

Platform Trucks and Carts



Floor trucks, including platform carts, four-wheel hand trucks, dollies, and other wheel-mounted equipment, are often used to move material over short distances. Figure 1 shows a typical platform cart. When workers must exert excessive physical force to push and pull this type of equipment, they can suffer back pain or other manual material handling injuries. However, it is possible to safely move heavy loads manually by using the proper type of truck and working under controlled operating conditions.

Factors Affecting Truck “Rollability”

A number of factors can affect a floor truck’s ease of movement, or rollability. The same factors can also affect the truck’s maneuverability, an important consideration when floor space is at a premium. The truck’s dimensions and overall condition are important, as are the load, the distance of the move, and the floor surface. However, the wheels and casters are the most important factors in determining rollability.

Drawbar pull is the amount of force needed to move a cart. Most manufacturers and suppliers can furnish the necessary technical data on their carts to determine whether drawbar pull will be excessive for your intended loading. For infrequent moves (those occurring not more than every half hour), the initial push to start the truck moving should not exceed 50 pounds

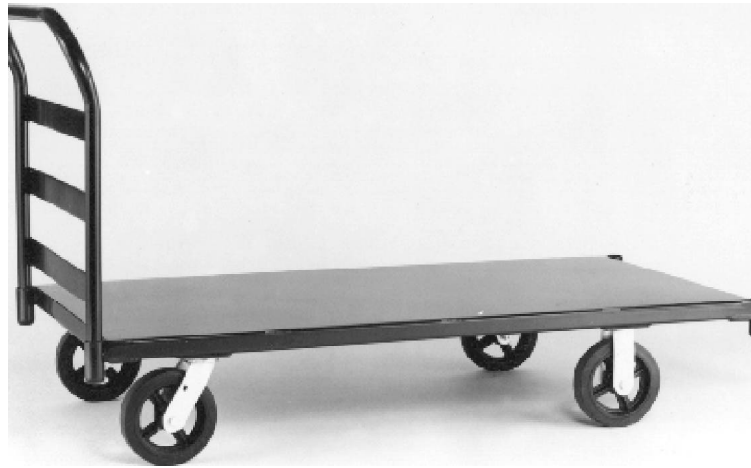


Figure 1. A standard platform cart with swivel casters at the push-bar end and fixed casters toward the front.

(22.5 kg). To keep a truck moving, the sustained push should not be greater than 30 pounds for distances up to 25 feet (13.5 kg up to 7.5 m), and 15 pounds up to 200 feet (6.75 kg up to 60 m). Use these guidelines with drawbar pull data to properly size the wheels.

Push bars, handles, or grips, which are necessary for effective pushing or pulling, should be in the range of 35" to 40" above the floor.

Overloading can make a truck difficult to move, requiring excessive effort that may cause injury. It may also obstruct the vision of the driver maneuvering the truck.

Housekeeping practices should include measures to maintain smooth and debris-free floor surfaces at all times.

Truck maintenance procedures should be established to ensure that the following activities occur on a regular basis:

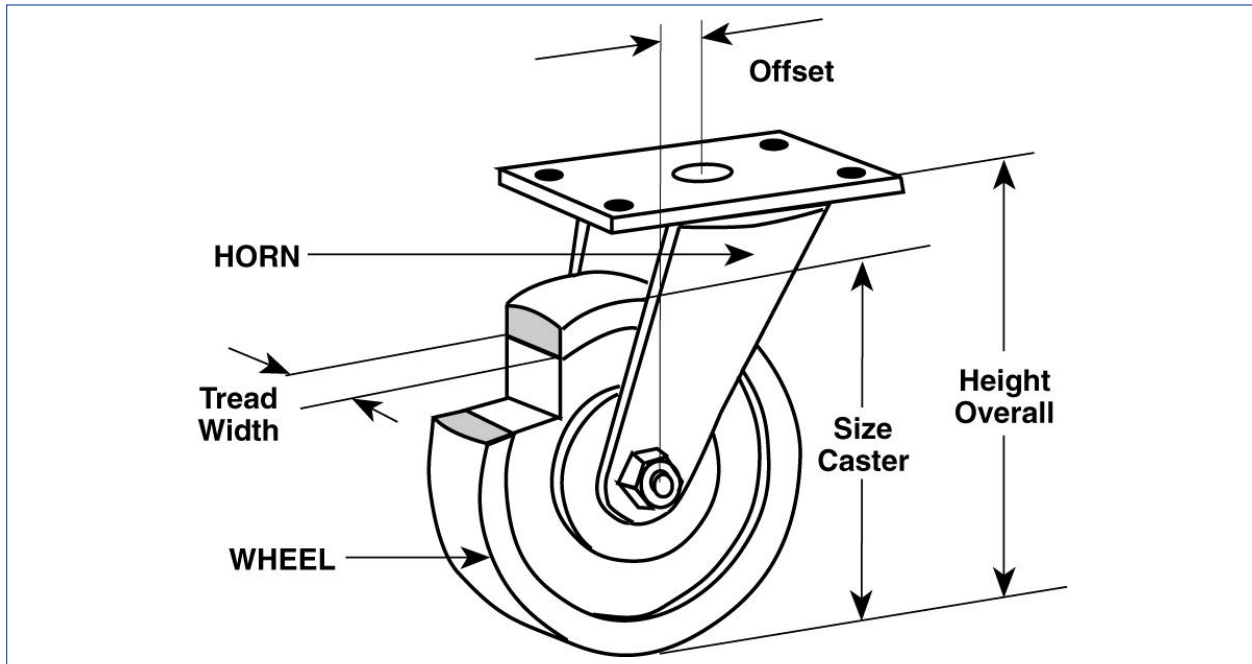


Figure 2. Caster terminology

- Inspection for tread wear, flat spots, play in wheels, and bent or distorted horns;
- Cleaning of string and accumulated debris from wheels, bearings, and raceways;
- Lubrication as necessary, but every six months as a minimum frequency; and
- Replacement of worn and defective wheels and casters.

Distance of the move should be kept under 500 feet (150 m); floor truck operation is more efficient over shorter distances.

Wheels or Casters

A caster is a complete wheel and horn assembly, as shown in Figure 2. Types of wheels or casters can be evaluated in five areas:

Composition – A variety of wheels (e.g., metal, rubber, plastic) are available for specific industry and environmental operating applications. In

general, a hard tread is better for flat, smooth surfaces, and a more pliant tread is better for rough, cracked, or bumpy surfaces.

Size – Larger-diameter wheels reduce the effort needed to roll over surface irregularities such as bumps, cracks, and depressions. Steering effort can be further aided by using larger wheels with greater offsets and narrower tread widths.

Positioning – Swivel casters should be on the push-bar end of the cart. Fixed, load-bearing casters should be positioned closer to the center of the cart.

Bearings – Good bearings for both wheels and swivels are necessary to ensure ease of rolling and positioning in relation to the weight of the load and distance of moves.

Capacity – The impact loading and maximum loading capacity must be identified to allow selection of the correct casters and to avoid maintenance problems.

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