

Risk Control Bulletin

Cargo Securement

RISK CONTROL



Damaged cargo can be costly to your business and can result in losing valuable customers. In the worst scenarios, improperly secured cargo can cause injury to drivers and others. That is why the Federal Motor Carrier Safety Administration* issues very detailed and systematic procedures for protection of cargo.

Steps for proper cargo securement start with proper trip planning—well before the actual loading process. Some requirements vary by state, so it's necessary to review the route and be aware of how that may affect, for example, load weight and covering. Consider the type of trailer you will be using: type of floor, anchor points for load straps, and proper space for the cargo are all factors to review. Consider what cargo materials can be transported together, whether the cargo is on pallets, in containers, etc.

Federal Motor Carrier Safety Regulation (FMCSR) Part 392.9 covers inspection of cargo, cargo securement devices and systems. FMCSR Parts 393.5 and 393.100 - 393.136 cover specific securement requirements. It is important to review and understand the regulations before actual securing of cargo.

Vehicles Covered by Federal Regulations

The FMCSR standards apply to commercial motor vehicles, including vehicle combinations that:

- have a gross vehicle weight rating (GVWR) or gross combination (GCWR) of 10,001 pounds or more.
- are used in transporting hazardous materials in a quantity requiring placarding.

Cargo Not Included

Cargo securement applies to all types of cargo except:

- commodities in bulk that lack structure or fixed shape (for example: liquids, gases, grain, sand,

gravel, aggregate, liquid concrete) .

- commodities that are transported in the structure of a commercial motor vehicle such as a tank, hopper or box.

Specific Securement Requirements by Commodity Type

Specific requirements apply to the following types of cargo, for which drivers must have training and the proper securement equipment: Logs Dressed lumber or similar building products Metal coils Paper rolls Concrete pipe Intermodal containers Automobiles, light trucks and vans Heavy vehicles, equipment and machinery Flattened or crushed vehicles Roll-on/roll-off or hook lift containers Large boulders

At the Dock

The driver should supervise all loading activity to ensure no damaged cargo is put on the trailer, and that cargo is loaded properly and evenly distributed throughout the trailer. Here are a few important cargo tips:

- Once content is checked, lighter cargo can be stacked on top of heavier freight.
- The load should be as low as possible and toward the center of the trailer.
- Driver must make sure incompatible cargo is not loaded on the same pallet or trailer.
- Cargo must not obscure the driver's view ahead, to the right or left side, interfere with movement of driver's arms or legs, prevent free and ready access to emergency equipment, or prevent ready exit from the driver's compartment.
- Cargo must be secured in such a manner as to prevent it from leaking, spilling, and blowing off the vehicle, falling from the vehicle or otherwise becoming dislodged from the vehicle.
- Cargo must be secured to prevent shifting within



the trailer to the extent that the trailer's or truck's stability or maneuverability is adversely affected.

- Even though cargo is secure, caution should be taken when opening trailer doors as cargo may fall out.
- All cargo must be firmly secured within the trailer through the use of floors, walls, blocking, bracing, dunnage or dunnage bags, shoring bars, tie downs or a combination of these. Note: Cargo in a sided vehicle may not need additional securement if each article of cargo is in contact with or sufficiently close to a wall or other articles so the cargo cannot shift or tip.

Other Driver Responsibilities

Drivers must know the weight of the cargo. The maximum gross vehicle weight should be 80,000 pounds except when lower gross vehicle weight is dictated by local road or bridge requirements. Cargo should be distributed so the maximum gross weight upon any one axle is 20,000 pounds and any tandem axle is 34,000 pounds. Companies should be aware of state and local weight restrictions for both gross vehicle weight and individual axle weight. In addition some states have cargo covering requirements for some flatbed operations. Regulations may vary from state to state so drivers must know the regulations for each state through which they travel.

Trip planning starts the route duties of drivers. They must inspect the cargo and the devices used to secure the cargo:

- pre-trip, before leaving the shop/facility.
- within the first 50 miles after starting and adjust cargo or load securement as necessary.
- re-inspect when driver duty status changes.
- re-inspect and adjust cargo or load securement every three hours or 150 miles, whichever occurs first.

Cargo is immobilized or secured on or within a vehicle by tie downs along with blocking, bracing, friction mats, other cargo, void fillers or a combination of these. Drivers must determine the proper number and type of tie downs needed to secure the cargo.

When tie downs are used as part of a cargo securement system, the number of tie downs needed depends on:

- whether the cargo is prevented from moving forward.
- the length and weight of the cargo.
- the strength of the tie downs.

If cargo is not prevented from forward movement by the header board, bulkhead, other cargo, or tie downs attached to the cargo, the follow requirements apply:

- if the article is five feet or shorter and 1,100 pounds or lighter – one tie down.
- if the article is five feet or shorter and over 1,100 pounds – two tie downs.
- if the article is between five and 10 feet, no matter what the weight is – two tie downs.
- if the article is more than 10 feet – two tie downs, plus one additional tie down for every additional 10 feet or part thereof.

If cargo is prevented from forward movement by the header board, bulkhead, other cargo, or tie downs attached to the cargo, the follow requirement applies:

- if the article is prevented from moving forward use at least one tie down for every 10 feet or part thereof.

Note: It is always better to go beyond the minimum so the cargo remains secure even if one component of the securement system fails.

Standard tie down materials are chains, wire rope, steel strapping, synthetic webbing and cordage. The type and strength of tie down used depends on the cargo. The tie down must be free of knots and other damage. Check the working load limit marked on the tie down by the manufacturer. Use the table found in FMCSR Part 393.108 as a guide based on the size of the chain, webbing, wire rope, manila rope, fiber rope, nylon rope and steel strapping.

The aggregate working load limit for tie downs used to secure an article or group of articles against movement must be at least half the weight of the article or group of



articles. The aggregate working load limit is the sum of:

- one-half the working load limit of each tie down that goes from an anchor point on the vehicle to an anchor point on an article of cargo.
- one-half the working load limit of each tie down that is attached to an anchor point on the vehicle, passes through, over, or around the article of cargo, and is then attached to an anchor point on the same side of the vehicle.
- the working load limit of each tie down that goes from an anchor point on the vehicle, through, over or around the article of cargo, and then attaches to another anchor point on the other side of the vehicle. Understanding the regulations and making sure drivers are well informed of their obligations will help protect your cargo and the profitability of your business.

This Risk Control Bulletin offers an overview of the FMCSR information. For more detailed information, please refer to the FMCSR standard at www.fmcsa.dot.gov.

References “Understanding the Federal Motor Carrier Safety Administration's Cargo Securement Rules.” U.S. Dept. of Transportation, Federal Motor Carrier Safety Administration, Vehicle and Roadside Operations Division (MC-PSV) Publication No.: MC-P/PSV-04-001.