FORKLIFT UNIVERSITY

Multi Lift

Operator Training Guide

OSHA Powered Industrial Truck Training Program

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Chapter 1 – Introduction to PIT's

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Forklifts, Electric Pallet Jacks and Walkie Riders, have become commonplace in the warehouse, construction, manufacturing, and many other industries from the one-man shop to the largest operation. It is all about moving materials, from one place to another quickly and efficiently. However, PIT's can also be a dangerous piece of equipment if it is not handled with care and respect.

Because of this, OSHA (Occupational Safety & Health Administration) began to require forklift operators to be certified in 1998.

The training process is outlined in the OSHA Regulations 1919.178 for powered industrial trucks (forklifts) however; basically, anyone that operates a forklift must complete a formal training course as well as receive a practical evaluation on the equipment they will be operating at the site.

This manual and the associated course satisfy the formal training course portion, but it is only a single part of this requirement. Operators are encouraged to use the information and safety training presented here as well as site specific training and evaluations to ensure a safe and efficient working environment.

Accident Summaries

Forklift Tip over: While an Employee was operating a forklift, the forklift tipped over while the operator was making a turn at excessive speed. No seat belt was installed and when the employee fell from the seat and the rollover bar crushed him.

Forklift Tip over: The victim/operator drove a forklift down a ramp rapidly and appeared to be attempting to make a sharp left turn. The forklift overturned; apparently the employee was unaccustomed to the quickness and sharp turning radius of the forklift. The victim was not wearing the provided seatbelt. The operator was thrown from the seat and his head was caught under the overhead guard. He was crushed and killed in the accident.

Person Falls while standing on a Pallet: The victim was found pinned between the mast and the frame of the forklift. Prior to the accident the forklift operator raised the person approximately 6 feet high while they were standing on a wooden pallet not secured to the frame of the forklift. The operator left the forklift unattended while the person was on the pallet pouring spice into a mixing tank.

LAS VEGAS, NV: Man crushed under five-ton machine in Vegas

A 21-year-old forklift driver is dead after the five-ton machine tipped over and crushed him overnight. North Las Vegas police and OSHA are investigating how the accident happened at a lumberyard near I-215 and Range Road. Authorities say speed might've been a factor. It looks like the driver was turning the forklift with the lift raised, but not carrying anything, when it tipped.

Trailer Floor Failure: Cold weather, combined with the weight of a forklift and load caused the floor of this trailer to separate from the sides with the forklift still inside the trailer. The Dok-Lok restraint helped prevent the trailer from pushing away from the loading dock when the accident occurred.

Landing Gear Collapse: The leg on the driver's side of the landing gear of a spotted trailer at a paper converting plant in Kentucky collapsed. The leg rolled inward, causing the trailer to tip sideways. The sides of the trailer buckled as shown in this photo. The vehicle restraint held the trailer, keeping it from toppling over into the trailer spotted at the dock position next to it.

Early Departure: While loading a trailer an employee was backing out of the trailer at the same time the truck driver began to pull away from the dock. As he pulled away from the dock, approximately 4 - 5 feet he heard someone screaming to stop. As depicted here, the forklift was wedged between the dock plate and the back of the trailer. The forklift driver unbuckled his seat belt and was able to jump off the forklift without injury, but he was very shaken up.

Early Departure: A service crew employee was unloading a trailer containing roll banding materials. The employee had made a trip into the trailer and was beginning to enter the trailer again when the truck driver pulled away from the dock. The front wheels of the forklift were practically off of the dock and the employee had his foot firmly on the brake. When the forklift operator released his foot from the brake the forklift fell forward off of the dock landing on the mast as shown in this photo.

Early Departure: A truck driver pulled away from this facility in Tennessee, as the forklift driver was attempting to enter the trailer. The forklift driver, who had his seat belt on, was shaken up as the forklift drove off of the loading dock, but fortunately was not hurt.

"Dallas man dies in forklift accident": A 25-year-old mad died Thursday night after a forklift fell on him at a Dallas company...He drove a forklift off of a loading dock at about 10:p.m. He was pronounced dead at the scene, officials say .

Man killed in warehouse "forklift mishap": A man...was killed when a forklift crashed on top of him at a warehouse, police said Wednesday. He was killed instantly. He rode the forklift off the loading dock bay and tried to jump from it as it

was tilting. He landed on the ground and the forklift toppled on him, a truck driver who witnessed the accident told police.

"Team work saves life of factory employee": As the forklift driver was loading the truck, its driver assumed the operation was complete, climbed into his cab and pulled away from the dock. As he did so, the forklift driver was backing out of the truck, police said. "The whole forklift just dropped off the back and crushed the guy," the officer said. Rescuers were able to slide the victim out from under the forklift; allowing EMTs to start CPR and get him to the hospital...The man lived

"The Reporter" (Montgomery, PA): A forklift operator injured a pedestrian in the warehouse. While driving with a load raised and without a spotter the operator ran into the worker and broke his leg.

"Rockford Register Star": A woman was killed when the forklift she was driving fell nearly five feet from the edge of a loading dock. The woman died instantly after sustaining crushing chest injuries

"Durant Daily Democrat": A forklift operator was killed when the unit he was driving flipped on top of him. According to police and fire department reports, the operator was backing the forklift when its rear wheels went off of the dock, causing the unit to overturn. The victim was taken to a local hospital, where he died.

"Dayton man dies as result of accident at business": A 47-year-old man was operating a tow motor lift in the bed of a semi-trailer...As the truck driver was pulling away from the dock, the tow motor unit fell from the trailer bed to the ground...The lift operator was able to get himself off the ground, and enter the facility, where he was treated by medical personnel. Approximately 16 hours later he died as a result of the injuries he suffered.

OSHA report: A 67-year-old maintenance worker died from multiple crushing injuries received when he was pinned by a forklift that ran off a loading dock and overturned onto him...The worker was crushed beneath the forklift's overhead guard.

*Trainer: Run Accidents Video Now

National OSHA

The Occupational Safety and Health Administration is an organization that is dedicated to a safe working environment. Forklifts, Forklift Safety and Forklift training or operator certifications are regulated under the OSHA Guideline 1910.178. But ASME (American Society of Mechanical Engineers) standards, state OSHA regulations and company policy also play a factor in the safe operation and operating requirements at any given facility. With this training you will review the OSHA guidelines for forklifts, and you should also review state, company and site guidelines as well. this course is based on the general OSHA guidelines.

Regardless of guidelines, regulations or rules all operators should only perform forklift tasks in the safest manner and if they have any concerns about the task, the equipment or the working environment they should inform their supervisor immediately.

State OSHA Requirements

Most states follow the National OSHA Guidelines for PIT Safety, and most of the states with their own programs just clone the national guidelines. There are some states with variations that should be followed if you live in those areas. For state specific guidelines, contact your local state OSHA.

PIT TRAINING OVERVIEW

In an effort to standardize training materials related to Powered Industrial Trucks at all your locations. Forklift University has developed this training manual to comply with National and State OSHA. In addition to the formal training class, operators must be evaluated on the equipment they are operating in the environment they are working. Operator performance evaluations are required prior to being authorized and operating a lift at the employer. At the conclusion of this training class a skills assessment will be required prior to work.

Under OSHA Guidelines, operators must be trained and authorized by their employer prior to operating a Powered Industrial Truck, PIT or Forklift. The training must consist of formal training and a skills evaluation.

In addition, operators are required to be re-certified every three years or:

- If they are found to be driving unsafe
- If they have an accident or near miss
- If the facility or the equipment they are using changes

OSHA Forklift Classifications: Overview of Equipment

Class I Forklifts

Class I Forklifts are electric motor rider trucks. These lifts have an electric motor, and the operator is intended to ride along with the forklift while it operates. 1

Class II Forklifts

Class II forklifts are electric motor trucks as well, but these electric motor forklifts are designed to fit in smaller spaces than Class I forklifts. Forklifts like these are also known as “narrow aisle” forklifts. These types of forklifts can come with a wide variety of features designed for different applications.

Class III Forklifts

Class III forklifts are mostly hand trucks, although they sometimes have seats for the operator. However, the steering is typically a handle and they are commonly called pallet jacks.

Class IV Forklifts

Class IV forklifts are internal combustion engine trucks, so named for their propulsion system. Usually they are counterbalanced and are sit-down lifts.

Class V Forklifts

Class V forklifts are also internal combustion trucks just like class IV, but they have pneumatic tires. Like class IV trucks, they are usually counterbalanced and have sit-down operator consoles.

Class VI Forklifts

Class VI forklifts are not actually a forklift, but tractors. They can use either internal combustion engines or electric motors.

Class VII Forklifts

Class VII forklifts are designed for use in rough terrain, such as construction sites or undeveloped natural terrain. This class covers a wide variety of forklift types, as long as they have the capability of navigating uneven ground.

Company Policies

While many companies have special rules in addition to the OSHA Guidelines, it is important to follow these rules, as well as the OSHA rules when operating your PIT. You can also find rules and procedures to follow in the equipment owners' manuals.

While the training on PIT's includes general safety information on each, there are sections that are lift specific. For operators of a single type of equipment, this training will allow your trainer to focus on the lift specific items and company specific information, providing a more focused training section.

The **OSHA general duty clause**, Section 5(a)(1) of the Occupational Safety and Health Act, requires that each employer furnish to each of its employees a workplace that is free from recognized hazards that are causing or likely to cause death or serious physical harm.

Special Issues and Rules at your Facility

Company or Corporate Policies:

List company specific policies below:

1. _____
2. _____
3. _____

Location Policies:

Company policies may differ from your facility and site-specific safety plans should be reviewed by operators, list facility specific hazards for lift operators below:

1. _____
2. _____
3. _____
4. _____
5. _____

Chapter 2 – Equipment Overview

Pre-Shift Inspections
Safety Equipment
Data Plates
Tire Safety

Driving a forklift requires an understanding of the important parts of the lift, not just getting in the seat and driving. This chapter will review different lift types and OSHA classifications.

Sit Down / Stand-up Counterbalanced (Propane / Electric)

Sit down counterbalanced forklifts are the most common type used today. Both propane and electric use the heavy operator side of the lift to counterbalance any load they lift. While they both use a steering wheel and are driving in a similar manner to a car, they have different acceleration and sometimes turning characteristics.

Motorized Hand/Rider Pallet Jacks or Walkie Riders

These “motorized” versions of the manual pallet jack are common in many industrial situations. While they look easy to operate, it is important to be aware of the unique characteristics of each type of lift.

Stand up Reach

These “narrow aisle” lifts are used exclusively indoors and can extend the forks to “reach” for your load. The have high lift capabilities and require additional hands on training if you are used to a sit-down lift

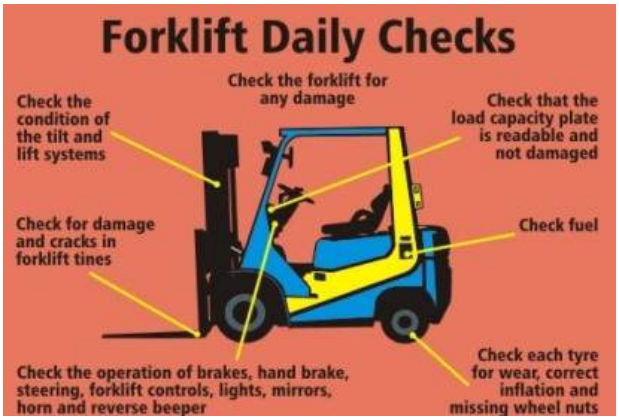
Order Picker

Also called a “cherry picker”, this lift takes the operator up with the load and requires a full body harness. While 2 operators may use it at a time, single operator use is safest. Be aware of fall hazards and do not travel while raised.

Pre-Shift Inspections

Maintenance and Inspections

Frequent and thorough inspections will help keep forklifts in safe and efficient operating condition. They will also help prevent breakdowns and costly delays.



Regardless of the type of lift you operate; OSHA requires that every operator must carefully inspect any forklift prior to use even if another operator has already inspected it.

In addition, a good operator will inspect their lift after their shift as well. If they notice any problem during the shift, they must be sure to report it.

The Inspection Sheet provides a convenient reminder of items that must be checked. It also provides the necessary information for scheduling maintenance. You must not assume everything is okay. You must check the forklift before you operate it and you should mark down any needed work, but operators are to make no repairs or changes unless authorized!

If the vehicle is in need of repair and not operational, the vehicle should be taken out of service, tag it out!

Motorized pallet jacks and walkie riders have many of the same features as sit down and stand up forklifts. It is important that the stopping systems are fully functioning in with motorized lifts.

> **You should review your inspection documentation for your facility and equipment with your trainer. This facility may have special inspection requirements or documentation updates that you have not been trained on.*

Sample Inspection Forms

BIG JOE 50 Years HANDLING SYSTEMS — Forklift University

ELECTRIC PALLET TRUCK OPERATOR DAILY CHECKLIST

DATE | INSPECTED BY | MAKE | MODEL | S/N# | HOUR | VOLTAGE

MARK CIRCLE *If NO PROBLEMS Visible,* **KEEP UNMARKED** and **WRITE IN** Comment *If PROBLEMS ARE PRESENT.*

VISUAL INSPECTIONS (Write Comments)

1. ○ Main ON/OFF Switch
2. ○ Hour Meter
3. ○ Key Switch
4. ○ Spec Plate Location
5. ○ Directional/Speed Control
6. ○ Emergency Reverse Button
7. ○ Lift/Lower Button/Lever
8. ○ Horn Button
9. ○ Battery
   - ○ Vent Caps
   - ○ Connector Covers
   - ○ Cables
   - ○ Water Level
10. ○ Forks
11. ○ Load Wheels
12. ○ Caster Wheel
13. ○ Drive Wheel

OPERATIONAL INSPECTIONS (Write Comments)

- A ○ Listen for Unusual Noise
- B ○ Lifting Control
- C ○ Forward Driving
  - ○ Accelerator
  - ○ Steering
  - ○ Braking
- D ○ Reverse Driving
  - ○ Accelerators
  - ○ Steering
  - ○ Braking
  - ○ Backup Alarm
- E ○ Horn
- F ○ Gauges
- G ○ Oil Spots on Floor

SIGNATURE: _____

WARNING: All parts and items which may need inspecting are not reflected in this worksheet. Operators are responsible for guaranteeing that the equipment is in proper working condition and in conformance with specifications. If any problems are found - DO NOT operate the equipment and immediately notify supervisor or manager.

ARE YOU CERTIFIED? 888-674-9992

BIG JOE 50 Years HANDLING SYSTEMS — Forklift University

SIT-DOWN ELECTRIC FORK LIFT OPERATOR DAILY CHECKLIST

DATE | INSPECTED BY | MAKE | MODEL | S/N# | HOUR | VOLTAGE

MARK CIRCLE *If NO PROBLEMS Visible,* **KEEP UNMARKED** and **WRITE IN** Comment *If PROBLEMS ARE PRESENT.*

VISUAL INSPECTIONS (Write Comments)

1. ○ Battery
   - ○ Vent Caps
   - ○ Water Level
2. ○ Battery Connectors
3. ○ Seat & Seat Belt
4. ○ Overhead Guard
5. ○ Mast
6. ○ Lift Cylinders
   - ○ Lift Chains
7. ○ Carriage
8. ○ Tilt Cylinders
9. ○ Forks
   - ○ Fork Locking Pins
   - ○ (Attachment Applicable)
10. ○ Hydraulic Oil
11. ○ Front Tires
12. ○ Rear Tires

OPERATIONAL INSPECTIONS (Write Comments)

- A ○ Listen for Unusual Noise
- B ○ Check Service & Parking Brake
- C ○ Lifting Control
- D ○ Tilt Control
- E ○ Forward Driving
  - ○ Accelerator
  - ○ Steering
  - ○ Braking
- F ○ Reverse Driving
  - ○ Accelerator
  - ○ Steering
  - ○ Braking
  - ○ Backup Alarm
- G ○ Lights
- H ○ Horn
- I ○ Gauges
- J ○ Oil Spots on Floor

SIGNATURE: _____

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ARE YOU CERTIFIED? 888-674-9992

BIG JOE 50 Years HANDLING SYSTEMS — Forklift University

SIT-DOWN PROPANE FORK LIFT OPERATOR DAILY CHECKLIST

DATE | INSPECTED BY | MAKE | MODEL | S/N# | HOUR | PROPANE/DIESEL

MARK CIRCLE *If NO PROBLEMS Visible,* **KEEP UNMARKED** and **WRITE IN** Comment *If PROBLEMS ARE PRESENT.*

VISUAL INSPECTIONS (Write Comments)

1. ○ Propane
   - ○ Relief Valve
   - ○ Fuel Level
   - ○ No Leaks
   - ○ Safety Straps
2. ○ Engine Compartment
   - ○ Oil
   - ○ Radiator
   - ○ Air Filter
   - ○ Fan Belt
   - ○ Hydraulic Oil
   - ○ Battery
3. ○ Overhead Guard
4. ○ Tilt Cylinder
5. ○ Carriage
6. ○ Mast
7. ○ Lift Cylinder
   - ○ Lift Chains
8. ○ Forks & Locks
9. ○ Seat & Seat Belt
10. ○ Front Tires
11. ○ Rear Tires

OPERATIONAL INSPECTIONS (Write Comments)

- A ○ Listen for Unusual Noise
- B ○ Check Service & Parking Brake
- C ○ Lifting Control
- D ○ Tilt Control
- E ○ Forward & Reverse Travel
  - ○ Accelerator
  - ○ Steering
  - ○ Braking
  - ○ Backup Alarm (If Equipped)
- F ○ Lights
- G ○ Horn
- H ○ Gauges
  - ○ Leak Spots

SIGNATURE: _____

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ARE YOU CERTIFIED? 888-674-9992

BIG JOE 50 Years HANDLING SYSTEMS — ForkliftUniversity

STAND-UP ELECTRIC REACH TRUCK OPERATOR DAILY CHECKLIST

DATE | INSPECTED BY | MAKE | MODEL | S/N# | HOUR | VOLTAGE

MARK CIRCLE *If NO PROBLEMS Visible,* **KEEP UNMARKED** and **WRITE IN** Comment *If PROBLEMS ARE PRESENT.*

VISUAL INSPECTIONS (Write Comments)

1. ○ Battery
   - ○ Vent Caps
   - ○ Connectors /Covers
   - ○ Cables
   - ○ Water Level
2. ○ Battery Retainer Plate
   - ○ (Attachment if Applicable)
3. ○ Nameplate
4. ○ Overhead Guard
5. ○ Mast
6. ○ Cylinder Lift
   - ○ Reach Function (Cylinder & Pantograph)
7. ○ Lift Chains
8. ○ Tilt Cylinder (If Applicable)
9. ○ Carriage
10. ○ Forks
11. ○ Drive and Load Wheel

OPERATIONAL INSPECTIONS (Write Comments)

- A ○ Listen for Unusual Noise
- B ○ Parking Brake
- C ○ Lifting Control
- D ○ Tilt Control
- E ○ Forward Driving
  - ○ Steering
  - ○ Braking
- F ○ Reverse Driving
  - ○ Steering
  - ○ Braking
  - ○ Backup Alarm (optional)
- G ○ Lights
- H ○ Horn
- I ○ Gauges
- J ○ Oil Spots on Floor

SIGNATURE: _____

ARE YOU CERTIFIED? 888-674-9992

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BIG JOE 50 Years HANDLING SYSTEMS — Forklift University

STAND-UP ELECTRIC ORDER PICKER OPERATOR DAILY CHECKLIST

DATE | INSPECTED BY | MAKE | MODEL | S/N# | HOUR | VOLTAGE

MARK CIRCLE *If NO PROBLEMS Visible,* **KEEP UNMARKED** and **WRITE IN** Comment *If PROBLEMS ARE PRESENT.*

VISUAL INSPECTIONS (Write Comments)

1. ○ Battery
   - ○ Vent Caps
   - ○ Connectors / Covers
   - ○ Cables
   - ○ Water Level
   - ○ Battery Retainer Plate
   - ○ (Attachment if Applicable)
2. ○ Drive and Load Wheel
3. ○ Overhead Guard
4. ○ Carriage
5. ○ Forks
6. ○ Mast
7. ○ Cylinder Lift
8. ○ Lift Chains
9. ○ Nameplate

OPERATIONAL INSPECTIONS (Write Comments)

- A ○ Listen for Unusual Noise
- B ○ Parking Brake
- C ○ Lifting Control
- D ○ Forward Driving
  - ○ Steering
  - ○ Braking
- E ○ Reverse Driving
  - ○ Steering
  - ○ Braking
  - ○ Backup Alarm (optional)
- F ○ Lights
- G ○ Horn
- H ○ Gauges
- I ○ Oil Spots on Floor

SIGNATURE: _____

WARNING: All parts and items which may need inspecting are not reflected in this worksheet. Operators are responsible for guaranteeing that the equipment is in proper working condition and in conformance with specifications. If any problems are found - DO NOT operate the equipment and immediately notify supervisor or manager.

ARE YOU CERTIFIED? 888-674-9992

BIG JOE 50 Years HANDLING SYSTEMS — Forklift University www.ForkliftUniversity.com

BIG JOE WALKIE STACKER OPEATOR DAILY CHECKLIST

DATE | INSPECTED BY | MAKE | MODEL | S/N# | HOUR | VOLTAGE

MARK CIRCLE *If NO PROBLEMS Visible,* **KEEP UNMARKED** and **WRITE IN** Comment *If PROBLEMS ARE PRESENT.*

VISUAL INSPECTIONS (Write Comments)

1. ○ Main ON/OFF Switch
2. ○ Spec Plate Location
3. ○ Directional/Speed Control
4. ○ Emergency Reverse Button
5. ○ Horn Button
6. ○ Lift/Lower Button/Lever
7. ○ Battery
   - ○ Vent Caps
   - ○ Connector Covers
   - ○ Cables
   - ○ Water Level
8. ○ Built-in Battery Charger
9. ○ Lift Cylinder
10. ○ Forks
11. ○ Load Wheels
12. ○ Drive Wheel

OPERATIONAL INSPECTIONS (Write Comments)

- A ○ Listen for Unusual Noise
- B ○ Lifting Control
- C ○ Forward & Reverse Travel
  - ○ Accelerator
  - ○ Steering
  - ○ Braking
  - ○ Back-Up Alarm (If Equipped)
- D ○ Horn
- E ○ Gauges
- F ○ Leak Spots

SIGNATURE: _____

WARNING: All parts and items which may need inspecting are not reflected in this worksheet. Operators are responsible for guaranteeing that the equipment is in proper working condition and in conformance with specifications. If any problems are found - DO NOT operate the equipment and immediately notify supervisor or manager.

ARE YOU CERTIFIED? 888-674-9992

Digital inspection programs are available at www.ForkliftUniversity.com

Safety Equipment

Forklift Safety Equipment Overview

The safety equipment on the forklift is designed to protect the operator from danger while performing designated job duties. Some of the equipment also provides warnings to other individuals in the area that there are potential hazards. This equipment is to be checked as a part of the inspection process and must be maintained in good working condition at all times.

> *Note: Your forklift may not be equipped with all of the safety devices mentioned below, but what you do have must be maintained. The available safety equipment must be used at all times when operating a forklift. If any safety equipment is damaged or inoperable the forklift must be taken out of service. Disconnecting or altering your available safety equipment may result in an OSHA fine.*

Occupant Restraints

The occupant restraints are designed to keep the operator in the seat. You must wear the safety belt whenever you are operating the sit-down forklift.

Flashing Lights

Flashing lights or strobes are optional equipment on a forklift. They are designed to alert anyone around of the forklift's presence

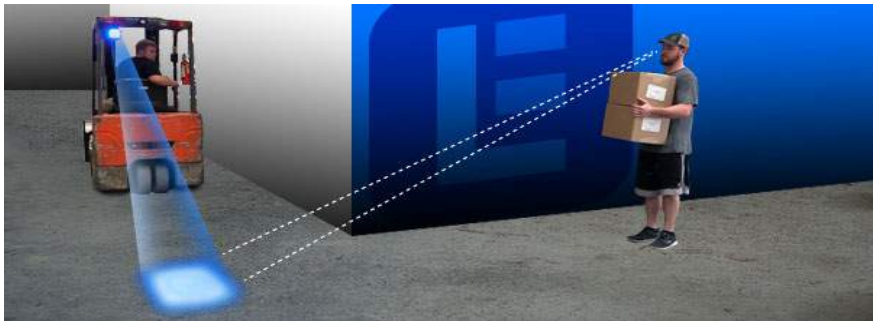
Horn

All forklifts must be equipped with a working horn. The horn is used as a warning device; it must be tested to see if it is in good working condition before putting the forklift into operation. If this item is not operating properly, the lift MUST be taken out of service.

Overhead Guard

The overhead guard is standard equipment from the manufacturer and must be included on the forklift. The overhead guard is not meant for roll over protection it is only intended to offer protection from the impact of small packages, boxes, and bagged material representative of the job application. The guard will not withstand the impact of a falling capacity load.

Special Lights
The blue and red safety lights must be working properly and pointing to the proper location on the floor next to the lift.



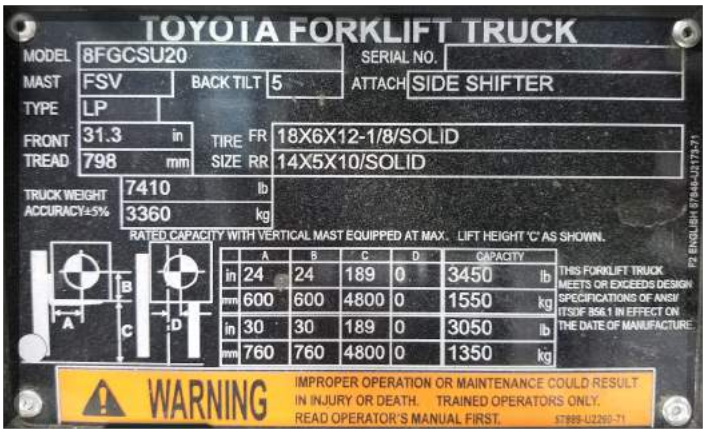
Backup Alarm
The alarm is designed as a warning signal that the forklift is moving in reverse. This is to alert other forklift drivers as well as pedestrians of a potential hazard. This alarm does not relieve the forklift driver of the responsibility of looking in the direction of travel when backing. If your forklift is equipped with a backup alarm, it must be kept in operable condition.

Parking Brake
The parking brake is a safety device used to prevent the forklift from moving. It should be used whenever the operator leaves the vehicle.

Personal Protective Equipment OSHA 1910.132
The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitates the use of personal protective equipment. Most employers will provide PPE's for their employees; find out what your employer provides and what is your responsibility.

Examples of protective equipment that might be required are safety glasses, respirator, hardhat, etc.

Forklift Data Plate



The data plate on each forklift contains all the basic capabilities and limitations of that forklift. Review the information found on each of the forklift data plates at your facility.

The important parts of the data plate you should make sure you are familiar with on the equipment you are driving are:

- The model and Serial numbers
- The type of truck
- The attachments should be listed
- The capacity rating or total amount this forklift can lift.
- The load center or center of the load
- The lifting height of the mast
- The overall forklift weight
- The battery weight if it is an electric forklift

Of course, all forklift manufacturers make their data plates differently. They will all have the same basic information on them. As an operator it is very important to understand all the information given on the data plate. A data plate must have all the proper information listed. It must be legible and not painted over or removed.

Note that any attachments or mast change added after the purchase of the forklift are, in fact, listed on the data plate.

If your forklift data plate is missing, illegible or does not have the proper information on it, report it to your supervisor immediately.

Tires

Cushion and Pneumatic Tires are the most common type of tire used on forklifts; the cushion tire is made of solid rubber and designed primarily for indoor use on smooth surfaces. The Pneumatic tire is an air-filled tire and designed for better traction on outdoor or rough surfaces. There are pneumatic tires that are filled with foam or even solid and designed to resist punctures.

When inspecting any tire, check for cracks, deep cuts, punctures and excessive wear. And if it is air filled make sure the pressure is correct to maintain proper stability. You should make sure that no lug nuts are missing and that the wear is not below the wear indicator for the tire. Unsafe tires are a common reason for preventable forklift accidents.

Slick tires can be difficult to recognize when they are ready to be replaced since there is no tread like a car tire, however, when the rubber is worn down to the lettering this can be used as your wear indicator and new tires should be put on the lift for proper safety. Worn tires can also cause the base of the mast to hit the ground when traveling over uneven surfaces causing the lift to stop abruptly or get stuck while traveling.

When inspecting slick tires use the sidewall lettering as your wear indicator. If the rubber is worn down into the lettering, you should report this so new tires can be installed on your lift. Because tires are pressed on, deep cracks or cracks to the rim can cause tires to split away from the rim when not maintain properly.

Refer to the equipment specific sections for tire information on different types of lifts.

Chapter 3 - Traveling in the Facility

Traveling Rules
Driving Precautions
Pedestrians
Indoor and Outdoor Surfaces
Parking Safety

Once you understand the basic components of the lift you will need to understand the "rules of the road" for operating a forklift. In this chapter we review safety rules, loading and unloading loads, and safety rules when working around pedestrians.

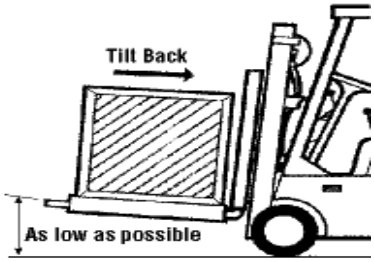
Forklifts seem to operate in a similar manner to automobiles, but driving on ramps, grades and in narrow aisles require additional training and safety precautions.

Traveling Rules

- Do not pass other forklifts traveling in the same direction at intersections, blind spots, or other dangerous locations.
- Slow down on wet and slippery surfaces and avoid running over objects in the operating area.
- If there are things in your path take the time to get out and pick them up, if it is safe to do so.
- Slow down and sound the horn at cross aisles and other locations where vision is obstructed.
- If the load being carried obstructs the forward view (loads higher than the steering wheel), the driver must travel with the load trailing behind.
- Never travel with the load in a raised position.

- Operate your lift at a walking speed, about 5-6 MPH.
- Keep about 3 forklift lengths behind other forklifts.
- Always allow ample time and space for safe stopping.
- Emergency vehicles have the right of way.

- Forks must be low as possible when traveling except when entering or leaving a ramp. On those occasions, raise the fork only enough to be sure you have clearance.
- Whether your forklift is loaded or empty, always raise or lower the forks to not more than 6 inches from the floor before traveling.



- Electric Pallet Jacks should be driven with the load behind. Operators should walk to the side of the pallet jack handle while traveling.

- Pallets must never be pushed with another pallet that is on the forks. The process of pushing or “bull dozing” is not allowed.

Driving Precautions

- Be alert and look in the direction of travel.
- Be sure you have plenty of operating room, so you don't have to make panic stops or sudden turns.
- If the load obstructs your view, travel backwards.
- Take it easy on turns and stops. The centrifugal force may move the center of gravity outside the stability triangle and cause the forklift to tip or the load to shift.
- Horseplay and stunt driving such as deliberately bumping or scaring someone by coming too close or using the forks for an unauthorized purpose are prohibited.

- The operator must keep arms, hands and feet inside the forklift and away from the hoist mechanism.
- Always approach your drop off spot slowly
- Make slow turns and brake smoothly
- Watch the swing of the forklift
- Be sure you have your forks under at least 2 thirds (2/3) of your load for stability, while full load is best not all situations allow you to reach fully under the load.
- It is good practice to look all around the forklift before moving it in any direction.
- You should never operate your forklift with wet or greasy hands, and shoes should be dry also.
- Electric pallet jacks and walkie stackers should be careful around pedestrians' feet. This is the most common accident of these lifts.
- Operators must wear seat belts at all times when operating a forklift. In the event of a tip over operators must stay in their seat and brace themselves, lean in the opposite direction of the fall, grab the steering wheel, staying within the confines of the overhead guard.

Load Placement Overview

Operators pickup and drop off hundreds of loads each day. Safe practices are a big part of performing this function safely every time. Here are just a few of the rules you should follow:

Placing Loads in Racks and Bins

Placing product in bins, racks, and on machines for production requires practice and an understanding of standard procedures. Operators may be working in narrow aisles and need to use 90-degree turns to operate in these tight spaces.

To load pallets into racking you should follow these operational rules:

- Line up with the drop off point
- Make sure you don't hit racks or stock
- Make sure the forklift is square to the bin
- Completely stop before you raise the load.
- You can use the gas pedal to increase the speed the load is raised
- Use the “inching pedal” to prevent the lift from moving as you press the gas.
- Line the load up about 2-4 inches higher than the drop off point
- When the load is at the correct height;
    - Inch forward until the load is about halfway over the drop off
    - Tilt the mast forward till level
    - Continue forward until the load is in proper position
- Lower the forks enough to release the pressure on the pallet and back the forklift until the forks are clear.
- Honk, and begin to back up slowly
- Look behind your lift and also back at the load to make sure you are released from the load and not going to pull it off the racks.
- Once clear of the racks, lower the forks all the way before continuing.
- NEVER TURN WHILE THE LOAD OR FORKS ARE RAISED
- Always be aware of the position of your fork tips.
- Always inspect your pallets and remove damaged pallets from production

General Dangers

There are many potential dangers a forklift operator encounters daily, narrow aisles may create crushing dangers, and low overheads can damage product and cause damage, and even roll up doors are common hazards. Operators should always be aware of their environment and not only concentrate on the load but the surroundings as well.

Doors and Blind Spots

While driving a forklift into or out of a building be aware of potential hazards. There is the possibility of a drastic change in light. Operator must slow down to allow their eyes to adjust to the light change. There are many doors that have pedestrian traffic; pedestrians may not realize that you cannot see them as you enter the dark warehouse. Always honk your horn as you enter or exit a door, building or blind spot

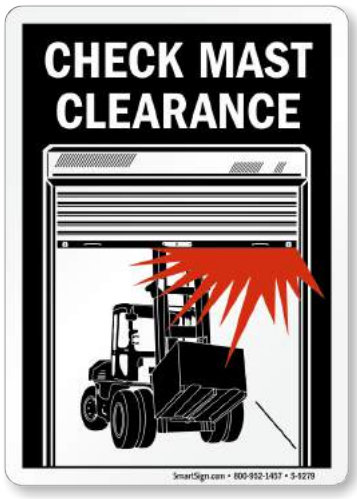
Aisles

Keep to the right in aisles, but don't get too close to people along or objects extending into aisles. Slow down, sound your horn, and proceed with caution at all blind intersections and make sure you have plenty of stopping distance.

“Pop-up” aisles are aisles that are typically open space, but in heavy production times, product is placed in this open area on the floor and tall loads create temporary aisles with temporary and dangerous bind spots.

Low Overheads

Low overheads can be found in almost every facility. Hitting low overheads can cause serious injury to the operator as well as costly damage to the equipment, product and facility. Operators need to be made aware of any of these dangerous areas. These areas may need to be marked using signs, safety tape, or bright colored paint.



Operators should take special care in scanning the load from front to back, many times the backrest is higher than the load and can strike overhead items like sprinklers or air ducts before the load.

Indoor Surfaces

Indoor surfaces are usually concrete or asphalt and tend to be smooth. Forklifts used in this area are generally cushioned or solid tire forklifts. The smoothness of the surface can pose a hazard. Traction is easily lost when there are foreign substances on the floor such as dust or spilled products. It is imperative that floors be kept clean. Severe cracks, holes and/or seams in the floor can cause loads to shift and become unstable. All surfaces where forklifts are operated should be well maintained and any potential forklift operating hazards should be immediately repaired.

Outdoor Surfaces

There are a wide variety of outdoor surfaces. Pneumatic forklift tires are designed for outdoor surfaces; cushioned tires on forklifts can be used outdoors if the surface is hard and smooth such as concrete and asphalt. Most warehouse forklifts should be used only on a solid improved surface.

Some additional potential hazards that you may encounter in outdoor forklift use follow:

- Railroad Tracks should be crossed at an angle to reduce the possibility of the tires getting lodged in between the rails or the load bouncing loose as you travel over the uneven surface. This also holds true for rolling gates, and uneven ground near warehouse doors where asphalt and cement come together.
- Speed humps and drainage areas should be avoided but if you must drive over them, drive over straight and not at an angle. Drive tires can lose contact and spin on speed humps. Large speed humps can also be higher than the clearance of your lift, make sure you can drive over a speed hump before you attempt this maneuver.

Pedestrians and Operator Rules

Rules for Pedestrians

Pedestrians, who have any contact with forklifts at all, no matter how often, should know and understand forklift operations. They should be familiar with the usual tasks that are performed on a daily basis. Blue light safety is becoming commonplace, be aware of the blue light if your facility uses one.

Pedestrians always have the right of way!

Rules for Operators

Over one third of all forklift accidents involve pedestrians. The following suggestions may help you in setting up company policies regarding pedestrians.

- Never permit anyone to walk or stand under forks or elevated loads.
- No riders are allowed.
- People should not be lifted on the forks or pallets.
  - To lift someone, they must be in an approved man lift basket, wear a full body harness, not move the lift while the person is in the basket and the operator must stay in the operators' seat while they are raised.
- Give the right of way to pedestrians. Be sure they know you are approaching. Use your horn to warn them in advance.
- Do not drive up to anyone standing in front of a bench or other fixed object.

Aisles must be kept as clear as possible and loads must not be deposited in them except for transfer to production or other areas. Aisles are not meant to be storage areas. Narrow Aisles are 9' wide be aware of the following:

- Visibility is limited when entering or exiting a narrow aisle. Always slow down, use your horn, and proceed with caution.
- Stacking product in the aisles can reduce access to important safety equipment such as fire extinguishers, hoses, and emergency exits.
- Product extending into the aisle will further reduce the aisle size, making safe operation difficult.
- Limited space in narrow aisles restricts the maneuverability of the forklifts. Special narrow aisle forklifts may be necessary to operate in these areas.
- Be cautious not to knock other loads into the next aisle, possibly injuring another operators or pedestrian.

Parking or Leaving a Forklift Unattended

When you park your forklift, or you are going to be more than 25 feet away from or cannot see your forklift from your destination:

- Lower the forks to the ground
- Put the controls in neutral
- Set the parking brakes
- Prevent unauthorized access
- Be sure it does not block a fire door, fire exit, fire equipment or access to a switch box, sprinkler valve, and/or first aid or emergency equipment.
- Chock the lift if you are parking on an incline

Proper Parking Procedures

Operators should park the lift in the company designated parking location or in an area that is out of the way from pedestrian traffic.

When parked the forks should be all the way to the ground and tilted forward so they do not stick up and cause a trip hazard. The parking brake must be engaged; the gears in neutral and many companies require the propane be turned off at the tank.

Electric lifts may require charging, so check the battery gage and plug it in if there is 5% or less of the battery charge left. (Your forklift battery company may have different specs on charging, always follow these).

Electric Pallet Jacks and Walkie Riders should also be parked in designated or low traffic areas and operators should be sure the forks do not extend into pedestrian walkways.

Fueling and Re-Charging

While it is not the intent of this training to provide in-depth refueling training, some simple basic rules should be followed by operators when they are tasked to fuel or charge their lifts.

Fueling Overview

- Follow lift specific instructions
- Shut off engine and lights
- Smoking is prohibited
- Do not fuel near an open flame
- If the fuel leaks, follow MSDS spill procedures
- Do not fill empty propane tanks unless you have been trained by the propane company
- Use goggle and gloves and other PPE as required by your company
- Know where eye-wash stations are located
- Follow local fire guidelines for storing propane
- Make sure you plug electric lifts into the proper receptacle

Check company administrative procedures for refueling, who does it, when, where, how, etc.

Chapter 4

Electric Pallet Jacks/Walkie Riders/Walkie Stackers

Introduction
General Operations
Pre-Start Inspection
Controls and Operations
Lift Stability
Common Hazards

Electric pallet jacks and walkie rider lifts operate with many of the same functions as other forklifts. These lifts are similar in operations to manual pallet jacks that many warehouse operators have used. The use of a steering arm rather than a steering wheel creates different safety issues from sit down forklifts. Operators should make sure they are familiar with this type of steering, especially when they use the rider version of these lifts.

Electric Pallet Jack, Walkie Rider & Walkie Stacker

Introduction

Powered pallet jacks, walkie riders and walkie stackers are a type of powered industrial truck used to move pallets of heavy loads. They are very similar to a manual pallet jack but are powered by an electric motor.

The walkie rider has the same controls and characteristics as the electric pallet jack, but there is a platform for the operator to stand so they do not have to walk with the load,

Walkie Stackers are a combination of the electric pallet jack and a narrow aisle reach lift. They have outriggers, and a mast but the operator does not have a platform.

Each of these lifts have similar controls and rules governing operation, in addition, OSHA Guidelines require that operators be trained in their use, just as they would be trained on any other form of Powered Industrial Truck.

While this program may not cover every aspect of every piece of equipment used within your facility, this module will provide a good foundation for understanding safe work practices of powered pallet jacks. You should always consult the Operator's Manual for specific details concerning the equipment you will use.

Pre-Start Inspection

As with all other Powered Industrial Trucks, powered pallet jacks require a pre-start inspection.

Follow the Pre-Start Inspection Checklist for Pallet Jack Inspection.
Be thorough, and ensure that you check the following:

- Brakes
- Controls
- Emergency Switches (belly button)
- Horn
- Operator Manual

Remember, it is against most companies' policies to operate any Powered Industrial Truck that may be defective in any way.

Controls and Operations are Similar

Operation

The design of a powered pallet jack is structured around three wheels: two front caster wheels, and one rear drive and steering wheel. The walkie rider has a similar wheelbase, but the walkie stacker has outriggers that extend around the load and provide more side to side stability.

One brake wheel

The rear wheel, also known as the drive wheel, is responsible for steering, maneuvering and braking. The drive wheel is located directly under the steering handle and is the only braked wheel. The only braked wheel on a pallet jack is the rear wheel. This is important to keep in mind when generating momentum and needing to stop.

Yoke Steering

Electric pallet jacks, walkie riders and walkie stackers do not use a steering wheel like a standard sit-down forklift. The steering yoke has all the controls for lifting, stopping, turning and speed control.

The lifts you will operate will use a yoke style steering control with all function controls on the handle. The handle will have options for forward and backward, lift and lower, speed controls, sounding the horn, emergency stop and depending on the make and model other functions as well.

To travel forward or backward, use the thumb or grip throttle and roll it slowly forward or backward. As an experienced operator you may find that using your thumb to control the throttle is easier and less strain on your hands and wrists than gripping the control like a motorcycle.

Plugging

Plugging the equipment is done when the operator gently switches the hand control to the opposite direction, he/she is currently traveling. The force applied to the drive wheel by the motor slows down the machine. Once the truck comes to a stop, the controls are returned to neutral.

Emergency Stop (belly bump)

An important feature on all electric pallet jacks, walkie riders and walkie stackers is the emergency stop button, sometimes called the belly bump button. The function of this safety feature is to prevent an operator from being crushed against a solid object by the lift. When the typically red button is depressed, the lift will stop and reverse direction away from the operator. This feature must be inspected and tested during your pre-use inspection, if it is not in working the unit must be taken out of service or tagged out.

General Precautions – Load Moving

Let's review some general precautions that should always be followed when moving with a load:

- Move load at safe speed. This should be no faster than a brisk walk
- Regardless of the lift type in this section, position yourself for good visibility.
- Always face the direction of travel
- Always keep hands, feet and head within the boundaries of the truck at all times. This is critical for your safety and the safety of others
- One hand should always remain on the controls, and the load trailing behind
- Sound the horn at every intersection
- Allow for wide swing-type turns
- Never allow an additional rider
- Never raise or lower the load while the vehicle is in motion

Common Hazards

When operating an electric pallet jack or walkie rider, operators should be cautions of:

- Pedestrians
- Other lifts working in the area
- Product stacked on the floor or aisles; these can cause blind spots that operators using electric pallet jacks may not be able to see around.
- Load stability

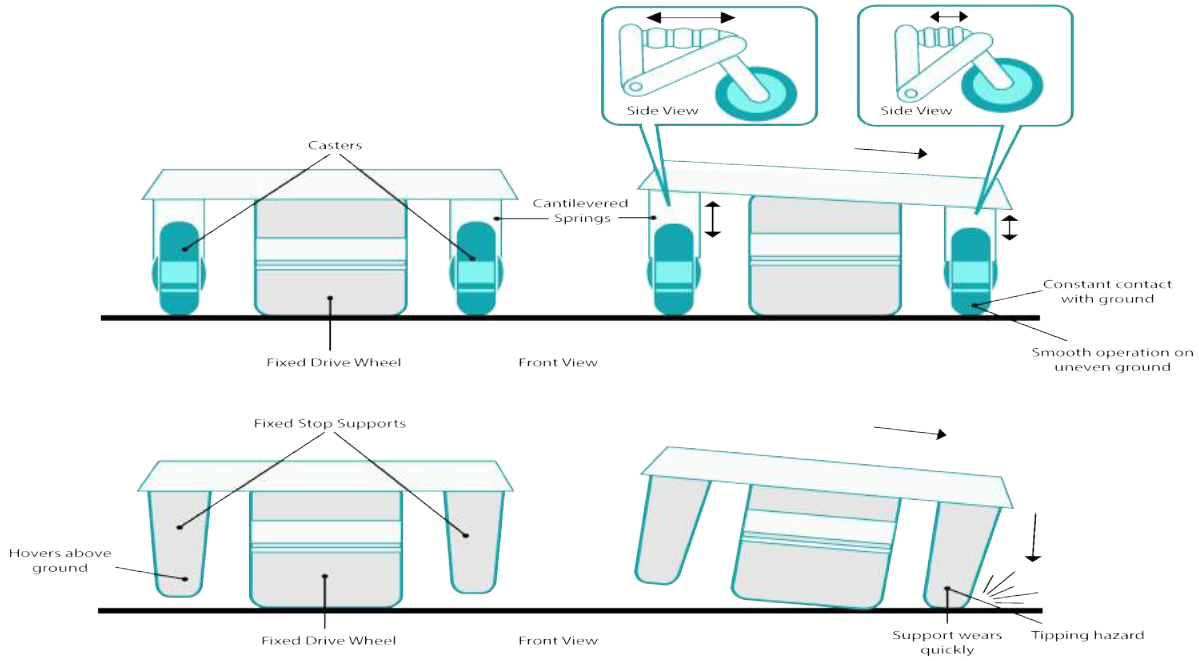
Keep the Load Low

Stability is a concern with all lift trucks, but this is particularly true of high-lift carriages. A high lift is used to pick-up or place loads on racks in high storage. High lift trucks are less stable when the forks are raised, especially while carrying a load. Safe load handling techniques are particularly important when using this type of lift truck.

Lift Stability

Electric Pallet Jacks, Walkie Stackers and other lifting equipment use the same principles as a standard forklift. While this type of lift is lower to the ground you can still tip over and drop your load if you do not pay attention to the stability of the lift.

Standard sit-down lifts typically have 4 wheels while this type of lift has caster wheels in the forks and a single drive wheel under the main part of the lift.



To maintain product and lift stability, operators should NEVER carry a load under only one fork or carry 2 loads side by side with either type of electric pallet jack. If you lift is equipped with longer forks, you can carry 2 pallets, front to back only.

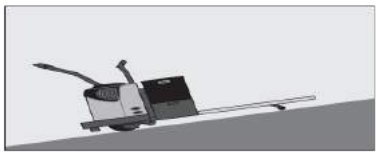
Ramps and Grades

Most facilities have some type of ramps and grades. These tend to be entering or exiting a building and since most electric pallet jacks or walkie riders should not regularly be used outside, there are occasions when you will be required to operate in this manner.

Electric pallet jacks, walkie stackers and walkie riders should not be driven across a grade, if you are going up or down an incline treat it like you would a ramp.

Ramps are traveled differently from the standard sit-down lift. With any type of pallet jack, the load should remain downhill from the operator making sure if the load falls, it will not fall on the operator or any pedestrians in the area.

This means with electric pallet jacks; you travel with the forks pointing downhill when you go up or down a ramp. This is opposite from a standard sit-down lift.



Forks pointed upgrade

Forks pointed downgrade

Walkie Riders on Ramps

While riding, operators should keep the forks uphill with a load and downhill without a load, if you are not riding the forks should always be downhill.

Electric Pallet Jacks

Electric pallet jacks may look similar to a manual pallet jack, but you cannot operate a Powered Industrial Truck for which you have not been trained.

Walkie pallet jacks or electric pallet jack, shown here require the operator to walk to the side of the yoke and load, operators walk while facing the direction of travel

Even similar units can have differences. These differences may include:

- The location of the controls
- The height capacity of the lift carriage
- The truck's load capacity
- The touch and feel of the controls

Walkie Stackers

These lifts function in much the same way as the electric pallet jacks. However, they have a lifting mast like a standard sit-down lift. Operators have the added requirement of:

- Making sure they lift loads within capacity.
- Never turn while the load is raised
- Travel with the forks as low as possible
- Use the lift on smooth level surfaces
- Be cautious of the outriggers if the lift is equipped with these
- Load balance and lifting, like a standard lift, stability becomes more of an issue when the load is raised and extended.

Walkie Riders

These lifts function in much the same way as the electric pallet jacks, however they have a platform for the operator to stand on while moving. They can also be operated in a walking manner just like the electric pallet jack.

The greatest danger with this type of lift is the platform, many operators hang their feet off the side or jump off before the lift has come to a complete stop. Just like with a regular forklift you must keep your body parts within the running lines of the lift and on the platform to prevent your foot or leg from being caught between the lift and a stationary object.

The platform is the only place for an operator to stand, no product should ever be placed here, and operators should never hang their feet off the side of the platform or jump off until completely stopped.

A clear and unobstructed platform area is important for operator safety and efficient use of the lift. Operators may need to step across the platform and use their hip to help steer the lift when traveling slowly or making a tight turn.

In addition to the yoke controls, operators of the riding version will have a support bar near the battery, this is used as your secondary handhold and it has controls for raise and lower along with turbo or slower speed bursts.

Operators of the rider version MUST always have hold of this support bar while operating the lift, it will stabilize you and allow you to maintain balance on turns and when stopping.

Chapter 5

Sit Down/Stand Up Counterbalanced

PIT vs Car
Overview
Ramps and Grades
Stability
Load Centers
Trucks,Trailers and Loading Docks
Attachments
Propane vs Electric Lifts

Sit Down and stand up counterbalanced electric or propane forklifts are used throughout all facilities. These lifts are used for loading and unloading trucks, moving products around the facility and placing them on upper levels of the rack systems.

Operators should have an extensive understanding of the stability triangle, load centers and the hazards and operational responsibilities when using these lifts.

These lifts are also used in special operations with special attachments, which have their own safety procedures and concerns.

General Controls Sit-Down Counterbalanced

The controls on a sit-down counterbalanced lift are typically limited to 3 major functions and on attachment controls as needed. They are usually located to the right of the operator with large lift levers or finger controls in the newer models.

Use of these controls in a smooth controlled manner is important to load stability and safety. Operators should never jerk the controls which could lead to accidents.

Hand Controls will typically be, from closest to the operator to furthest away:

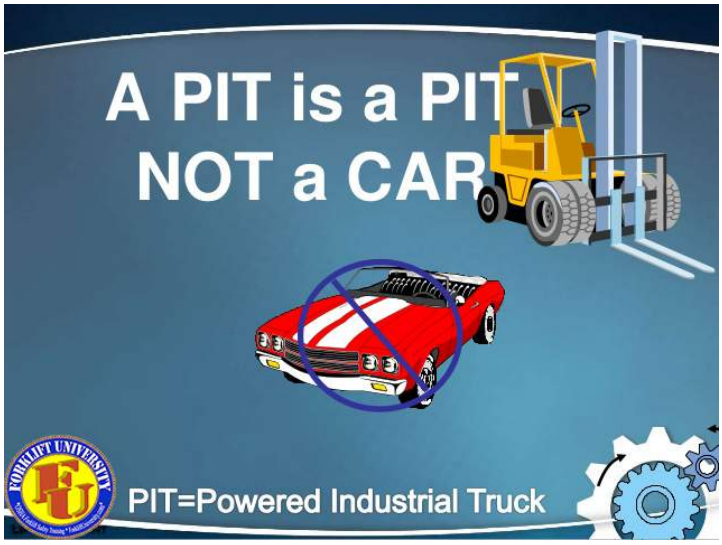
- Lift
  - This will raise and lower the full load under the forks from the ground to the full height listed on the data plate. The stages on the forklift will determine the full height the mast will rise to.
- Tilt
  - This control will move the load or the forks closer or away from the operator in a tilting fashion. Tilting back, will ensure the load is resting against the backrest for better stability. Level is the most important tilt aspect, since the load will usually need to be level to pick up or drop off.
- Side Shift
  - This optional feature allows the load (forks) to move side to side allowing for a more precise placement.
- Attachment Control
  - Clamps, fork spreaders and other hydraulic attachments use this control to activate their function. Additional functions may be used by additional attachment controls. For example, a paper roll clamp may have a control for the grab and release of the roll, but the other control will rotate the roll.

Foot controls are similar to your automobile

- Accelerator Pedal
  - The accelerator pedal is similar to your car gas pedal. Press down to go faster and release to slow. Gas powered and electric powered lifts react differently to this function and operators should become familiar with the differences.
- Brake Pedal
  - Like the brake pedal in your car, this pedal will stop your vehicle.
- Inching Pedal
  - Used as a clutch and a brake at the same time. This pedal allows the operator to effectively take the lift out of gear, like the clutch in your car at the same time as it brakes and slows or maintains position. This is used for moving precisely and for holding the lift in position as you press the accelerator and raise the mast at a quicker rate.

Forklift vs Car Similar but VERY Different

There are many differences between a forklift and an automobile. Although many forklifts appear to be similar to autos in the way they are driven, the characteristics of a forklift are far different. Here is a list of the similarities and differences.

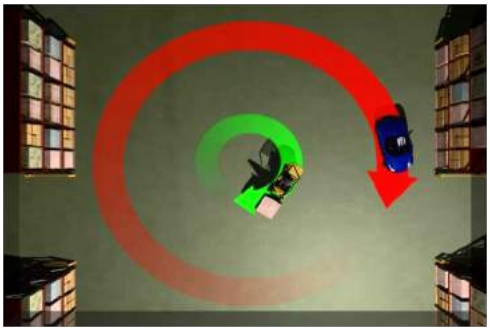


Similarities

- Steering wheels, Seats, Seat belts
- Acceleration and Brake pedals· Wheels and tires
- Engines (Internal combustion forklifts) · Horns
- Foot Break, Gas pedal and Parking brakes
- Head lights, taillights and turn signals (optional on some forklifts)

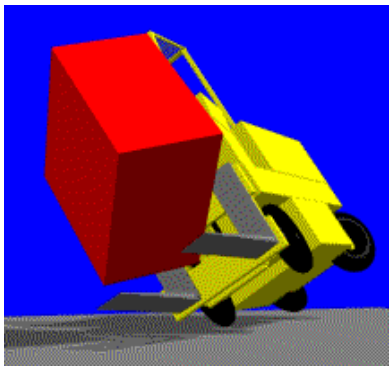
Differences

- Forklifts steer with their rear wheels
- Forklifts are typically much heavier than an automobile; a five-thousand-pound capacity forklift can weigh as much as ten thousand pounds without a load.
- The center of gravity is much higher on a forklift and moves as you pick up a load, making it much easier to tip over.
- Four wheel-counterbalanced forklifts have only three points of stability. ·
- The majority of forklifts do not have springs or shock absorbers.
- Counterbalanced forklifts carry their load outside the wheelbase
- Forklifts turn much sharper than automobiles.
- Forklifts are designed to travel equally, both backwards and forward.
- Forklifts are counterweighted to offset the load they carry.
- Forklifts have a lifting mast and can raise their load.



- Stand up type forklifts have very little similarities with an automobile.
- Forklift can add attachments to change operational functions
- Sit-down forklifts can have 2 brakes, a standard and an inching pedal
- Stand-up operations on some lift types

Lateral and Dynamic Stability



Lateral stability of a forklift can be affected by slope of the surface, the height of the load and the characteristics the load (weight, size and placement). The addition of Dynamic forces such as starting, stopping, turning, lifting and lowering, increases the possibility of pushing the center of gravity outside the stability triangle.

Handling Loads

- Never exceed the forklifts rated capacity.
- Never add weight to the counterweight of the forklift. Overloading is unsafe because the load and the forklift are less stable. It causes increased maintenance or failure of vital forklift parts.
- Carry the load centered, tilted back against the fork carriage.
- Be sure you have clearance to move it safely through aisles and doors and under overhead obstructions, such as piping, sprinklers, and duct work.
- Be cautious not to knock other loads into the next aisle, possibly injuring another operators or pedestrian.

Handling Unsafe Loads

The composition of the load should be such, that it can be handled safely while being carried on the forklift. Loose or unstable loads may fall and cause product damage or injury. You should report any load that looks unsafe or likely to cause damage.

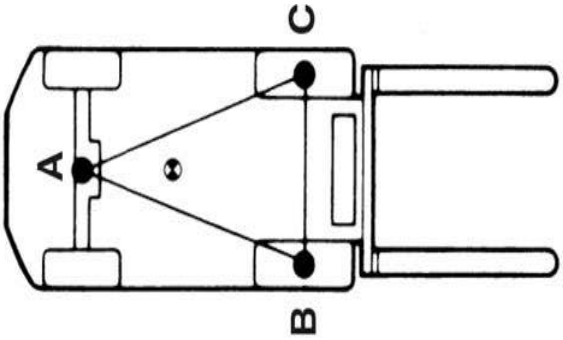
Long or Odd Shaped Loads

Keep odd-shaped, wide, and long loads close to the forklift. Always travel slowly when carrying such loads. If visibility is impaired due to a large load you are carrying, travel in reverse. Side to side stability can affect traveling, wide loads or unbalanced loads can cause lateral tip over.

Stability Triangle

The Stability of a Forklift

The stability of a forklift is most commonly referred to as the “Stability Triangle”. This is because a forklift is designed like a backwards tricycle.

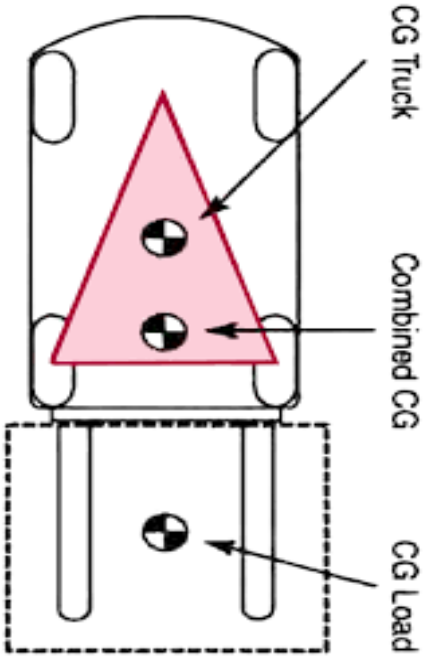


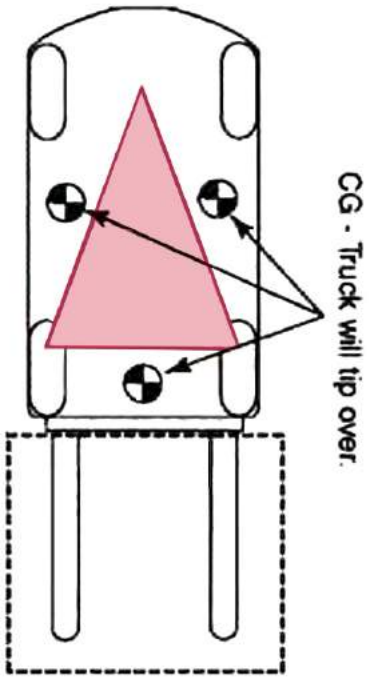
If you look under a four-wheel forklift, you will see the three-point suspension like the one shown here. Point A of the triangle is at the center of the steering axle and points B and C are at the outside points of the axle where the tires are.

Center of Gravity

On the Stability Triangle drawing, the dot indicates where the center of gravity is located on a forklift that is not in operation.

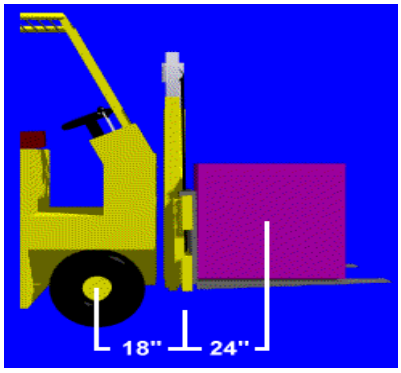
If the center of gravity were to move outside of the triangle when carrying a load, then the forklift would tip over. The center of gravity shifts toward the base of the triangle when a load is added. It also shifts when traveling and stacking. If the center of gravity shifts to one side because of traveling on uneven ground or carrying an uneven load, the forklift could tip laterally. If the forklift makes too fast a turn, the center of gravity moves outside of the triangle, causing the forklift to tip over.



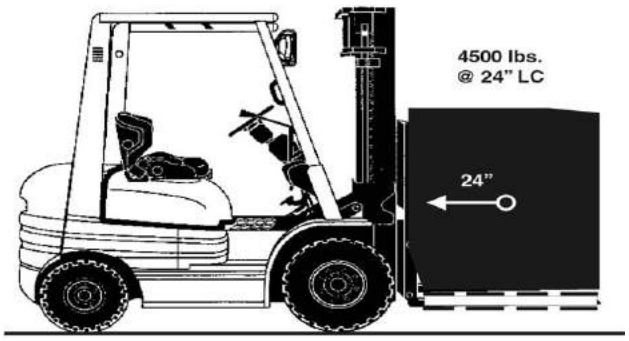


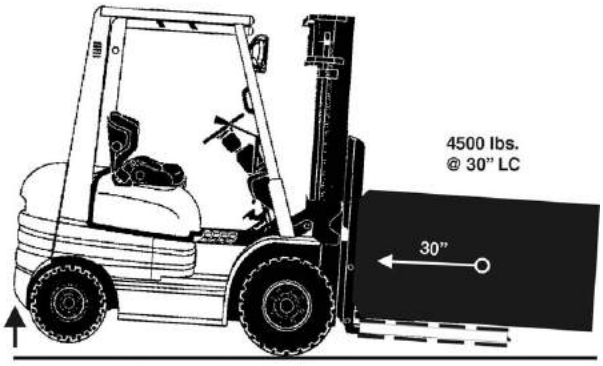
Load Center

The forklift's load center and capacity are printed on the data plate. The overall capacity of a forklift is a function of load center and the weight being carried. The load center is the distance from the face of the forks to the center of your load. The standard industry pallet is 48" long, therefore, most warehouse forklifts have a 24" load center. When the center of a capacity load exceeds a forklift's printed load center, this creates a dangerous situation and should not be attempted.



For example, a 4,500-pound capacity forklift based on a 24" load center carrying a 4,500-pound, 48" long load is within the safe operation guidelines. However, if the same forklift is carrying a 5,000-pound, 60" load it has a 30" load center. This exceeds the 24" load center of the forklift. This will cause the forklift to tip forward. (See drawings A and B)





A quick way to estimate the new load capacity when you have a longer than standard load, is to reduce your capacity by 100 pounds for every inch difference in the load center from the standard 24".

Most small sit-down forklifts only show a single capacity on the data plate. This capacity is the amount the lift can raise fully extended as long as the mast is vertical, and the load is no longer than the load center listed on the data plate. The above calculation is to help you to determine an approximate capacity when the data plate does not provide the information.

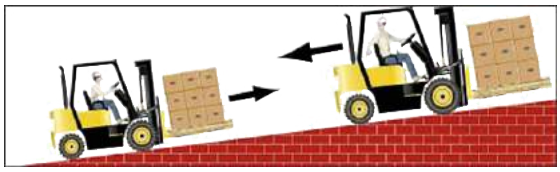
* OSHA offers other methods to calculate a new capacity with longer than standard loads, but this calculation is simple enough to do while on the lift without a calculator.

Ramps and Grades on Sit Down Forklifts

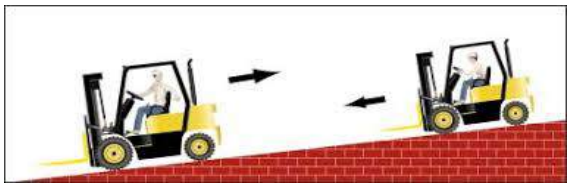
Ramp Safety

Ramps require special driving care. Not only is the load and forklift more likely to be less stable, but also the stopping distance is increased.

- Drive slowly down ramps and inclines and allow an extra margin of stopping distance. Be sure that the load does not tip and fall.
- On ramps, you should drive loaded forklifts with the load upgrade. This means that you drive a loaded forklift forward up a ramp and in reverse down a ramp.

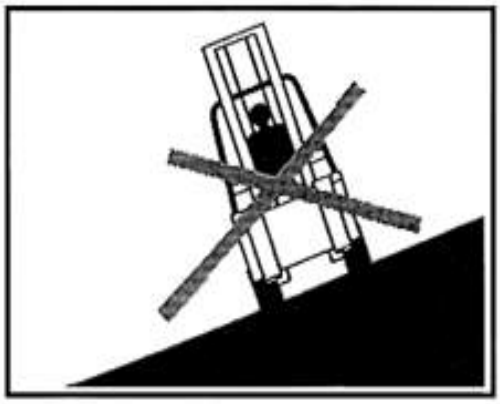


- You should NEVER turn on ramps. Drive straight up and straight down.
- If driving backwards because of a large load with poor forward visibility, it is still important to keep the load upgrade on a ramp. A spotter will be required when traveling up a ramp because of your lack of visibility.
- Operators should be aware that traveling up or down a ramp without a load has different rules from the loaded rules discussed above. When traveling up or down a ramp WITHOUT a load, the rules are opposite from above. This means that unloaded, sit-down forklifts should travel FORWARD down and BACKWARDS up. This has primarily to do with wanting the widest support base on the lower side of the incline. Since the stability triangle is widest where the front tires are (the base of the triangle) more support will be provided with this downhill.



Turning on a Grade

Generally, you should not turn the forklift when on a grade. However, if you must turn on a slight grade you can do it if you go slowly and use caution. Turning on a grade can cause the center of gravity to move out of the stability triangle and the forklift will tip over. Always slow down when making a turn, even with an empty forklift.



If your lift feels unstable or like it may tip over when turning on a grade, operators should either drop their load all the way to the ground or turn the lift back uphill, so the center of gravity moves back to the center of the stability triangle.

Trucks Trailers and Loading Docks

Before forklifts enter freight cars, trucks, and trailers, the flooring should be checked for breaks or weaknesses.

- Check the trailer capacity
- When exiting a trailer, operators must stop and look both ways to ensure a clear path
- It is a good practice to disconnect the airlines from the tractor to the trailer.

Chocking

Be sure that brakes are set and that chocks are placed against the truck, trailer or freight car wheels to prevent movements while you are loading or unloading.

Proper chalking procedures should be followed, under OSHA guidelines, the term “wheels” is used but interpretations are unclear as to if both sides “must” be chalked or if a single side is sufficient. It is recommended that chalking be done properly to ensure there is no possibility of truck movement while loading or unloading.

***It is the responsibility of the forklift operator (NOT THE TRUCKER) to make sure that the trailers they drive on are chocked.**

Dok-Loks

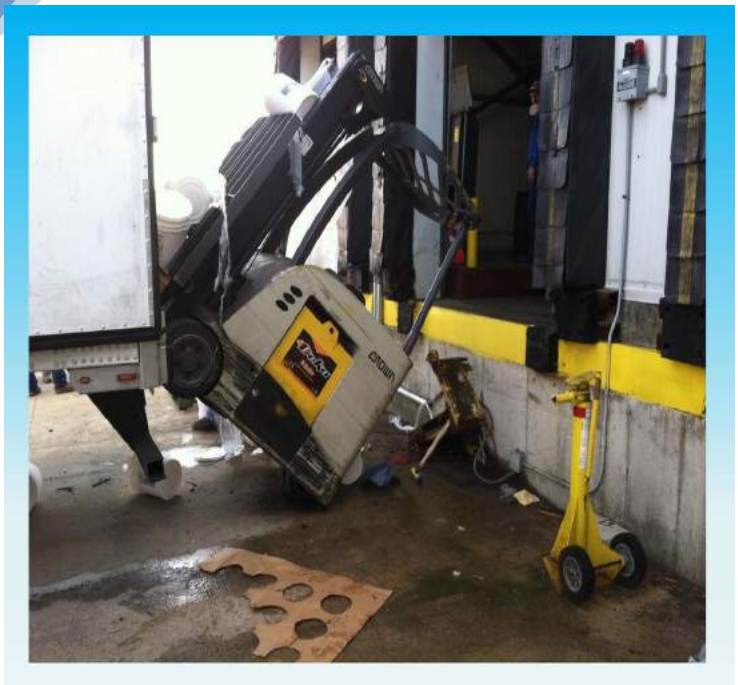
Some facilities use an automated Dok-Lok trailer restraint system. Make sure your device is activated and the green light is activated on the control box. If the light is **RED do not enter** and if the Dok-Lok cannot secure the trailer, chocks are required.

In some interpretations of OSHA regulations, a single side chalk may be required even with a Dol-Lok system. Consult your local OSHA or Dok-Lok representative for more information.

Hack Stands or Nose Stands

In the case of trailers without the tractor attached, it is important to place a nose stand under the front of the trailer to avoid the possibility of the landing gear failing or the trailer upending. When deploying a nose stand, make sure it has support across the front of the trailer, so it does not tip sideways.

Loading Docks



A carelessly driven forklift can slip off the edge or into recessed areas with tragic results. Remember that forklifts have a wide rear-end swing. Keep a safe distance from the edge of docks and ramps. With open dock doors weather can also be a hazard. Rain or snow will make dock areas very slippery; keep doors closed to avoid these conditions. If keeping the doors closed is impossible, use extreme caution and drive slowly. Docks are usually areas of high pedestrian and forklift traffic. A slow travel speed for forklifts should be the rule in these areas.

Dock boards and Bridge plates

All dock boards and bridge plates have rated capacities. Be sure to verify the weight of the forklift and the load does not exceed the capacity of the dock board or bridge plate. All dock boards and bridge plates should be properly secured before they are driven over. Dock boards or bridge plates should be driven over carefully and slowly. Use extreme caution when dock boards or bridge plates are exposed to weather. Rain, snow and ice will greatly affect the traction of the forklift.

Attachments

There are many different types of attachments used on forklifts. Most common are side shifters, carton clamps, carpet poles and fork extensions. It is important that an operator be trained for the specific use of the attachment they will be operating, and when using an attachment for the first time, be sure a supervisor instructs them first.

By adding an attachment to the mast, you add weight to the front of the forklift from the attachment and this reduces your lifting capacity by the weight of the attachment. Many attachments are longer than the standard 24” load center and this can reduce the capacity as well.

It is very important that when there is an attachment used on your forklift, it is listed on the data plate or you have supporting documentation, and any reduction in capacity be noted.

Common Attachments

Extended forks, When using these, be careful of the added length and reduced capacity of your lift.

Manlift Baskets: used to raise people up. Full body harness is always required. NOTE: *MEWP rules apply too.*

Trash Tipper: used to easily dump trash or scrap into a larger trash bin.

Carpet Pole: These 12 to 14-foot poles allow users to pick up a single carpet.

Boom Jib: allows forklifts to perform a crane function.

Barrel Clamp: makes transporting barrels easier

Clamp (flat or roll): come in many styles, some are flat others are roll. Some have additional options to turn or rotate your load.

Stand Up Counterbalanced Lifts

This type of forklift equipment is similar in many ways to the sit-down lifts above and operators should apply those safety rules to the operation of these lifts with the following exceptions.

- This type of stand-up is different from the stand-up reach lifts, and there are no controls for extending the forks.
- The center of gravity, and stability triangle are similar to sit-down lifts, but the caster wheel offers some additional stability.
- The steering controls are similar to stand-up reach lifts but vary from machine to machine, make sure you are familiar with the lift, turning and any foot pedals prior to use.
- If your stand-up lift is involved in a tip over, it will typically tip forward, the overhead guard is not in the same position as a sit-down lift and the operator is in a standing position. Because of these differing factors, operators should jump out the back of the lift in the event of a tip over. If the lift is entering or exiting a truck and the truck pulls away, this maneuver may not be possible or suggested due to the height of the dock. In these cases, it may be best to stay in the operator compartment. But since you DO NOT have a seatbelt in this lift, you will need to brace yourself by holding on to the lift controls or compartment.

- These lifts travel best in reverse and visibility is greatly increased when you travel backwards.
- The pivot point is typically in the center of the lift at the front tires on this type of lift, providing better turning radius and more maneuverability in tighter areas.
- Operators should be careful not to reverse into racks or other obstructions they do not have protection for the operator's head area and lower level racking can strike an operator that is not paying attention.

Propane vs Electric Sit Down

Propane lifts use a gas-powered engine and it functions in many ways like your car. If you put your car or your forklift in drive (forward or reverse) it will creep unless you put your foot on the brake.

Because of this, propane lifts typically have an additional brake pedal called an inching pedal. This pedal is similar to a clutch in a car, but it acts as a break too. This pedal is most commonly used when you are lifting a load and want to press the gas for a quicker lift. While it is a good practice to take your lift out of drive when lifting and pressing the gas, operators should also depress the inching pedal when performing this function. The inching pedal is also used when moving forward slowly, it can allow the operator to keep a foot on the gas and control the speed making slow movements with the lift.

Electric Lifts

These lifts have similar turning and operating functions as the propane, but since they are not gas powered, they will not move unless the accelerator is pressed. This means they do not require an inching pedal, and typically they do not have the option to raid the forks quickly like the propane lifts.

These lifts are powered by large heavy batteries, recharging is done in specific locations in your facility. It is very important that operators are aware of the correct charging unit for their lift, and only plug in to the proper station.

If your facility uses a battery-changing unit, please refer to training procedures for this equipment at your location.

Chapter 6

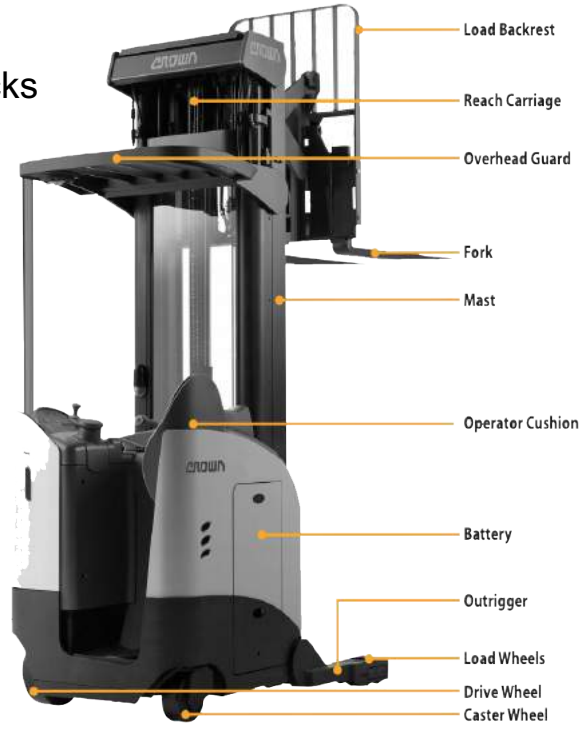
Stand up Reach Forklifts

Overview
Lift Specific Safety
Controls
Operational Limits
Manual Lowering
Fall Prevention

Reach truck manufacturers have variations in functions and controls. The information here shows a Crown stand up reach lift, with the controls of that unit. If you operate a different brand, the functions and information is similar just the actual control or control location may be different. Consult your lift manual for details.

NARROW-AISLE TRUCKS

Your narrow-aisle rider truck lifts, moves and stacks loads. It is designed to work in warehouses built with narrower aisles to give maximum storage.



YOUR LIFT TRUCK IS NOT AN AUTOMOBILE

With a load it may weigh as much as 3 automobiles.

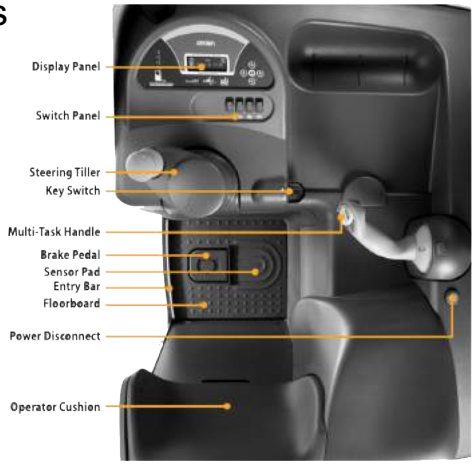
- You don't steer the same.
- You don't break the same.
- You don't accelerate the same.

Overview

Different lift manufacturers build reach trucks, and while they are similar in look and functions, they may have unique features you should be aware of. Make sure you review your operator manual before using the reach truck at your facility.

Hand Controls & Fork Functions

The joystick controls speed and maneuvering, operators should practice controlling the lift smoothly and turning in a controlled manner.



Raising and lowering the forks, Tilt (up and down), and Reach (in and out) are standard on most models. Your truck may also be equipped with side shift (right and left), or other options such as Rack Height Select.

Your company has decided which features are needed in your work area and should train you how to use them.

How to Drive your Truck

Most reach trucks are designed with a tilted floorboard and padding in the operator area. You drive your truck by standing sideways and leaning back against the pad. This, along with your hands on the controls and feet on the pedals/pad, gives you stability.

However, controls are located so you can vary your body position for best comfort and visibility.

Brake On / Off

Reach lifts are equipped with a “Deadman switch” or a foot brake that prevents movement unless it is pressed. This brake will stop your lift immediately, plugging is best for slowing and stopping smoothly.

Steering and Driving

You will need to drive your truck in both the direction of the forks (forks first) and also in the direction of the power unit (power unit first). Steering is not the same in both directions. Be careful. Drive slowly until you get used to all the controls.

Pivot Point

The pivot point on a reach truck is typically a center front position, allowing the lift to turn a very tight radius. To understand the turning, imagine there is a pole in the middle of the mast, directly in the center of your lift and when you turn it is as if you are turning holding on to the pole.

This varies from the standard sit-down where the pole or the pivot point is typically at the front inside tire.

Reach Functions

Most reach trucks allow the load to be extended and retracted providing the “reach” function. In order to allow for narrow aisles and higher lifting functions without adding counterweight.

Outriggers

The feet or outriggers extend around the load when retracted. This adds additional safety issues like running into racking or floor level product. Operators must also be cautious when retracting or lowering pallets and make sure the pallet does not strike the outrigger. Always make sure the pallet is within the outrigger area before retracting or lowing while retracted.

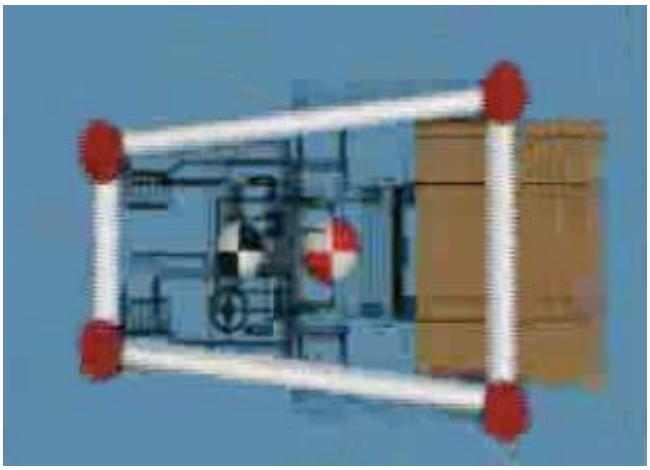
Tip Over

While most forklift training stresses “staying in the seat” when a lift truck tips over, it is important to know that the procedure is different for reach lift trucks.

A standard sit-down lift has a very dangerous overhead guard and if you jump or exit the lift in a tip over, severe injury and even death is possible. With a reach truck however, operators are instructed to jump from the lift when it tips. This is because you are already in a standing position and can easily jump from the truck.

In addition, the overhead guard is not in a position to pin the driver to the ground when the truck tips. So, remember, on a reach truck JUMP IF YOU TIP!

The Stability of a Reach Forklift



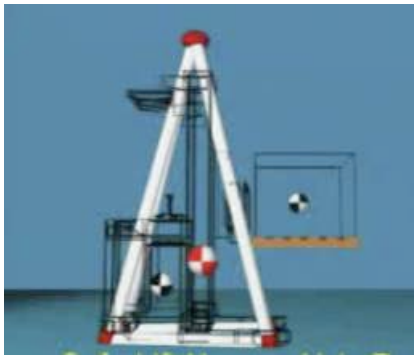
A typical narrow aisle reach lift or order picker forklift has a 4-point suspension system. This forms a stability trapezoid base from the rear drive tires linked to the outside front caster wheels.

The rear drive tire, the supporting caster wheel and the caster wheels on the outriggers provide the 4 points of stability

With the added dimensions of lift and height, it forms a 3-dimensional triangle similar to a pyramid. This pyramid is from the base of the wheels to the top of the lifting height.

Center of Gravity

When the combined center of gravity between the load center of gravity and the counterbalance stability stays within the stability pyramid, the truck is stable.



If you move the center of gravity forward of the stability pyramid, as when a load is to heavy or to high the truck will tip forward.

The data plate on most standup reach lifts provides capacity information at different heights. This means that the maximum load you can lift will be reduced as the load is raised higher. Unlike most sit-down forklifts that rate the capacity as high as the mast will go, a stand-up reach operator should know the limits of the capacity and the effect on stability based on height as well as load length or load center.

Load Center

Unlike a standard sit-down lift, the stand-up reach has the added element of extending the load center when placing or picking up a load. This added function creates a forward tip over hazard if the operator has not kept the load under the capacity for height and load center.

Chapter 7

Order Picker Forklifts

Overview
Lift Specific Safety
Controls
Operational Limits
Manual Lowering
Fall Prevention

Order Picker lifts are a combination of a stand-up reach and a scissor lift. The load is lifted up like a normal forklift but unlike a standard lift, the operator is raised up as well.

When using this lift, operators must always use a full body harness, and if moving around on the platform or pallet area the operator should be careful of fall hazards and lift stability.

Turret Trucks are also considered order picker forklifts but fall under the Very Narrow Aisle (VNA) category. These also raise the operator with the load, but typically the operator sits in a seat and does not step out onto a platform. Fall protection is provided by the railings in most cases.

High Reach Order Picker Forklifts

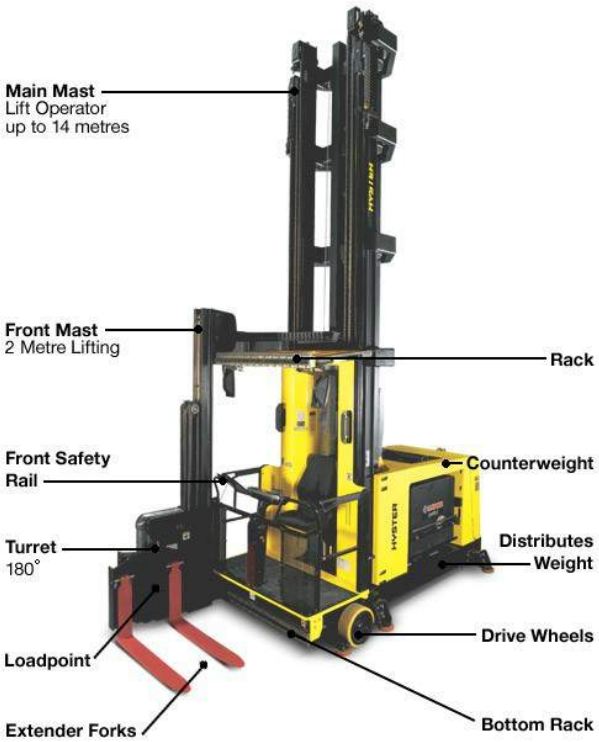
An order picker is a type of lift truck that features an elevating platform for the truck's operator. This platform allows the operator to be raised into the air, which facilitates less-than-unit-load picking or stocking.

The operator essentially is lifted or lowered to the height of the pick or stock position with the load in order to get access to the product. The lift platform doubles as the stocking/picking platform as well as the order picker's driver cab.

The platform itself is integrated with the load carrying unit (forks) and the mast. Often, the cab of an order picker features what is known as a "dead man's switch."

Turret Trucks (VNA)

A turret truck is specifically designed to do one task: operate in ***Very Narrow Aisles***. The turret truck is often abbreviated to VNA standing for very narrow aisle truck.



The main mast lifts the operator to heights of up to 14 meters (depending on the model). This man up process means the driver sits within the carriage of the turret truck, giving them a clear and accurate view of the pallet handling process, hence improving handling times.

The actual forks of the turret truck are located in front of the driver. The forks are mounted on a smaller front mast that can rotate 180 degrees, giving the operator access to both sides of the racking aisle without the unit having to move.

The forks travel along a rail system mounted to the front mast allowing the operator to move the forks into position to lift and move pallets.

Order Picker Differences from Standard Forklifts

Un-like standard sit-down forklifts, some rules, principles and practices in an order picker may be different or contrary to the rules in a standard lift. These will be identified in the training manual and should be addressed as differences.

Some of these differences are:

- All order picker operators must wear a full body harness if they are in an order picker that lifts them off the ground
- Order pickers steer differently and have a different steering control. This means that they can turn even sharper than a standard lift and have a shorter wheelbase.
- Operators are typically lifted in the air with the load
- Order pickers do not have a 3-point suspension but have a 4-point suspension combined with a pyramid center of gravity. Check your manufacturer manual, some order pickers have only 3 points of stability.
- Order pickers are not designed to enter trucks or drive on rough surfaces.
- Order picker operators typically drive forward even with a tall load because the load is carried behind the operator.
- High and Medium order pickers can travel with the load and operator raised, but they will have speed and turning restrictions. It is still not recommended to turn while the load is raised.

- Many order pickers have a guide wire or rail track that helps them to maintain a straight path.
- Most order pickers are electric powered and utilize the battery as part of the counterbalance.
- Order picker will have a cushion drive tire and hard solid caster tires for stability. When you inspect these tires, make sure there are no flat spots, chips or broken areas.

Order Picker Controls Overview

Controls

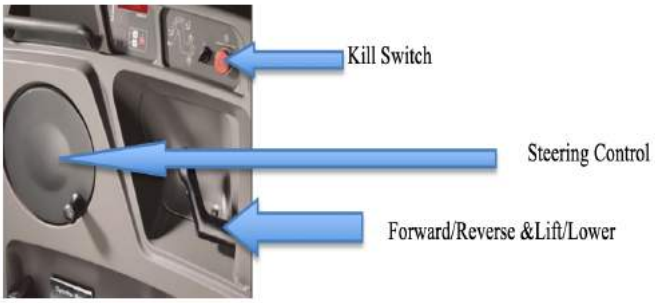
Every forklift manufacturer designs their order pickers and reach forklift controls a little differently. There may be more or less buttons, or the action may be different, but the concept and the basics are going to be very similar.

There will be a steering wheel usually to the driver side left, there will be a dead man switch on the floor, there will be a right-hand level that controls forward and back, raise and lower and any other additional functions the unit has.

Operators of order picker units should make sure they are familiar with the specific unit they will be operating and if they have not used this equipment before, review the functions in the manual or with an experienced operator.

Steering Control

The steering control turns the drive wheel below the counterbalance. This wheel can pivot in a 360-degree manner. This means that if you are driving forward and turn the wheel 180-degrees, you will go the opposite direction. Do not operate the wheel in such a way as to cause the unit to turn too sharply, this will cause tip over.



Lift Lever

The lift lever is a multi-function control that may have thumb controls or may twist in addition to the other functions. Many manufacturers have a control for forward and back that is similar to a motorcycle throttle, while others have you push the whole arm. There may be additional functions that provide for lift and lower depending on the make and model. Typically, this lever is used for controlling the speed and stopping by moving from forward to reverse.

Some manufacturers use this multi-function lever as the platform raising control.

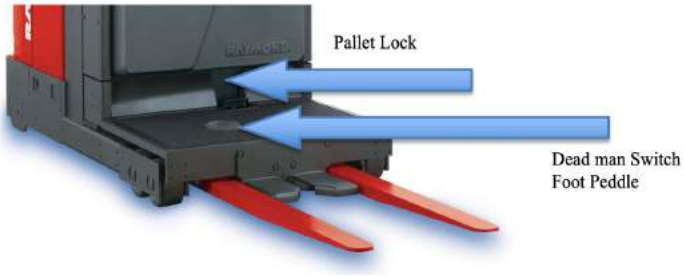
Kill Switch

A kill switch or stop button is usually red and in a conspicuous location on the main panel of the unit. This button is used as an off button but can also be used to kill the power to the unit in an emergency. If you are trying to start the unit and it does not start, check both the kill switch (pull it out) and the dead man switch.

"Deadman Switch"

This control is a foot pedal in the floor of the unit. It is simple to operate but can be dangerous if you are not familiar with its function. A dead man switch must be depressed for the unit to move. This means that you must be standing on the switch to get the unit to go forward or backward. If you abruptly remove your foot from the pedal, the unit will skid and stop. This is not a good way to stop your unit. When you stop in this manner, you risk the possibility of being thrown from the platform, losing your load, and also creating a flat spot on the drive tire that will require replacement.

Pallet Locks



A pallet lock is located between the forks close to the platform. These must be engaged once you slide the forks into the pallet to make sure the pallet does not slip off the forks while you are loading your cargo. Open the locks before you slide into the pallet and then lock them tight once you have moved the forks completely into the pallet.

Safe Operating Rules

Once you are familiar with the controls, you will need to know the proper way to pull product from the racks.

- When utilizing the order picker, you should always stack loads evenly across the pallet and make sure the load is balanced side to side and forward and back.
- Use your legs when placing packages on the pallet just as you would if you were on the ground.
- Be cautious of your footing. If you are stepping on pallets make sure they are strong enough to hold you and your packages and do not step between the boards.
- Never extend or reach outside the running lines of your platform.
- Never climb on to adjacent structures or use the racking as a place to lean or step.
- Many lifts have side gates that raise and lower to provide minimal fall protection, make sure these are in the proper position when elevating the lift.
- Never step off the lift onto the rack system even with your full body harness. The rack system is not designed for people and serious accidents can occur when you leave the safety of your platform
- Your company should have a safety and rescue plan in place in the event of an operator fall. Personnel on the ground should know how to lower the lift manually or rescue the operator as quickly as possible. Rescues are recommended to be completed within 3 minutes to prevent serious physical harm to the suspended worker.

- Be cautious of the stability of the lift during rescue or fall situations, tip over is a serious danger when an operator falls from an order picker.
- Only 1 operator should be in the lift elevated at a time, typically there is only 1 tie off point on these lifts and tie off points cannot be shared.

Guidance Systems

Both order pickers and turret trucks can operate in narrow aisles using guidance systems. These vehicles operate in aisles with little free space between the vehicle and the rack or the overhanging loads. Travel speeds can only be maintained if the operator is free from concentrating on the hydraulic and travel functions. Steering controls within the aisle are part of the "Guidance System". Rail guidance via the vehicle mounted guide rollers and angle iron mounted within the aisle.

Wire Guidance requires vehicle electronics and a floor embedded wire to follow.

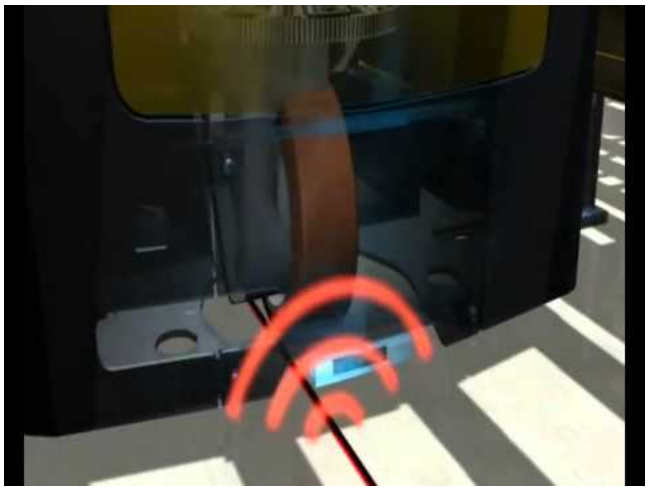
Rail Guidance

Rail guidance is a method in which the vehicle travels between angle iron rails mounted on both sides of the working aisle. A set of four guide rollers mounted on the vehicle maintains the path.

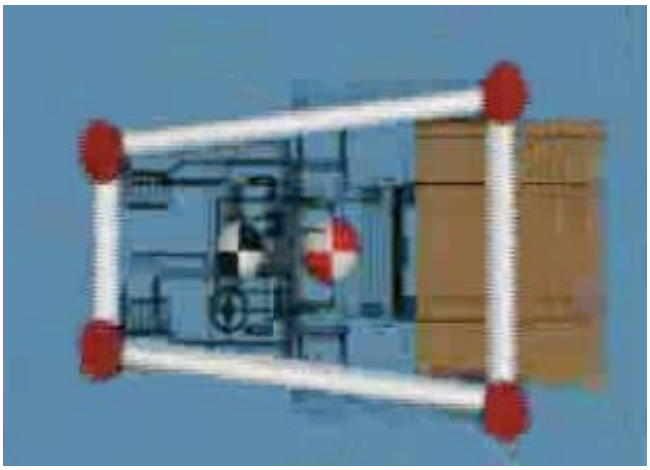
The steer wheel is centered electronically in order to prevent oscillation back and forth between the rails; entry guides assist the operator to enter the aisle and optical sensors provide automatic aisle identification - releasing optional travel and hydraulic functions.

Wire Guidance

In the middle of the working aisle a small 1/8" wide x 3/8" deep groove is cut. A flexible and durable wire is embedded in the floor and sealed with epoxy. The wire is installed as a loop with a connection to the LDU "Line Driver Unit" which sends a low voltage RF frequency through this loop. Antenna mounted on the vehicle utilizes this magnetic field and steer the vehicle along its path.



The Stability of an Order Picker or Turret Truck



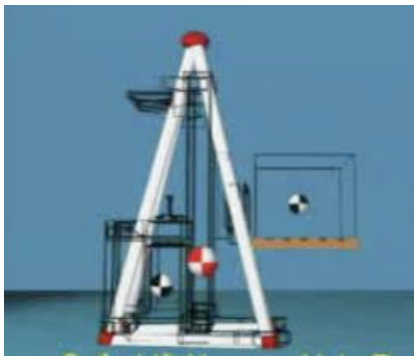
A typical narrow order picker or turret truck lift has a 4-point suspension system. This forms a stability trapezoid base from the rear drive tires linked to the outside front caster wheels.

The rear drive tire, the supporting caster wheel and the caster wheels on the under the platform or the on turret trucks, the large cushion tires near the forks create 4 points of stability

With the added dimensions of lift and height, it forms a 3-dimensional triangle similar to a pyramid. This pyramid is from the base of the wheels to the top of the lifting height.

Center of Gravity

When the combined center of gravity between the load center of gravity and the counterbalance stability stays within the stability pyramid, the truck is stable.



If you move the center of gravity forward of the stability pyramid, as when a load is to heavy or to high the truck will tip forward.

The data plate provides capacity information at different heights. This means that the maximum load you can lift will be reduced as the load is raised higher. Unlike most sit-down forklifts that rate the capacity as high as the mast will go, a stand-up reach operator should know the limits of the capacity and the effect on stability based on height as well as load length or load center.

Load Center

The load center on an order picker or turret truck is constant since the length of the load is limited to the length of the pallet or platform.

Fall Protection Overview for Order Picker

The safety equipment on the forklift is designed to protect the operator from danger while performing designated job duties. Order pickers always require a full body harness since the operator moves around the platform and has limited side rail fall protection. Turret trucks do not require the full body harness since the operator is seated in a fully enclosed area.

Some of the equipment also provides warnings to other individuals in the area that there are potential hazards. This equipment is to be checked as a part of the inspection process and must be maintained in good working condition at all times.

Occupant Restraints

- On a standard sit-down forklift, the operator is kept in the seat by a seat belt. But on the order picker the operator moves freely on the platform and works at heights above the ground. Because of this, additional fall protection gear is mandatory.

- As of June of 2004, the use of Body Belts on order pickers is no longer an acceptable form of fall protection.

- Full body harnesses require inspection prior to use and a yearly inspection from a qualified individual.
    - Inspection information must be logged and updated on the harness information tag.

- While on an order picker, each worker should be attached to a separate point and not share an attachment point.

- Written rescue and safety plans should be in place and ground staff should be familiar with emergency lowering procedures for the lifts that are in use.

Turret Truck Overview

Operator Compartment

A turret truck is a counterbalanced operator-up, very-narrow-aisle truck (VNA) with an articulating carriage that rotate the forks 180º. The forks also traverse across the front of the truck and into the racking on either side.

Unlike the order picker, the turret truck operator has a seat on the platform that is protected with guard railings and all the controls are directly within reach. There is never a need for a turret truck operator to ever stand or move out to where the pallet or product is kept.

Turret trucks are more like traditional reach or other lifts where the forks do the work of picking and placing pallets. The mast has a swing or twisting effect that lets the operator control which side of the racking the want to pull or place the pallets.

By having the operator at the pallet height, they are able to more precisely lineup and pick the pallets at very high levels. The swing function allows for maximum flexibility and the guidance system takes the need to worry about pivot points and fork lineup to the pallet away.

Rescue & Safety Plans

These systems should still have an operator rescue and safety plan and personnel on the ground should be trained to lower the lift or rescue the operator in an emergency.

Operators do not use a full body harness as additional fall protection beyond what is provided by the lift since they are seated and protected while working at height

- Ground personnel should know how to manually lower the lift.
- Procedures should be in place to lower if the manual procedure fails
- Are there other lifts to rescue an injured operator.

Advantages

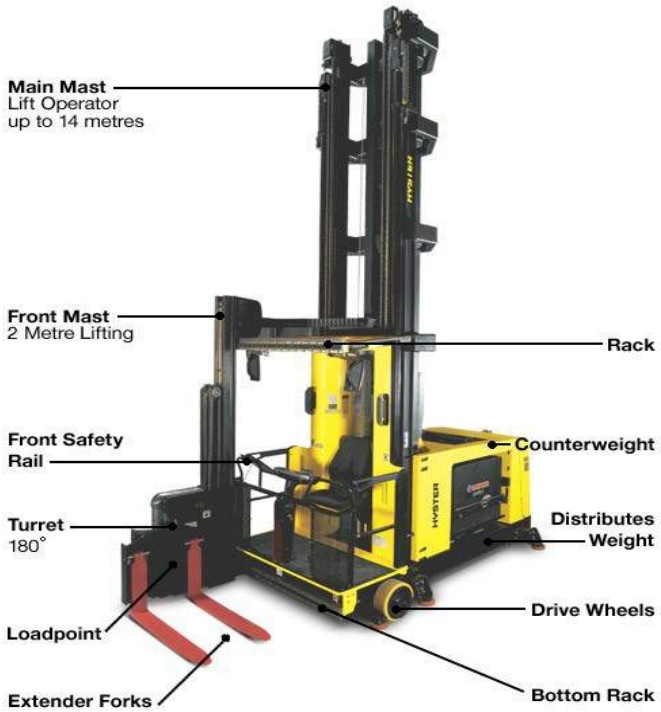
- Significantly faster pallet handling in narrow aisle applications hence providing significant productivity gains.
- Reduces operator error as they have a clear and view of the loads they are handling, reducing risk of racking damage.
- Reduces aisle width to 5-6 feet, increasing warehouse holding capacity.
- Highest racking solution up to 52 feet, compared to 26 to 32 feet for articulated forklift or reach trucks.

Disadvantages

- Specifically engineered for narrow aisle operation and are unable to be used for other applications.
- Require a counter-balance forklift in partnership with turret trucks in non-aisle applications.
- Require a backup unit for servicing and break down periods
- Significantly more expensive than standard reach trucks
- Careful safety procedures and policies need to be implemented to ensure no obstructions are found on the path of the turret truck.
- Due to the high speeds at which they operate, significant damage can be incurred to racking and the turret truck, if improperly used or operator is inadequately trained.

Turret truck components

- Mast
- Front Mast
- Front Safety Rail
- Rack
- Turret
- Counterweight
- Battery distributes weight
- Load Point
- Extender Forks
- Drive Wheels
- Bottom Rack



Chapter 7

Special Environments & Forms

Cold Storage
Safety Sign Off
Operator Evaluation Form
Operator Authorization Form
State Variations to National Guidelines

There are many different environments that forklift operators encounter every day, specialized situations and facilities with unique operations. It is not possible to review everyone, but cold storage is common, and the next page reviews this environment for those that work in these conditions.

Once completed, operators should fill out the safety sign off sheet so the instructor can make a copy, and your instructor may use the evaluation and authorization forms in the book as well.

Freezers and Cold Storage Environments

Cold storage areas produce their own set of inherent hazards. Coolers or refrigerated areas differ from freezers.

Coolers or refrigerated areas will tend to have wet and slippery floors. Slippery floors effect traction and increase braking distance. Plastic strip doors are often used in cooler applications; this type of door can be hard to see-through because of condensation and scratches from heavy use. Forklifts should always sound the horn and if possible, back slowly through these doorways to avoid other forklifts and pedestrians.

Extreme cold, often subzero temperatures make operating a forklift in a freezer difficult for the operator and the forklift. Operators wear insulated clothing and gloves, which can restrict movement and may make it difficult to properly operate the controls of the forklift.

Extreme cold can irritate eyes and make an operator in a hurry to complete their tasks and exit the freezer. Being in a hurry can easily lead to mishaps or accidents. Forklifts should be specifically designed for use in freezers; these are typically electric forklifts with insulation and heaters built into them, to keep the internal components warm and free of condensation.

The operating area inside a freezer is usually very limited, allowing little space to maneuver the forklift. Use caution when entering and exiting a freezer this can cause condensation to freeze making loads slippery and hard to handle.

Build-ups of ice can often occur in the doorway of freezers from condensation dripping off the forklift as it enters and then freezing on the floor. This will cause a serious traction hazard and should be checked and cleaned up often.

Operator Safety Acknowledgment Form

On ____/_____/____, I attended the Forklift 101 operators' safety training class conducted by Forklift U, LLC.

In the class we discussed O.S.H.A regulations 1910.178 regarding, Powered Industrial Trucks, (Forklifts), a copy of the generally accepted safe operation manual, and an O.S.H.A summary of fatalities investigated by O.S.H.A. report to help me understand the potential risks with unsafe operations.

After attending this class, I am aware of the possible hazards to myself and to others while operating a forklift. Therefore, I will use extreme caution, and follow all the rules and regulations learned in this class as well as those of my facility. If I find myself in a situation where I question the safety of a procedure, I will stop the procedure until I have asked my supervisor the safest way to handle the task.

_____

Print Name

_____ _____

Signature Date

Operator Evaluation Form

Employee Name	Date	Facility

Lift #1 Name	Lift #2 Name	Lift #3 Name	Lift #4 Name

Item Evaluated	Lift #1	Lift #2	Lift #3	Lift #4	Notes
1. Forklift Inspection					
2. Put on seatbelt					
3. Shows familiarity with controls					
4. Checked around forklift before moving					
5. Slowed down on turns					
6. Kept a clear view in direction of travel					
7. Turned corners correctly					
8. Sounded Horn at intersections					
9. Travel with load at proper height					
10. Drove backward properly					
11. Traveled with empty forks at proper height					
12. Approached and lifted load properly					
13. Lifted and lowered load smoothly					
14. Stops smoothly and completely					
15. Followed proper parking procedure					
16. Understands use of attachments					
17. Special Situations if applicable					

General Comments:

Employee Rating: Pass - Supervised - Fail Evaluator: _____

This form is designed to assist a qualified forklift instructor in the evaluation and training of the operator. A "P" or "X" indicated the operator performed the evaluated task properly and safely, a blank or "F" indicates the task was not done properly. While not all work situations can be evaluated, a passing rating means that the operator has the basic skills to operate the equipment safely. This evaluation in no way guarantees an operator will drive safely or not have an accident in the future. If an operator does not pass, they can be issued a learner permit that allows them to operate the equipment with a qualified and certified operator. This permit can be changed at any time with the employer or supervisors' approval. Forklift U, LLC. does not assume liability for future operator error and the forklift certification is in compliance with OSHA Standard 1910.178.

EQUIPMENT OPERATOR AUTHORIZATION FORM

The operator listed below has successfully completed an operator evaluation on the equipment listed below. They have demonstrated proficiency and competence on operating the equipment safely and effectively as required by the OSHA Guidelines governing the listed equipment.

The person listed below is now authorized at the listed facility and as part of their job responsibilities with the company listed below to operate the equipment. This authorization combined with their successful completion of the required safety course meet the OSHA standard for certification on this equipment.

Company	Facility
Operator Name:	Date of evaluation

Equipment Evaluated and Authorized	Status (Pass / Supervised)	Comments

This authorization is only for the company; facility and equipment listed and cannot be transferred to another company or facility.

Evaluator:_____ Date:_____

While this course is only a safety-training course based on the OSHA standards, forklift operators will still need to be observed and certified that they know how to operate the specific equipment at their job site.

For more information call us directly or visit our web site:

www.ForkliftUniversity.com

(888) 674-9992

FORKLIFT UNIVERSITY