HANDLE WITH CARE: 
Forklift Safety Training

Leader’s Guide
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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**

After we have operated forklifts on the job for a while, we tend to get a bit too comfortable. We get into a groove, make assumptions and take things for granted, but the bottom line is you can’t get too comfortable with your work and forget the potential hazards that may exist throughout the day. This program stresses to forklift operators that the biggest thing they can do to improve their safety comes down to paying attention to potential hazards in their work areas. Also explained are the safe techniques and rules of operation that must be followed to prevent injuries and property damage.

Topics include forklift inspection, various factors that affect stability, safe operating techniques, refueling and recharging forklifts safely and precautions for working in and around trucks and trailers.

**PROGRAM OUTLINE**

**INSPECTION**

- Even if your forklift worked properly yesterday, you should still inspect it before the start of every shift. Check it out first so you avoid any surprises later on.

- When you’re inspecting the equipment, be sure to use a checklist to make sure you cover everything.

- Check the horn and lights, back-up alarm, the brakes including the parking brake and make sure the steering is operating smoothly.

- Make sure the seatbelt is functioning properly.

- Look over the basic structure of the equipment: the mast, overhead guard and chassis. Look at the moving parts, including the carriage and the forks; check for any damage or structural defects and underneath for any signs of leaks.

- Check the tires. If they’re solid or cushion tires, look for cracks or missing tread; if they’re pneumatic tires, check the air pressure.

- With a propane-powered unit, check that the tank is secured and the fuel connections are tight.

- On an electrical unit, check the battery; make sure the connections and power cables are in good condition and that the battery is secure.
• If you notice anything unusual, you need to report it right away so it can be taken out of service and repaired.

**STABILITY**

*Handling Characteristics*

• One of the leading causes of operator injury and death is tip-over. To keep both the forklift and the load from tipping, you need to understand stability.

• You have to know the handling characteristics of the equipment; the first thing you need to understand is a forklift doesn’t drive like a car or pickup truck.

• In most forklift designs, the steering is in the rear. That means the rear wheels turn and the back end of the forklift swings in a circle around the front wheels.

• Forklifts have a short turning radius to get into tight places, so it’s easy to go into a turn too quickly. That can cause a tip.

• Solid tires along with no spring in the suspension means that every bump gets transferred to the forks and that can cause you to drop the load. Slow down when going over bumps or uneven surfaces.

*Safe Lifting Capacity*

• The forklift works on the lever principle. A load on the forks is supported by the front wheels, or the fulcrum; this load is counterbalanced by the counterweight.

• If the load is too heavy, the forklift will tip forward.

• You can test a load’s weight by lifting it one or two inches, then stop and see if the forklift feels stable and if the rear wheels are firmly on the floor. If they are and if the steering feels normal, it’s probably safe to move the load.

• The capacity plate on the forklift will tell you what the forklift can safely handle. Remember that special attachments or forks will lower the capacity of the forklift; this information will be included either on the capacity plate or in the owner’s manual.

• Next, you have to be aware of the center of gravity of each load. This is called the load center.

• It’s the distance from the edge of the load that contacts the backrest to the center of the load’s mass; this affects the capacity of the forklift.

• Again, check the capacity plate on the forklift. Capacities are usually based on a load center of 24 inches or roughly the center of a 48-inch pallet. If the load center is further away, then the load capacity will be reduced.

• Placing the load on the tips of the forks can be a problem. This moves the load center away from the backrest.

*The Stability Triangle*

• The stability triangle on a forklift is a way to understand how the suspension of a forklift supports the load.

• The front axle is the base of the triangle and the two other sides of the triangle meet at the center of the rear axle.

• The center of gravity for the forklift, or the forklift and the load, needs to remain inside this imaginary triangle to keep the forklift stable.

• Excessive load weight or erratic or high-speed forklift movement can cause the center of gravity to move outside of the stability triangle. When this happens, the forklift can tip over.
• A forklift’s rated capacity is based on lifting the load with the mast vertical while the lift truck is on a level surface.

• You need to be careful as you raise a maximum capacity load to the maximum lift height. Although the forklift may be able to raise the load, once you attempt to tilt or side-shift the load, you can move the forklift beyond the stability triangle and you can tip.

Other Stability Issues
• How you operate the equipment and the speed at which you operate it can also cause a tip-over. Avoid driving too fast while turning; braking sharply or turning quickly while loads are raised; tilting a raised load forward past vertical; or, tilting too quickly and turning on a ramp.

• Any time you are on a ramp or incline, you dramatically affect the stability of the equipment. When driving on ramps or inclines, make sure the load is on the uphill side of the equipment and never raise a load higher than needed to clear the driving surface.

SAFE OPERATION
Protecting Yourself During A Tip-Over
• You need to wear your seatbelt to keep you safe in the event of a tip-over.

• Every year people are crushed by the overhead guard as the operator either fell out of or tried to jump clear of a forklift as it was tipping. Your natural reaction might be to try to jump out of a tipping forklift, but it doesn’t work like that.

• The only place that you should be during a tip-over is in the operator’s position and the only thing keeping you there is the seatbelt.

• In this position, you are protected by the equipment chassis and the overhead guard, but if you try to jump out or fall out, you are most likely to fall in the direction that the forklift is tipping.

• That means the same equipment that was meant to shield you from falling objects will knock you down and crush you. Don’t let this happen to you; wear your seatbelt.

• If you are ever in a tipping forklift, hold onto the steering wheel and brace yourself. You’re in for a jolt, but you are likely to walk away from this type of crash.

• If your forklift has a seatbelt installed, make sure it is working properly and always wear it to protect yourself in the event of a tip-over.

Lifting & Moving Loads
• Before lifting a load, make sure it doesn’t exceed the capacity of the forklift.

• Forks are usually already positioned for the work you are doing, but if they get moved or changed, make sure they are positioned far enough apart to balance the load.

• Move into position and square up on front of the load. Move forward to about one foot from the load.

• Check the area, level the forks and drive the forks fully under the load until it is in contact with the backrest.

• Lift the load carefully and tilt the mast back slightly to balance and stabilize the load.

• Turn and look behind you before you start to back up.
• Remember, as you are transferring the load to the new location, be alert and make sure you are aware of traffic and obstacles. If the load obstructs your view, use a spotter or drive in reverse.

• Before you place the load, make sure the surface is flat and stable and will support the load.

• If you’re stacking, make sure other material in the stack is capable of supporting the weight of the next load.

• If you are placing the load in a rack, make sure you know the capacity of the rack before you place the load onto it.

• Make sure that the rack and all its components are in place and in good condition and as you’re placing the load, be careful not to damage beams or columns.

• When you’ve determined that the landing site is safe, move squarely into position. Tilt the mast forward and then lower the forks.

• Check the load and don’t pull away until you are sure it’s stable. Check behind you and back away.

• When placing high loads, keep an eye out for overhead obstacles like vents, beams, sprinkler heads and pipes at all times.

• When adjusting a load before you pick it up or after you have placed it in position, make sure you are pushing against the pallet and not the product. It’s easy to punch a fork through the outside of a box or container, damaging the contents or causing a spill.

**Traveling**

• Travel with the load or forks as low as possible and match your speed to the location and conditions in your facility. Always move slowly when maneuvering in tight spaces or with an elevated load.

• Use caution when approaching intersections or blind corners. Check mirrors and sound your horn.

• Keep a safe following distance between you and another forklift; this is about three truck-lengths. Never pass another moving forklift that is traveling in the same direction.

• Keep a safe distance from the edges of loading docks and ramps.

• Always watch out for pedestrians. They don’t always pay attention and collision with them could be tragic; make eye contact as you approach them to make sure they see you.

• With inventory control equipment and even computers mounted onboard the forklift, it’s easy to get distracted. Pay attention and don’t try to multitask while you are operating your forklift.

• Remember to keep your arms, legs and feet inside the operator’s position at all times. A close encounter with a column or another piece of equipment can result in a crushing injury or complete loss of a limb.

• No passengers, ever. Also, never drive up to anyone standing in front of a bench, a wall or fixed object. Don’t allow anyone to walk or stand under elevated forks, even if the forks are unloaded.

• Keep yourself and everyone else away from the mast; remember, it’s not a ladder. Never allow someone to ride a load or be lifted up on an empty pallet.

**REFUELLING & RECHARGING**

• Refueling gas, diesel or propane equipment must be done in non-smoking areas with the engine off.
• Refueling propane lift trucks is done in a couple of different ways. You may remove the cylinder and replace it with a full one or you may fill the cylinder directly on the lift truck.

• When placing the new cylinder on the forklift, make sure the alignment pin inserts in the cylinder collar and that the straps are latched and all fittings are secure.

• If you fill directly on the lift truck, always wear gloves and eye protection. Stop filling once the cylinder is full as indicated by the fixed liquid level gauge.

• Your supervisor will tell you more about which propane refueling method is used at your facility and will give you more information on the safe handling of propane.

• Recharging or servicing batteries on electric units may result in contact with battery acid. Be sure to wear your personal protective equipment in the form of gloves, apron and eye protection.

• Charging batteries produces hydrogen that can ignite, so make sure you’re in a designated non-smoking and well-ventilated area, avoid sparks and make sure the charger is off when connecting and disconnecting the battery.

TRUCKS & TRAILERS

• Most of you will use a dock leveler or dock plate to gain smooth access to the back of a trailer. The key is to keep the trailer securely in contact with the dock and the dock leveler or dock plate securely in contact with the bed of the trailer.

• If the trailer moves or pulls out unexpectedly, the lip of the dock plate can slip off the back of the trailer and create a dangerous gap between the trailer and the dock.

• Sometimes a forklift is just about to enter the trailer or is still in the back of the trailer when the pull-out occurs. Either way, you can be in danger of serious injury or death.

• “Trailer creep” or “trailer walk” is a dangerous condition that is created when the truck or trailer gradually moves away from the dock due to the movement of the forklift inside. As you drive in and out of the trailer, the lip of the dock leveler can eventually lose contact with the trailer bed.

• Air-ride trailers are more prone to moving away from the dock. These trailers have a natural tendency to bounce with the weight of added loads and progressively move away from the dock; in fact, an air-ride trailer can move several inches with only a few crossings of the dock plate.

• The problem is caused when the truck driver doesn’t release the air from the suspension system once the trailer is spotted. As you drive in and out of a trailer, the trailer can shift or “walk away” from the dock.

• Even placing wheel chocks against the tires and setting the brakes won’t entirely prevent trailer creep on the air-ride trailer. To minimize trailer movement, make sure that the truck driver dumps the air from the suspension and then make sure the trailer wheels are securely chocked or use a mechanical vehicle restraint.

• A mechanical trailer restraint device physically connects to the trailer’s ICC bar. These devices effectively prevent trailer movement.

• The trick is to use these devices any time you have a truck at the dock, so take the time to go outside and make sure the wheel chocks are in place before you start loading or unloading the trailer.

• Also, if you are using wheel chocks, slow down when entering and exiting the trailer and watch carefully to make sure that the trailer remains safely in contact with the dock plate.
• A loading dock is a busy place. Truck drivers are in a hurry and miscommunication can be the cause of an unexpected or unscheduled departure. If a truck driver pulls away without warning, you and your lift truck can fall off the dock or out the back of the trailer.

• To prevent these incidents from happening, communication with the truck driver is important. Make sure that the driver is aware of your loading or unloading progress and when he or she can safely pull away from the dock.

• If you use signaling devices, make sure they are used properly and that they are in good working order.

• When you enter an empty trailer with a load, you can raise the nose if the tandem axle suspension is slid too far forward. Before entering a spotted trailer with the first load, make sure the tandem wheels are in a safe position at the back of the trailer.

• Finally, before you place the first load, perform a visual inspection of the trailer prior to driving into it. Look for damaged and rotting floorboards, especially in older trailers; you can easily put a wheel through the floor.

• Sometimes you’ll have to move an oversized load that blocks your forward view. While you normally would be driving in reverse with these loads, eventually you may need to drive forward to place this load into a trailer.

• Before you enter a trailer with an oversized load, look inside to make sure that no one is in the way. Make a mental note of how far inside the trailer you need to go to place the load.

• Slowly move the load into its final position so you don’t run the full weight of the lift truck into another load or into the front of the trailer. Place the load and carefully reverse out of the trailer.

• Some of you are responsible for unloading a flatbed trailer from the side. It is important to know where the truck driver or anyone else is during the offloading process and warn them to keep clear as you pick loads off the truck.

• Loads such as pipe, lumber or other products can become unstable after tie-down straps are removed. These loads can shift with the lightest of movement and can fall on anyone standing by the bed; it’s usually the truck driver picking up his load straps who is at greatest risk.

PAYING ATTENTION TO POTENTIAL HAZARDS
• There’s a lot to think about as you’re operating a forklift, but the biggest thing that you can do to improve your safety really comes down to paying attention.

• You’ve got to be aware of the structures and obstacles around you; you have to be on the lookout for traffic and people working and walking in the area; and finally, you have to be aware of anything that could create a hazard for yourself and the other folks around you.

• The bottom line is you can’t get too comfortable with your work and forget the potential hazards that may exist throughout the day.
PREPARE FOR THE SAFETY MEETING

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.

Copy the attendance record as needed 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.

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 stress to forklift operators that they must pay attention to potential hazards at all times on the job as well as explaining the safe operating techniques and rules that must be followed to prevent injuries and property damage.

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 types of forklifts used at your facility, the hazards they pose to operators and how prevent these hazards 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 identify the following:

• What to look for when conducting an inspection of your forklift;
• How to safely keep the vehicle stable;
• How to move and lift loads safely;
• What precautions to take when traveling on a lift truck;
• How to safely recharge and refuel forklifts;
• What safe work practices to follow when working in and around trucks and trailers.
The following questions are provided to check how well you understand the information presented during this program.

1. You should inspect your forklift before the start of every shift.
   a. true
   b. false

2. In most forklift designs, the steering is in the ________________.
   a. front
   b. rear

3. The ________________ is the distance from the edge of the load that contacts the backrest to the center of the load’s mass.
   a. fulcrum
   b. load center
   c. stability triangle

4. When traveling on ramps or inclines, the load should always be on the _________ side of the forklift.
   a. uphill
   b. downhill

5. What should you do if your forklift begins to tip over?
   a. jump out in the direction opposite the direction in which the forklift is tipping
   b. jump out in the same direction the forklift is tipping and run away from the vehicle
   c. stay in the operator’s position while holding onto the steering wheel and bracing yourself.

6. You should never pass another moving forklift that is traveling in the same direction.
   a. true
   b. false

7. You shouldn’t allow other employees to stand or walk under raised forks unless the forks are unloaded.
   a. true
   b. false

8. Even placing wheel chocks against a trailer’s tires and setting the brakes won’t entirely prevent trailer creep on an air-ride trailer.
   a. true
   b. false
ANSWERS TO THE REVIEW QUESTIONS

1. a
2. b
3. b
4. a
5. c
6. a
7. b
8. a