Powered Industrial Truck Operator Training

FCCI INSURANCE GROUP

PROTECTING BUSINESS, PROPERTY AND PEOPLE

Table of Contents

General Information

OSHA has revised its existing requirements for powered industrial truck operator training and issued new requirements to improve the training of operators. These requirements apply to all industries except agricultural operations.

FCCI has developed a training program to help employers comply with the new training requirements. The program focuses on training one employee per company to be the instructor of powered industrial truck operators. The OSHA Standards are federal laws applicable to all employers except governmental entities.

Final Rule - Summary
The effective date of the final rule was March 1, 1999. It has been adopted to the following existing federal standards:

29 CFR 1910.178(l) General Industry Standards

29 CFR 1915.120(a) Shipyards Industry

29 CFR 1917.43(i) Marine Terminals

29 CFR 1918.77(a) Safety and Health Regulations for Longshoring

29 CFR 1926.602(d) Construction Industry Standards

The final rule requires:

- Initial training and evaluation for all powered industrial truck operators

- Refresher training and evaluation for any operator observed to be operating in an unsafe manner, involved in an accident or a near miss, determined by work evaluation to need retraining, or called upon to operate a different type of truck or operate under changed workplace conditions

- Three-year evaluation to ensure retention of skills

Note: If participants in the training do not speak English, the training information contained herein should be translated for their comprehension. If any participant cannot read due to illiteracy, physical disability, or some other cause, all information must be read to the participant.

Contact Information
If you have any questions regarding this training manual or need additional booklets, call FCCI's Commercial Lines Division at (800) 226-3224.

Select a Trainer

The trainer must be able to train and educate the employees. Although it's not required, the trainer should have some practical, hands-on experience operating a powered industrial truck. A safety director, a supervisor, an experienced forklift operator, or even an office manager could be the trainer provided he or she is competent to execute the training and is knowledgeable on the subject matter. An effective trainer should also have good interpersonal skills.

OSHA requires that, "all training and evaluation required by the Standard be conducted by persons with the requisite knowledge, training or experience to train operators." The employer may have the necessary prerequisites to qualify as a trainer/evaluator, may assign the responsibility to one or more employees, or could contract with an outside training organization. The individual conducting the training should have a good working knowledge and direct experience with powered industrial truck operation.

Identify Employees to be Trained

Initial Training
All current powered industrial truck operators must receive training under the new OSHA Standard. Deadlines and proper documentation apply to all initial training. All operators must be trained and evaluated according to the following schedule:

Hire Date	Initial Training
Before 12/1/99	On or before 12/1/99
After 12/1/99	Before assignment to operate vehicle

Refresher Training
This training may be held at any time according to the following guidelines. The content of the refresher training is identical to the initial training. Powered industrial truck operators must be given refresher training and evaluation if:
* Observed to be operating in an unsafe manner
* Involved in an accident or a near miss
* Determined to need retraining by management
* Called upon to operate a different type of powered industrial truck or to operate under changed workplace conditions

Three-Year Evaluation
Operators must be retrained every three years according to the new Standard to ensure retention of operator knowledge and skills.

Powered Industrial Truck Operator Training Manual

A. Introduction

B. Basic Forklift Principles

- Training
- The Forklift
- Forklift Components
- Types of Tires
- The Lifting Principle
- Safety Rules

C. Operating a Forklift Safely

- Pre-use Inspection
- Inspecting the Power Source
- Starting the Forklift
- Finding the Rated Capacity
- Handling and Moving Loads
- Stacking and Unstacking Loads
- Driving With a Load

D. Driving in Dangerous Situations

- Slippery Floors
- Overhead Clearance
- Tight Spaces
- Heavy Traffic Areas
- Uneven Surfaces
- Loading Docks
- Working in Trailers
- Driving on Ramps
- Forklift Accidents
- Safety Rules

E. Summary

F. Definitions

A. Introduction

Knowledge, skill and confidence are the tools that are essential for the forklift operator. The knowledge that the equipment is in safe working condition and the skill that comes from practicing safe operating techniques will produce the confidence needed to get the job done right.

A forklift is a valuable tool but only in the hands of a trained operator. Material handling accounts for approximately half the cost of doing business in industry today. Most of the time materials are moved by using powered industrial trucks, known as forklifts.

B. Basic Forklift Principles

Training

The most important reason for training is the safety of you and your co-workers. It is estimated that 34,000 forklift-related injuries occur annually. These injuries are generally caused by:

- Inattention
- Distractions
- Poor driving habits
- Excessive speed

Through proper training you will:

- Avoid accidents
- Reduce product damage
- Work safely
- Prevent forklift damage

The Forklift

There are many types of forklifts with the most common being counterbalance and narrow aisle. These vehicles are specifically designed for indoor or outdoor use depending on their size, type of tires, load capacities and working environment.

Counterbalance forklifts are generally used in heavy construction, shipyards, loading terminals, warehouses and the military.

Narrow-aisle forklifts, or loaders, are indoor vehicles which are usually battery powered. These forklifts are often used when lifting requirements are less demanding and in areas where the aisle space is limited, such as warehouses or retail stores.

Forklift Components

The mast assembly, mounted at the front of the forklift, is the most important functional unit of the forklift. It consists of a set of tracks housing the ball-bearing rollers and chains. Its lower end is supported by the front axle, its upper end by the tilt cylinders. The primary functions are lifting a load to a desired height and tilting it to a desired angle.

The carriage is the part of the mast that moves the load up and down. The forks and backrest are attached to it.

The backrest is mounted to the carriage and used to support and stabilize the load.

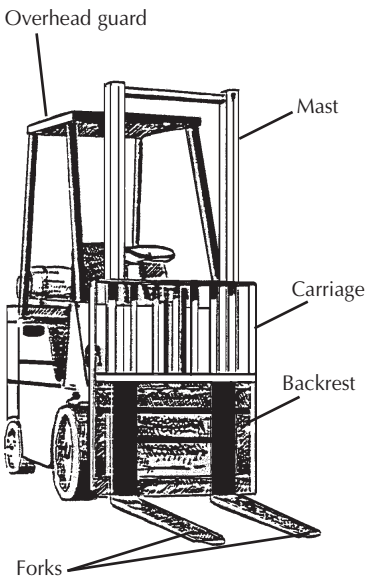
Lift and tilt cylinders are the hydraulically-operated mechanisms that move the load. Lift cylinders are single acting and work only in one direction. Tilt cylinders are double acting and move forward or backward.

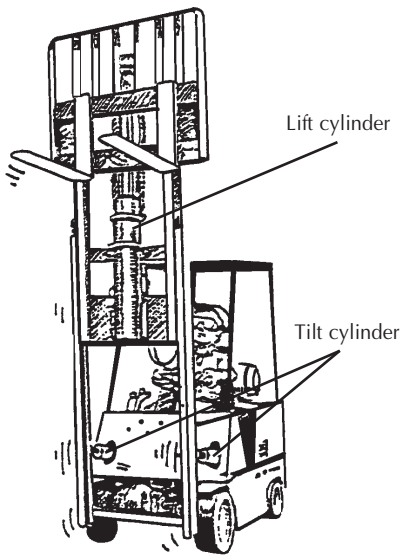
The overhead guard is a cage that is designed to deflect failing objects. Keep in mind that the overhead guard is not designed to withstand the full impact of falling objects.

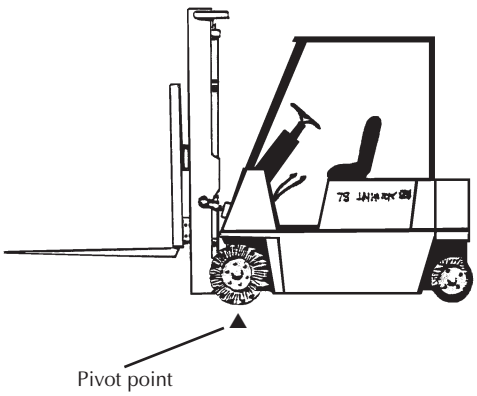
Forks are the most common attachment used to carry a load. There are different types and sizes available for specific applications. Two common types of forks are:

- Half-tapered forks-used to move heavier loads. These forks gradually increase in thickness from the tip to its maximum thickness about midway back on the fork.
- Full-tapered forks-used to move lighter loads and narrow pallets. These forks gradually increase in thickness from the tip of the blade all the way to the back of the heel.

Forks can be easily mounted, removed and adjusted for spread or spacing. Forks should always be shorter than the load you are handling because a fork protruding beyond the load being carried may damage another load. Conversely, if the forks are too short the load may become unstable. A general rule to follow is that the forks should extend at least three-fourths of the distance under the load. The two key points to remember are to use the proper forks for the application and to always use the proper length forks, spaced correctly for the load.







Types of Tires

There are four major types of tires:

- Pneumatic tires are filled with air that provides a cushion. Pneumatic tires are fitted on larger forklifts that must move loads outdoors or on bumpy surfaces.
- Pneumatic solid tires are filled with soft rubber to prevent punctures and can be interchanged with pneumatic tires.
- Cushion tires are a solid tire intended primarily for operation on smooth, hard floors, such as concrete. Cushion tires are generally used indoors but can also be used outside on smooth level ground.
- Solid tires are constructed of solid rubber and used primarily on smooth indoor surfaces that require very little cushion.

The Lifting Principle

A forklift uses the principle of a fulcrum and levers to lift very heavy objects. The pivot point, or fulcrum, on a forklift is located at the drive wheels. On narrow-aisle forklifts, the fulcrum is located under the load wheels.

The rated capacity of a forklift is directly related to the weight the fork can lift, load center and leverage. Where the load sits is as important as how much the load weighs. The closer the load is to the backrest, the heavier the load can be.

Load Center

All forklifts have capacity ratings which are based on a 24-inch load center. If the load center is more than 24 inches away from the heels of the forks, the lifting capacity is greatly reduced. Just a few inches can cause a change in a forklift's rated capacity by several hundred pounds. For example, if a forklift's rated capacity is 5,000 pounds and the load is moved six inches from the backrest, the rated capacity would be reduced by 700 pounds. If the load is 12 inches from the backrest, the rated capacity is reduced from 5,000 to 3,800 pounds.

Safety Rules

- Always spread forks to the widest possible adjustment for maximum stability.
- Never pick up a load on a broken pallet.
- Make sure the load is stable and will not shift during transport.
- Never exceed the rated capacity of the forklift.
- Never drive faster than the posted speed limit.
- Always keep arms and legs inside the forklift to prevent injuries.
- Never slam on your brakes which can cause the forklift to skid and go out of control.
- Do not push other vehicles with the forklift.

C. Operating a Forklift Safely

Pre-Use Inspection
Physical operating conditions will change throughout each day as well as between each shift. Pre-use inspections will identify potential hazards that may be encountered from a damaged forklift.

Before You Start to Work:

- Inspect the mast for broken or cracked weld-points and any other obvious damage.
- Make sure roller tracks are greased and chains are free to travel.
- Be sure the forks are equally spaced and free from cracks along the blade and at the heels.
- Check the hydraulic fluid levels.
- Check each hydraulic line and fitting for excessive wear or crimping.
- Look at lift and tilt cylinders for any damage or fluid leakage.
- Inspect mounting hardware on cylinders and make sure everything is secure.
- Check tires for excessive wear, splitting or missing tire material.
- If you are operating on pneumatic tires, check them for the proper pressure indicated on the tire.

Inspecting the Power Source
Forklifts are powered by batteries, diesel or propane. If you find a problem, never attempt to fix it yourself. Report any problems to your supervisor and let a qualified mechanic perform any repairs.

Battery Power

- Working around batteries can be dangerous because they contain acid.
- Do not smoke or let anyone else smoke in a charging area. Gases that can escape from a battery vent hole are extremely flammable.
- Check batteries for:
  - ◆ cracks or holes
  - ◆ frayed cables
  - ◆ broken insulation
  - ◆ security sealed cells
  - ◆ clogged vent caps
  - ◆ tight connections

Battery Charging
Battery-powered forklifts require constant charging. Follow your company's procedures for safe charging of the battery and proper cable connections for re-charging.

Propane Power
If the forklift is powered by propane, inspect the tank for cracks, broken weld-points and other damage. Make sure all valves, nozzles and hoses are secure and do not leak.

Whenever handling a propane tank, do it outside, away from the building and other workers. Smoking, open flames and hotwork are never allowed around propane tanks. Always have a fire extinguisher nearby.

Starting the Forklift
Once the visual inspection is complete, you are now ready to start the forklift.
- Apply the foot brake.
- Shift gears into the neutral position.
- Turn the key.
- Check all gauges and indicators.
- Check controls, steering and brakes for smooth operation.

Finding the Rated Capacity
One of the most important things to know about a forklift is the rating capacity. Look for the manufacturer's identification plate that states the rated capacity under normal conditions and with special attachments. It is important to know how much a load weighs before you try to move it. If the weight of the load is not clearly marked, then try a simple test to see if it is safe to move the load.

- Lift the load about one to two inches. The forklift should feel stable and the rear wheels should firmly contact the floor.
- If everything is operating properly and steering seems normal, you may begin to move the load. If you feel the forklift struggling, then set the load down and check with your supervisor before you go any further.

Handling & Moving Loads
To pick up a load:
- Square up on the center of the load and approach it straight on with the forks in the traveling position.
- Stop when the tips of the forklift are about a foot away from the load.
- Level the forks and slowly drive forward until the load is resting against the backrest.
- Lift the load high enough to clear whatever may be under it.
- Look over both shoulders to make sure you're clear and back out about a foot.
- Carefully tilt the mast back to stabilize the load.

To put a load down:
- Drive safely up to the location.
- Square up and stop about a foot away.
- Level the forks, and then drive the rest of the way in.
- Now the load can be lowered to the floor.
- To make sure the load will not be hooked when backing out, tilt the forks slightly forward.
- Look over both shoulders and then back straight out until the forks have cleared the pallet.

Stacking & Unstacking Loads

Many facilities use forklifts to stack products and increase storage capacity. When stacking or unstacking a product, keep in mind that the higher the load is positioned the less stable the forklift becomes.

When lifting a load from a stack is similar to lifting a load from the floor:

- Approach the load slowly and squarely with the forks in the traveling position.
- Stop about a foot from the load and raise the mast so the forks are at the correct height.
- Level the forks and drive forward until the load is flush against the backrest.
- Lift the load high enough to clear the bottom load, look over both shoulders, and slowly back straight out.
- Once the top of the stack has been cleared, stop and lower the mast to the traveling position.
- Tilt the forks back. Now the load is ready to be moved.

To stack one load on top of another:

- Approach the load slowly and squarely.
- Stop about a foot away from the loading area and lift the mast high enough to clear the top of the stack.
- Slowly move forward until the load is square over the top.
- Level the forks and lower the mast until the load is no longer supported by the forks.
- Look over both shoulders and slowly back straight out.

Safety Tips

- Never lift a load while moving. Always wait until you're in the loading area and come to a complete stop before raising the mast.
- Be sure the top load sits squarely on the stack. If the load is slightly off, the whole stack could tip over.

Driving With a Load

Follow these safe driving tips:

- Always travel with a load tilted slightly back for added stability.
- Travel with the load at the proper height. A stable clearance height is four to six inches at the tips and two inches at the heels to clear most uneven surfaces and avoid debris.
- Never speed or use excessive maneuvering.
- If you are unable to see over the load, drive in reverse. Never try to look around a load.

Safe Steering

Turning a forklift will require a little more concentration than driving a car because it steers from the rear and handles very differently from a car or other roadway vehicles. The back end of a forklift swings wide and can injure co-workers or damage products and equipment.

- Think of the drive wheels as a pivot point. When turning, the back of the forklift makes a circle around the front.
- Never make a turn at normal traveling speed. Always slow down to maintain balance.
- When turning into an aisle, stay wide in order for the load to clear the sides and the forklift to square-up with its destination.

- When backing out of an aisle, allow enough room for forks to clear the sides before starting a turn.
- When leaving a forklift unattended for any reason, always lower the mast completely, tilt the forks slightly forward, turn off the engine, and set the brake.

D. Driving in Dangerous Situations

Not every forklift job is in a warehouse with a smooth, flat floor. This section explains how to operate a forklift on slippery surfaces, around obstacles, and in congested areas in addition to the safe methods for driving a forklift on loading docks, ramps and in trailers.

Slippery Floors

Forklift tires are not designed to handle traction problems. Skidding and sliding can easily happen when the surface is not clean, dry and free of debris. Always watch for and avoid spills or objects that are in the way.

If you must drive a forklift on a slippery surface:
- Slow down.
- Apply the brakes carefully.
- Make wide turns.

Overhead Clearance

- Be aware of overhead clearances in all work areas as many industrial areas have low overhead clearances.
- Know the height of the mast and overhead guard on the forklift.

Tight Spaces

Narrow aisles and tight turning areas can present problems for forklifts. When in a tight spot:
- Try moving empty forks to one side
- Steer to maximize turning angles

Heavy Traffic Areas

When working in busy pedestrian areas and where other vehicles are operating requires added caution.

- Pedestrians always have the right of way.
- Never pick up or set down a load when people are standing close by.
- Never drive up to someone who is standing or working in front of a fixed object.
- Be careful when working around other operators in congested areas.
- Always remember that traffic rules and warning signs are designed to keep you and co-workers safe.
- Obey all traffic rules and signs.

- Always blow the horn when approaching blind corners, doorways or aisles to let other operators and pedestrians know that you are there.
- Use corner mirrors when possible.
- Never exceed a safe working speed of about five miles per hour and always slow down in congested areas.
- Always keep a safe distance from other forklifts. A recommended distance is three truck lengths.
- Never pass another forklift at intersections or blind spots.
- Always look over both shoulders before backing up.
- Never allow anyone to stand or ride on the forks or use them as an elevator to lift someone.
- Only use approved platforms or baskets to hoist personnel.
- Never carry people from one place to another.

Uneven Surfaces

Uneven surfaces or debris can result in a sudden jolt which may cause you to lose control of the load.

- Be aware of holes, sand, gravel, spilled lubricants and water puddles, all potential causes of damage and injury.
- Always approach railroad tracks at a 45-degree angle to prevent you from running over a serious bump or jamming the forks into the rails.

Loading Docks

Most industrial facilities have loading and unloading areas where the forklift may run into trouble in the driver is not careful.

- Always check to make sure the bridge or dock plate is secure and can hold the weight of a fully loaded forklift.
- Always check that the wheels of the truck or railcar are chocked and secure.
- Always drive straight onto bridge plates and never accelerate when doing so.
- Always drive at a steady speed to avoid skidding.

Working in Trailers

Before beginning to work inside a trailer:

- Check for flooring that is loose or soft. A trailer in this condition probably cannot hold a loaded forklift.
- Use additional trailer supports if the weight of a loaded forklift is too heavy for the trailer.
- Always make sure the height of the trailer is sufficient before driving into it.
- Make sure the trailer is completely backed up and squared to the loading dock.
- Be sure the trailer wheels are chocked or the dock lock is engaged to prevent movement of the trailer.
- Use dock lights or headlights if you work in a dark trailer.

Driving on Ramps

Driving on ramps can be very hazardous if the driver does not practice smart driving techniques.

- If the forklift is loaded, always travel forward up a ramp.
- When approaching the start of the ramp, raise the forks slightly to avoid hitting or scraping the ramp surface.
- When the forklift is loaded, always drive in reverse down a ramp and look over your shoulder.
- When the forklift is empty, drive in reverse up a ramp and forward when you come down a ramp. A signal person should be posted to help when maneuvering on a ramp.
- Only one forklift at a time should be on a ramp.
- Travel at a slow, steady speed and never try to turn on a ramp because the weight of the forklift may cause it to turn over.

Forklift Accidents

There are primarily two kinds of accidents that can happen when driving a forklift, a lateral tip over and a longitudinal turnover.

Lateral Tip Over

A lateral tip over happens when a forklift rolls over in its side. It is usually caused by maneuvering with a load too high or by driving over debris.

- When a lateral tip over occurs, it is usually best to stay with the forklift inside the overhead guard. Hold on to the steering wheel and push back into the seat for stability.
- The mast will keep the forklift from rolling all the way over and crushing the overhead guard.
- To help prevent a lateral tip over, avoid debris and keep the forks low when traveling with a load.

Longitudinal Turnover

Longitudinal turnovers occur when a forklift falls between a loading dock and a trailer. This can happen when the wheels of a trailer are not chocked properly, the bridge or dock plate is not properly placed, or the truck driver pulls away from the loading dock while the forklift is inside.

As the forklift is backing out of a trailer, the rear wheels can catch on the end of a bridge that is not flat against the bottom of the trailer. The front drive wheels will then push the unsecured trailer away from the loading dock and out from under the forklift. The forklift will then fall between the trailer and dock.

- Always check the bridge for proper positioning and make sure the trailer is chocked.
- A dock lock can be installed that will keep the trailer pinned against the dock while the forklift is being operated.

Safety Rules

- Always tell the supervisor if you are having any mechanical problems, even if they are minor, and let a qualified mechanic fix them.
- A forklift can only be operated by trained personnel. Never let someone who is not qualified drive the forklift.
- When vision is blocked in front, drive in reverse or use a signal person.

- Always drive within the limits of the load, surface conditions, and your ability. Do not try to cut corners to speed up your work.
- Always blow the horn when turning a corner, approaching someone from behind, or driving through congested areas. Let others know that you are there.
- Never use the reverse gear as a brake.
- Always lift and lower loads slowly and smoothly, avoiding jerking motions.
- Always remember, adding certain attachments may change the weight capacity. Never add more weight to the back of the forklift to carry a heavier load in the front; instead, lighten the load.

E. Summary

Forklifts are a valuable industrial tool that can cause serious injury and damage when not used properly. Operators need to be familiar with forklifts, understand their mechanical components, make sure that the equipment is in good condition, and practice safe operating techniques. These skills will give you the confidence to do the job right.

F. Definitions

Attachments - devices other than conventional forks or load backrest extensions, integrally mounted or carriage mounted on an industrial truck for handling the load.

Basic Capacity - the capacity for the truck is designed up to a specific lift height and load center.

Battery - a reservoir which may be used for storing energy. Chemical energy is put into it and removed in the form of electricity.

Battery Compartment - the cavity of a forklift in which a battery is housed and mounted.

Center of Gravity - the point within an object where “perfect” balance is maintained.

Counterweight - a non-working load attached to, or incorporated into, the rear of a counterbalanced truck.

Free Lift - the maximum vertical distance traveled by the carriage before the mast’s inner rail breaks the outer rail’s silhouette (overall lowered height).

Front Overhang - the horizontal distance between the center of the front drive axle and the front face of the forks.

Gradability - the maximum slope that a vehicle can climb.

Lateral Stability - the side-to-side stability of a truck, a critical determining factor in truck capacity.

Lift Speed - the upward speed of the carriage either loaded or unloaded.

Load Backrest - the extension to the carriage designed to provide additional load stability.

Load Center - the horizontal distance between the front vertical face of the forks and the mid-point of a uniformly distributed load.

Lowering Speed - the downward speed of the carriage either loaded or unloaded.

Mast Tilt - limited forward or rearward movement of mast structure, forks or carriage.

Maximum Fork Height - the highest elevation of the upper top surface of the forks with the mast fully extended.

Maximum Travel Speed - the maximum speed at which the vehicle will operate.

Maximum Outside Fork Spacing - the distance between the outside edges of adjustable forks at their greatest separated position.

Minimum Inside Fork Spacing - the distance between the inside edges of adjustable forks at their least separated position.

Nameplate - the utilized reference point for observing a forklift's rated capacity.

Overall Length - the distance from the extreme rear of a truck to the front face of the forks.

Rated Capacity - the actual capacity of a forklift with a given mast, attachment and load center configuration.

Rear Overhang - the horizontal distance between the center of the rear axle and the extreme rear end point.

Stability Triangle - the three-point suspension on three- and four-wheel forklifts which forms the conceptual stability triangle. Three-point suspension consists of the two drive wheels and single steering wheel on three-wheel forklifts, and the two drive wheels and pivot point of the steering axle in four-wheel forklifts.

Tire Ply Rating - the load carrying capacity of a tire.

Tread - the distance from the center line of one tire to the centerline of its corresponding tire, i.e., front to front or rear to rear.

Turning Radius (Outside) - the smallest circle which includes the rear most or outermost projection of the truck.

Three-Stage Mast - a three section upright generally used in high-lift situations.

Two-Stage Mast - two section upright.

Underclearance - the distance between a specific point under the truck and the ground.

Wheelbase - the distance from the centerline of the front axle to the centerline of the rear axle.

Develop a Training Schedule

After the completion of this course, you should develop a training schedule for your operators. Keep in mind that all current operators must be trained before December 1, 1999. New employees hired after December 1, 1999 should be scheduled for training during their indoctrination period if they are to operate a powered industrial truck. Refresher training and evaluation should be performed every three years thereafter.

Conduct Formal Classroom Training

Training Program Content
Topics required in the formal training include those listed below. The training manual contains specific information that can be utilized to review these topics during formal training sessions.

- Operator instructions, warnings and safety precautions for each type of truck to be used
- Truck controls and instrumentation
- Differences between the truck and an automobile
- Engine/motor operation
- Steering and maneuvering
- Visibility
- Vehicle stability
- Vehicle capacity
- Vehicle inspection and maintenance
- Refueling and recharging
- Operating limitations
- Surface conditions
- Composition of loads and load stability
- Load stacking, unstacking and manipulation
- Pedestrian traffic
- Narrow aisles and other restricted areas
- Ramps and slopes
- Hazardous locations
- Closed environments
- Potentially hazardous conditions in the workplace

Training Format
Training must consist of formal classroom instruction including a structured agenda covering the topics previously listed, written training materials, and audiovisual aids. This part of the training does not have to take place in a classroom but should be held in a quiet area of the facility that is conducive to learning. Formal training consists of lectures, review of printed materials, use of audiovisual aids, and open discussion. The recommended time for the class is 2-3 hours.

Driver Training

Demonstrations by the Trainer
The trainer should perform a demonstration of the various controls, power train mechanisms and safety features of the powered industrial truck(s) to visually impart important information to trainees. The recommended time is 15-30 minutes.

Perform Driver Training

Trainees should be allowed to operate a powered industrial truck under the direct supervision of a qualified trainer. The hands-on training may be done in a work area, even if other employees are present, provided that the training is done in a safe and controlled manner. The recommended time is 5-10 minutes per operator.

Evaluation of Operator's Skill
The trainee should perform a physical skills test using the powered industrial truck. This test can be an obstacle course, an agility exercise or several typical operations (i.e. moving pallets). The trainer should also ask the operator some questions related to the safe operation of the truck during the exercise. The recommended time is 15 minutes per operator.

Driving Test Components
Develop a physical skills evaluation test. The test should be built on a point system and have a pass/fail threshold. (See attached example) Components of the test should include:
- Load handling
- Maneuvering through an obstacle course
- Traveling unimpeded without a load
- Stopping
- Starting
- Truck inspection

NOTE: See the Appendix in the back of the manual for a sample driving test, perforated for your convenience.

DRIVING TEST

Trainer Name _____ Trainee Name _____

Date _____ Company Name _____

Under a qualified instructor's supervision, each operator must complete the following test while demonstrating smoothness and control when operating the truck.

- Fork adjustment
  - Did operator place forks under the pallet properly? Y N
- Pick up load
  - Did operator raise and tilt the load properly? Y N
- Start and stop with load
  - Did operator lower the pallet before moving or backing out? (do not drive and lower load at same time) Y N
- Drive with load straight and around corners (forward and reverse)
  - Did operator drive at a safe speed? Y N
  - Did operator slow down or stop at cross isles? Y N
  - Did operator sound horn at blind intersections? Y N
  - Did operator look behind before backing up? Y N
- Deposit load in a designated area
  - Did operator safely set load down? Y N
- Stack load in a rack and unstack
  - Did operator pull into rack area properly to place the pallet back into the rack? Y N
  - Did operator strike racking on the way up or going into rack? Y N
  - Did operator back out and lower forks before moving? Y N
- Double stack a load
  - Did operator avoid this unsafe practice? Y N
- Maneuver load in a narrow aisle
  - Did any part of the load strike any section of racking while moving the pallet? Y N
- Properly exit truck
  - Did operator lower forks to floor with tips flat? Y N
  - Did operator set hand brake before getting off? Y N
  - Did operator remove key? Y N

Scoring system: Score each bullet as one point for proper performance, 12 points out of a total of 16 is the suggested passing score.

Score: _____

Administer Written Examination

Written Examination
The trainee must successfully demonstrate adequate knowledge and skill about safe operation of a powered industrial truck. A written test should be administered to ensure that operators understood the material covered during the training. Employers should establish a pass/fail requirement for the test. The recommended time is 30 minutes.

Written Examination Components
Develop a written examination with a pass/fail threshold. The examination can include multiple choice questions, true/false questions, fill in the blank questions, or matching questions. A combination of 50 questions is recommended. (See attached example.) The examination should include:

- Fundamentals of powered industrial trucks
- Hazards associated with use
- Operational characteristics
- Operating environment and its effect on truck operation
- Operating safety rules and practices
- Operating parts of powered industrial trucks

NOTE: See the Appendix in the back of the manual for a sample written examination, perforated for your convenience.

WRITTEN EXAM

Trainer Name _____ Trainee Name _____

Date _____ Company Name _____

1. To determine a lift truck's load capacity you should:
   a) ask an experienced operator.
   b) look at the truck's nameplate.
   c) try lifting the load; if rear wheels stay on ground, it is safe to operate.
   d) None of these.

2. Always try to fix minor mechanical problems yourself.

   True____ False____

3. The most important reason for this training is safety.

   True____ False____

4. As long as you sit beside the operator, it is okay to let an unauthorized person operate your lift truck.

   True____ False____

5. A good operator will check the load's stability before moving it.

   True____ False____

6. When traveling, the forks should usually be kept:
   a) low to the ground.
   b) high enough to be easily seen by pedestrians.
   c) as high as possible.
   d) None of the above.

7. While carrying a load, the operator must always tilt the load forward.

   True____ False____

8. Forklift tires are designed to prevent sliding and skidding.

   True____ False____

9. Pedestrians have the right of way, except when the forklift is loaded.

   True____ False____

10. Always look over both shoulders when you are backing up.

True____ False____

11. The two most common types of forklifts are narrow isle and counterbalance.

True____ False____

12. Forks should be spaced:
    a) close together, under the center of the pallet.
    b) as wide apart as the pallet will allow.
    c) None of the above.

13. Why should you keep your hands and feet out of the mast assembly?
    a) Danger of electric shock.
    b) Chains and hydraulic cylinders are greasy and could get you dirty.
    c) Any movement of the tilt or lift levers can cause serious injury.
    d) None of the above.

14. The backrest is used to support and stabilize the load.

True____ False____

15. A good operator will drive slowly on wet and slippery floors and avoid them if possible.

True____ False____

16. It is not required to check out your forklift before beginning each shift.

True____ False____

17. Most four-wheeled lift trucks are really suspended by three points only.

True____ False____

18. Tilt cylinders operate in a forward and backward motion.

True____ False____

19. You can safely pick up a load on a broken pallet if you are careful.

True____ False____

20. Tilting an elevated load all the way back will cause the lift truck to be more prone to tipping over sideways.

True____ False____

21. You should slow down and sound horn when approaching a blind corner or cross isle.

True____ False____

22. It is required to use an approved safety platform when lifting personnel on a fork lift.

True____ False____

23. Apply brakes smoothly and evenly when coming to a stop to avoid losing control of your lift truck.

True____ False____

24. Always keep your hands and feet inside the lift truck.

True____ False____

25. You only need to obey traffic rules and signs when people are present.

True____ False____

26. A good method for driving a loaded lift truck over a railroad crossing is:

a) drive quickly and straight across the track.
b) drive slowly and straight across the track.
c) drive quickly across the tracks at a 45-degree angle.
d) drive slowly across the tracks at a 45-degree angle.

27. When driving on ramps you should always keep the load uphill, even if you have to back down the ramp.

True____ False____

28. A lift truck steers with its rear wheels, which will cause the rear end to swing out wide when turning while driving forward.

True____ False____

29. When parking your lift truck, it is important that your forks are fully lowered and as flat on the floor as possible.

True____ False____

30. Always avoid turning while the forks or load are elevated. If you must turn under these conditions, do so at the slowest speed possible.

True____ False____

31. If your lift truck was to start to tip over, the safest thing to do would be:
    a) jump off and run.
    b) stay with truck and brace yourself.
    c) shut off the engine and apply the brakes.

32. Never exceed the rated load capacity of your lift truck:
    a) unless you add more counterweight.
    b) unless your lift truck is under 84 inches high.
    c) None of the above.

33. Lifting loads high reduces the lift truck's stability.

    True____ False____

34. Installing an attachment on your lift truck will affect the original truck capacity rating.

    True____ False____

35. A lateral tip over is usually caused by carrying a load too high or by driving over debris.

    True____ False____

36. If your forward vision is blocked, look around the load and drive forward.

    True____ False____

37. Never add additional weight to the back of your lift truck to increase its load capacity.

    True____ False____

38. Before driving your lift truck into a trailer or truck, you should make sure the trailer or truck is secured against accidental movement away from dock.

    True____ False____

39. Forklifts steer from the front.

    True____ False____

40. All you need to do when you get off your lift truck is lower the mast completely.

    True____ False____

41. Passengers may only be carried on a lift truck when they share the driver's seat.

    True____ False____

42. You can use a lift truck to push a box car or other vehicles.

True____ False____

43. through 50.:
Identify the following parts on the lift truck illustrations. Enter 43 through 50 beside the correct part.

___ Tilt cylinder

___ Carriage

___ Mast

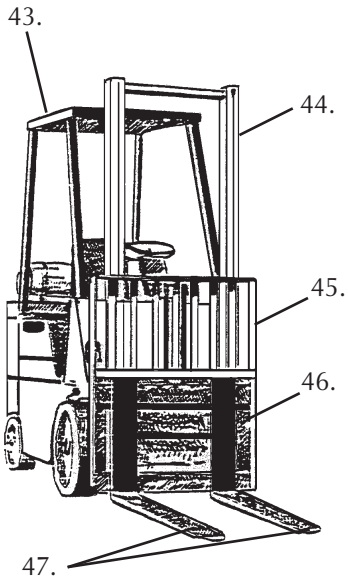
___ Backrest

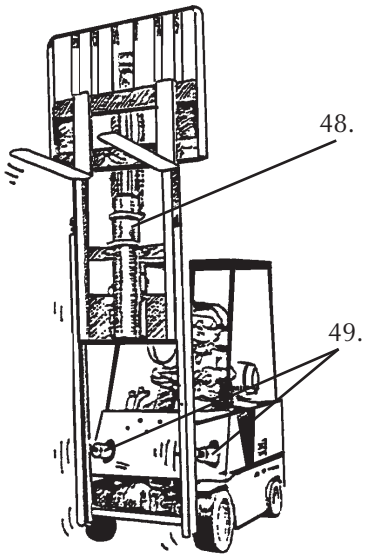
___ Lift cylinder

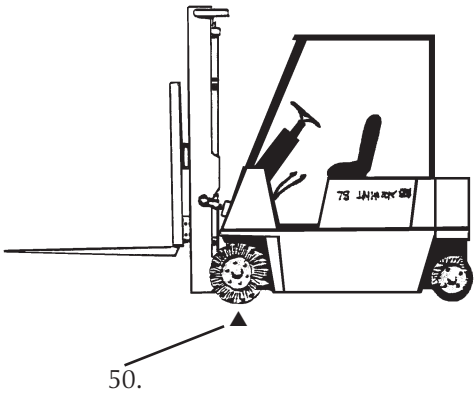
___ Overhead guard

___ Pivot point

___ Forks







Score: _____

ANSWER SHEET

1. b
2. false
3. true
4. false
5. true
6. a
7. false
8. false
9. false
10. true
11. true
12. b
13. c
14. true
15. true
16. false
17. true
18. true
19. false
20. true
21. true
22. true
23. true
24. true
25. false
26. d
27. true

28. true

29. true

30. true

31. b

32. c

33. true

34. true

35. true

36. false

37. true

38. true

39. false

40. false

41. false

42. false

43. through 50. Lift truck parts identification:

49. Tilt cylinder

45. Carriage

44. Mast

46. Backrest

48. Lift cylinder

43. Overhead guard

50. Pivot point

47. Forks

Scoring: Each question is worth two points. A score of 75 points is the suggested passing score.

Document the Training

OSHA requires employers to certify and keep a record that the required training and evaluation has been conducted and that the operator(s) are competent to safely perform the duties of an operator. Three training logs should be developed to document initial training, refresher training and three-year evaluation. (See attached examples.) The documentation should include:

- Name of trainee(s)
- Dates of training
- Name of trainer
- Location of training

Records should be retained for the duration of employment of the operator(s) plus two years. Certificates of completion and wallet cards are included in this booklet. The certificates should be filled out by the instructor upon successful completion of operator training.

NOTE: See the Appendix in the back of the manual for a sample of these training logs, perforated for your convenience.

Powered Industrial Truck Operator Training

Initial Training Record

Company Name _____

Trainer _____

Training Location _____

Date	Employee/Trainee	Written Test Score	Driving Test Score	Pass/Fail	Failure Reason

Powered Industrial Truck Operator Training

Refresher Training

Company Name _____

Trainer _____

Training Location _____

Date	Employee/Trainee	Reason for Training	Written Test Score	Driving Test Score	Pass/Fail	Failure Reason

Powered Industrial Truck Operator Training

Three-Year Training Record

Company Name _____

Trainer _____

Training Location _____

Date	Employee/Trainee	Written Test Score	Driving Test Score	Pass/Fail	Failure Reason

Develop a Safety Inspection Checklist

A safety inspection checklist is an optional but valuable tool to supplement the practical hands-on training. Items on the checklist should serve as reminders of important features of the powered industrial truck that should be checked prior to operation. The checklist should not only be used in training but also should be included in your company's standard operating procedures. (See attached example.)

Completed checklists should be returned by each operator on a daily or weekly basis and kept on file for the duration that the powered industrial truck is owned and operated by the employer.

NOTE: See the Appendix in the back of the manual for a sample safety inspection checklist, perforated for your convenience.

DAILY/WEEKLY POWERED INDUSTRIAL TRUCK PRE-OPERATION SAFETY CHECKLIST

Before starting the industrial truck, complete a visual check on the equipment:

- ❍ Do a visual check by walking around the equipment.
- ❍ Check for leaks (oil, hydraulic fluid, fuel, coolant, etc.)
- ❍ Check all visible hoses for cracks, damage or leaks.
- ❍ Check all visible belts for cracks or damage.
- ❍ Check all available battery connections for tightness and corrosion.
- ❍ Check the data plate for the rated load capacity and load center of the unit.
- ❍ Make sure the unit is rated for use in the planned work area.
- ❍ Inspect carriage for damage or foreign objects.
- ❍ Check the forks for bends, cracks or other damage.
- ❍ Check condition of chain for damage.
- ❍ Check the lift and tilt cylinders for leaks or other damage.
- ❍ Check the lift rollers for flats or damage.
- ❍ Check tires for damage, wear, lug nuts and proper inflation.
- ❍ Check for signs of leakage around the brake plates.
- ❍ Check overhead roll cage for tightness or damage.
- ❍ Make sure the vehicle has a fully charged fire extinguisher.
- ❍ For gas or diesel powered units, check the fuel level.
- ❍ For LP powered units, check the propane tank and hoses for cracks, damage and required tank attachments. Report any damage **IMMEDIATELY** to your supervisor.
- ❍ Check seatbelt condition.

After starting the industrial truck:

- ❍ Check handbrake for proper operation.
- ❍ Check horn.
- ❍ Check back-up alarm.
- ❍ Check all vehicle lights including strobe light.

Discuss all deficiencies with your supervisor prior to operating the equipment. Any defective industrial truck should be tagged and removed from operation.

ALL MALFUNCTIONS OR DEFECTS SHOULD BE CORRECTED BY AUTHORIZED SERVICE PERSONNEL ONLY BEFORE THE UNIT IS STARTED AND/OR RETURNED TO SERVICE!

Date:_____ **Initials:** _____

Develop a Preventive Maintenance Schedule

A preventive maintenance schedule is an optional guideline that will help your powered industrial truck(s) operate in a safe and efficient manner. Required maintenance will depend upon several factors including:

- Type of truck (gasoline, propane, diesel or electric)
- Manufacturer and model of truck
- Age of truck

Consult with the manufacturer of your truck for preventive maintenance guidelines. A schedule should be developed based on the recommended maintenance for your truck(s) and followed to keep your truck(s) in good operating condition. A properly maintained powered industrial truck will help ensure safe operation and increase the life of the truck.

DRIVING TEST

Trainer Name _____ Trainee Name _____

Date _____ Company Name _____

Under a qualified instructor's supervision, each operator must complete the following test while demonstrating smoothness and control when operating the truck.

- Fork adjustment
  - Did operator place forks under the pallet properly? Y N
- Pick up load
  - Did operator raise and tilt the load properly? Y N
- Start and stop with load
  - Did operator lower the pallet before moving or backing out? (do not drive and lower load at same time) Y N
- Drive with load straight and around corners (forward and reverse)
  - Did operator drive at a safe speed? Y N
  - Did operator slow down or stop at cross isles? Y N
  - Did operator sound horn at blind intersections? Y N
  - Did operator look behind before backing up? Y N
- Deposit load in a designated area
  - Did operator safely set load down? Y N
- Stack load in a rack and unstack
  - Did operator pull into rack area properly to place the pallet back into the rack? Y N
  - Did operator strike racking on the way up or going into rack? Y N
  - Did operator back out and lower forks before moving? Y N
- Double stack a load
  - Did operator avoid this unsafe practice? Y N
- Maneuver load in a narrow aisle
  - Did any part of the load strike any section of racking while moving the pallet? Y N
- Properly exit truck
  - Did operator lower forks to floor with tips flat? Y N
  - Did operator set hand brake before getting off? Y N
  - Did operator remove key? Y N

Score: _____

WRITTEN EXAM

Trainer Name _____ Trainee Name _____

Date _____ Company Name _____

1. To determine a lift truck's load capacity you should:
   a) ask an experienced operator.
   b) look at the truck's nameplate.
   c) try lifting the load; if rear wheels stay on ground, it is safe to operate.
   d) None of these.

2. Always try to fix minor mechanical problems yourself.

   True____ False____

3. The most important reason for this training is safety.

   True____ False____

4. As long as you sit beside the operator, it is okay to let an unauthorized person operate your lift truck.

   True____ False____

5. A good operator will check the load's stability before moving it.

   True____ False____

6. When traveling, the forks should usually be kept:
   a) low to the ground.
   b) high enough to be easily seen by pedestrians.
   c) as high as possible.
   d) None of the above.

7. While carrying a load, the operator must always tilt the load forward.

   True____ False____

8. Forklift tires are designed to prevent sliding and skidding.

   True____ False____

9. Pedestrians have the right of way, except when the forklift is loaded.

   True____ False____

10. Always look over both shoulders when you are backing up.

True____ False____

11. The two most common types of forklifts are narrow isle and counterbalance.

True____ False____

12. Forks should be spaced:
    a) close together, under the center of the pallet.
    b) as wide apart as the pallet will allow.
    c) None of the above.

13. Why should you keep your hands and feet out of the mast assembly?
    a) Danger of electric shock.
    b) Chains and hydraulic cylinders are greasy and could get you dirty.
    c) Any movement of the tilt or lift levers can cause serious injury.
    d) None of the above.

14. The backrest is used to support and stabilize the load.

True____ False____

15. A good operator will drive slowly on wet and slippery floors and avoid them if possible.

True____ False____

16. It is not required to check out your forklift before beginning each shift.

True____ False____

17. Most four-wheeled lift trucks are really suspended by three points only.

True____ False____

18. Tilt cylinders operate in a forward and backward motion.

True____ False____

19. You can safely pick up a load on a broken pallet if you are careful.

True____ False____

20. Tilting an elevated load all the way back will cause the lift truck to be more prone to tipping over sideways.

True____ False____

21. You should slow down and sound horn when approaching a blind corner or cross isle.

True____ False____

22. It is required to use an approved safety platform when lifting personnel on a fork lift.

True____ False____

23. Apply brakes smoothly and evenly when coming to a stop to avoid losing control of your lift truck.

True____ False____

24. Always keep your hands and feet inside the lift truck.

True____ False____

25. You only need to obey traffic rules and signs when people are present.

True____ False____

26. A good method for driving a loaded lift truck over a railroad crossing is:

a) drive quickly and straight across the track.
b) drive slowly and straight across the track.
c) drive quickly across the tracks at a 45-degree angle.
d) drive slowly across the tracks at a 45-degree angle.

27. When driving on ramps you should always keep the load uphill, even if you have to back down the ramp.

True____ False____

28. A lift truck steers with its rear wheels, which will cause the rear end to swing out wide when turning while driving forward.

True____ False____

29. When parking your lift truck, it is important that your forks are fully lowered and as flat on the floor as possible.

True____ False____

30. Always avoid turning while the forks or load are elevated. If you must turn under these conditions, do so at the slowest speed possible.

True____ False____

31. If your lift truck was to start to tip over, the safest thing to do would be:
    a) jump off and run.
    b) stay with truck and brace yourself.
    c) shut off the engine and apply the brakes.

32. Never exceed the rated load capacity of your lift truck:
    a) unless you add more counterweight.
    b) unless your lift truck is under 84 inches high.
    c) None of the above.

33. Lifting loads high reduces the lift truck's stability.

    True____ False____

34. Installing an attachment on your lift truck will affect the original truck capacity rating.

    True____ False____

35. A lateral tip over is usually caused by carrying a load too high or by driving over debris.

    True____ False____

36. If your forward vision is blocked, look around the load and drive forward.

    True____ False____

37. Never add additional weight to the back of your lift truck to increase its load capacity.

    True____ False____

38. Before driving your lift truck into a trailer or truck, you should make sure the trailer or truck is secured against accidental movement away from dock.

    True____ False____

39. Forklifts steer from the front.

    True____ False____

40. All you need to do when you get off your lift truck is lower the mast completely.

    True____ False____

41. Passengers may only be carried on a lift truck when they share the driver's seat.

    True____ False____

42. You can use a lift truck to push a box car or other vehicles.

True____ False____

43. through 50.:
Identify the following parts on the lift truck illustrations. Enter 43 through 50 beside the correct part.

___ Tilt cylinder

___ Carriage

___ Mast

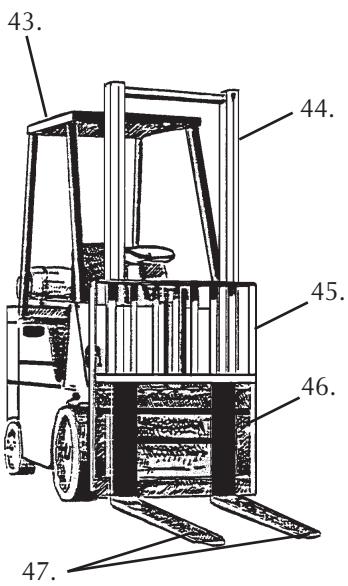
___ Backrest

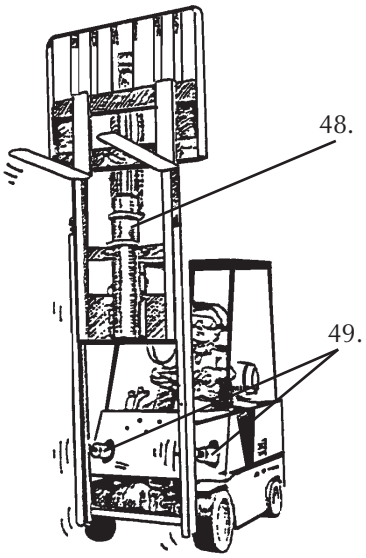
___ Lift cylinder

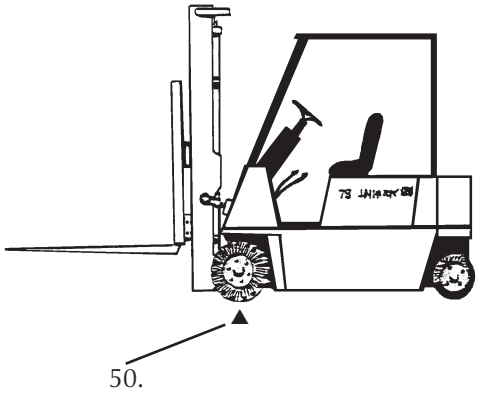
___ Overhead guard

___ Pivot point

___ Forks







Score: _____

Powered Industrial Truck Operator Training

Initial Training Record

Company Name _____

Trainer _____

Training Location _____

Date	Employee/Trainee	Written Test Score	Driving Test Score	Pass/Fail	Failure Reason

Powered Industrial Truck Operator Training

Refresher Training

Company Name _____

Trainer _____

Training Location _____

Date	Employee/Trainee	Reason for Training	Written Test Score	Driving Test Score	Pass/Fail	Failure Reason

D

Powered Industrial Truck Operator Training

Three-Year Training Record

Company Name _____

Trainer _____

Training Location _____

Date	Employee/Trainee	Written Test Score	Driving Test Score	Pass/Fail	Failure Reason

DAILY/WEEKLY POWERED INDUSTRIAL TRUCK PRE-OPERATION SAFETY CHECKLIST

Before starting the industrial truck, complete a visual check on the equipment:

❍ Do a visual check by walking around the equipment.
❍ Check for leaks (oil, hydraulic fluid, fuel, coolant, etc.)
❍ Check all visible hoses for cracks, damage or leaks.
❍ Check all visible belts for cracks or damage.
❍ Check all available battery connections for tightness and corrosion.
❍ Check the data plate for the rated load capacity and load center of the unit.
❍ Make sure the unit is rated for use in the planned work area.
❍ Inspect carriage for damage or foreign objects.
❍ Check the forks for bends, cracks or other damage.
❍ Check condition of chain for damage.
❍ Check the lift and tilt cylinders for leaks or other damage.
❍ Check the lift rollers for flats or damage.
❍ Check tires for damage, wear, lug nuts and proper inflation.
❍ Check for signs of leakage around the brake plates.
❍ Check overhead roll cage for tightness or damage.
❍ Make sure the vehicle has a fully charged fire extinguisher.
❍ For gas or diesel powered units, check the fuel level.
❍ For LP powered units, check the propane tank and hoses for cracks, damage and required tank attachments. Report any damage **IMMEDIATELY** to your supervisor.
❍ Check seatbelt condition.

After starting the industrial truck:

❍ Check handbrake for proper operation.
❍ Check horn.
❍ Check back-up alarm.
❍ Check all vehicle lights including strobe light.

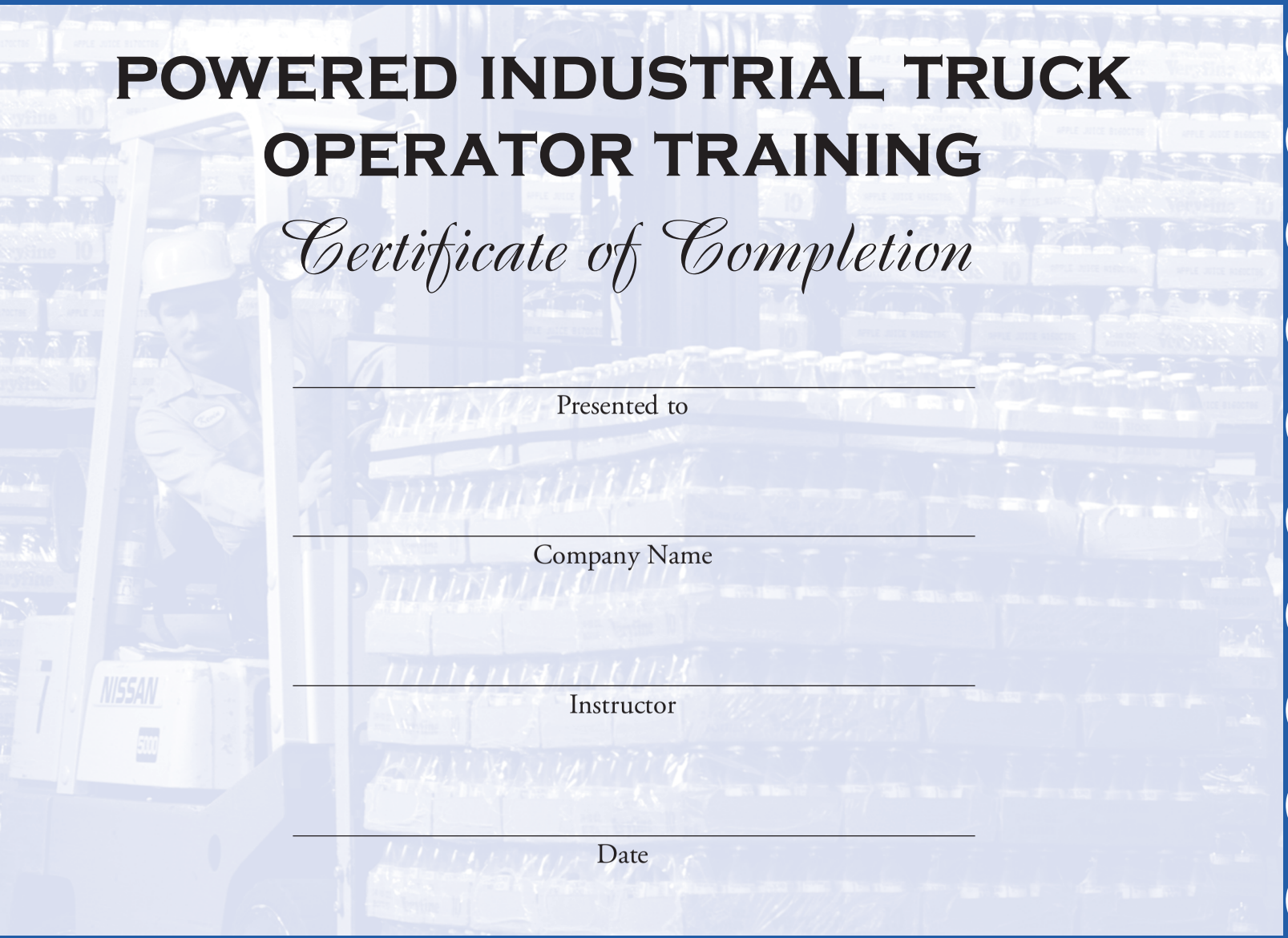
Discuss all deficiencies with your supervisor prior to operating the equipment. Any defective industrial truck should be tagged and removed from operation.

ALL MALFUNCTIONS OR DEFECTS SHOULD BE CORRECTED BY AUTHORIZED SERVICE PERSONNEL ONLY BEFORE THE UNIT IS STARTED AND/OR RETURNED TO SERVICE!

Date:_____ **Initials:** _____

POWERED INDUSTRIAL TRUCK OPERATOR TRAINING

Certificate of Completion



_____

Presented to

_____

Company Name

_____

Instructor

_____

Date