

- Inspecting Cargo
- Cargo Weight & Balance
- Securing Cargo
- Liquids in Bulk
- Other Cargo Needing Care

If you load cargo wrong or do not secure it, it can be a danger to others and yourself. Loose cargo that falls off a vehicle can cause traffic problems and others could be hurt or killed. Loose cargo could hurt or kill you during a quick stop or crash. Your vehicle could be damaged by an overload. Steering could be affected by how a vehicle is loaded, making it more difficult to control the vehicle.

Whether or not you load and secure the cargo yourself, you are responsible for:

1. Inspecting your cargo
2. Recognizing overloads and poorly balanced weight
3. Knowing your cargo is properly secured

Inspecting Cargo:

As part of your pre-trip inspection, make sure the truck is not overloaded and the cargo is balanced and secured properly.

Before Starting:

Inspect the cargo and its securing devices again within 25 miles after beginning a trip. Make any adjustments needed. Check the cargo and securing devices as often as necessary during a trip to keep the load secure. A good habit is to inspect again:

- Every 3 hrs/150 miles – After you have driven for 3 hours
- After Every Break – after every break you take during driving

Federal, state, and local regulations for commercial vehicles weight, securing cargo, covering loads, and where you can drive large vehicles vary from place to place. Know the rules where you will be driving.

Weight and Balance:

You are responsible for not being overloaded. Here are some definitions of weight you should know:

1. **Gross Vehicle Weight (GVW).** The total weight of a single vehicle plus its load.
2. **Gross Combination Weight (GCW).** The total weight of a powered unit plus the cargo.
3. **Gross vehicle Weight Rating (GVWR).** The maximum GVW specified by the manufacturer for a single vehicle plus its load.
4. **Gross Combination Weight Rating (GCWR).** The maximum GCW specified by the manufacturer for a specific combination of vehicles plus its load.
5. **Axle Weight.** The weight transmitted to the ground by one axle or one set of axles.
6. **Tire Load.** The maximum safe weight a tire can carry at specified pressure. This rating is stated on the side of each tire.
7. **Suspension Systems.** Suspension systems have a manufacture's weight capacity rating.
8. **Coupling Device Capacity.** Coupling devices are rated for the maximum weight they can pull and/or carry.

Legal Weight Limits:

You must keep weights within legal limits. States have maximum for GVWs, GCWs and axle weights. Often, maximum axle weights are set by a bridge formula. A bridge formula permits less maximum axle weight for axles that are closer together. This is to prevent overloading bridges and roadways.

Overloading can have bad effects on steering, braking, and speed control. Overloaded trucks have to go very slow on upgrades. Worse, they may gain too much speed on downgrades. Stopping distance increases, Brakes can fail when forced to work too hard.

Don't be too Top-Heavy:

The height of the vehicle's center of gravity is very important for safe handling. A high center of gravity (cargo piled up high or heavy cargo on top) means you are more likely to tip over. It is most dangerous in curves or if you have to swerve to avoid a hazard. It is very important to have distributed the cargo so it is as low as possible. Put the heaviest parts of the cargo under the lightest parts.

Poor weight balance can make vehicle handling unsafe. Too much weight on the steering axle can cause hard steering. It can damage the steering axle and tires. Under loaded front axles (caused by shifting weight too far to the rear) can make the steering axle weight too light to steer safely. Too little weight on the driving axles can cause poor traction. The drive wheels may spin easily. During bad weather, the truck may not be able to keep going. Weight that is loaded so there is a high center of gravity causes greater chance of rollover. On flatbed vehicles, there is also a greater chance of rollover. On flatbed vehicles, there is also a greater chance that the load will shift to the side or fall off.

Securing Cargo:

Blocking and Bracing:

Blocking is used in the front, back, and/or sides of a piece of cargo to keep it from sliding. Blocking is shaped to fit snugly against cargo. It is secured to the cargo deck to prevent cargo movement. Bracing is also used to prevent movement of cargo. Bracing goes from the upper part of the cargo to the floor and/or walls of the cargo compartment.

Cargo Tie down:

On flatbed trailers or trailers without sides, cargo must be secured to keep it from shifting or falling off. In closed vans, tie downs can also be important to prevent cargo shifting that may affect the handling of the vehicle. Tie downs must be of the proper type and proper strength. The combination strength of all cargo tie downs must be strong enough to lift one and one half times the weight of the piece of cargo tied down. Proper tie down equipment must be used, including ropes, straps, chains, and tensioning devices (winches, ratchets, clinching components). Tie downs must be attached to the vehicle correctly (hook, bolt, rails, rings).

Cargo should have at least one tie down for each 10 feet of cargo. Make sure you have enough tie downs to meet this need. No matter how small the cargo, it should have at least two tie downs holding it.

These are special requirements for securing various pieces of metal. Find out what works best before you leave for your destination. Be sure they don't slid or come loose this is very important.

Head Boards / Overhead Racks:

Front-end header boards ("headache racks") protect you from your cargo in case of a crash or emergency stop. Make sure the front-end structure is in good condition. The front-end structure should block the forward movement of any cargo you carry.

When materials can be placed in the bed of a truck in place of on a flat trailer it is best to place the smaller material in a truck bed. Should small material need to be placed on a flat bed trailer it is best to place it in a container (that can be tied down) to avoid it from being bounced off.

Remember the driver is responsible for:

1. Inspecting the vehicle
2. Inspecting the hitch is secured properly
3. Inspecting the load periodically to assure it is secured properly.

A Vehicle Inspection Form (#15) must always accompany a Towing Check List Form (#16).

All Houston Controls employees driving a Houston Controls vehicle are required to complete a Vehicle Inspection Form. These forms must be filled out before leaving the shop/ jobsite, or anytime a different driver is driving the vehicle. Once again the driver is responsible for making sure this is done and the paper work is sent to the Jobsite or Main Office.