



Powered Industrial Truck Operator



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Table of Contents

Introduction	1
Overview	1
Objectives	2
Powered Industrial Truck Operator Training	2
Safety	5
Sit-Down Rider Powered Industrial Trucks	9
Operator Safety	10
Operating Precautions and Hazards	23
Areas Not Suitable for the Equipment Design	27
Tip Over Procedures	28
Equipment Description	29
Operator's Manual	33
Pre-Operational Check of a Powered Industrial Truck	37
Operation of a Sit-Down Powered Industrial Truck	41
Operation of a Powered Industrial Truck	43
Proper Handling and Stacking Procedures	53
Picking Up the Load	55
Driving with the Load	60
Lowering and Unloading a Load	68
Stacking	69
Loading and Unloading Trailers or Railcars	73
LP Powered Industrial Trucks	77
Battery Powered Industrial Trucks	81
Changing the Battery	83
Gas and Diesel Powered Industrial Trucks	87
Housekeeping	89
Driving Skills Performance	91
Powered Industrial Truck "Operator Skills Review"	92
Driving Course	94
Summary	95
Glossary	97
Frequently Asked Questions	101

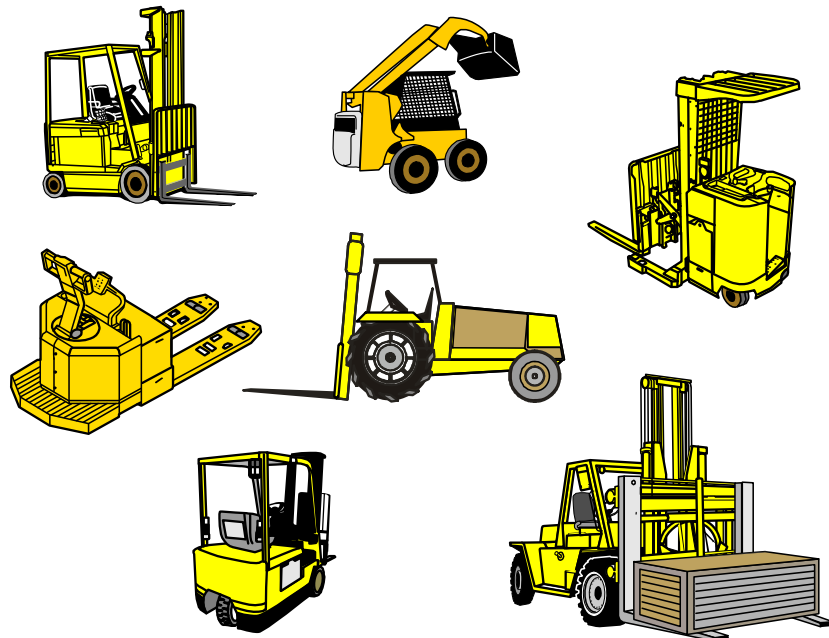


Introduction

Overview

This training course is not designed to increase your proficiency as an operator, but to ensure that you have the knowledge necessary for the safe operation of a powered industrial truck. The following training material conveys the methods and procedures necessary to safely operate a powered industrial truck in the workplace. A powered industrial truck is a self-propelled vehicle with three (3) or four (4) wheels designed to lift, transport and position materials. Loads are carried on forks or in clamps that move up and down on a mast attached to the front of the vehicle. The rear wheels control steering and the front wheels are powered. Powered industrial trucks are powered by an LP (liquid propane) gas system, diesel fuel system, gas system, or battery.

The powered industrial truck is built on the lever principle. The front or drive wheels act as the fulcrum point. A counterweight at the rear of the truck counterbalances the weight of the load on the forks or clamps. Each powered industrial truck has a data plate which describes the type of truck, load capacity, load center of balance, and truck weight. Some of the powered industrial trucks used in the workplace are shown below.



Powered Industrial Trucks

Objectives

Upon completion of this training course, you will be able to:

1. Recognize and avoid hazards you may encounter while operating a powered industrial truck.
2. Describe the controls and components common to all powered industrial trucks.
3. Know and perform the steps in a preoperational check of the powered industrial trucks.
4. Identify and understand the load capacities and control lever functions.
5. Demonstrate the proper handling, stacking, loading and unloading methods.
6. State the specific safety precautions for operating LP (liquid propane), battery, gasoline and diesel powered industrial trucks.
7. Know the importance of practicing good housekeeping in the use of a powered industrial truck.
8. Operate a powered industrial truck safely while negotiating a driving course.



Powered Industrial Truck Operator Training

Operator qualifications. The employer shall ensure that each potential operator of a powered industrial truck is capable of performing the duties that are required of the job. In determining operator qualifications, the employer shall ensure that each potential operator has received the training required by 1910.178 (L), that each potential operator has been evaluated by a designated person while performing the required duties, and that each potential operator performs those operations competently.

The employer shall implement a training program and ensure that only trained drivers who have successfully completed the training program are allowed to operate powered industrial trucks. Exception: Trainees under the direct supervision of a designated person shall be allowed to operate a powered industrial truck provided the operation of the vehicle is conducted in an area where other employees are not near and the operation of the truck is under controlled conditions. All training and evaluation shall be conducted by a designated person who has the requisite knowledge, training and experience to train powered industrial truck operators and judge their competency.

It is the employer's responsibility to certify that each operator has received the training, has been evaluated, and has demonstrated competency in the performance of the operator's duties. The certification shall include the name of the trainee, the date of training, and the signature of the person performing the training and evaluation. The employer shall retain the current training materials and course outline used for evaluation and the name and address of the person who conducted the training, if it was conducted by an outside trainer.

See OSHA Regulation 1910.178 (L)(4) for refresher training and evaluation.

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Safety

In this section some hazards you may incur while driving a powered industrial truck will be discussed. Ignoring surrounding hazards and careless behavior could possibly lead to an accident, causing damage to property, bodily injury or even loss of life.

Powered industrial truck vehicles are fast and powerful for their size. All of them have a type of lifting device, generally forks protruding from the front ends. These forks present a greater possibility for injury than contact with the powered industrial truck itself.

The following rules have been developed to serve as guidelines for the powered industrial truck operator. Read and observe these rules.

- Only trained drivers who have been authorized by their supervisors are allowed to operate powered industrial trucks.
Re: 1910.178(l)
- Perform a preoperational check of the powered industrial truck before operating it to make sure all the equipment is in good condition, such as the horn, brakes, tail light, tires, etc. This will ensure the vehicle is safe to operate. *Re: 1910.178(q)(7)*
- The Occupational Safety and Health Administration (OSHA) has authority to inspect powered industrial trucks at any time.
- Have needed repairs made on the powered industrial truck immediately by qualified personnel before the powered industrial truck is operated. *Re: 1910.178(q)(2)*
- **DO NOT** operate a powered industrial truck without a fire extinguisher and a warning light present. Ensure the operator is trained in the proper operation of fire extinguishers.
- Report all damages or accidents to your supervisor immediately.

- **DO NOT** leave the powered industrial truck motor running while standing idle. The exhaust fumes can be dangerous in confined areas. *Re: 1910.178(i)(1)*
- Make sure dock plates, wheel chocks, dock-locks, and/or trailer safety jacks are in place before entering a trailer or railroad car. *Re: 1910.178(k)(1), 1910.178(k)(2), 1910.178(k)(3), 1910.178(k)(4), 1910.178(m)(7)*
- When entering blind spots such as backing out of a trailer, entering an elevator, or passing through doorways, drive slowly and sound the horn. *Re: 1910.178(n)(4)*
- All signs, including stop signs, must be obeyed. *Re: 1910.178(n)(2)*
- The operator must be seated on the powered industrial truck when operating the control levers.
- When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline. *Re: 1910.178(m)(5)(i)*
- A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle that remains in his view, or whenever the operator leaves the vehicle and it is not in his view. *Re: 1910.178(m)(5)(ii)*
- When the operator of an industrial truck is dismounted and within 25 feet of the truck still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement. *Re: 1910.178(m)(5)(iii)*
- Drive with forks or clamps approximately four to eight inches above the floor when empty. If loaded, make sure the load is four to eight inches above the floor and tilted all the way back – “Full Tilt.” *Re: 1910.178(n)(7)(iii)*

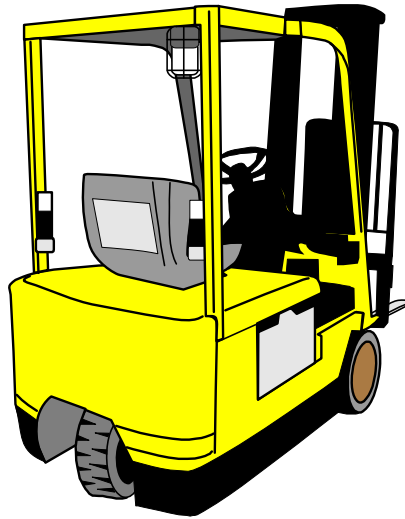


- Change the LP gas tank using proper and safe procedures as outlined in this manual.
- Trucks shall not be driven up to anyone standing in front of a bench or other fixed object. *Re: 1910.178(m)(1)*
- **NEVER** transport another employee on the powered industrial truck. *Re: 1910.178(m)(3)*
- A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward. *Re: 1910.178(m)(10)*
- Employees can only be lifted using an approved lifting platform securely attached to forks and backrest of the powered industrial truck. This must be authorized by your supervisor. *Re: 1910.178(m)(i)*
- Whenever a truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks for lifting personnel, the following additional precautions shall be taken for the protection of personnel being elevated.
Re: 1910.178(m)(12)
 - Use of a safety platform firmly secured to the lifting carriage and/or forks. *Re: 1910.178(m)(12)(i)*
 - Means shall be provided whereby personnel on the platform can shut off power to the truck. *Re: 1910.178(m)(12)(ii)*
 - Such protection from falling objects as indicated necessary by the operating conditions shall be provided.
Re: 1910.178(m)(12)(iii)
- **BE ALERT** and keep your mind on the job you are performing.

- All traffic regulations shall be observed, including authorized plant speed limits. A safe distance shall be maintained approximately three truck lengths from the truck ahead, and the truck shall be kept under control at all times.
Re: 1910.178(n)(1)
- No smoking within 50 feet of the battery changing or LP gas tank changing areas. *Re: 1910.178(g)(10), (g)(11), (g)(12)*
- Where general lighting is less than 2 lumens per square foot, auxiliary directional lighting shall be provided on the truck.
Re: 1910.178(h)(2)
- Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.
Re: 1910.178(n)(3)
- Under all travel conditions the truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner. *Re: 1910.178(n)(8)*
- Motorized hand trucks must enter elevator or other confined areas with load end forward. *Re: 1910.178(n)(14)*
- While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate. *Re: 1910.178(n)(15)*
- Always wear your required safety equipment when operating or working on or around a powered industrial truck.

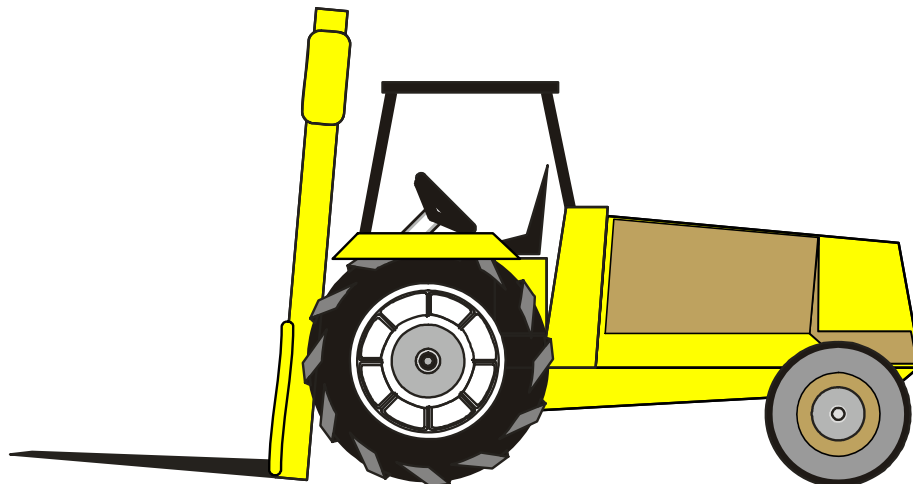
Sit-Down Rider Powered Industrial Trucks

Sit-down rider powered industrial trucks come in a variety of models ranging from the small compact three wheel indoor unit, to large diesel powered outdoor yard models.



Three Wheel Indoor Unit

Each model varies in lifting capacity, operating environment and size. It may be set up with a variety of material handling implements such as forks, clamps or other attachments. Each has several things in common that must be discussed from a safety and operational standpoint.

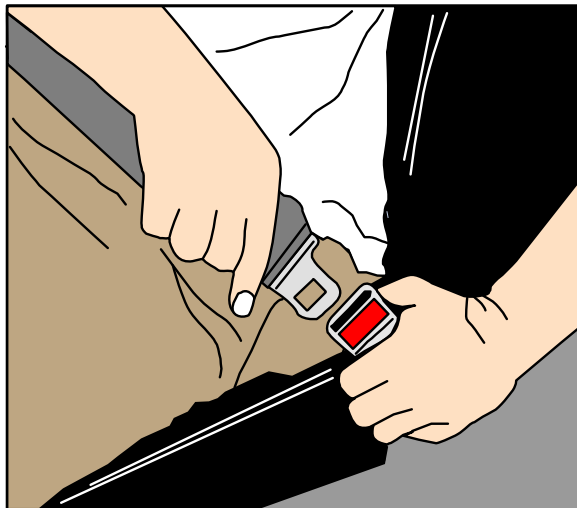


Diesel Powered Outdoor Yard Model

Operator Safety

The following outlines general information to aid in preventing damage, accidents, injury or loss of life to operator or pedestrian when using this type of equipment. It is the responsibility of the operator to use this equipment in a safe manner.

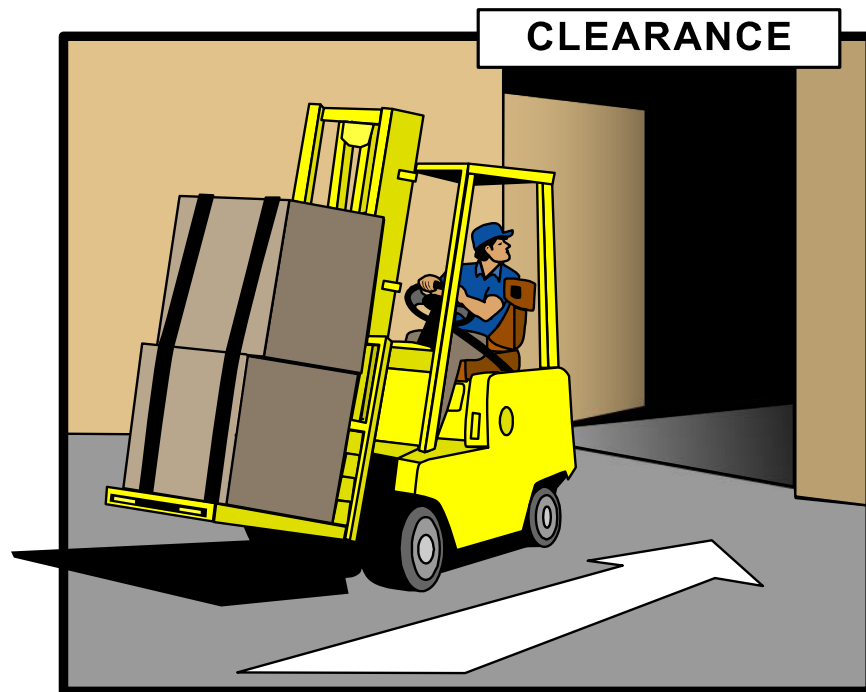
All of these models are operated from a sitting position only. It is important the operator be properly seated in the powered industrial truck seat before any operation of the controls are attempted.



WARNING: Buckle up!

Watch overhead clearances and doors. Because of the power these vehicles have, the driver may be unaware of the fact that mast or overhead guards might be in contact with a sprinkler head, conduit, product conveyor, etc. Overhead clearances must be observed constantly. Know the size of the vehicle you are driving. Not all powered industrial trucks are the same size.

Re: 1910.178(m)(8)



Overhead Clearances

When transporting a load that obstructs your vision, always drive backwards. Drive at a slow speed and watch for pedestrians or obstacles on both sides.

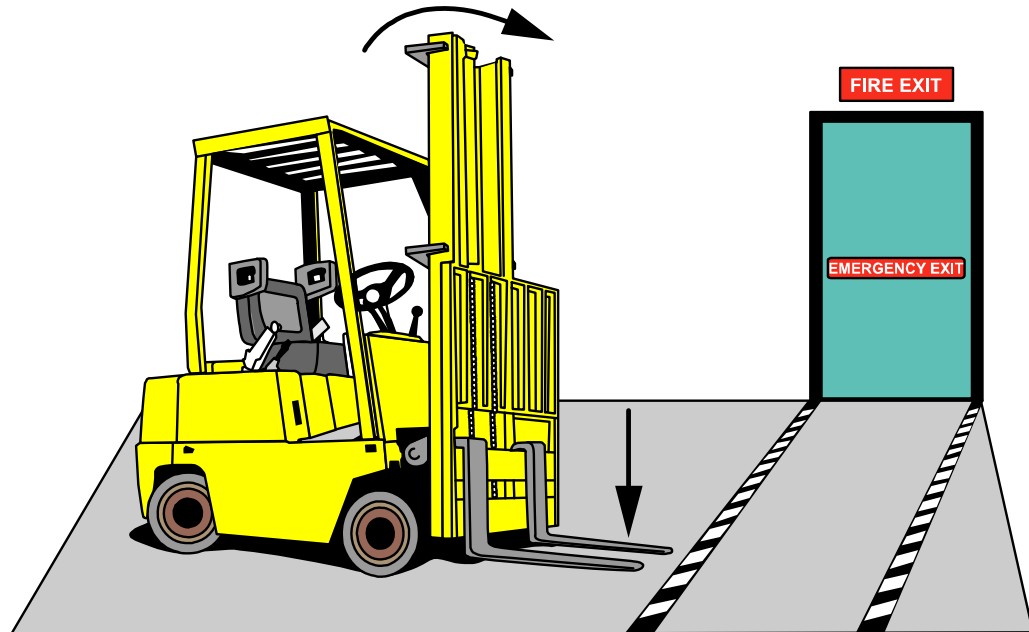
Re: 1910.178(n)(4)



Driving Backwards

A powered industrial truck should never be left running and unattended. If leaving your equipment even for a moment, park it in a safe place out of the aisles and away from fire escapes, turn the ignition key off, lower the load and set the parking brake.

Tilt the mast forward slightly and place the forks flat on the floor when the powered industrial truck is parked.

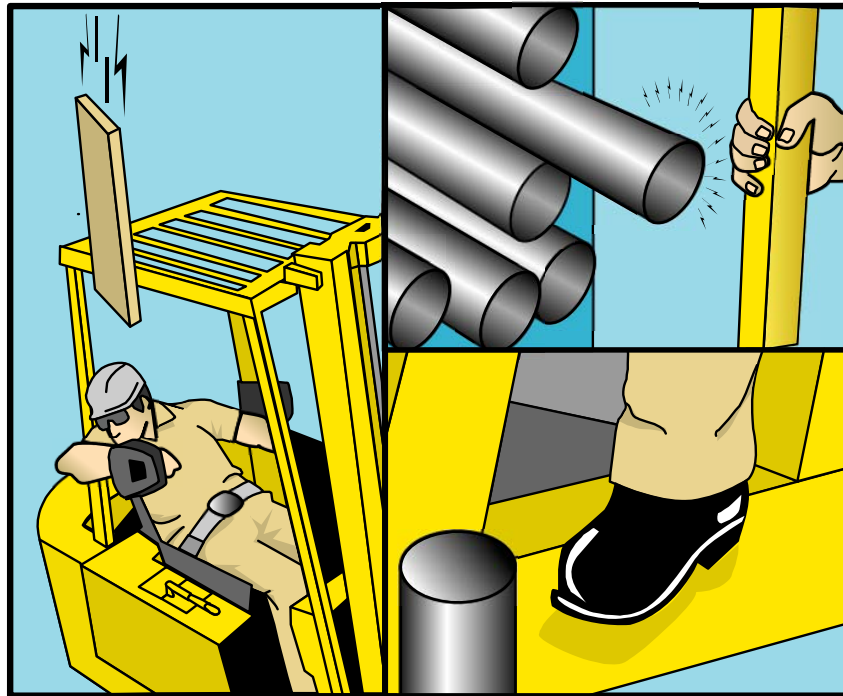


Place Forks Flat on Floor

Never start a powered industrial truck or operate powered industrial truck controls from a dismounted position. If the controls are operated, the driver must be seated on the vehicle. This also applies to starting the vehicle.

Keep your arms, hands, legs and feet in the proper positions. Never place them between the uprights of the mast or outside the running lines of the powered industrial truck. Stay within the boundaries of the overhead guard.

Re: 1910.178(m)(4)

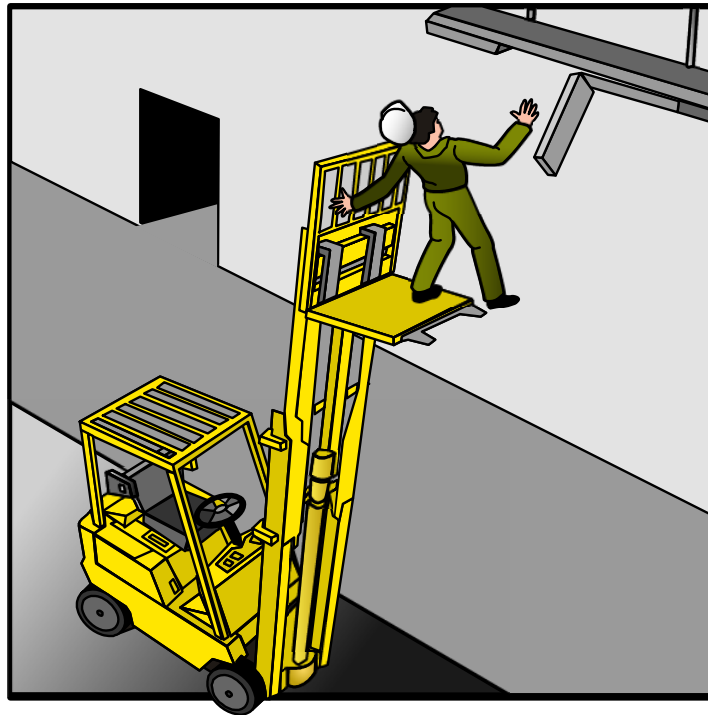


Stay in the Confines of the Truck

Always allow for “rear end swing” and “front end swing” when considering clearances, especially when working in confined areas or where pedestrians are present.

Never attempt to bypass the locked ignition system. It could damage the equipment and create a fire hazard. The only way to start a powered industrial truck is with the correct key.

Personnel should not be hoisted on the forks of a powered industrial truck. If the forks are slippery, they provide very poor footing and serious injury may result if an individual slips off the forks. *Re: 1910.178(m)(12)*

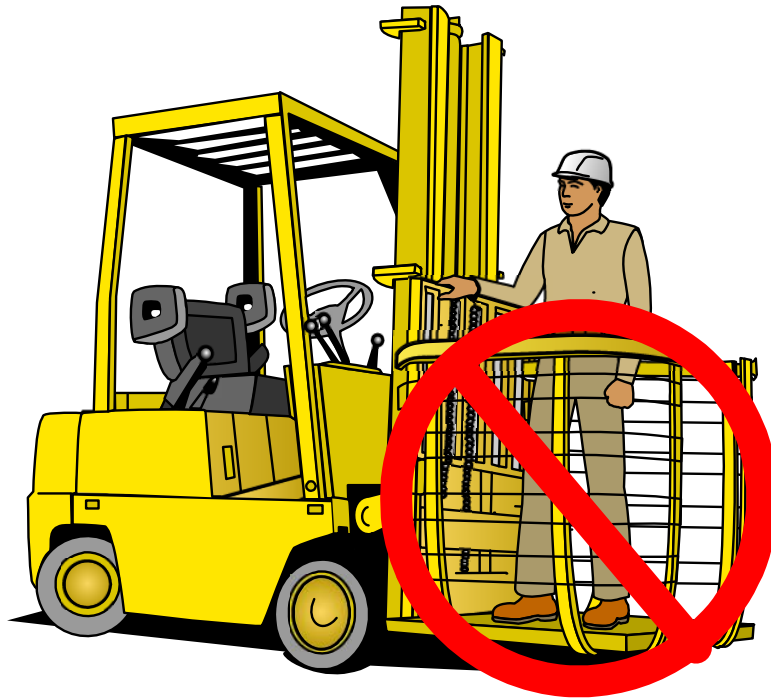


Do Not Lift Personnel

If a lift must be made, use an approved platform, which meets OSHA standards, with guardrails suitable for the type of job being performed. Make sure the cage type platform you are using has been secured to the back of the forks. Your supervisor must grant permission to use a powered industrial truck with the platform on the forks for a scaffold. Remember that the powered industrial truck was not designed to be a personnel elevator.

WARNING!

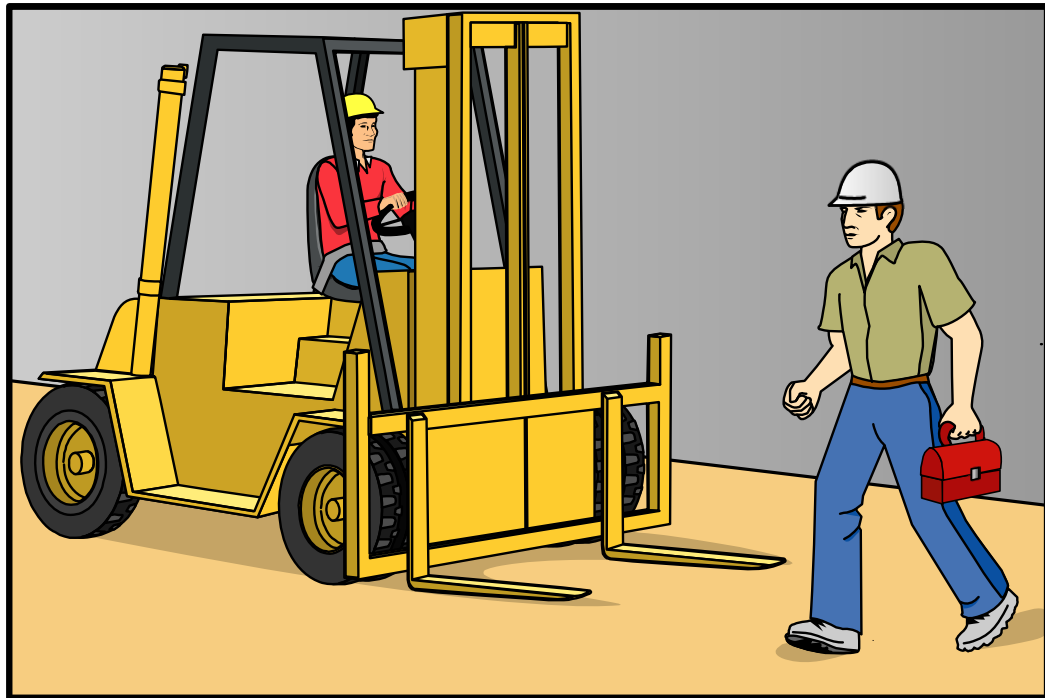
Operator of the powered industrial truck must remain seated on the truck at all times when personnel are suspended on the lifting platform.



Use an Approved Platform to Lift Personnel

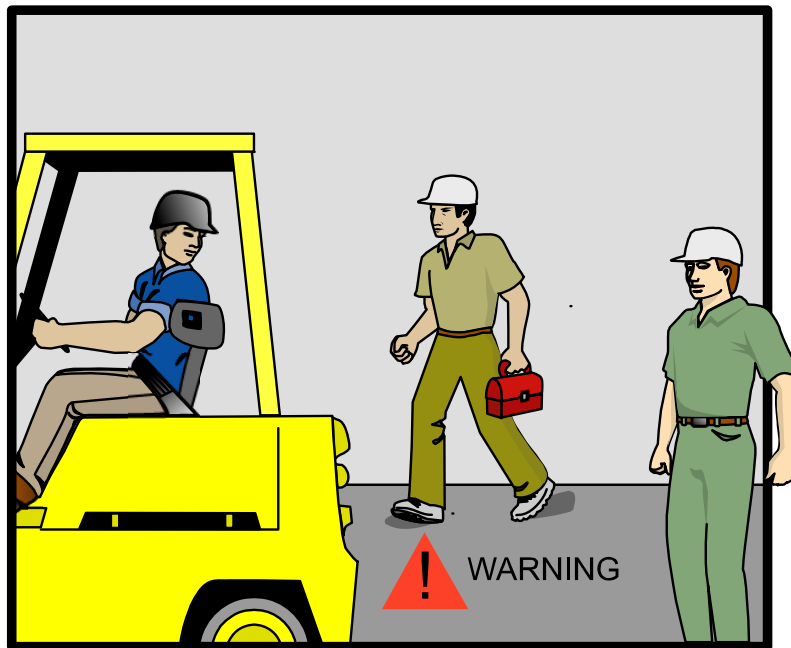
NOTE: Platform specifications: 42" top rail, 21" center rail, 4" toe board, door that opens inward and means to attach platform to forks, carriage or backrest.

As a rule, a pedestrian has the right of way over a powered industrial truck. A hand truck also has the right of way over a powered industrial truck. A loaded powered industrial truck has the right of way over an empty one. Be alert and pay attention while driving.



Right of Way

When approaching employees or visitors from behind, give a few short blasts of the horn when you are approximately 20 feet away from them. This allows time for them to move to safety. Do not drive faster than a walk through the doorway of a building, into any aisle or passageway or around any blind corner without using the horn. Obey all traffic signs.

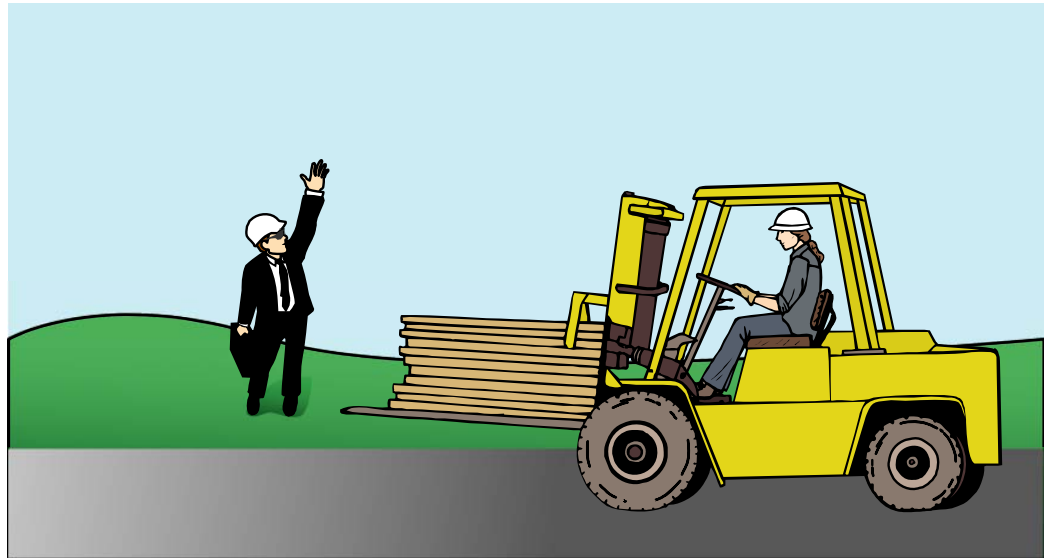


Watch for Pedestrians

Should an accident occur involving a pedestrian, the fact that you blew your horn is of little consequence. You will probably be at least partly responsible for any accident in which your truck is involved. Learn to sound your horn, but do not rely solely on it. It is a poor substitute for care, caution and common sense. No one should have to be injured due to the careless operation of a powered industrial truck. Remember that as a powered industrial truck operator, you are completely responsible for your truck while you are operating it.

Remember, any time an accident occurs that involves injury to a person, or damage to equipment, building, elevator or damage of any nature, report the incident immediately to your supervisor.

There are absolutely **NO** riders allowed on the powered industrial trucks. A powered industrial truck's purpose is to handle and haul materials and finished products. The truck is equipped with a single seat for one person and **ONE PERSON ONLY**. *Re: 1910.178(m)(3)*



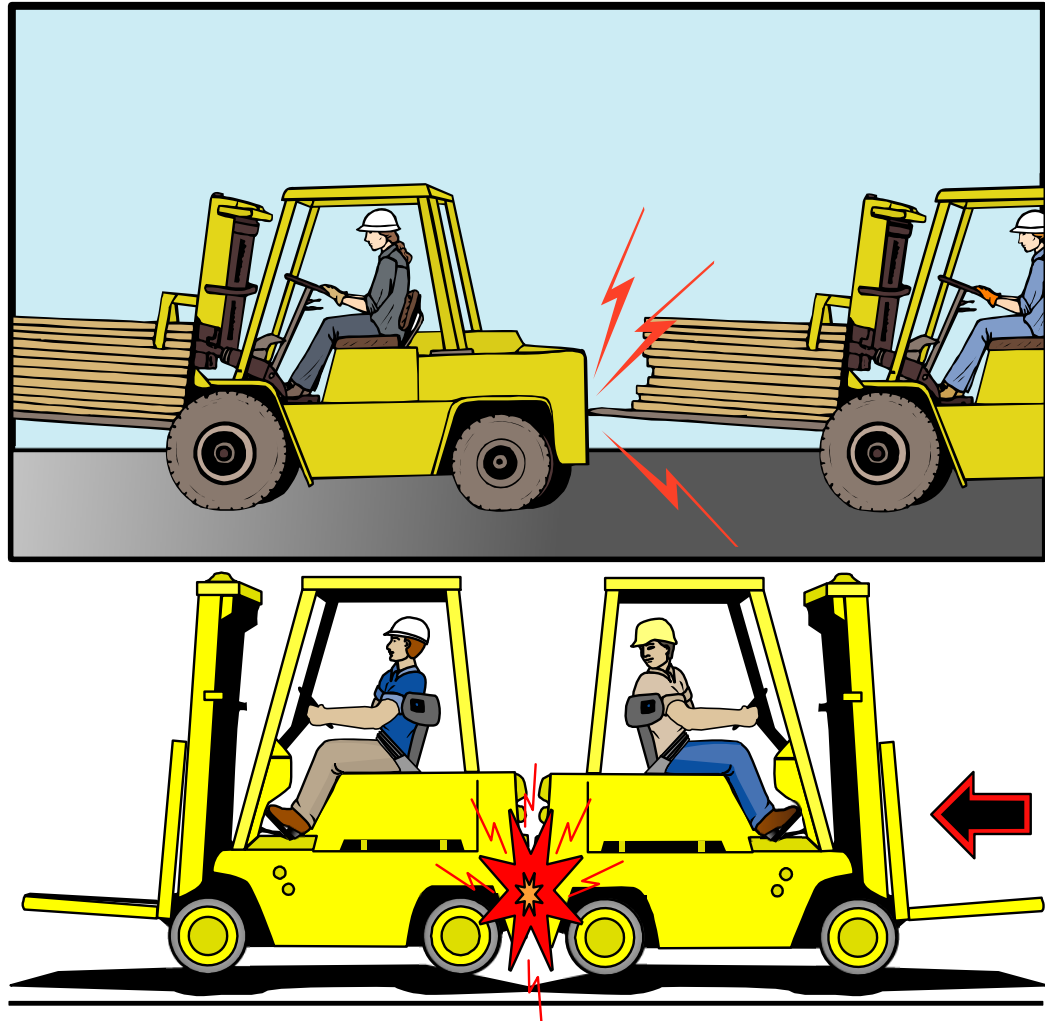
Absolutely No Riders

Do not carry any materials on the overhead guard. Do not use the guard over the driver for securing a load or for pulling anything. This guard is for the protection of the driver only. It must be kept in good condition.



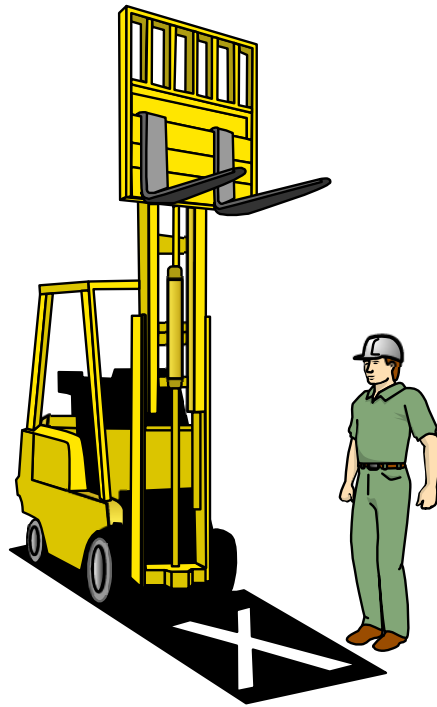
Do Not Carry Materials on the Overhead Guard

Always refer to the operation/owners manual for towing or pushing instructions. Never attempt to start a powered industrial truck by pushing it. If any problems occur with the truck, notify repair personnel and your supervisor.



Pushing or Towing

Never stand or walk, or allow anyone else to stand or walk under raised forks. This pertains to loaded or unloaded forks, clamps or other attachments. If people are in the area, either wait until they pass before you raise a load, or notify them to take a wider route around the work area. *Re: 1910.178(m)(2)*



Never Stand or Walk Under Elevated Forks

DO NOT tamper with or attempt to short-circuit any safety device on the electrical system. This includes fuses for the horn, fuses for the backup light, etc. **DO NOT** make any mechanical adjustments. Any adjustments are the responsibility of qualified repair personnel. Report any malfunctions to your supervisor.



Most powered industrial trucks are equipped with a governor. These governors allow speeds that are sometimes too fast for safe operation in particular areas. Extreme care should be used in pedestrian areas. Therefore, using good judgment to determine the speed at which the powered industrial truck should be operated is always necessary. It is definitely the operator's responsibility to maintain a safe speed. For full lifting capacity of any powered industrial truck, the drivers should only run the engine at half-throttle. Running at higher RPMs will only damage the motor. **ONLY** authorized repair personnel should adjust the governor.

WARNING!

It is the operator's responsibility to remain alert, maintain a safe speed, and have a safety conscious attitude, when operating sit-down rider powered industrial trucks.

Operating Precautions and Hazards

To guard against situations that may put you in harms way when operating this equipment, a list of operating precautions and hazards have been developed to alert and guide you in the use of a sit-down rider powered industrial truck. It is important that the operator keep this information in mind when operating this type of equipment on a daily basis.

The danger of roll overs while operating sit-down powered industrial trucks is very common. Because of equipment design, some models may be more prone to roll over than others. Since the rear wheels steer the lift truck, and because the bulk of the weight is in the rear of the lift truck and because the center of gravity is high, tip overs are much more likely in a powered industrial truck than in an automobile. *(The stability triangle will be discussed later in this course.)*

With this type of equipment, it is important to recognize and avoid the following hazardous situations.

The dangers of sit-down rider powered industrial truck roll overs are very common. Because of equipment design, some models may be more prone to roll over than others. With this type of equipment it is advised to recognize and avoid the following hazardous situations.

Do not make turns on the downgrade of ramps. If a turn has to be made, wait until you get to the bottom of the ramp.



Warning: Tip Over

A powered industrial truck may tip over when taking corners too sharp and too fast. An empty truck can tip over easier than a loaded truck because they are rear-end heavy due to the counterweight.



Warning: Tip Over

Transporting loads too high and turning too sharp may also cause a truck to tip over. The lift can tip over even at a slow speed.



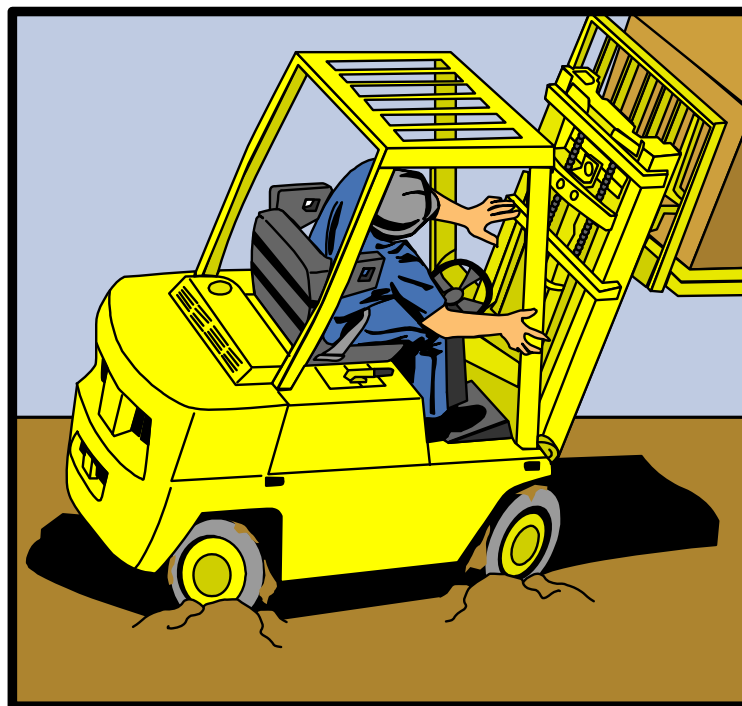
High Loads

Usually a powered industrial truck can be tipped over only through the carelessness of the driver.

Areas Not Suitable for the Equipment Design

If your equipment is designed for indoor smooth surface use, do not operate it outdoors or in locations that may put you in danger.

Be sure that you are familiar with your path of travel—inspect it if necessary—before driving your equipment through the area.



Danger: Soft Area

Tip Over Procedures

If the powered industrial truck should tip over, follow these steps to preserve your safety.

Your chance of surviving a tip over is greater if you stay with the truck.

DO NOT JUMP.

1. Stay in the seat with your seat belt fastened.
2. Grip the steering wheel tightly.
3. Brace your feet and allow your body to tip with the truck.
This does not mean you will not get hurt, but you will be more likely to survive the tip over.



Tip Over Procedures

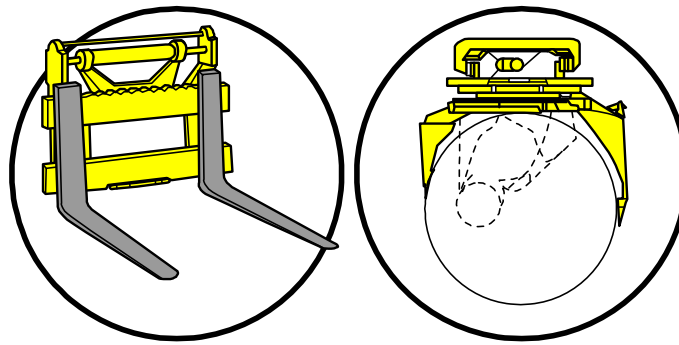


Equipment Description

The powered industrial truck is a vehicle that consists of many controls and parts. Below you will find an explanation of these items. Although most powered industrial trucks are similar in construction, there are some that are different. The items mentioned below are common to all powered industrial trucks. LP gas and battery powered industrial trucks are similar in construction and both are included in this section.

Mast – This is attached to the front of the vehicle. It has a hydraulic system used to raise and lower loads.

Forks or Clamps – These are attachments mounted to the mast. They are used to carry the load.



FORKS

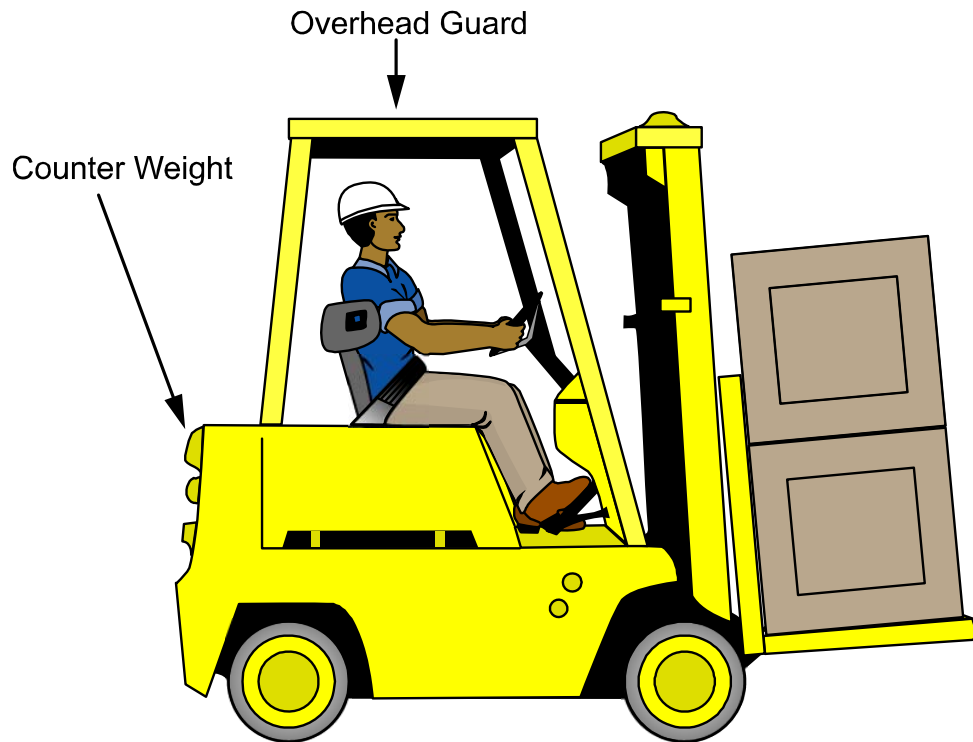
CLAMPS

Forks or Clamps

Overhead Guard – This is a metal tubular-structure bolted to the powered industrial truck. This protects the driver from injury due to falling materials.

Re: 1910.178(m)(9)

Counter Weight – This is a weight attached to the rear of the vehicle. It is used to counterbalance the load on the forks or clamps.

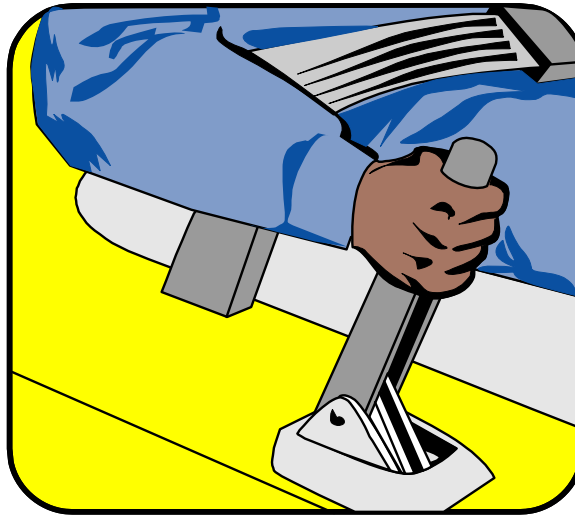


Overhead Guard and Counter Weight

Front Wheels – These are the drive wheels. They also serve as the fulcrum point.

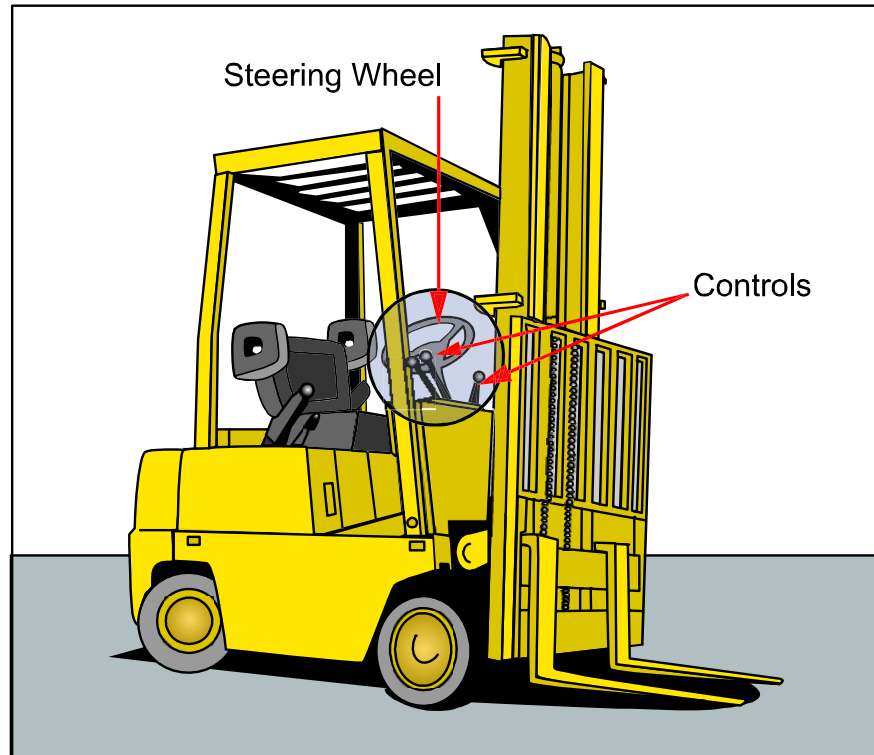
Rear Wheels – These are the wheels that control steering.

Parking Brake – This is a hand brake that must be set when the vehicle is left standing. It is found either next to the driver's seat or under the control panel. Releasing this brake before using the powered industrial truck is very important. Fires may result due to improper use. *Re: 1910.178(m)(5)(iii)*



Parking Brake

Steering Wheel – This controls the movement of the rear wheels. The steering wheel is very similar to ones in automobiles. Turn the wheel in the direction you wish to go.



Steering Wheel and Controls

NOTE: Although the steering wheels may look similar, the steering wheel system of a powered industrial truck is much different than that of a car because the rear wheels turn on a powered industrial truck, and the front wheels turn on a car.



Controls

There are at least three separate sets of controls on a powered industrial truck.

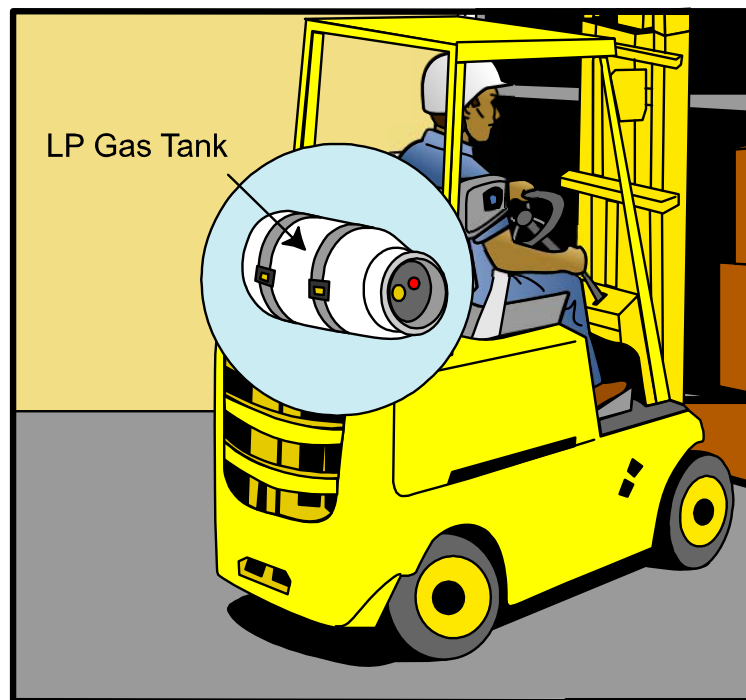
- **Set One** – This set includes the accelerator, foot brake and clutch.
- **Set Two** – This is a directional control lever used for selecting the direction in which you wish to travel. Push forward to move ahead, pull back to move backward and the central position for neutral.
- **Set Three** – These control the movements of the forks or clamps. This usually consists of two levers. One controls the up and down movement. The other controls the tilt or rotating movements.

Operator's Manual

Each model or make may be set up differently. It is your responsibility as an operator to become familiar with the controls and safety decal warnings on your machine.

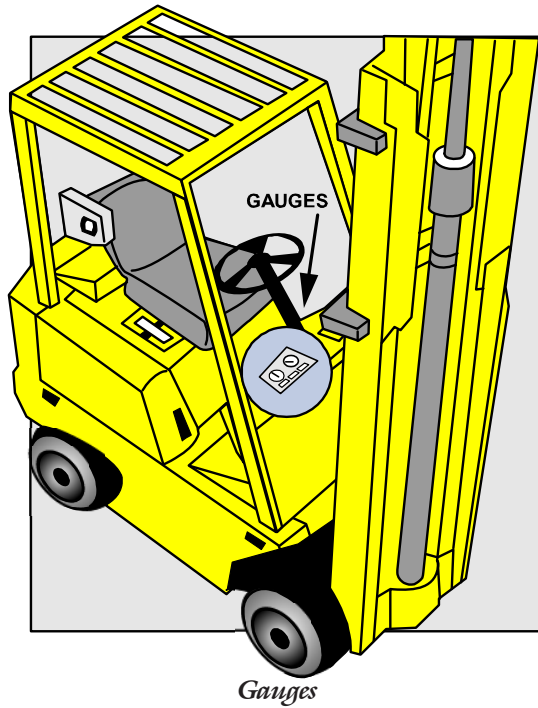
It is advised to obtain the operator's manual for your sit-down rider powered industrial truck and study it thoroughly before operating it in a work environment.

LP Gas Tank – This is a metal, cylinder-shaped tank which fits into a bracket on the rear of the vehicle and supplies fuel through a connecting hose.



LP Gas Tank

Gauges – The gauges are mounted on the truck's instrument panel. They indicate the engine temperature, oil pressure, and generator charging rate.



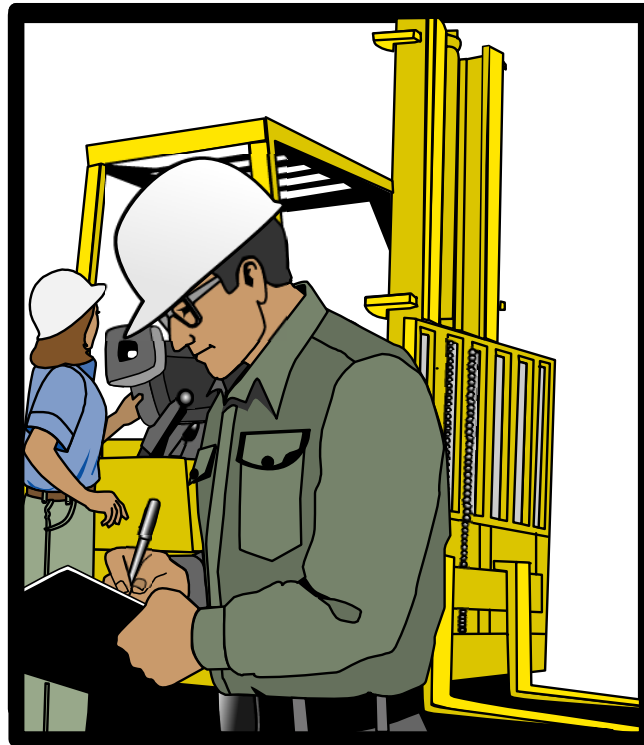
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Preoperational Check of a Powered Industrial Truck

It is important that before operating a powered industrial truck you perform a precheck of the vehicle. This ensures the vehicle is in good condition and is safe to operate. *Re: 1910.178(q)(7)*

There are three steps to performing a preoperational check of the vehicle.



Preoperational Check

1. Perform a walk-around, visual inspection of the vehicle. In this inspection there are several items to check.
 - a. **Tires** – Inspect all tires for cuts, breaks, and signs of uneven wear. Remove any material that may be embedded in the tires.
 - b. **Fire Extinguisher** – Check to make sure there is a fire extinguisher present. The powered industrial truck cannot be operated without a fire extinguisher. Check to see that the seal is present and unbroken. Make sure the bracket is in good condition.
 - c. **Overhead Guard** – This guard should be in good condition. Check to see that all bolts are tight and none are missing.
 - d. **Leaks** – Take note of any puddles that might be under or around the vehicle. These puddles could be oil, hydraulic fluid or water.
 - e. **Powered industrial truck Mast** – Inspect the chains to make sure there are no broken links.
 - f. **Hydraulic Lines** – Check the hydraulic hoses that supply the mast with fluids to see that they are free of holes and cracks.
 - g. **Forks or Clamps** – Check to see that the clamps or forks have not been damaged. Inspect to make sure the ends of the forks and edges of the clamps are smooth and free of burrs.
2. Check fluids.
 - a. **Radiator Water Level** – If the powered industrial truck has a closed cooling system, check the water level in the reserve tank. If you have to check a vehicle without a reserve tank, follow these steps:
 - (1) Release the pressure relief valve on the radiator cap.
 - (2) Wait two (2) minutes before taking off the radiator cap.
 - b. **Engine Oil Level** – Check the oil level by pulling the dipstick from the engine. The engine oil level should be up to the “full” mark on the dipstick. Never overfill it.



3. After the truck has been started, complete the remaining checks.
 - a. **Tail Light** – This is a red light mounted on the upper, rear guard frame. This must be lit during forklift operation.
 - b. **Horn** – Test the horn to make sure it works properly.
 - c. **Steering** – Turn the steering wheel both ways to stop. Steering should not feel “loose,” and the pump should not squeal before you reach stops.
 - d. **Service Brakes** – Push the brake pedal in. It should have free travel before you meet resistance. Depress the brake pedal again and hold it for at least ten seconds. The pedal must be solid, not soft or drift under pressure.
 - e. **Parking Brake** – Fully apply the brake to be sure it is functioning properly. As you apply it, you should feel some resistance.
 - f. **Hydraulic Controls** – Lift and tilt cylinders should actuate when the lift or tilt levers are moved either way from the neutral position. The lift cylinder should hold a load in a raised position without noticeable downward drift. The tilt cylinder should not allow the load to drift forward or backward.

While the engine compartment is open to check the oil level, observe the cleanliness of the engine and the condition of the battery cables.

As you perform the individual checks, if any problems arise they must be handled immediately. There are no excuses for driving a powered industrial truck that is dirty, unsafe or has inoperable equipment. A powered industrial truck is a piece of expensive equipment and must be maintained.

As you perform the daily check, you should fill out a powered industrial truck inspection sheet and sign it.

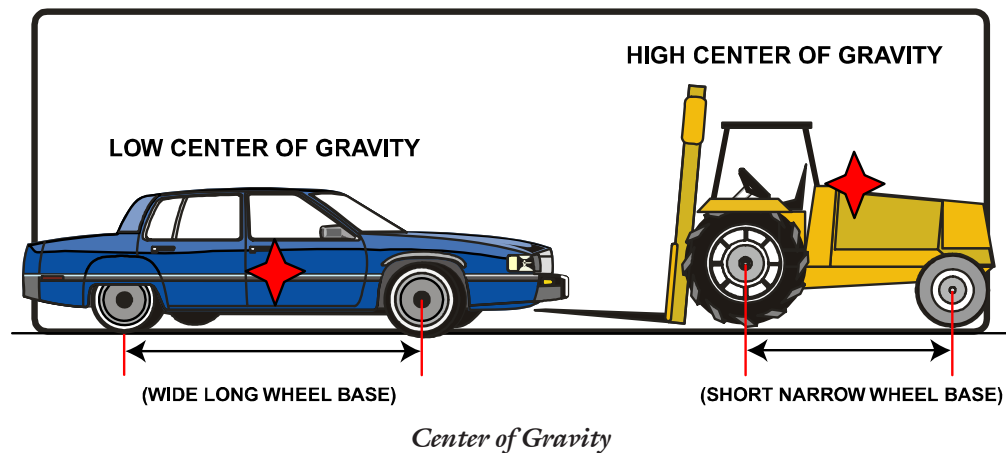
Any power-operated industrial truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.

Industrial trucks shall be examined before being placed in service, and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. This examination shall be made at least daily. Where industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected. *Re: 1910.178(q)(7)*

REMEMBER: You are responsible for inspecting your powered industrial truck each day **before** you drive it.

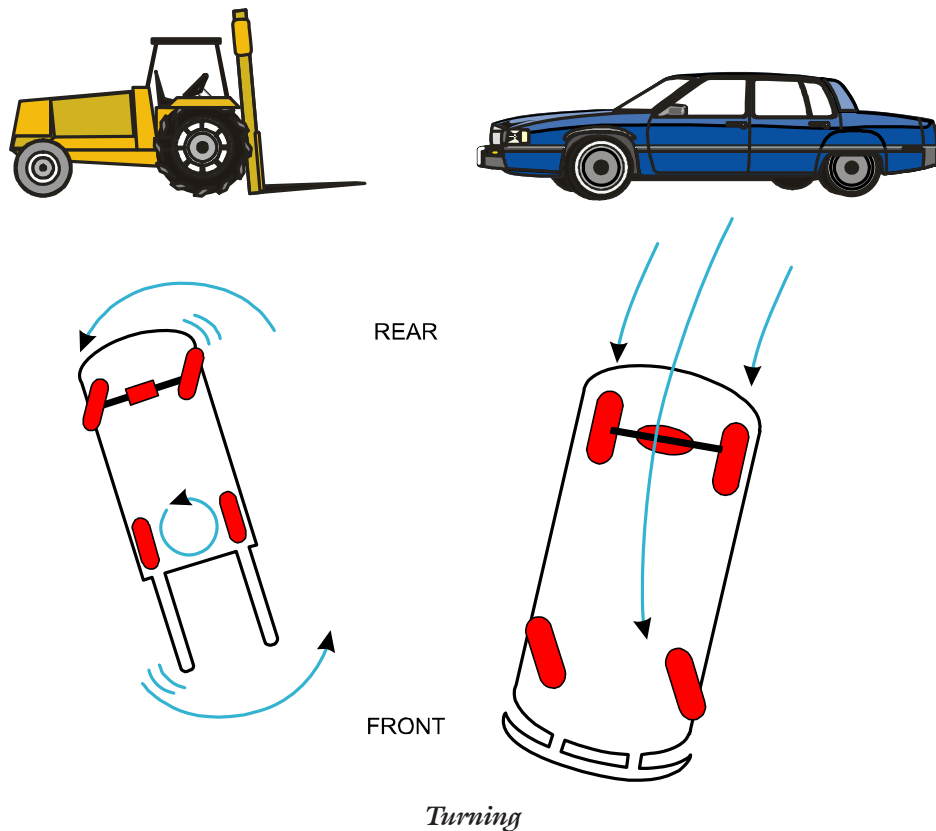
Operation of a Sit-Down Powered Industrial Truck

Before the operation of a sit-down rider powered industrial truck is to begin, the operator must have a good understanding of the differences between a standard size automobile and that of a powered industrial truck.



Unlike a two-wheel motorcycle that stands in an operating class of its own, automobiles and powered industrial trucks both have many basic similarities. They sit on a self-balancing wheel base, have driver's seats with the same basic brake and accelerator pedal arrangement, and are controlled by a standard type steering wheel. Because of this similarity most operators assume that a powered industrial truck operates and handles in the same manner as an automobile.

This is not true, a powered industrial truck is built on a short, narrow wheel base with a high center of gravity, whereas an automobile has a long wide wheel base and low center of gravity. This gives the automobile stability in turns and at high speeds. Forcing a powered industrial truck to perform like an automobile could lead to serious injury or even death.



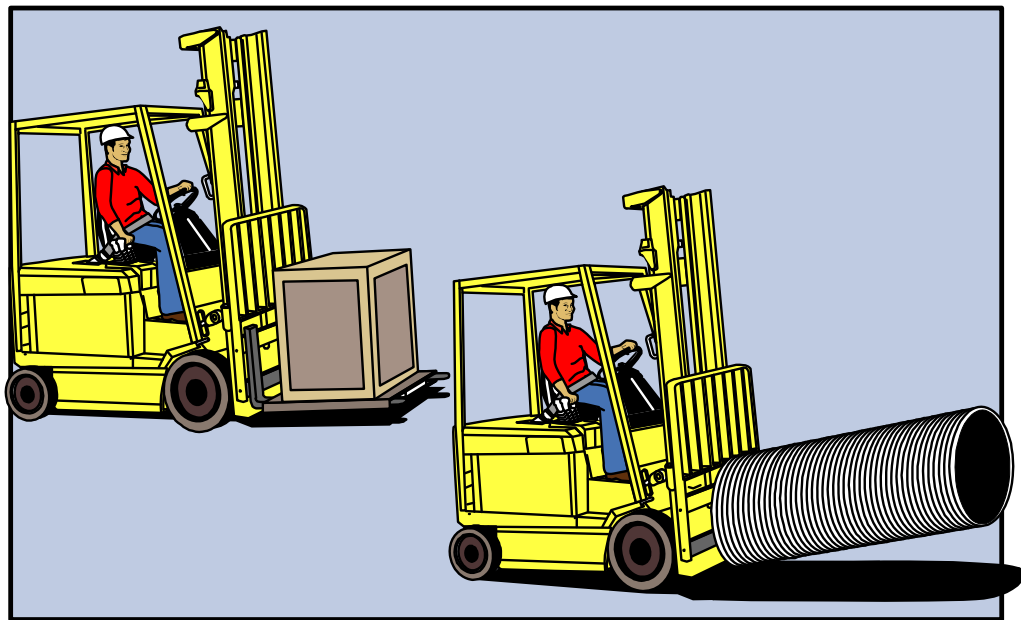
It is important to understand that powered industrial trucks are specialized machines with unique operating characteristics designed to perform specific jobs. Their function and operation are not like an automobile. Never assume you can operate a powered industrial truck in the same manner as you would an automobile.



Operation of a Powered Industrial Truck

Only fully trained drivers who have been authorized by their supervisors are allowed to operate a powered industrial truck. There are a large variety of powered industrial trucks that are specially designed for various duties they will be performing. *Re: 1910.178(l)*

As a powered industrial truck operator, you are entrusted with the proper care and operation of an expensive and valuable piece of equipment.



Carrying a Load

When you are carrying a load, you are entrusted with the proper and careful handling of the cargo itself. With the truck and load, you are responsible for the safety of an investment worth thousands of dollars.

Powered industrial trucks are quite versatile. Forks can be replaced with other attachments. These may be clamps for handling rolls, paper bails, bundles of lumber, or barrels of oil. There are also attachments for shifting the load a few inches from one side to the other.

Once you have been assigned a powered industrial truck to drive, perform the preoperational checks on it before operating the vehicle. After everything has checked out to be safe and operational, learning the capacity of the vehicle is important. The powered industrial truck, like any machine, has a certain capacity. When this capacity is exceeded, the powered industrial truck is being damaged and the operator and others in the vicinity are being endangered.



Capacity is Exceeded



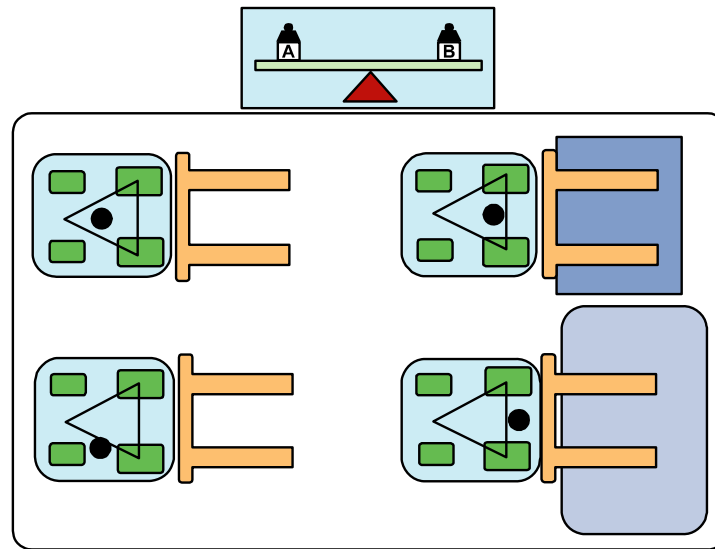
Each powered industrial truck has a data plate mounted on the vehicle, usually alongside the driver's seat. This data plate contains a variety of important information for the driver. The plate will indicate the maximum weight the vehicle will handle without overloading it. The plate will also indicate maximum loads, depending on the load center. The load center is the distance from the front face of the forks or clamps to the center of gravity of the load.

Re: 1910.178(a)(4)

MODEL NO.				TYPE			
SERIAL NO.							
ATTACHMENTS							
				CAPACITY WITH ATTACH LISTED ABOVE OR WITH FORKS UPRIGHTS VERTICLE			
				LBS.	A	B	C
LESS BATT. ELECTRICS							
WITH MAX. BATT. WT.							
MAX				MIN			
AH				NO.			
LBS				VOLTS			

Data Plate

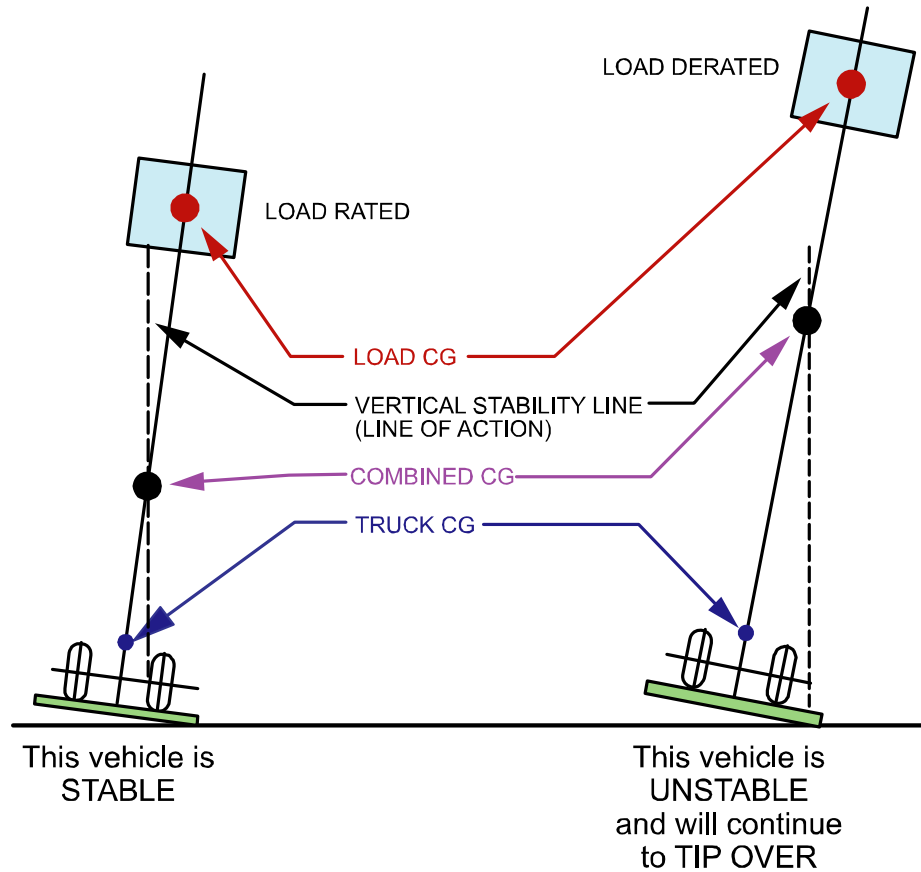
Your powered industrial truck is a precision-engineered piece of equipment set up to operate on a fulcrum and lever balance point. It is important to remember when picking up a load that you operate your equipment inside its operating triangle. This triangle is the safe working zone for your machine.



Fulcrum Point

When the sit-down rider powered industrial truck is unloaded, the heaviest point is to the rear of the machine closest to the counterweight on the steer axle. As you add weight on the forks or front of the machine, this balance point or weight moves forward toward the drive axle, which is the pivot point or fulcrum of the powered industrial truck.

It is important to never go beyond the operating parameters of this safety zone.



Unstable Vehicle

Overloading, traveling with the load too high, taking corners too fast and too sharp will cause you to go outside these operating parameters which could lead to equipment or product damage, injury or loss of life.

Every powered industrial truck has an operating zone that must never be exceeded. It is important that you as an operator keep this in mind when picking up a load.

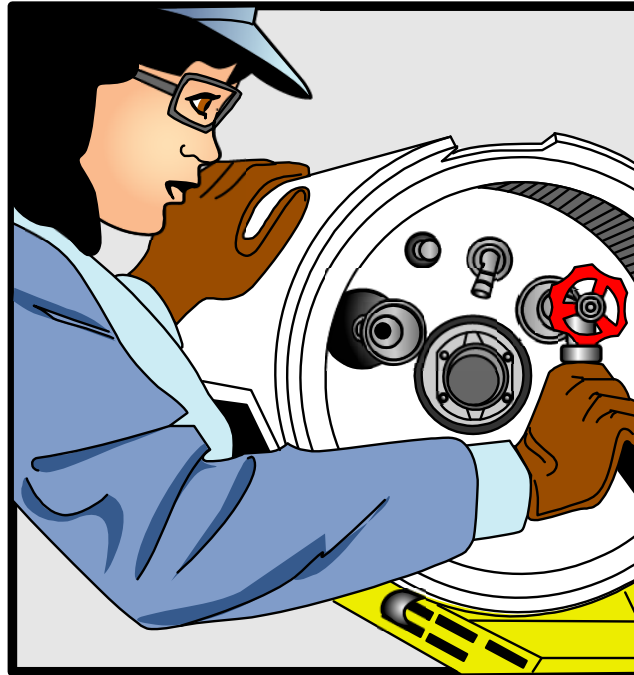
Before starting the powered industrial truck, familiarize yourself with the lever that controls the forks or clamps. As described in the “Equipment Description” section of the manual, one lever controls the up and down movement and the other lever controls the tilt forward or backward movement. Know exactly what lever controls each movement. This prevents damage to the equipment or to the materials you are handling. Using the wrong lever while a load is suspended in the air could cause the load to fall. Moving the lever in the wrong direction could cause the lifting mechanism to drop suddenly and damage the mast and chains.

The location and operation of the levers might differ from powered industrial truck to powered industrial truck, so always take note of these before operation. Check the position of the steering wheels (rear wheels) when mounting the powered industrial truck. This will prepare you to counteract any wide swings of the vehicle before you start.

NOTE: After checking the powered industrial truck, ensure that your hands are not wet or greasy before mounting and starting the powered industrial truck.

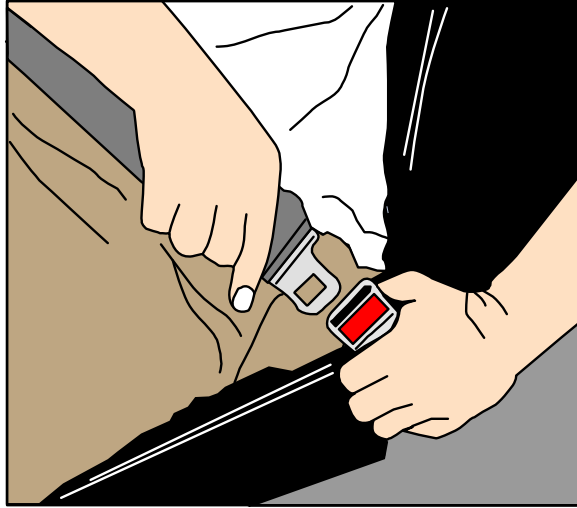
Now that all preoperational checks have been performed and you have familiarized yourself with the load capacities and lever controls, it is time to go through the starting procedure.

Check the LP tank to see if the fuel supply is **ON** and check the amount of fuel in the tank. If the fuel supply is **OFF/CLOSED**, then turn the fuel supply valve at the tank to the full open position.



LP Fuel Supply

Now mount the truck and fasten your seat belt. Not all powered industrial trucks are equipped with seat belts. However, if the truck is equipped with seat belts, you **MUST** wear it.



Fasten Your Seat Belt

Place the transmission control lever in the neutral position. The vehicle will not start in forward or reverse.

Do not depress or pump the accelerator when starting. Engage the starter by turning the ignition switch to the start position. The starter should not be engaged for longer than 30 seconds. If the motor does not start, release the switch and wait 30 seconds before trying again. If the motor will not start after a few tries, notify the authorized repair personnel or your supervisor.

DO NOT RUN THE BATTERY DOWN.



After the engine has started, check all instruments on the panel, making certain they are all operating. Do not idle the engine unnecessarily. This practice causes exhaust fumes and wastes fuel. Release the parking brake. For vehicles equipped with speed controls, move the control lever to the desired range. This would be high gear or low gear.

Raise the forks, clamps or any other attachment off the floor approximately four to eight inches. This allows proper clearance between the attachment and the floor.



Proper Fork Clearance

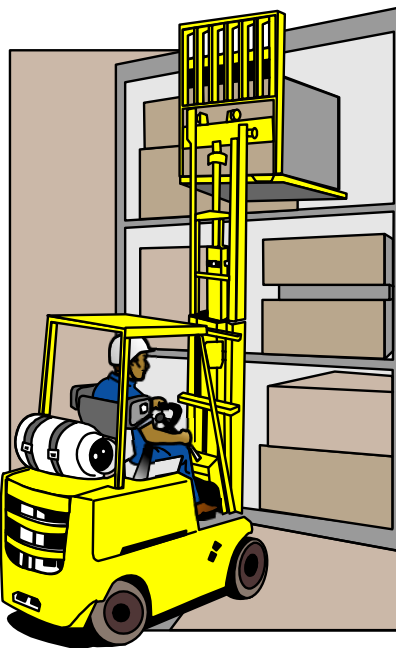
Notes:



Proper Handling and Stacking Procedures

Material handling is a form of automation. The back breaking job of manually moving materials from one place to another can be eliminated with powered industrial trucks.

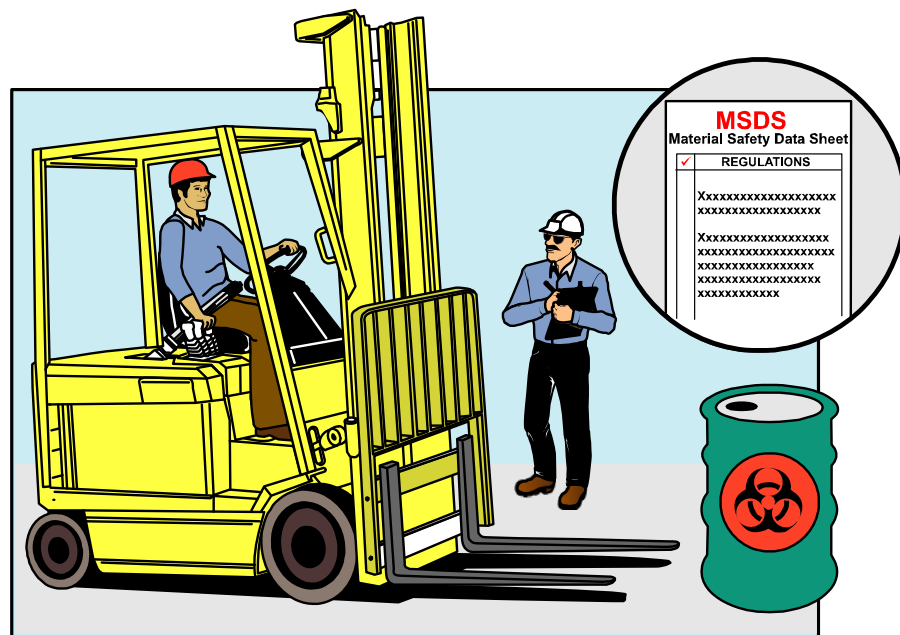
Good material handling requires the efficient movement of raw materials and finished products. Many think the job of a powered industrial truck operator is an independent action because the driver frequently works alone and in most cases without close supervision. However, the independent actions of each operator are linked together whether it is handling pallets full of merchandise, unloading a railroad car of scrap paper, or stacking finished products in the warehouse.



Proper Handling and Stacking Procedures

An integrated material handling system is often built around the use of industrial powered industrial trucks for the movement of materials. The material to be moved may, by its very nature, lend itself to be moved without the need for pallets or other types of carrying devices. However, most materials are carried from one place to another on pallets, in bins, racks or another type of container. The products may be stacked or bound together to allow many of them to be moved as one load.

Sometimes your job may require you to use the fork truck to handle hazardous type materials. When the handling of chemicals and other hazardous materials are required, you must refer to your supervisor and the company's Material Safety Data Sheets (MSDS). Your supervisor and the material safety data sheets will assist you in being aware of the proper clothing, safe personnel distances and all other precautions that must be taken when handling hazardous materials.



Material Safety Data Sheets (MSDS)



Picking Up the Load

Every powered industrial truck bears a rating capacity data plate. Attempting to exceed the load capacity of the truck may cause serious damage to its various components. It is also very dangerous. If you are in doubt about the weight of a load, check with your supervisor. When picking up a load, approach the load straight on with the forks parallel to the floor.

Re: 1910.178(o)(2)



Picking Up the Load

Make sure the forks are low enough to slide under the load, fit into the pallet openings, and can pick up the bin without damaging the item being hauled. The same procedure must also be followed for a clamp attachment. Approach the load straight on and have the clamps opened wide enough to slide along each side of the article to be hauled without damaging the article.



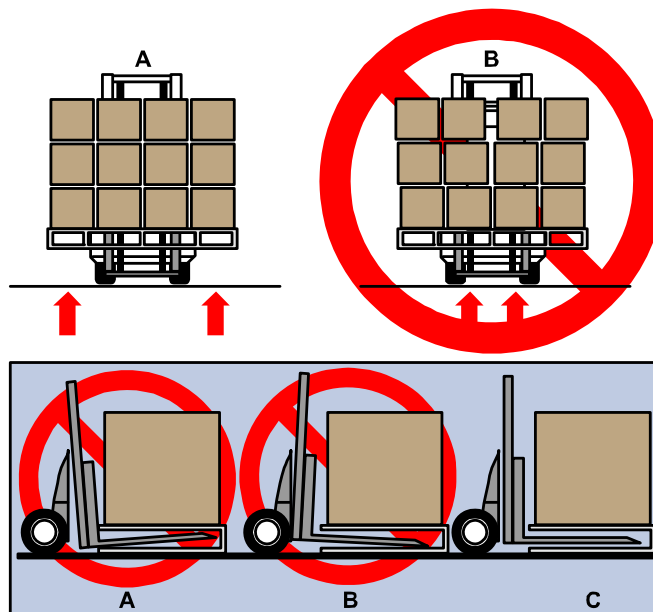
Adjust Forks to Fit Load

Adjust the forks sideways on the fork bar so that the spread of the forks matches the width of the load or pallet. This maintains proper balance and makes the load easier and safer to move. When the forks are not centered under the load, the load may slide off the forks and become damaged.

NOTE: Many forks allow automatic adjustment of the forks. If yours require manual adjustment instead, use extreme caution when making adjustments to avoid injury.

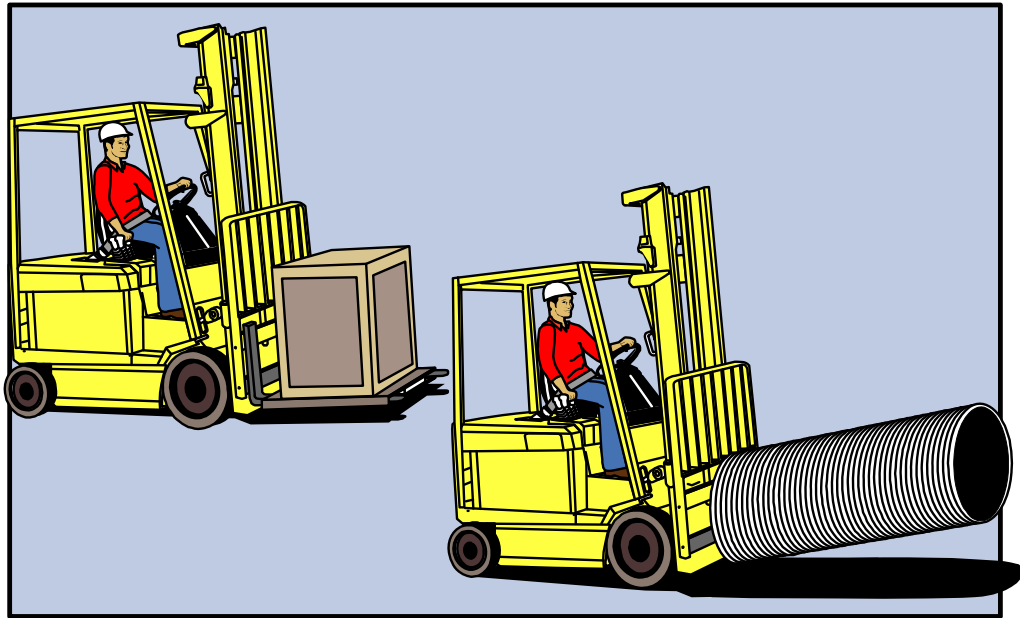
When approaching the load, drive slowly.

- Raise or lower the forks to the proper level and drive forward until the load touches the carriage.
- Center the load as closely as possible.
- Tilt the mast back slightly and lift the load slightly, accelerating the engine simultaneously. If removing a load from a stack, keep a close eye on it.
- After the load has been cleared, slowly back away from the stack.
- Once the load is clear, lower it.



Proper Lifting Procedures

Once you are ready to pick up your load, raise the forks up in a level vertical manner. Once you are off the ground four to eight inches then tilt the mast back slightly and proceed slowly and cautiously to your drop-off location.



Tilt the Mast



Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used. *Re: 1910.178(o)(6)*



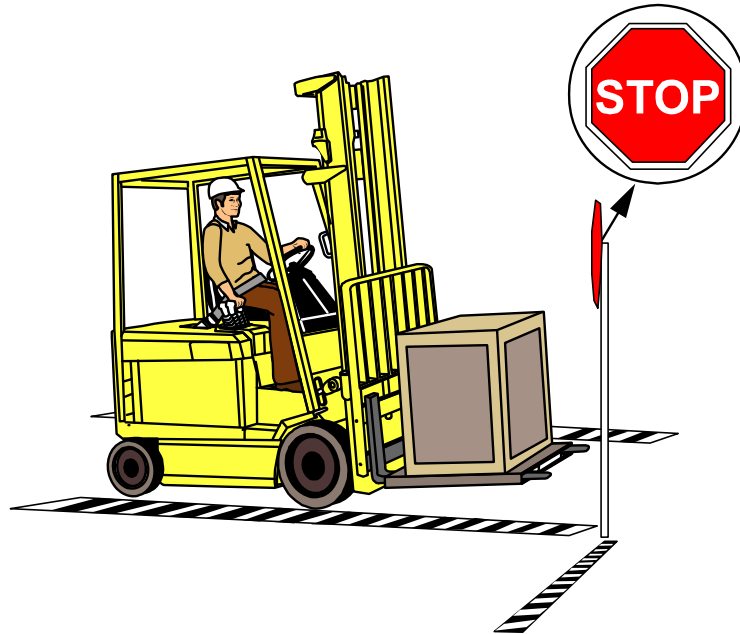
High Tiering

Always make sure the load is against the carriage and the load backrest. The reason for this is that the weight of the truck has to balance the weight of the load. The farther out the load center, the less weight the truck can lift safely. No matter what type of load you are hauling, shift the forks to center them under each load.

To pick up a coil of wire, large pipe or other hollow center loads with ordinary forks, moving the forks is necessary so they are close together and centered properly. Insert forks in the center of the coil or pipe and raise them high enough to lift the coil or pipe clear of the floor. Drive slowly with this kind of load, taking extra care when making turns to avoid having the load swing.

Driving with the Load

When driving, always use the aisle; never cut corners to avoid traffic signs or to avoid other traffic. When carrying a load always start in low gear, if equipped. Starting in high gear is hard on the truck.



Driving with the Load

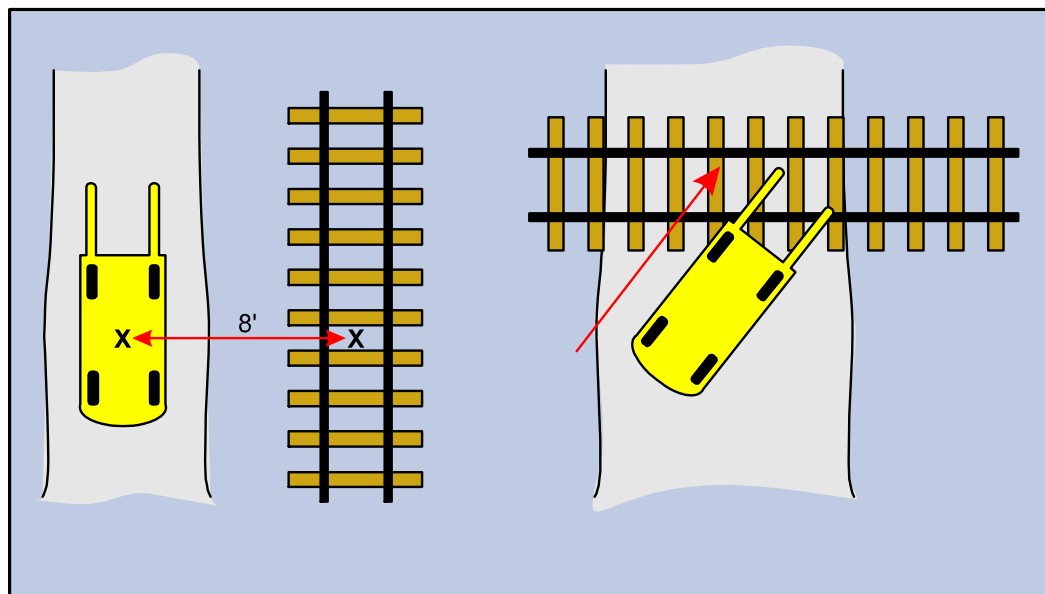
Always avoid fast starts and stops. You can tip or spill the load or cause a collision between the truck and the one following you. Besides, fast starts are hard on the tires, clutch and gear train. Sudden stops also cause rapid wear of tires and brakes.



Avoid running over large or small obstacles. Riding over obstacles can damage tires and other components. You could also spill the load or even overturn the vehicle. Try to avoid crossing railroad tracks. If you must cross them, approach at an angle and hold the steering wheel firmly.

Re: 1910.178(n)(14), 1910.178(n)(5)

When traveling near railroad tracks with a powered industrial truck you must maintain a minimum distance of eight feet from the center of the track.



Traveling Near Railroad Tracks

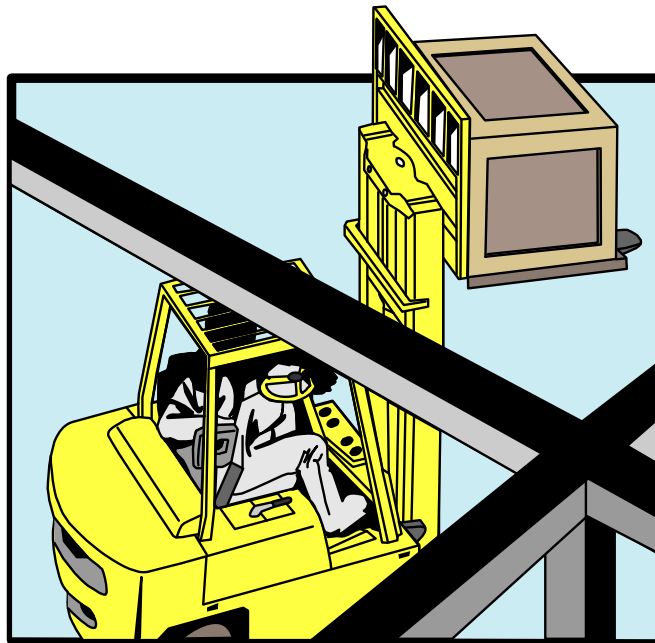
When driving with a load that obstructs forward vision, always drive backwards. This is to give you a wide vision and give support to the load if a sudden stop is required. Always look in the direction you are traveling. Never drive with your visibility blocked. *Re: 1910.178(n)(6)*



Drive Backwards with Load

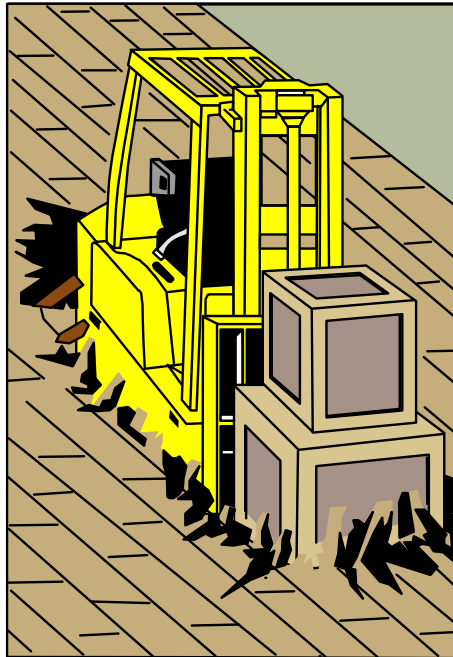


Keep a close watch on overhead clearance. Watch for fire lines, sprinkler heads, light fixtures, overhead conveyors, power lines and door frames. Be careful when lifting objects off stacks. Overhead clearances, at times, can be very tight. Because of the excess amount of power provided in these trucks, the operator may be unaware of the fact that the mast is in contact with a sprinkler head or pipe. Constant attention is required.



Watch Out for Overhead Clearance

Carefully inspect floors and rail cars **before** entering with your lift truck. Watch out for weak floors. **DO NOT** drive onto the floor of a building, truck trailer, or railroad car that obviously will not carry the weight of the powered industrial truck and its load. Take time to walk in the trailer or rail car and carefully inspect the floor before you drive inside.



Beware of Weak Floors



Never drive onto an elevator whose listed capacity is not great enough to support the combined weight of the truck and load. The data plate will provide you with the weight of the powered industrial truck you are driving. In areas where there is a tight restriction, it will be posted with information signs. *Re: 1910.178(n)(12), (n)(14)*



Elevator Capacity

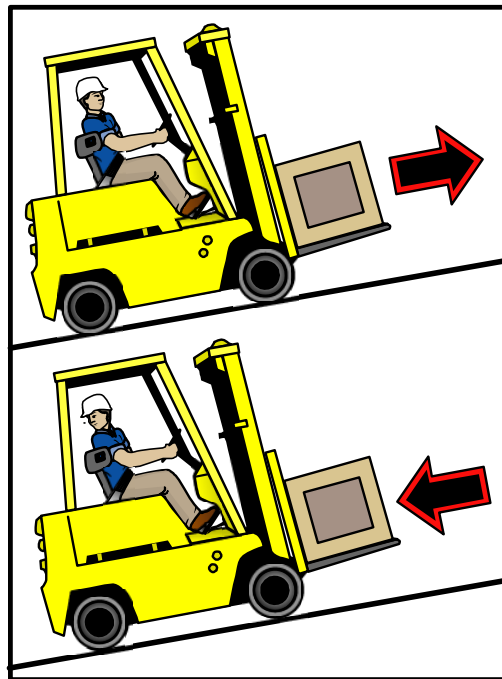
If you have to operate the powered industrial truck on ramps or inclines, remember a few rules. Be sure the load is well stacked and stable so that maneuvering on the incline does not cause it to spill.



Use Caution on Inclines



Always drive forward going up the incline, and drive backward going down to keep the load resting firmly against the carriage or backrest. Always travel straight up and down ramps. When going down a ramp, put the truck in low gear. This takes advantage of the engine compression and allows the truck to move down the ramp at a safe, slow speed without excessive braking. Never drive down a ramp with the load in front. *Re: 1910.178(n)(7)(I)*

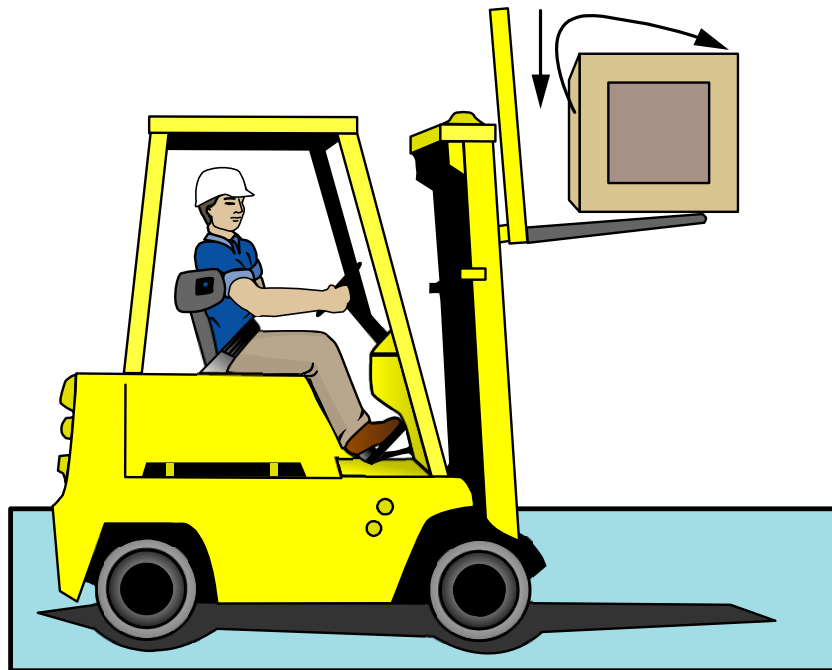


Driving Up and Down Inclines

REMEMBER: NEVER turn on an incline.

Lowering and Unloading a Load

Never stop the lowering action suddenly. Sudden stops may cause spills. Release the control lever smoothly and gently to ease descent to a halt. By lowering loads slowly and smoothly you will avoid putting severe strain on the hydraulic system, pulleys and lifting chains. **DO NOT** lift or lower a load while traveling. This gives the load and powered industrial truck poor stability.

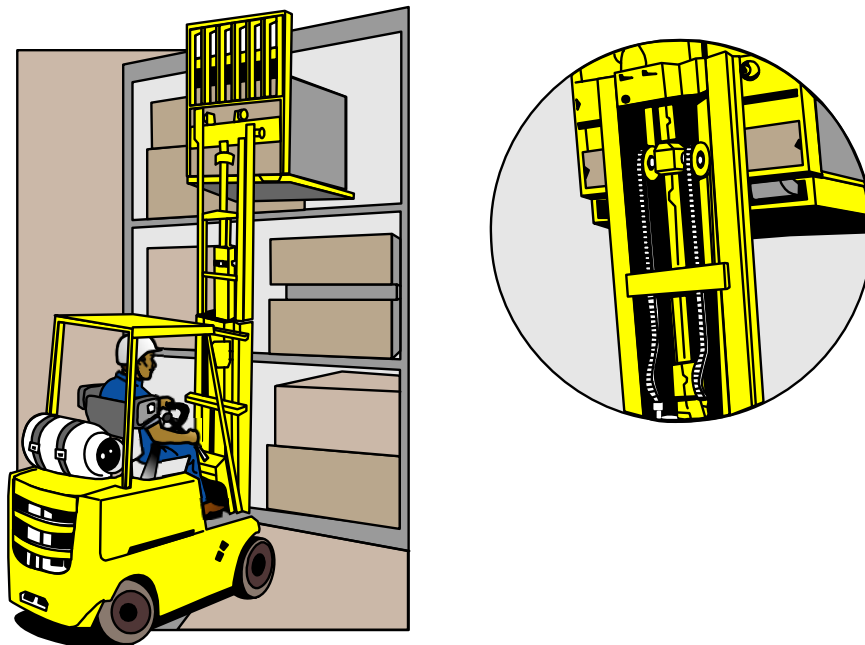


Lowering and Unloading a Load

Always come out of the same bay or tier that you entered. Do not cut corners. When depositing a load, enter the area squarely. Set the loads down slowly in the desired position, usually parallel and right next to other loads. Never butt or ram a load with the forks or clamps of the powered industrial truck. This can cause costly damage to the items you are hauling and can damage the truck. If a load is incorrectly placed, pick it up and correctly maneuver it into position.

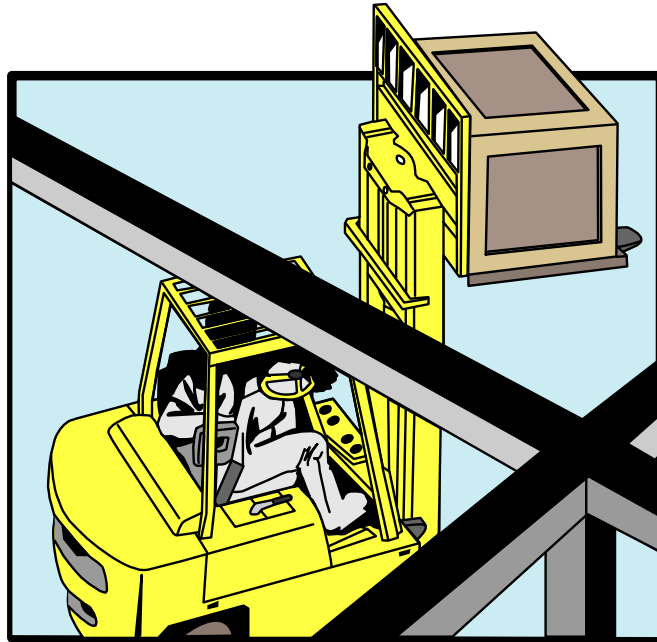
Stacking

Approach to within a foot or so of the stack or tier with the load held low. Stop, raise the load slowly while inching forward. When the load reaches the desired height, tilt the mast forward until it is vertical. Position the load over the stack so it lines up squarely. Lower the load slowly. When it is resting solidly on the stack and the forks are free, back the truck away. If using a clamp, when the load makes contact, release the clamps. Lowering the clamps or forks lower than necessary will cause chain slack in the hoist. Watch the lift chains. If the chains are slack, stop, raise the load, and lower it again. Never back out from a load if the lift chains are slack. This will cause damage to the mast and chains. *Re: 1910.178(o)(6)*



Proper Stacking Procedures

Extreme care must be taken when the mast and load are raised high. The heavier the load and the higher you raise it, the higher you force the truck's center of gravity, reducing stability. When lifting a load, always check to see if there are any overhead obstructions that you might damage or that might cause you to spill the load or topple the truck.

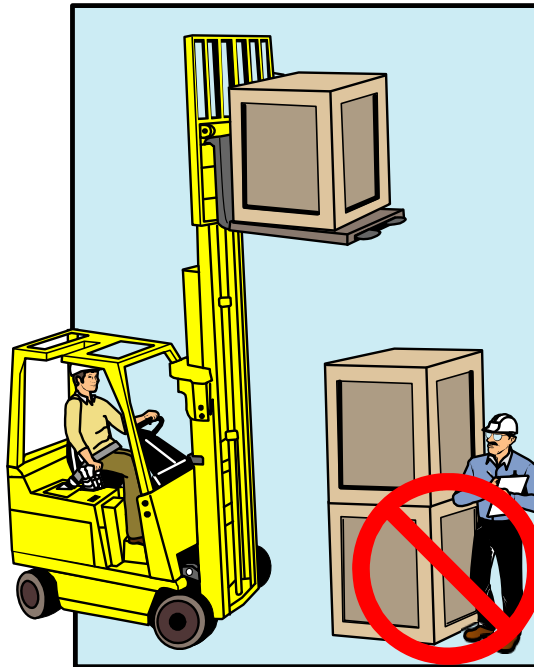


Check for Overhead Obstructions

Always obey instructions regarding stacking heights. Stacking to the ceiling may block the sprinkler system and may overload the floor. Sprinkler heads are part of the fire protection system and great care should be taken not to put them out of commission. A minimum clearance of 18 inches must be maintained between the top of the materials in storage and the sprinkler heads.



Never allow other workers or visitors to stand nearby when you stack materials. If, by accident, something should fall from the load, it might injure a bystander. Never stand or walk, or allow anyone else to stand or walk under elevated loads.

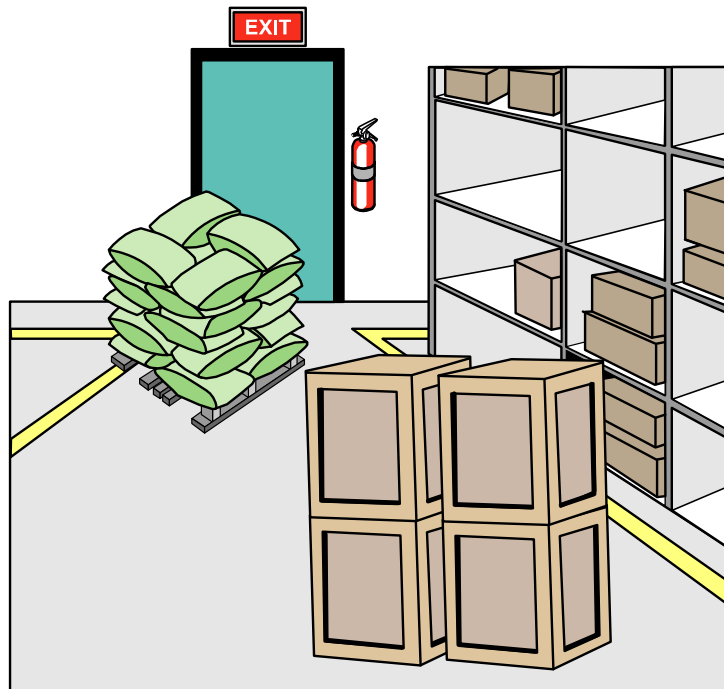


Keep Personnel Away from Stacking Area

Do not stack materials in aisles or roadways. Even if it stays there for only a few minutes, another powered industrial truck could smash into the load.

Never block doorways or fire equipment with materials. The worst thing that could happen is to have a fire and not be able to reach the fire equipment to put it out, or have an evacuation of a plant and not be able to get through a doorway because it was blocked. Most aisles and roadways are marked with white or yellow lines. Always stay within these boundaries.

Re: 1910.178(m)(14)



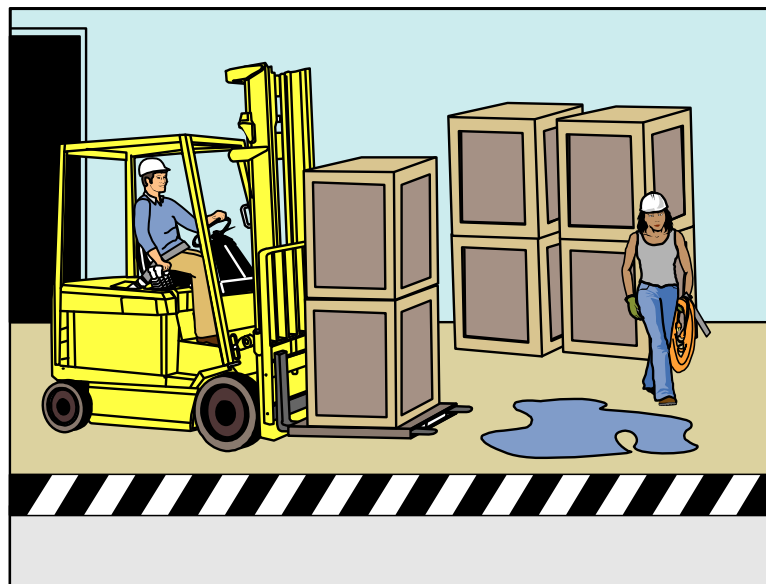
Fire or Evacuation



Loading and Unloading Trailers or Railcars

When loading or unloading trailers or railcars, the following procedures should be followed to ensure safe operations.

Most of your time, when loading or unloading trailers or railcars, will be spent on shipping and receiving docks. A driver must be aware of the many hazards present on loading docks.



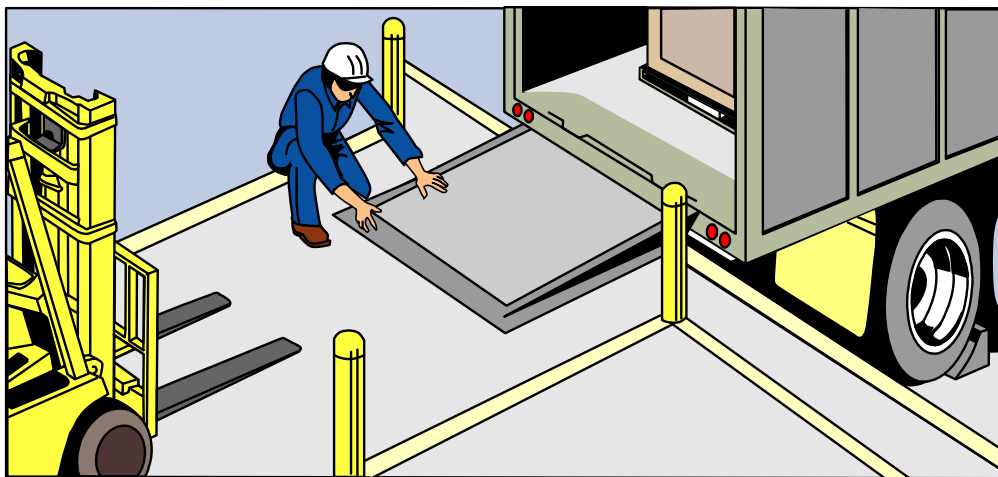
Shipping and Receiving Dock

When driving on loading docks, the amount of room you have to maneuver is limited. Avoid driving along the edge of a loading dock. However, if it must be done, be very careful because you can easily go off the edge while maneuvering. If you find yourself in a position where maneuvering might cause you to drive off the dock, stop the truck and figure out how you can maneuver the truck away from the edge. Remember, the rear wheels of the truck swing wide, but if you try to turn away from the edge by driving forward, you risk having the rear wheels go off the edge. *Re: 1910.178(m)(6)*

Never drive onto a flatbed trailer for loading or unloading. These trailers should be loaded or unloaded from the ground. Be aware of slippery surfaces on the loading dock that could cause the truck to slide.

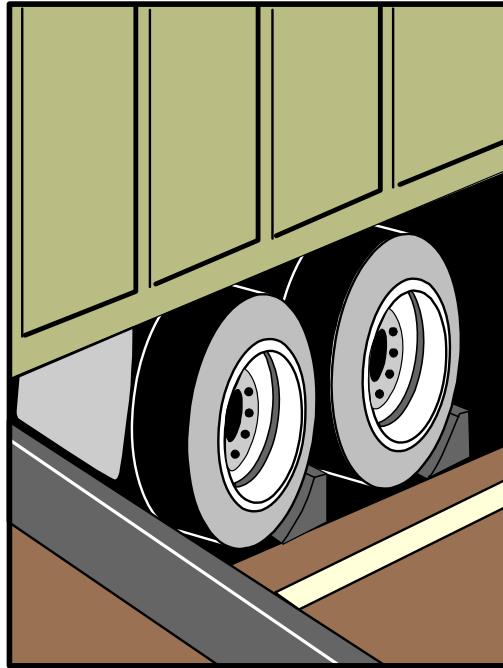
Watch out for pedestrians and materials that may also be on the loading dock.

When loading or unloading a trailer, always check to see that bridge plates and dock boards are firmly locked into position and are strong enough to support the weight of the loaded truck.



Check Bridge Plates

Before you enter a trailer with the fork truck, be sure the rear wheels of the trailer have been chocked, one on each side. This is the powered industrial truck operator's responsibility. If the tractor is not coupled to the trailer, install fixed jacks to support the trailer to prevent upending during the loading or unloading.



Chock Rear Wheels of Trailer

Fixed jacks may be necessary to support a semitrailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor.

Re: 1910.178(m)(7)

When loading or unloading trailers, cross bridge plates or dock boards slowly.

Use the horn when backing out of a trailer and be alert for pedestrians.

When loading or unloading is complete, dock boards are to be removed.

Also, wheel chocks are to be removed and returned to their proper place.

Re: 1910.178(m)(7)

The rules used for loading and unloading railcars are the same as those used for trailers.

Railcar wheels must be chocked. Individual cars must have a wheel chocked at each end of the car or use two chocks, one on each side of the same wheel. Cars in strings must have a wheel chocked on each end of the string. Railcars must also have their handbrake set.

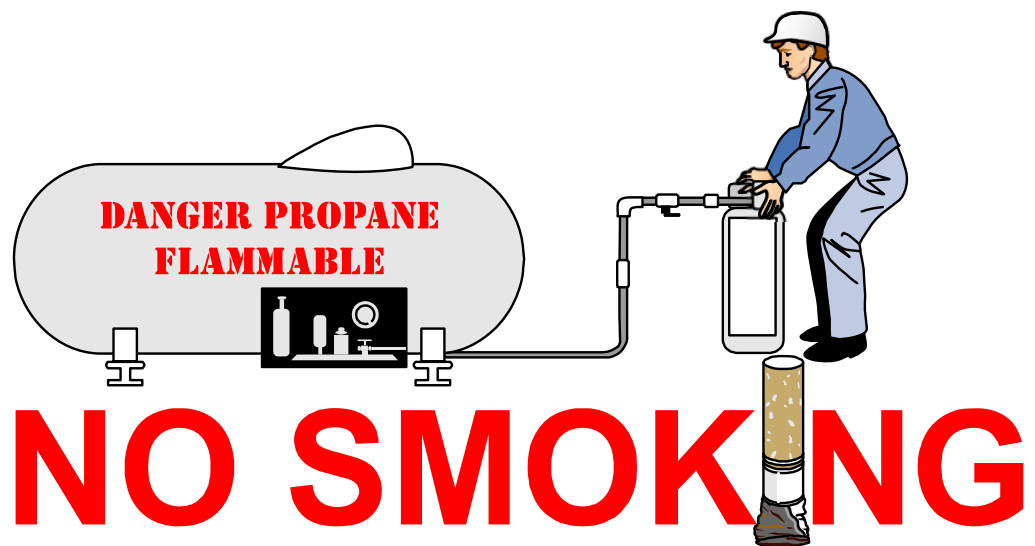
Make sure the bridge plates are firmly in place. Track warning lights should be green before you enter the railcar to load or unload. Be alert when entering and exiting railcars. *Re: 1910.178(m)(7)*



LP Powered Industrial Trucks

Some powered industrial trucks are powered by an LP gas system. The primary reason that LP gas is used is the low carbon monoxide emission. Since LP gas is colorless and odorless, an additive has been added to the liquid to give it a detectable odor.

Three basic ways to tell if the LP gas tank needs to be changed are:

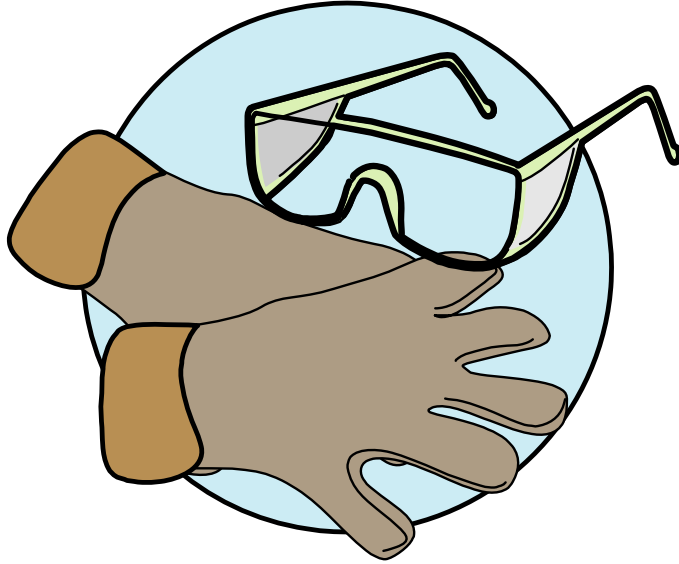


1. Check the gauge on the tank. The gauge is connected to a float located inside the tank.
2. Move the tank by hand. Since LP gas is liquid, you can move the tank from side to side and detect how much liquid is left.
3. Feel the outside of the tank. When the tank level is low, it becomes very cold to the touch.

Once you have determined that the gas tank needs to be changed, drive to the LP gas tank storage rack and perform the following procedures.

CAUTION!

Gloves and safety glasses must be worn when changing LP gas tanks. LP is very cold and could cause blindness if it gets in your eyes.



Gloves and Safety Glasses Must Be Worn

1. Ensure you are at least 50 feet away from any ignition source.
2. The vehicle will stop when out of fuel. If the vehicle is not out of fuel, turn the ignition key to the off position.
3. Always close fuel valve when performing tank change overs or maintenance.

4. Uncouple the tank by loosening the coupling and remove the feed hose from the tank.



Uncouple and Remove Hose

5. Release the hold-down clamps and raise the top part of the hold-down bracket.
6. Remove the tank from the bracket and place it in the empty tank rack.
7. Place a full tank in the bracket of the powered industrial truck. Ensure the relief valve has been placed in the upright position.

NOTE: An LP tank which is filled to 33 pounds of LP has the explosive equivalent of 132 pounds of dynamite, when mixed with the right amount of air. Use extreme caution when handling these tanks.

Never attempt to refill an LP tank yourself unless you have been specifically trained and authorized by your employer. If tanks are not properly bonded and grounded, a fire or explosion can occur.

8. Lower the top of the bracket and reattach the hold-down clamps.
9. Reattach the fuel supply line to the tank. LP gas fittings have left-hand threads. Tighten the coupling down as far as possible **BY HAND**.

10. Open the tank valve completely and check for leaks.

NOTE: Should the fuel supply hose break for any reason, the safety valve will automatically shut off the gas flow.

While changing a gas tank, if a leak is discovered, shut the tank off and remove the tank from the powered industrial truck. Notify your supervisor and place a tag on the tank.

The powered industrial truck is ready to resume operation.

When a powered industrial truck will not be used for an undetermined period, park the powered industrial truck in its designated area. Shut off the fuel supply valve at the tank and operate the engine until fuel in the line is consumed. Turn off the ignition switch.

If the powered industrial truck will not be used for 24 hours or longer, close the fuel supply valve and operate the engine until all the fuel in the system is consumed. Ensure no smoking or ignition sources are within 50 feet.

Remove the LP tank and take it to the storage rack. Tanks should be stored with the relief valve up.



Battery Powered Industrial Trucks

Many industries utilize battery powered industrial trucks. Battery powered industrial trucks are used primarily in industries with a closed environment, such as the food processing industry.

The acid concentration of large industrial powered truck batteries is higher than that of the batteries in an automobile. Because of this, batteries must be maintained by properly trained maintenance personnel. Battery charging equipment must be in a specially designated area, and this equipment must be protected from damage by other trucks. During the charging process, batteries give off highly explosive hydrogen gas, therefore, proper ventilation and an eye wash station must be present. **NO SMOKING, OPEN FLAMES, SPARKS or ELECTRIC ARCS** are allowed in the battery charging area. *Re: 1910.178(g)(1), 1910.178(g)(10), (g)(11)*

On battery operated trucks, you should be aware of some basic visual inspections that must be performed. Other than the following basic inspections, you should not work on the battery of the truck.

1. Check the battery plug connection to ensure it is tight.
2. Turn the key to the “ON” position and make sure the battery discharge indicator is in the green area.
3. With the key in the “ON” position, hold the tilt lever in the full tilt position. If the discharge indicator falls into the red area, after the key is turned on or while using the controls, this shows that the battery does not have enough charge to operate the truck properly. Take the truck to the charging area and have the responsible personnel correct the problem.
4. Facilities shall be provided for flushing and neutralizing spilled electrolyte, fire protection, protecting charging apparatus from damage by trucks, and adequate ventilation for dispersal of fumes from gassing batteries. *Re: 1910.178(g)(2)*

5. A conveyor, overhead hoist, or equivalent material handling equipment shall be provided for handling batteries. *Re: 1910.178(g)(4)*
6. Reinstalled batteries shall be properly positioned and secured in the truck. *Re: 1910.178(g)(5)*
7. A carboy tilter or siphon shall be provided for handling electrolyte. *Re: 1910.178(g)(6)*
8. When charging batteries, acid shall be poured into water; water shall not be poured into acid. *Re: 1910.178(g)(7)*
9. Trucks shall be properly positioned and brake applied before attempting to change or charge batteries. *Re: 1910.178(g)(8)*
10. Care shall be taken to ensure that vent caps are functioning. The battery (or compartment) cover(s) shall be open to dissipate heat. *Re: 1910.178(g)(9)*
11. Tools and other metallic objects shall be kept away from the top of uncovered batteries. *Re: 1910.178(g)(12)*



Changing the Battery

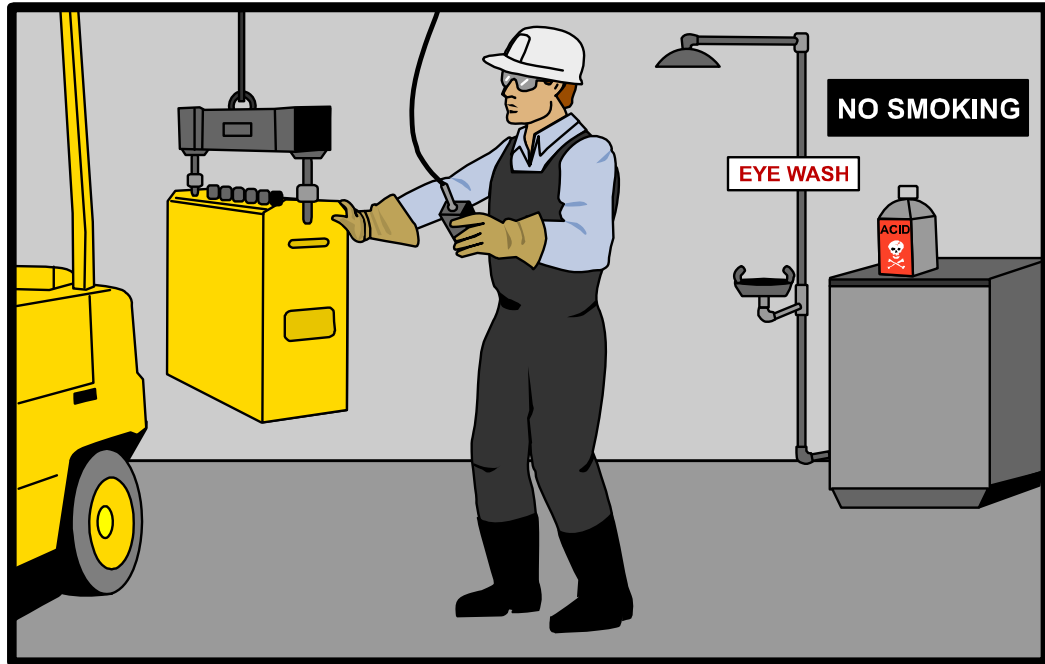
1. Determine if the battery needs to be changed.

Each machine is equipped with a gauge or digital display that indicates the level of charge on the battery in use. If the equipment has a gauge, the battery should be changed when the needle moves out of the green and into the yellow zone.

Do not leave a battery that needs to be changed for the next shift. If a battery sits idle, it will build the charge. This will give the next operator a false reading on the gauge, causing them to drain the battery to a point that the life of the battery is decreased.

2. Change the battery.
 - a. Wear the proper Personal Protective Equipment; safety glasses or shield, rubber gloves, and rubber apron.
 - b. Drive the equipment into the battery change area. Be sure to shut the equipment down properly and set the parking brake.
 - c. Turn the equipment's key to the "OFF" position.
 - d. Unplug the battery and lay the plug and cable under the battery lid. This prevents the cable and plug from being damaged.
 - e. Check the percent charge on the spare battery to be installed. The light or display should show that the charge is at least 80%.
 - f. Turn the charger off and then unplug the battery. Place the plug and cable under the battery lid to prevent damage.

- g. Remove the old battery from the equipment and place it in the location labeled for that battery. Load the new battery into the equipment.



Loading Battery

You must be trained and authorized to use a hoist. Hoist and cranes, including slings, chains, hooks and spreaders, must be inspected before use.

NOTE: Watch your fingers, hands and feet; the battery weighs over 1000 pounds (1/2 ton).

- h. Raise the lid on the battery in the powered industrial truck and remove the plug. Connect the plugs for the battery and machine. Ensure that the lid is not pinching the cable, since this could cause an electrical arc and explosion.

NOTE: Inspect cables and plug for wear and damage. DO NOT proceed if damage is present. Notify your supervisor immediately.



- i. Raise the lid on the old battery to be charged. The lid must remain up during the changing process. Hang the battery cable over the back of the lid and plug into the charger. Turn the charger to the “ON” position.
 - j. Complete a battery charge report, if that is a duty assigned to you as equipment operator.
 - k. Chargers usually take a period of time to diagnose the battery before charging begins. Plan to return after that period of time, to ensure that no diagnostic faults were identified and that charging has begun.
3. Identify and report problems.

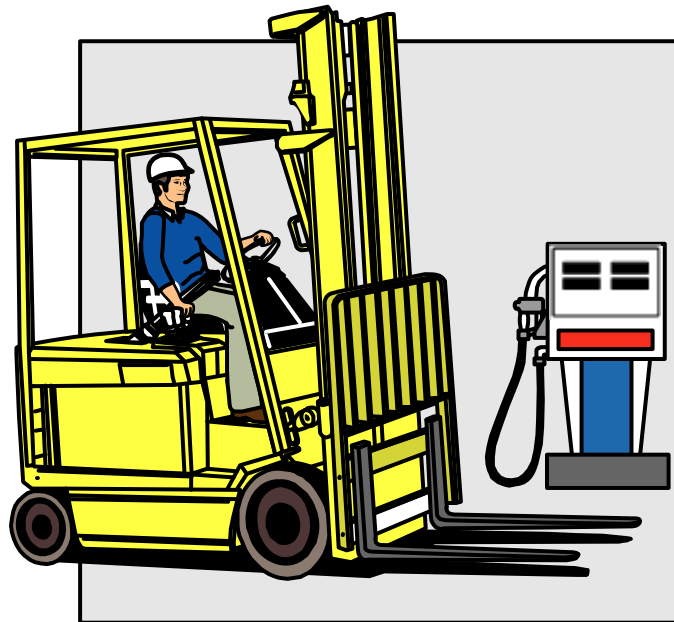
Report problems to maintenance, or to whoever is designated at your plant.

Notes:



Gas and Diesel Powered Industrial Trucks

Two other types of trucks are used in various types of industries. These two trucks are the gas and diesel powered trucks. The gas and diesel powered trucks differ only in the type of fuel they use. Like the LP gas powered models, gas and diesel powered models need to be refueled by the operator. This means that the fuel gauge must be checked before putting the truck into operation. If the fuel gauge shows a low fuel level, take the truck to the refueling station and refuel the truck.



Diesel Refueling

The general procedures for gas and diesel refueling are as follows:

1. Turn the ignition **OFF** while refueling, and **NO SMOKING**.
2. Refuel only in designated areas where ventilation is adequate.
3. Use only clean, properly marked fuel cans.

4. Clean up any fuel spills.
5. If you have trouble starting the truck, it must be checked by the proper repair personnel.
6. Do not run the battery down when trying to start the truck.
7. Like LP gas trucks, gas and diesel trucks emit carbon monoxide when in operation. Avoid operating these trucks in enclosed buildings or places with poor ventilation.



Housekeeping

Keeping the powered industrial truck clean and in good repair is the sole responsibility of the operator. Fires may occur if powered industrial trucks are dirty. Do not park powered industrial trucks in a location where paper shavings and dust can blow into them. If stopping a powered industrial truck momentarily in a location where it becomes covered with paper or dust, it should be blown off before a fire can start due to combustible material in contact with manifolds, exhaust pipes, mufflers, etc.

Checking the engine compartment for cleanliness is important. This is to be done whether you drive the truck for one shift or use the truck for half an hour. When you are driving the truck, you are responsible for its cleanliness. The powered industrial truck must be blown down, using the proper equipment, at least once a shift. An area in which to blow the powered industrial truck down will be designated by your supervisor.

Never use anything other than compressed air (no O₂.) Be sure lines and fittings are intact. A regulated nozzle with pressure of 30 p.s.i. or LESS is required.

Ensure that you keep the vehicle free of scrap paper. Remove paper from underneath the truck, around the wheels, and from under the bottom of the mast. Check for wire wrapped around the wheels.

If the engine compartment becomes built up with grease and oil, it is the driver's responsibility to arrange an engine cleaning.

The powered industrial truck should be parked in the same area most of the time. If you notice any puddles under the truck such as oil, fluids, or water, be sure you clean up these puddles and notify repair personnel of the leaks. If an oil dry compound is used to dry puddles, make sure it is swept by the end of each shift to prevent fires. *Re: 1910.178(q)(10)*

Notes:



Driving Skills Performance

Phase one consists of a precheck of the powered industrial truck. The trainee uses a check list to ensure the powered industrial truck is safe to operate. Once the check list is completed, the brakes, horn, forks, and mast should be inspected before the truck is placed into operation. The few minutes spent on this check list could possibly save a life, even yours.

Phase two consists of a driving course. The driving course has several obstacles that you must drive around and between while carrying a load. This course must be negotiated in forward and in reverse. Each student is given an opportunity to practice before being evaluated.

Phase three consists of a written test given by the instructors. This test consists of questions taken from the manual that you were given and from classroom discussions. Each student must achieve a combined driving and written score of 80 percent to meet the OSHA required safety training for a powered industrial truck operator.

An example of a powered material handling truck check list and driving course which may be used is provided.

Powered Industrial Truck “Operator Skills Review”

Name: _____ Date: _____

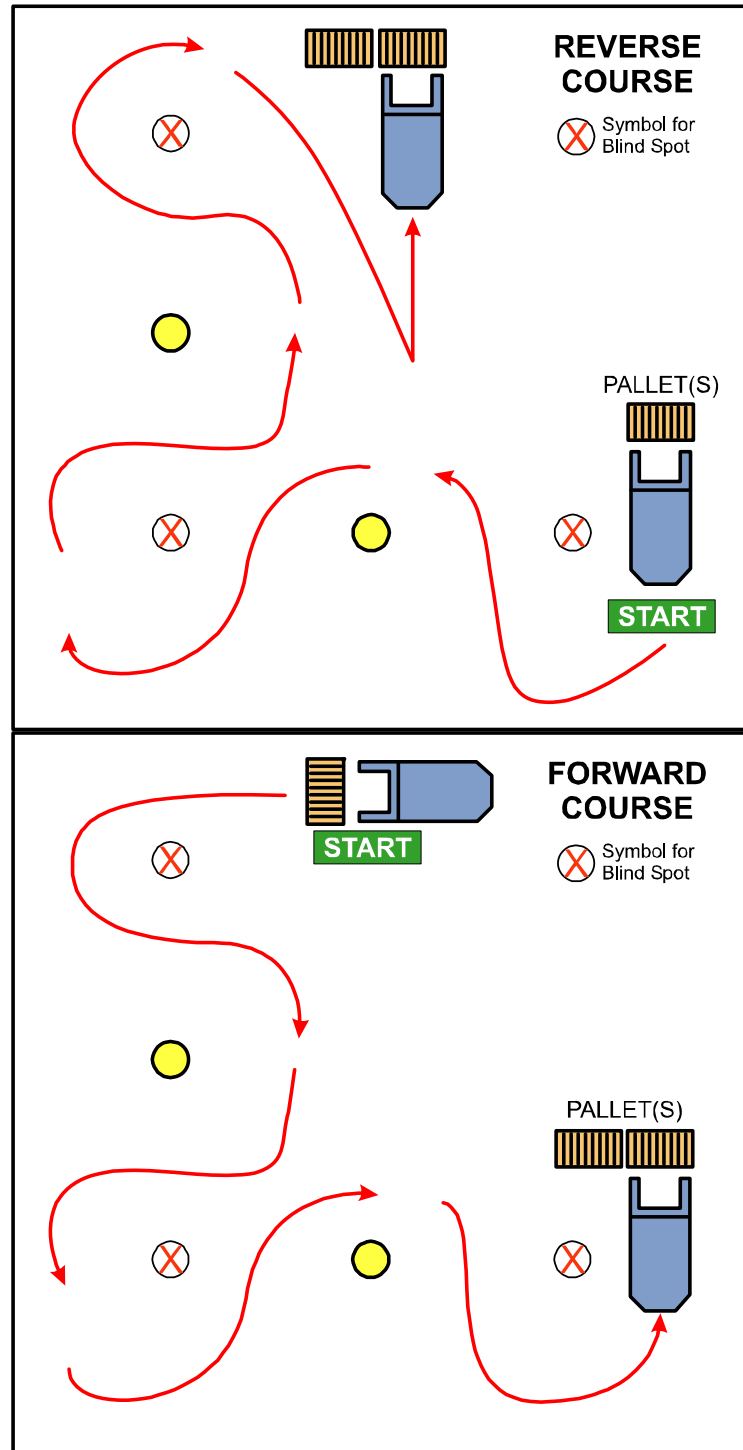
Instructor: _____

Procedures	Go	No Go
1. Pre-Inspection (Before Driving)		
a. Checks battery of fuel	_____	_____
b. Checks connections	_____	_____
c. Checks tires	_____	_____
d. Checks horn	_____	_____
e. Checks brakes and hand brake	_____	_____
f. Checks lights (if equipped)	_____	_____
2. Obstacle Course		
a. Enters truck correctly	_____	_____
b. Checks hand brake – On	_____	_____
c. Checks for neutral	_____	_____
d. Starts truck	_____	_____
e. Checks gauges	_____	_____
f. Releases hand brake	_____	_____
g. Places in gear	_____	_____
h. Moves forward – forks down	_____	_____
i. Correctly stacks and positions pallets	_____	_____
j. Correctly navigates obstacle course	_____	_____



	Go	No Go
k. Stops at aisle – sounds horn	_____	_____
l. Returns through course in reverse	_____	_____
m. Un-stacks pallets	_____	_____
n. Parks truck; turns off; sets hand brake	_____	_____
3. Stack and Store Load		
a. Correctly enters truck	_____	_____
b. Checks hand brake – On	_____	_____
c. Checks for neutral	_____	_____
d. Starts truck – checks gauges	_____	_____
e. Releases hand brake – places in gear	_____	_____
f. Moves forward – checks forks down	_____	_____
g. Correctly stacks and positions boxes	_____	_____
h. Approaches storage rack – and stops	_____	_____
i. Breaks down stacked load	_____	_____
j. Correctly maneuvers truck into storage rack	_____	_____
k. Correctly places load on stack	_____	_____
l. Retrieves other load and stacks	_____	_____
m. Reverses procedure – returns to starting position	_____	_____
n. Stops – sets hand brake	_____	_____

Driving Course





Summary

In this manual you have studied the purpose of the powered industrial truck and how it is used in the plant. It transports raw materials and finished products to the areas in the plant in which they are needed. It can also be used to assist employees in reaching overhead conveyors and pipes when outfitted with the proper lifting equipment. You have also learned the tasks involved in operating a powered industrial truck. Safety and the hazards of driving a powered industrial truck have also been pointed out. During the driver skills performance, you will learn more about the powered industrial truck and safety precautions. You will also have the opportunity to practice the skills you have been taught.

[illegible]



Glossary

Accelerator	A pedal control that regulates the speed of the truck.
Clamps	An attachment used for transporting round or square material.
Clutch	A pedal control that must be depressed to shift gears.
Counterweight	A weight attached to the rear of the vehicle. Used to counterbalance the load on the forks or clamps.
Directional Lever	A control, near the steering wheel, that controls the direction of the vehicle's travel.
Dock Plate	A metal bridge that spans the opening between the rear end of a trailer and loading dock or side door of train car and loading dock.
Drive Wheels	The wheels at the front of the truck that power its movement.
Driver's Seat	A cushioned seat that the operator must sit in while operating a powered industrial truck.
Engine Compartment	The area that houses the engine, radiator, fan, battery, etc.
Foot Brake	A pedal control, located under the instrument panel, used to stop the vehicle under normal operating conditions.

Fork Carriage	The bar to which the forks are attached.
Fulcrum	The balancing point of a powered industrial truck.
Hoist Controls	Lever type controls mounted on the steering column or instrument panel that control the movement of the forks, clamps or other attachments. For example, up, down, tilt forward and tilt backward.
Ignition	The electrical switch controlled by a key used to start or stop the truck.
Instrument Panel	The panel where the engine oil pressure, water temperature, etc., are found.
Lift Chains	Located in the mast and are used for raising or lowering the fork and clamp assembly.
Load Backrest	A support that loads rest against with the mast tilted in the backward position.
Load Forks	The metal prong-type projections that pick up or deposit loads.
LP Gas Tank	A metal tank used to house the propane fluid that powers the powered industrial truck.
Mast	Attached to the front of the powered industrial truck. It is used to extend a load to the highest position or lower it to the floor level. The attachment, backrest, carriage, and chains are all attached to the mast.



Oil Dry	A gritty type compound used to absorb oil or fluid leaks on the floor.
Overhead Guard	A metal-type guard that is attached to the top of the truck which completely encloses the driver for safety purposes.
Parking Brake	A lever type control used when the truck sits idly.
Steer Wheels	The rear wheels on the truck, controlled by the steering wheel, that turn the vehicle in any direction.
Steering Wheel	A wheel-shaped control, attached to the steering wheels, that the driver uses to control the direction of travel.
Tail Light	A red light mounted to the overhead guard at the rear of the powered industrial truck.
Trailer Safety Jacks	Jacks placed under the front of a trailer to add support and stability while loading and unloading. This is done when a tractor leaves a trailer backed into the dock.
Wheel Chocks	Wedge-type objects placed in front of the trailer's rear wheels to prevent trailer movement while loading or unloading.

Notes:



Frequently Asked Questions

1. Q. Are backup alarms required?
4.15.2 ANSI

A. Only on construction sites or if a physical disability dictates.
(Blind or deaf)
2. Q. Can front end attachments or extended forks be added to forklifts?
4.2.1 & 4.2.2 ANSI

A. Not without the manufacturer's prior written approval.
3. Q. Are spinner knobs permitted?
4.2.7 (new 1993) ANSI

A. Spinner knobs are permitted and must be within the periphery of the wheel and installed by the manufacturer.
4. Q. If someone has been trained by a previous employer do they have to be retrained?

A. See *4.19.2 ANSI* and compare to new *1910.178 (l)(6)(ii)*. It is possible that prior experience and training could suffice under the new law. However, documentation requirements under the new standard make it extremely difficult such that new operators will require training in almost all circumstances.
5. Q. Are seat belts and/or wing end seats required?
5.3.19 ANSI

A. If seat belts or wing end seats are installed they must be used. They may not be added or removed from the lift except by the manufacturer or their representative.
6. Q. How often do forklifts have to be inspected?
5.5.1 ANSI

A. At the beginning of each shift.

7. **Q.** How do LP tanks have to be installed?
- A.** They must be oriented on the locator pin when mounted horizontally. *1910.110 (e)(5)(iv)(b)*
8. **Q.** Can more than one person ride on a forklift?
- A.** No, unless there is a second seat installed by the manufacturer for that purpose.
9. **Q.** May dock locks be used as a substitute for chocks?
- A.** Yes, if the dock lock has been locked to the IC Bar and verified. See OSHA Instruction STD 1-11.7 dated August 5, 1981.
10. **Q.** Are hard hats required to be worn by operators when operating lifts? *1910.132 (d)(1)*
- A.** Yes, if the company has performed a personal protective equipment hazard assessment and has determined the use of hard hats may prevent an accident.
11. **Q.** Are fixed jacks required? *1910.178 (k)(3)*
- A.** If there is a danger from the weight of the load being loaded to the front end of the truck when the tractor is uncoupled from the trailer, fixed jacks must be used.
12. **Q.** Do both rear wheels need to be chocked?
- A.** Yes, both sides.
13. **Q.** Whose responsibility is it to chock the wheels, the truck driver or the lift operator?
- A.** Either, but the lift operator must verify the wheels have been chocked.