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**MORE HIGH-IMPACT
FORKLIFT SAFETY**

Leader's Guide

MORE HIGH-IMPACT FORKLIFT SAFETY

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

INTRODUCTION

Powered industrial trucks, often called forklifts or lift trucks, are so diverse and powerful that they allow us to carry practically anything and place it almost anywhere. Along with that ability, we as operators also carry a large amount of responsibility. We must be responsible not only for the proper operation of our truck and delivery of our load, but also for our safety while driving and the safety of anyone in our path. Unsafe and improper forklift operation can lead to injury and property damage, but following safe work practices can prevent many needless incidents.

This program examines some tragic lift truck incidents and shows how similar scenarios can be avoided by following safe operating practices. Topics include operator training and authorization, understanding and anticipating driving hazards, preventing injuries to pedestrians and the pinching hazards of a forklift's mast. Lifting capacity, stability characteristics, preventing tip-overs and working in and around trailers and railcars are other issues covered.

PROGRAM OUTLINE

OPERATOR TRAINING

- There are many types of powered industrial trucks, each designed for a specific use and operating environment.
- As an operator, you will receive specific training on the type of lift you will be operating, including a) becoming familiar with the operator's manual, b) learning to perform a pre-operational inspection and c) knowing the location and function of the truck's control mechanisms.
- Your training will also include hands-on driving instruction and skill testing, which requires you to demonstrate a mastery of the steering and handling characteristics of the industrial truck you will be operating.

UNAUTHORIZED FORKLIFT OPERATION

- Many injuries and property damage occur each year when unqualified workers attempt to operate forklifts, powered pallet jacks, reach trucks and other types of industrial trucks.
- As a trained operator, your responsibility in this area is two-fold. First, never operate a truck for which you have not been trained and authorized.
- Secondly, properly secure your truck anytime it is out of your immediate control so it may not be operated by an unauthorized driver.
- Anytime the vehicle is out of your direct sight or you are more than 25 feet from the vehicle, the forks must be lowered, the parking brake set and the key removed to prevent unauthorized use.

UNDERSTANDING & ANTICIPATING DRIVING HAZARDS

- Powered industrial trucks are much heavier than automobiles and take longer to come to a controlled stop. Always operate at a controlled, safe speed in case you must stop unexpectedly.

- When following other forklifts, allow about three truck-lengths distance to provide room to stop.
- Be aware that wet or slippery floors will affect your stopping distance, so you must slow down when driving in these conditions.
- Stop and sound your horn before proceeding through a blind intersection, doorway, corner or similar area to alert others of your presence.
- Operators who fail to stop for intersections or drive with excessive speed are the cause of many incidents, resulting in injury and property damage.
- Operators often forget to look up when planning their path of travel. Electrical conduit, chemical piping, lights, roll-up doors and sprinkler systems are just a few of the overhead items that present hazards to forklift operators.
- When colliding with overhead hazards, operators can be exposed to toxic chemicals, electrocuted or struck by falling objects. Always be aware of the height of your raised mast to prevent striking overhead obstacles.
- You must always be aware of another potential source of collisions: a wide-swinging rear end. Because lift trucks have rear wheel steering, they turn very sharp and have a wide rear end swing.
- Failing to account for this causes many incidents of property damage as well as serious injury to pedestrians standing nearby. Many pedestrians and co-workers do not fully understand this hazard, so it is up to you to make sure your path is clear of all obstacles and personnel before turning.

PREVENTING INCIDENTS INVOLVING PEDESTRIANS

- Common injuries suffered by pedestrians involving powered industrial trucks include a) being crushed between the lift truck and a fixed or solid object, b) being struck by falling material while standing under a raised load or c) being struck when previously stored items become unstable.
- Workers are also injured while attempting to catch a ride on a forklift. Unauthorized riders frequently fall from the lift and are crushed under the wheels or are injured when the lift passes close to a solid object, crushing an exposed body part.
- As the operator of a powered industrial truck, it is your responsibility to prevent these types of deadly mishaps.
- Never drive your lift truck towards a person who is in front of a solid object such as a wall or bench.
- Never allow anyone to place themselves or any body part underneath a raised load or any raised attachment.
- Make sure your load is stable and secure before you move it. This may mean restacking a pallet to ensure the load is evenly distributed or adding straps or shrink wrap to make sure loose items don't shift and fall.
- Never allow anyone to ride on your forklift unless it is designed to carry passengers.
- In order to protect pedestrians, first you must be able to see them. Traveling with a blocked view creates a dangerous situation for anyone nearby; always travel with the load low to the ground so your view won't be blocked.
- Of course, some loads are so tall they will block your view even with the forks lowered. When this is the case, you should travel in reverse so your view will be clear.

DISMOUNTING A FORKLIFT

- When you dismount your vehicle, you become a pedestrian and are at risk from your own truck or others.

- Don't dismount your truck until it has come to a complete stop. Stepping off too quickly can cause twisted ankles or knees and could cause you to be run over.
- Never place yourself between your truck and a solid object unless you first lower the forks, set the parking brake and shut off the motor. An idling truck can work its way forward, catching you unaware.
- Also be sure to look for oncoming traffic before dismounting. An oncoming truck has no way to know that you are preparing to exit your vehicle.

KEEPING BODY PARTS INSIDE THE VEHICLE

- Operators can also prevent injury by keeping hands, feet and other body parts inside running lines of the vehicle.
- Holding onto the overhead supports while driving backwards can result in crushed fingers.
- Allowing feet to overhang the driver's area can result in crushing amputations.
- Driving with your head sticking out of the truck could cause serious head injuries.

PINCHING HAZARDS OF THE MAST

- Another source of serious injury which is often overlooked is the pinching action of the mast. As the mast goes up or down, the sections move past each other, creating a serious hazard.
- As an operator, never reach through the mast for any reason or allow anyone else to reach through the mast; serious injury may result.
- Workers being lifted in an approved lifting platform may also be exposed to the moving parts of the mast. If you have occasion to lift workers in this manner, remind them of this hazard and instruct them to keep their hands and arms inside guardrails while traveling up or down.
- Also be aware of the pinch point created by tilting the mast backward.

APPROVED LIFTING PLATFORMS

- Remember that an approved lifting platform, properly attached with chains or pins, is the only way workers are permitted to be lifted by a forklift.
- Lifting workers on a pallet or allowing them to ride the load or the forks has killed many workers. Do not ever participate in this unsafe practice.

LIFTING CAPACITY & STABILITY CHARACTERISTICS

- Besides a commitment to safety and responsible operation, safely operating a powered industrial truck also requires an understanding of the lifting capacity and stability characteristics of the truck you plan to operate.
- Every forklift has a rated capacity listed on the nameplate. As a qualified operator, you are expected to know where the nameplate is located and how to read it.
- The nameplate will specify a rated capacity for a specific load center. The load center is the distance from the back of the forks to the load's center of gravity.
- Most forklifts use a heavy counterweight to offset the weight of the load. Without this counterweight, a loaded truck would tip over.
- The point on which the loaded truck would balance is called the truck's center of gravity.
- The truck is most stable when its center of gravity falls within the triangular-shaped area formed by the front wheels and the midpoint of the rear axle. This triangle-shaped area is referred to as the "stability triangle."

- Lifting a load which exceeds the truck's capacity will cause the truck's center of gravity to shift too far forward, tipping the truck.
- Your training will include how to determine your truck's capacity and how to estimate the weight and load center of the loads you will be carrying.
- Never travel with a raised load because a raised load moves the center of gravity towards the front of the stability triangle and the added forces of accelerating, turning and braking can easily lead to a tip-over. Instead, travel with the load low to the ground to maximize the stability of your loaded truck.
- Even an unloaded forklift can become unstable as the heavy counterweight shifts the center of gravity very close to the back edge of the stability triangle. Turning too fast, especially on an incline, can easily tip an unloaded truck.

WHAT TO DO IF A TRUCK TIPS OVER

- A forklift tip-over is an extremely violent collision, but if the operator is able to remain inside the driver's area, surviving a tip-over is more likely.
- If your truck begins to tip, hold onto the wheel, brace your feet and lean away from the direction of the tip-over.
- Never attempt to jump out of a tipping forklift; many operators have been violently crushed between the safety cage and ground.

OTHER WAYS TO PREVENT TIP-OVERS

- In addition to understanding your truck's capacity and stability limits, tip-overs may also be prevented by inspecting your intended path of travel. Look for inclines, drop-offs, holes or other types of uneven surfaces or obstacles that may contribute to a tip-over.
- When traveling up or down inclines, only travel straight up or straight down, never at an angle.
- Keep the load uphill. This means backing a loaded truck down an incline and traveling forward up an incline. If this causes your view to be blocked, you will need to use a spotter to make sure your path is clear.
- If your path includes traveling near a dock edge or other drop-off, be sure to maintain a safe distance, allowing plenty of room to stop and maneuver if necessary.
- Avoid potholes, uneven surfaces or similar items. Even a small hole or obstacle could upset the lift truck enough to cause a tip-over.

TRAILERS & RAILCARS

- Anytime we plan to leave the solid flooring of our workplace to enter a trailer or railcar, there are some critical areas that must be inspected to ensure our safety.
- Before entering any trailer or railcar, it must be properly secured. This can be achieved either a dock-locking system or by chocking the wheels.
- Railcars must be secured by rail chocks and de-railers.
- Understand that dock boards must be secured by cleats or pins to prevent them from sliding away from the trailer. The forces created by a lift truck moving in and out can cause an unsecured trailer to move, resulting in a lift truck being stuck between the trailer and the dock or falling violently to the ground.
- You may not be responsible for installing the chocks or the dock-lock, but it is your responsibility to make sure it has been done before entering.

- Inspect the floor system of any trailer or railcar before driving into it. Often these vehicles are not maintained by the company and there is no way to predict which ones are in poor condition without an inspection.
- If the flooring looks rotten, or feels spongy or unstable with just your body weight, there's a good chance it will not support the weight of your heavy forklift. Do not enter trailers or railcars with suspect flooring.
- When a trailer is not connected to a cab, the only thing holding the weight of your forklift is the trailer's landing gear. You cannot be sure that it will hold up. For this reason, a jack stand must be installed on all cab-less trailers prior to entry by a lift truck.
- Every company has specific rules and procedures concerning loading and unloading trailers and railcars. Make sure you fully understand and comply with your company's rules and procedures.

INCIDENTS & THEIR SAFETY LESSONS

Incident 1: Large Pipe Falls From Hauler & Crushes Pedestrians

Jose was using his forklift to bring in a pallet of material inside the plant from the yard when he discovered his path was blocked by a large pipe hauler. Since he was in a hurry and couldn't locate its operator, he decided to move the hauler himself. Jose was not qualified to operate the pipe hauler. After he climbed in, lifted the forks and attempted to move the large truck forward, he soon realized that it picked up speed much faster than his forklift. He hit the brakes to slow down, but hit them too hard and the truck stopped suddenly. The huge pipe on the forks of the hauler rolled forward and hit the ground. It continued rolling and crushed two pedestrians who were in its path.

Lesson:

- *Never attempt to operate any type of powered industrial truck that you are not qualified to operate. The handling and braking characteristics (and many other features) may be much different from those you are familiar with on your vehicle.*

Incident 2: Forklift Driven By Unqualified Operator Impales Worker

Parking her forklift to take a break, Brenda lowered the forks, set the parking brake and went into the break room to get a drink. Freddy, a temporary contractor, noticed the key in the switch and decided to go for a joy ride. While trying out all the controls, he managed to raise the forks. Like most unauthorized drivers, Freddy didn't understand the rear-wheel steering and sharp-turning radius of the truck and quickly lost control. One of the raised forks fatally impaled a worker when the forklift crashed into the break room wall.

Lessons:

- *Anytime your forklift is out of your sight or you will be more than 25 feet away from it, the forks must be lowered, the parking brake set and the key removed to prevent unauthorized use.*
- *Never try to operate a forklift if you are not authorized to do so.*

Incident 3: Blocked View & High Speed Result In Fatal Collision With Bicyclist

Brian was transferring bundles of material from the process area to the plant storage facility. As required by his training, Brian first traveled at a safe speed, carried the load low to the ground and came to a complete stop before raising it into position. As the number of trips started to add up, however, he began operating faster and soon began raising the load while still en route. This created a dangerous situation, driving with a blocked view. When a co-worker entered the storage area on a plant bicycle, the combination of a blocked view and high rate of speed made the fatal collision unavoidable.

Lessons:

- *Always travel with the load low to the ground so your view won't be blocked. If a load is so tall that it still blocks your view with the forks lowered, travel in reverse so your view is clear.*
- *Don't allow haste to cause you to make poor safety decisions (such a raising the load while still en route to your destination.)*

Incident 4: Forklift With Raised Load Hits Pothole & Tips Over

As Freddy Smith prepared to carry a load of material across the plant lot, he noticed that the load blocked his view. He raised it up high enough so he could see where he was going. He thought he was being safe because the load was within the truck's nameplate capacity, but that capacity is rated for a non-moving truck on a level surface. It doesn't take into account the forces created by a moving truck traveling over an uneven surface. As he moved across the lot, the rear wheel of the truck hit a pothole. When Freddy slammed on the brakes, the truck's center of gravity shifted forward beyond the stability triangle. This caused the truck to tip forward and crash violently into the ground.

Lesson:

- *Never travel with a raised load. A raised load moves the center of gravity to the front of the stability triangle and the added forces of accelerating, turning and braking can easily lead to a tip-over. Traveling with the load low to the ground maximizes the stability of a loaded truck.*

Incident 5: Speeding Forklift Turns On Incline & Tips Over

Joanne was using her forklift to move some items from the company warehouse to another building. Apparently in a hurry, she was driving at an excessive speed. As she returned from the building on the unloaded truck, she headed down the ramp toward the warehouse. When she turned the wheels in the direction of the warehouse, the forklift began to tip over. Joanne didn't have her seatbelt on and tried to jump out of the truck before it hit the ground. She landed underneath the forklift and it crushed her.

Lessons:

- *Turning your forklift too fast, especially on an incline, can easily cause a tip-over (even with an unloaded truck).*
- *If your truck is equipped with a seatbelt, you must wear it.*
- *Never attempt to jump out of a tipping forklift. Instead, hold onto the wheel, brace your feet and lean away from the direction of the tip-over.*

PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your videotape equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to show viewers several tragic lift truck incidents and how operators can prevent similar scenarios by following safe operating practices.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about the hazards posed by the various types of powered industrial trucks at your facility and the safety measures that must be taken to prevent them from causing injury and property damage. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- The importance of understanding and anticipating forklift driving hazards;
- Measures they must take to prevent incidents involving pedestrians;
- Lifting capacity and stability characteristics of forklifts;
- Precautions for preventing tip-overs;
- Steps to take to secure trailers and railcars.

MORE HIGH-IMPACT FORKLIFT SAFETY
REVIEW QUIZ

Name _____ Date _____

The following questions are provided to check how well you understand the information presented during this program.

1. As part of your operator training, you are required to demonstrate a mastery of the steering and handling characteristics of the truck you will be operating.
 - a. true
 - b. false

2. When following another forklift, you should allow about one truck-length distance to provide room to stop.
 - a. true
 - b. false

3. What should you do if a tall load blocks your forward view?
 - a. raise the load high enough for you to see under it
 - b. drive in a standing position so you can see over it
 - c. travel in reverse

4. Only forklift operators are permitted to reach through a lift truck's mast.
 - a. true
 - b. false

5. Even an unloaded lift truck can become unstable and tip over.
 - a. true
 - b. false

6. What should you do if your forklift begins to tip over?
 - a. jump out of the cage in the direction away from the tip-over
 - b. hold onto the wheel, brace your feet and lean toward the direction of the tip-over
 - c. hold onto the wheel, brace your feet and lean away from the direction of the tip-over

7. What should you do if your load blocks your view when preparing to travel up an incline?
 - a. raise the load high enough so you can see under it
 - b. have a spotter make sure your path is clear
 - c. travel in reverse

8. A jack stand must be installed on all cab-less trailers prior to entry by a lift truck.
 - a. true
 - b. false

ANSWERS TO THE REVIEW QUESTIONS

1. a

2. b

3. c

4. b

5. a

6. c

7. b

8. a