maximum weight would be 5,000# X 4 = 20,000 pounds. Tires smaller than 10 inches need to be monitored closely as it would be likely they could reduce the weight on a single axle.

The actual weight of Truck A is 32,000 pounds on a 10 ton route. (12,000 + 20,000 = 32,000 pounds)

The actual weight of Truck A is 30,000 pounds on a 9 ton route. (12,000 + 18,000 = 30,000 pounds)

Note how using only the Gross Weight Table would not give you an accurate “legal” weight as this truck loaded at 40,000 pounds would be overweight somewhere, most likely the rear “drive” axle.

Restricted Weights.

Looking at Chart "I" a 5 ton single axle is limited to 10,000 pounds. This truck would have to obey this regulation on both axles, thus, the maximum allowable weight could not exceed 10,000 pounds on the steering, and 10,000 pounds on the rear single axle. A total gross weight over 20,000 pounds would indicate an overweight somewhere on the vehicle.

On a 7 ton chart a single axle is limited to 14,000 pounds. The steering axle cannot weigh more than 12,000 pounds due to tire size and rating. It cannot be loaded to the allowed 14,000 pounds on the steering axle. The rear axle is limited to 14,000 pounds (7 tons) thus the maximum allowed weight on a 7 ton road would be 26,000 pounds. (12,000 steering, 14,000 drive axle – 26,000 pounds.

10% Increased Weights (Harvest and Winter)

The maximum weight possible is whatever weight the gross weight chart allows plus 10%. On a 9 ton route the most possible weight for this vehicle was 36,000 pounds, thus the most possible weight during the 10% increase is $36,000 + 3600$ which is 39,600 pounds. This weight is only allowed if the axle weights also are within their legal limits. On a 10 ton route the maximum was 40,000 pounds so during the 10% increase the maximum would be 44,000 pounds ($40,000 + 4,000$).

The steering axle can only weigh 12,000 pounds due to the ratings of the two tires. The 10% weight increase would allow another 600 pounds per tire (6600 each) ONLY if it does not exceed the ratings. In this case the ratings would be exceeded so the steering axle will not be allowed to use the increase.

The second axle (drive axle) on a 9 ton route would be exceeded by 10% allowing and additional 1800 pounds making the maximum allowable weight 19,800 pounds. The maximum allowable gross weight would be the 12,000 steering weight added to the increased drive axle weight 19,800 pounds which would allow 31,800 pounds gross weight.

On a 10 ton route, the steering axle would still be allowed 12,000 pounds. The drive axle would be allowed 22,000 pounds providing the tire rating would not be exceeded on the duals. (Note, if the tires are rated at 5,000 pounds each, this truck could not use the 10% at they would have a maximum rating of 20,000 pounds) Assuming the weight rating on the rear axles allow additional weight, the maximum allowable gross weight would be $12,000 + 22,000 = 34,000$ Pounds.

A registration increase would only be necessary if the new increased gross weight exceeds the current registered weight by 1,000 pounds or 4% (whichever is greater)

A State permit would be needed in a harvest situation if the truck is operated on a State truck highway (no interstate highways).

A State permit would be needed in a winter weight increase ONLY if the truck is operated on an interstate highway.