CONTRACT SERVICES

Safety Training Course C3

FORKLIFT AND TELEHANDLER SAFETY

REFRESHER COURSE

Presented by
Contract Services

As part of the
Safety Pass Training Program for the Motion Picture and Television Industry

C3

First Edition
January 2021

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English:
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Spanish:
Si usted no comprende inglés y requiere la capacitación Safety Pass en un idioma diferente al inglés, por favor envíe una notificación por escrito a 2710 Winona Avenue, Burbank, CA 91504. Por favor provea su nombre, junto con la información de contacto, y especifique el idioma que usted comprende. Gracias.

Korean:
영어를 이해하지 못하시고 영어가 아닌 다른 언어로 Safety Pass 훈련을 받으셔야 한다면, 서면 통지를 2710 Winona Avenue, Burbank, CA 91504로 보내주시기 바랍니다. 귀하의 성함과 연락처를 기재하시고 이해하실 수 있는 언어를 명시해주십시오. 감사합니다.

Armenian:
Եթե դուք անգլերեն չեք հասկանում և ձեզ հարկավոր է Safety Pass-ի մարզում անգլերենից տարբեր լեզվով, խնդրում ենք գրավոր ծանուցագիր ուղարկել հետևյալ հասցեով՝ 2710 Winona Avenue, Burbank, CA 91504: Խնդրում ենք ներկայացնել ձեր անունը, ինչպես նաև կապի տեղեկությունը, հատկապես նշելով ձեր հասկացած լեզուն: Շնորհակալություն:

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Safety Pass Training Program

The Entertainment Industry is committed to maintaining a safe and healthful working environment. To that end, all major studios have a safety representative on staff. In addition, all employers have a safety program in force. This Safety Pass Program has been designed to further promote safety and health and to prevent injuries, illnesses, and accidents on all productions, both on-lot and off-lot.

Studios and production companies may have more restrictive safety requirements than those mandated by local, state, or federal laws or regulations. They also may assign different duties or responsibilities to employees. Therefore, in addition to this Safety Pass training course, employees should refer to the safety manual and materials provided by their employers.

Employees must adhere to all safety rules and regulations. Failure of any employee to follow safety rules and regulations can lead to disciplinary action, up to and including discharge. However, no employee shall be discharged or otherwise disciplined for refusing to perform work that the individual reasonably believes is unsafe.

No safety training can comprehensively cover all possible unsafe work practices. Each production and its employees, therefore, should fully promote each employee's personal obligation to work safely in order to prevent accidents involving, and injuries to, the employee and to his/her fellow employees.

The Safety Pass Program derives from Federal and California Occupational Safety and Health Administration (OSHA) safety regulations. However, the material included in this workbook and its accompanying presentation should be used only as a general guideline. It is not intended as a legal interpretation of any federal, state, or local safety standard.

During the course of your employment, you may be acting as a supervisor or manager. In California, individuals with management authority and actual authority for the safety of a business practice could be convicted of a crime if they have actual knowledge of a serious concealed danger and fail to warn the affected employees and report the hazard. If a hazard exists, immediately notify the employer or studio safety department of the hazard and insure that potentially affected employees are informed of the danger and that steps are taken immediately to mitigate it.

Although the information contained in this training program has been compiled from sources believed to be reliable, the Alliance of Motion Picture and Television Producers, Contract Services Administration Trust Fund, Contract Services Administration Training Trust Fund, and the instructor make no guarantee nor warranty as to, and assume no responsibility for, the accuracy, sufficiency, or completeness of such information.

The Entertainment Industry is committed to maintaining a safe and healthful working environment.

Injury and Illness Prevention Program

This class is part of the employer's safety program.

Employers must provide workers a place of employment free from recognized hazards and must have a safety training program in place.

In the State of California, this is known as an Injury and Illness Prevention Program (IIPP). One of the key requirements of an IIPP is that every employee must be properly trained in safety.

The IIPP and Safety Pass training courses are part of the employer's safety program.

Contents

FORKLIFT AND TELEHANDLER SAFETY

REFRESHER COURSE

C3

Presented by

Contract Services

As part of the

Safety Pass Training Program for the Motion Picture and Television Industry

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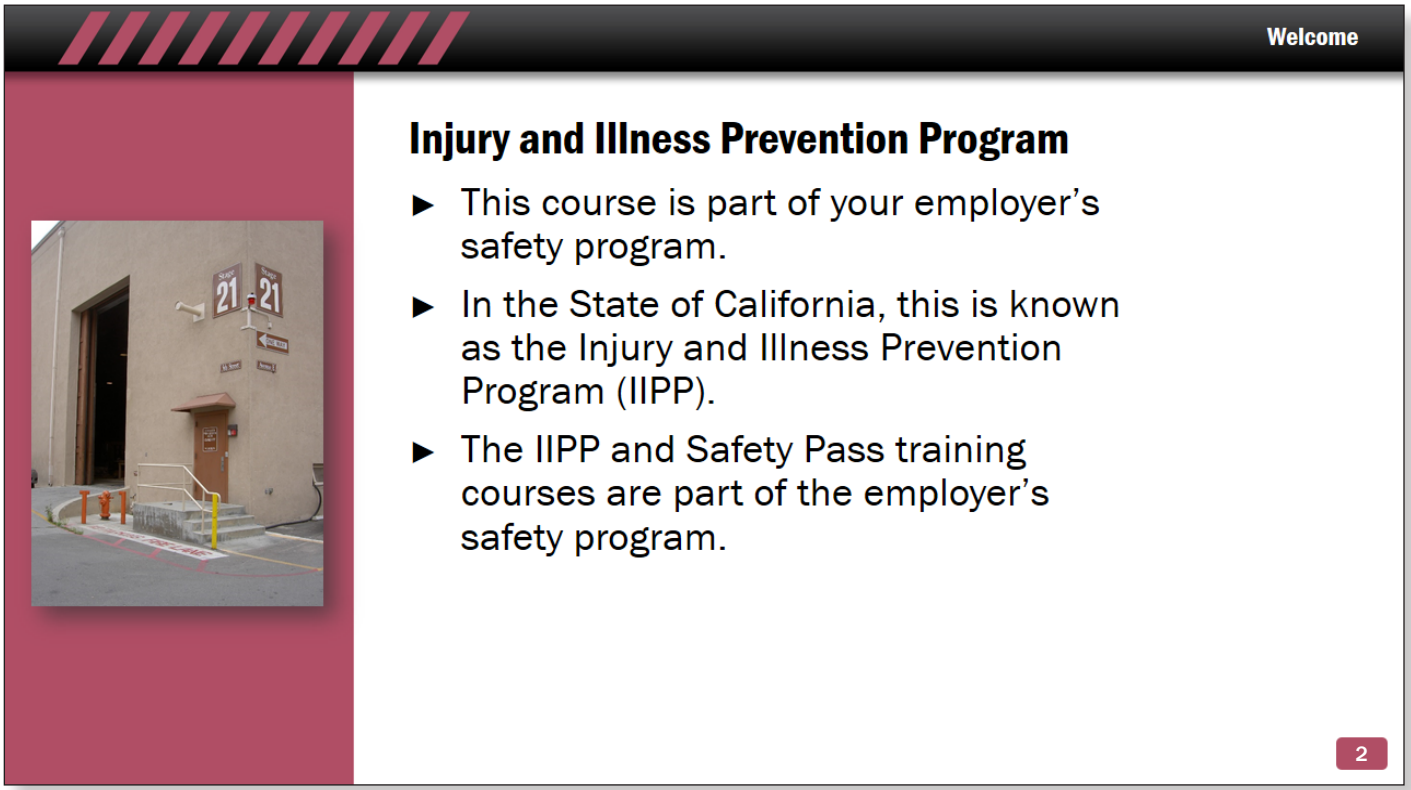
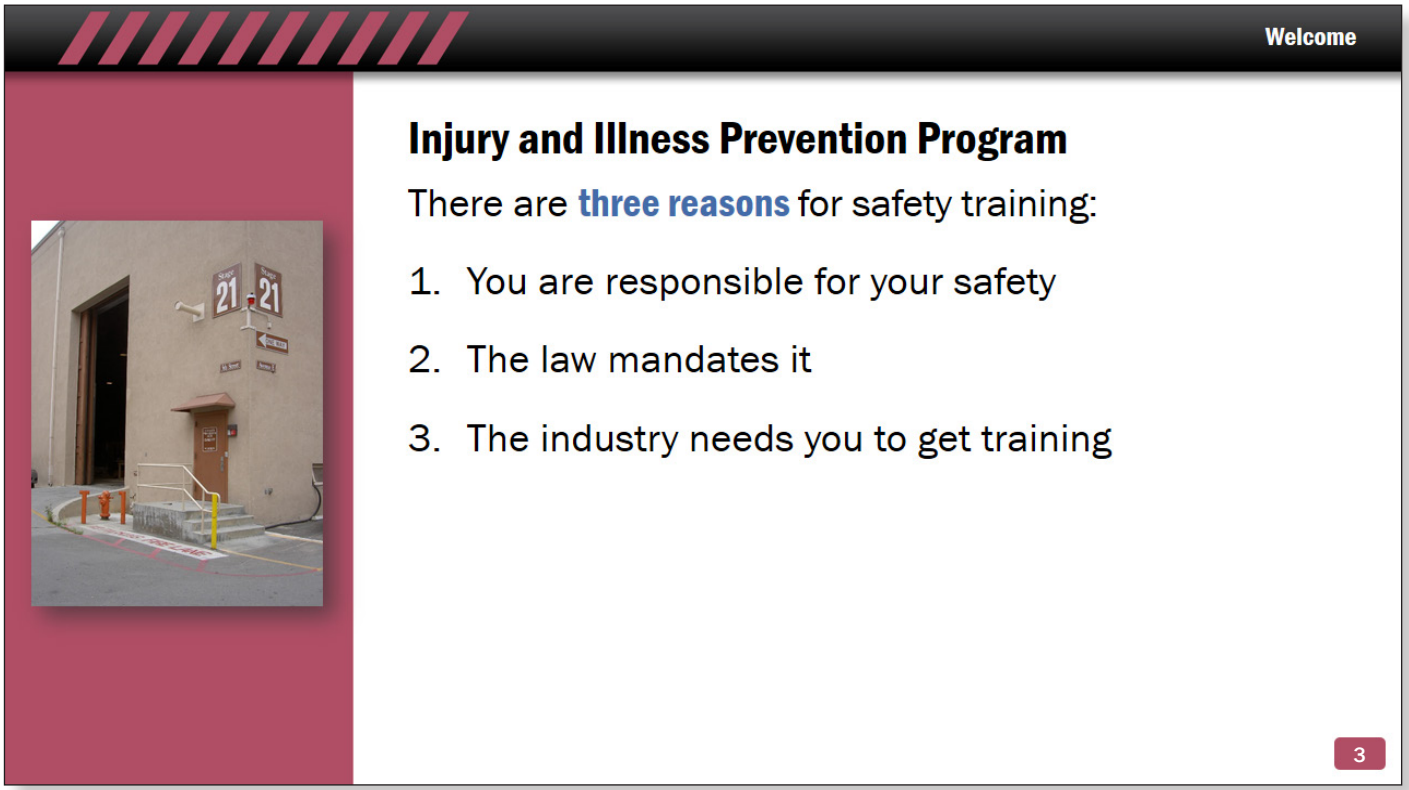
Hello, and welcome to the online portion of course C3, *Forklift and Telehandler Safety Refresher.*

The online portion takes around 90 minutes to complete.

This course is part of the Safety Pass Training Program for the Motion Picture and Television Industry; it is presented to you by Contract Services.



This course is part of your employer's safety program. In the state of California, this is known as an Injury and Illness Prevention Program (or IIPP). The IIPP and the Safety Pass training courses are part of your employer's safety program.



There are three reasons to get safety training. First, you are personally responsible for your safety. You owe it to yourself and your coworkers to avoid accidents and injuries. The way you make a living and your quality of life depend on it.

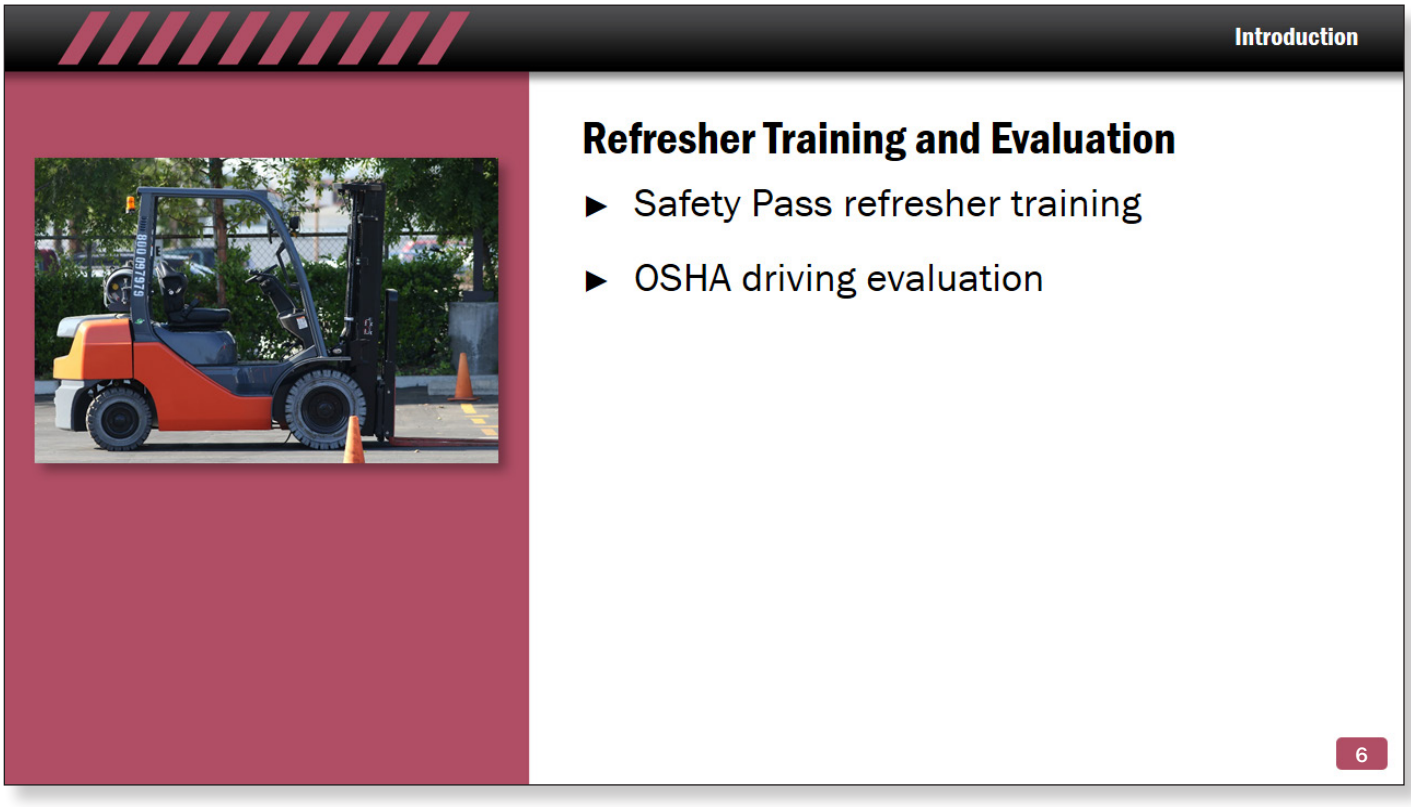
Second, it is the law. Occupational safety and health standards guarantee the right to a safe workplace and require employers to train their employees in safety.

And third, the industry requires it. This course is part of a cooperative commitment between major motion picture and television studios and industry labor unions to deliver safety training.

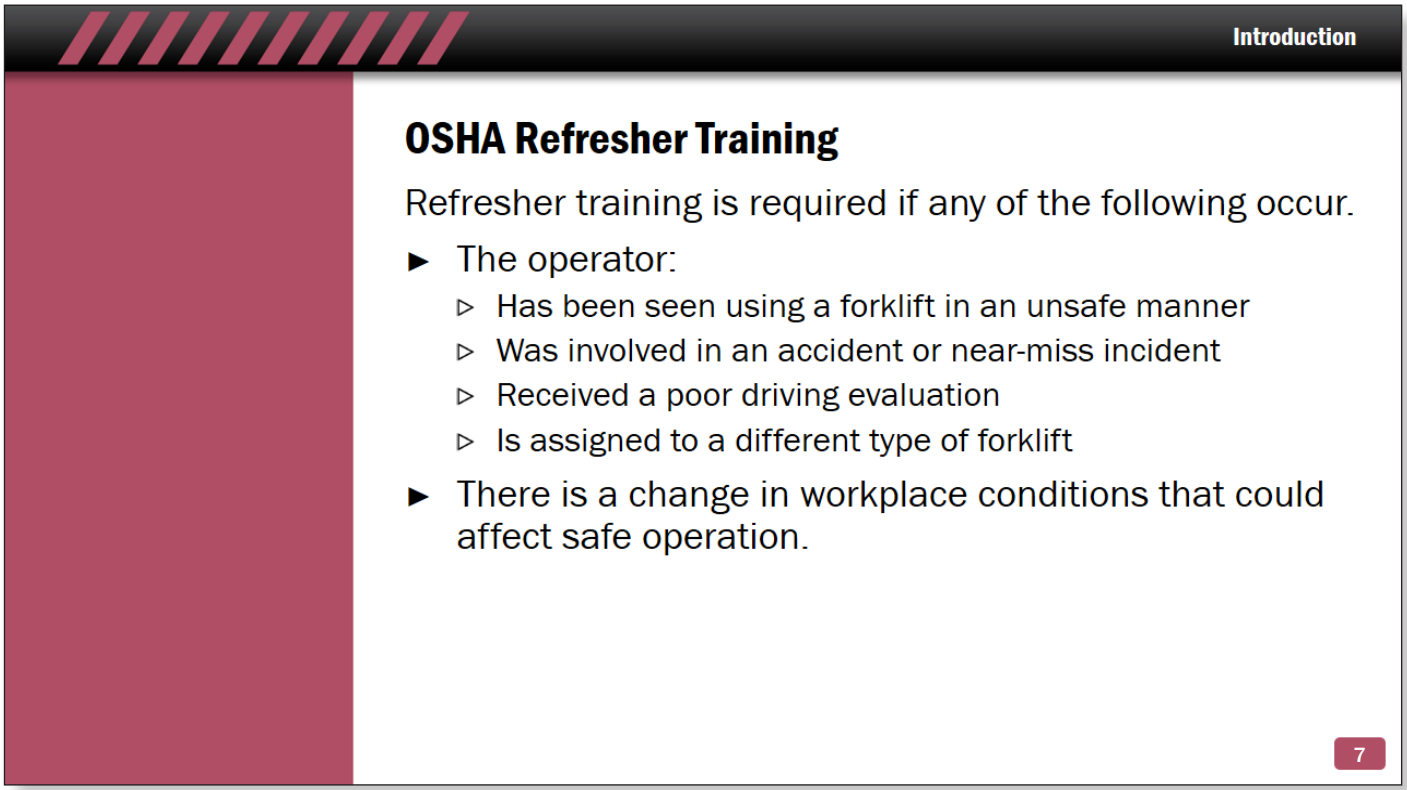
If you're ready to begin, click the *NEXT* button.

Forklifts and telehandlers are valuable to the motion picture and television industry in both versatility and strength. At the same time, they can be hazardous if regulations and safe work practices are not followed.

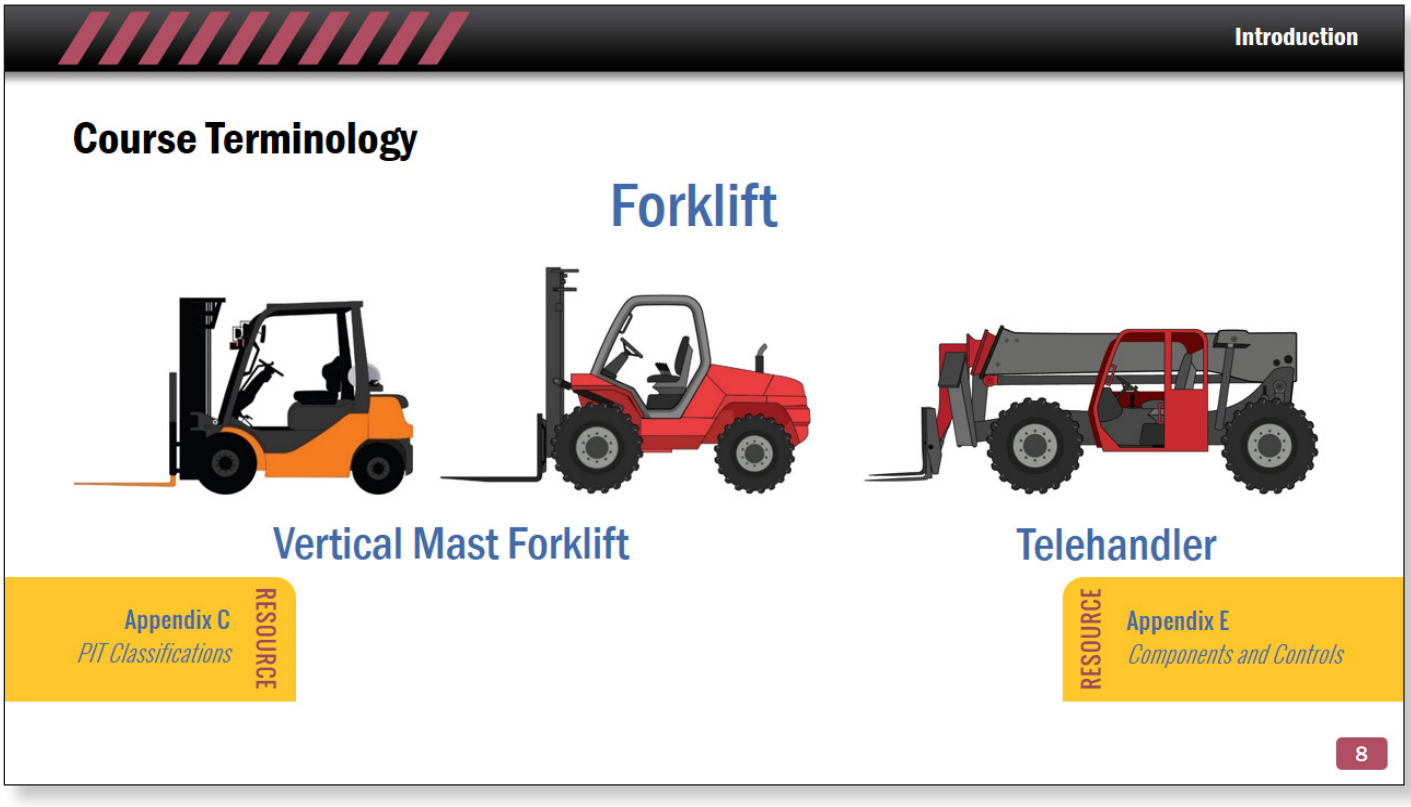
The purpose of this refresher course is to review Occupational Safety and Health Administration (OSHA) regulations, promote safe practices, and reduce workplace accidents and injuries. In this course, "OSHA" will refer to California OSHA (or Cal/OSHA) and federal OSHA regulations, unless otherwise specified.



You are here today because you operate or work near forklifts. Every three years, you must take Safety Pass refresher training and have an OSHA driving evaluation. The in-person portion of this training includes the evaluation required by OSHA.

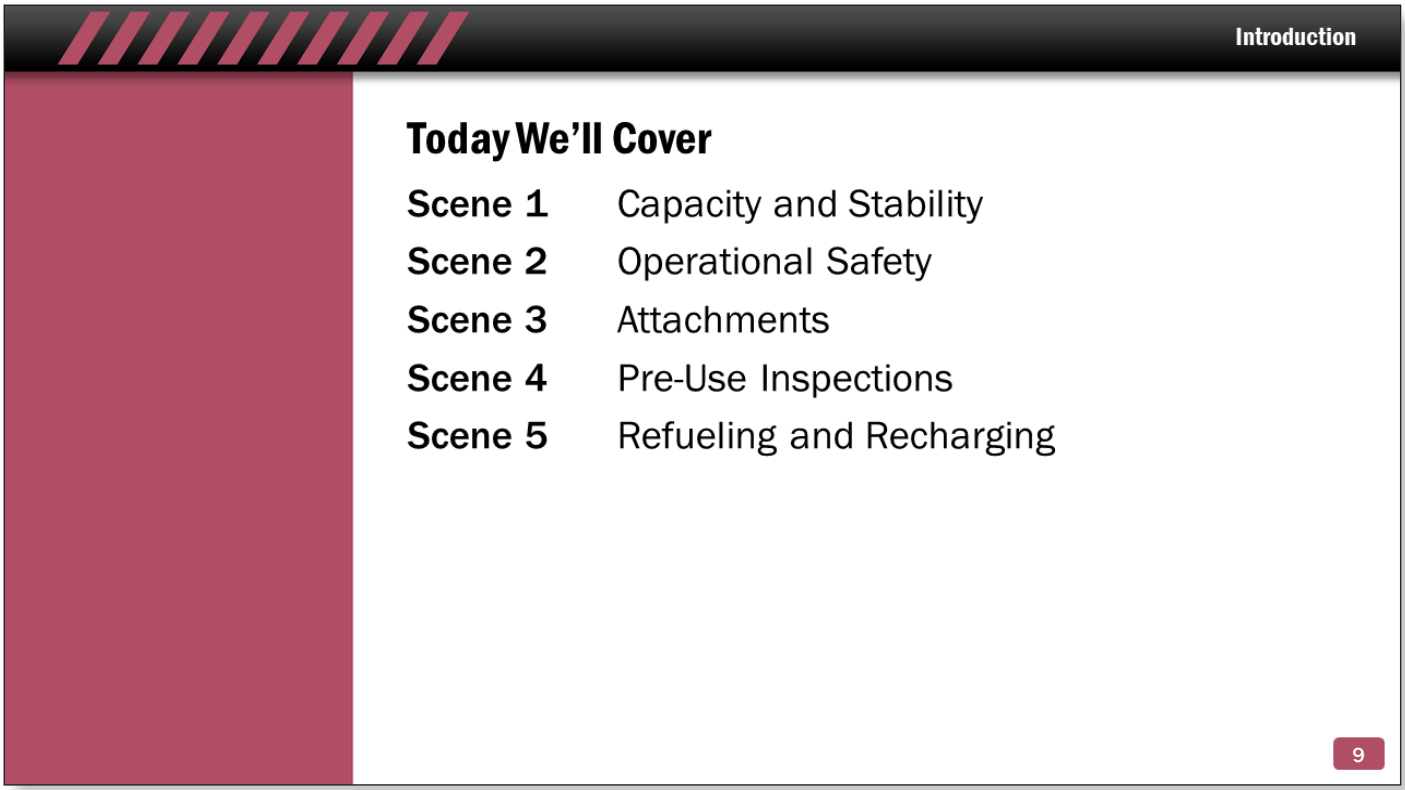


OSHA also requires refresher training if any of the following occur. The operator has been seen using a forklift in an unsafe manner, was involved in an accident or near-miss incident, received a poor driving evaluation, is assigned to drive a different type of forklift, or there is a change in workplace conditions that could affect safe operation of a forklift.



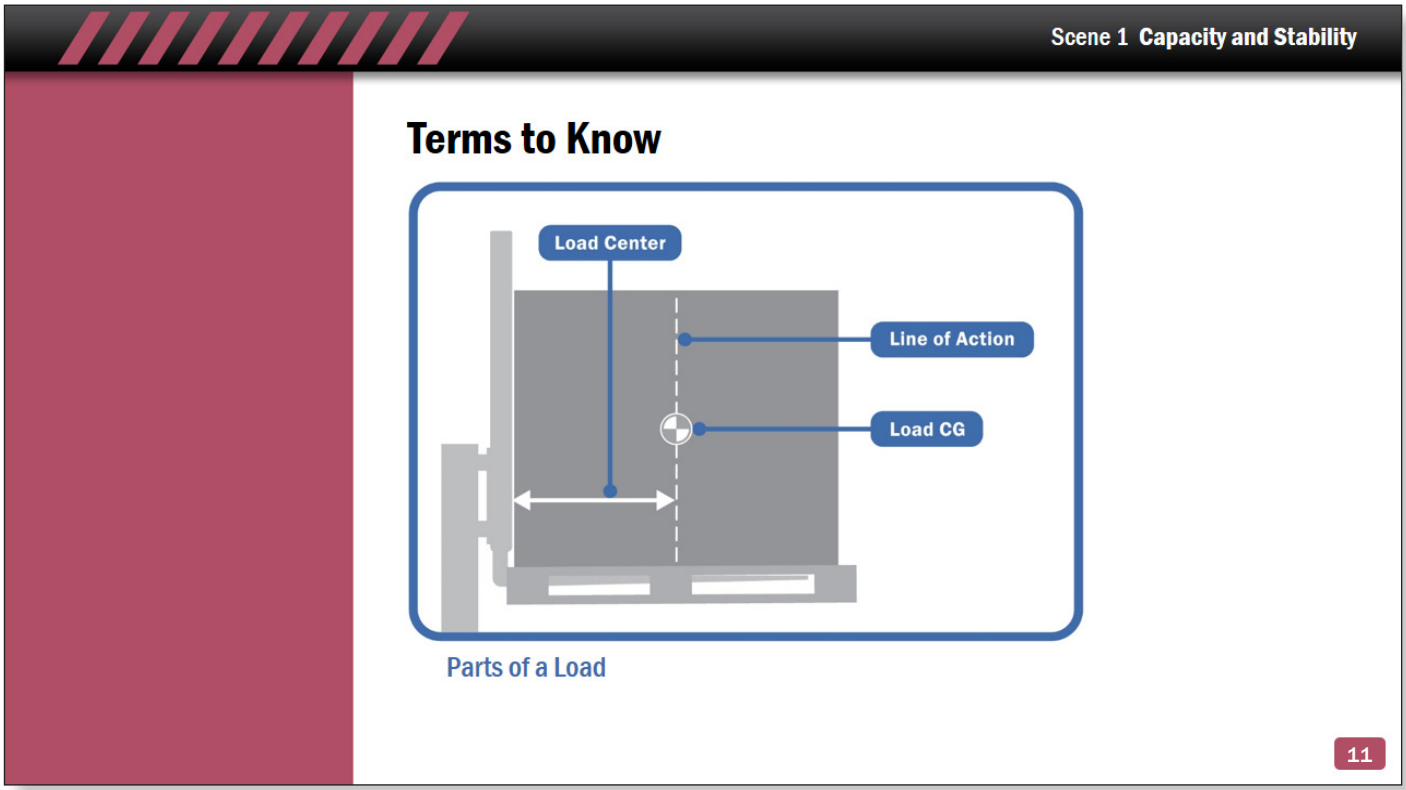
The different types of forklifts are all classified as powered industrial trucks (or PITs). While regulations apply to all PITs, for the sake of simplicity, the term forklift will be used throughout this course when referencing regulations, general principles, and safe practices. Vertical mast forklift will be used to describe vehicles that lift loads vertically, such as the Class V forklift and the Class VII vertical mast rough terrain forklift (or RTFL). Telehandler will refer to an RTFL with a telescoping boom.

See the full list of PIT classifications in Appendix C of the course book or under the *Resources* tab. Additionally, you can review the names of vertical mast forklift and telehandler components and controls in Appendix E of the course book or under the *Resources* tab.

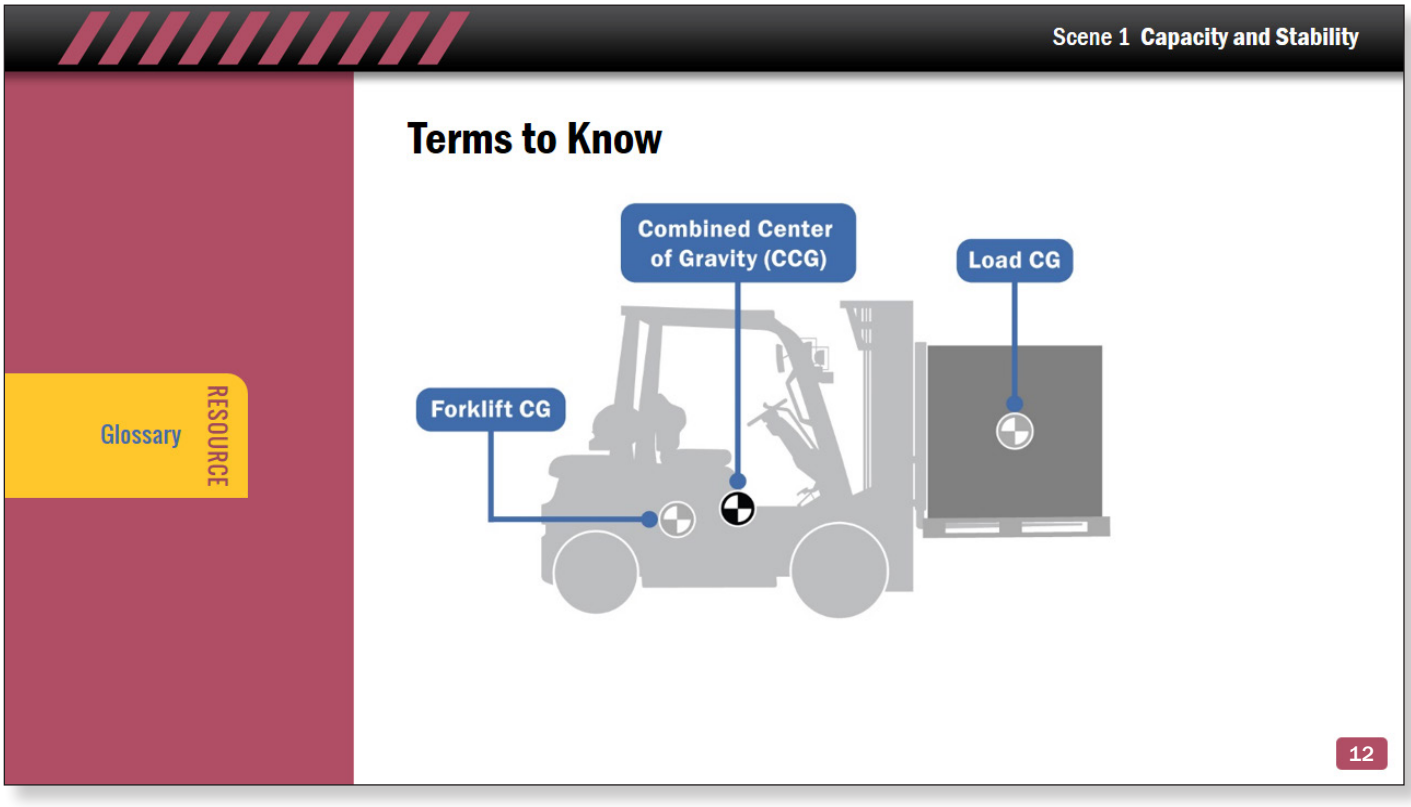


Today, we'll talk about the capacity and stability of a forklift, and operational safety for several topics, such as seat belts and traveling on inclines. We'll discuss using attachments, doing pre-use inspections, and refueling or recharging different types of vehicles.

In our first scene, we'll discuss staying within capacity and maintaining stability on vertical mast forklifts and telehandlers.



But first, let's take a moment to define some important terms used in this scene. Each load has a center of gravity, a load center, and a line of action. A load's center of gravity, or load CG, is the point where weight is evenly distributed on all sides of the load. The load center is the distance, in inches, from the face of the forks to the line of action. And, the line of action is the imaginary vertical line through the load CG.



Combined center of gravity, or CCG, is the center of gravity of a loaded vehicle. For definitions of these and other terms used in this course, see the glossary in the course book or under the *Resources* tab.

Scene 1 Capacity and Stability

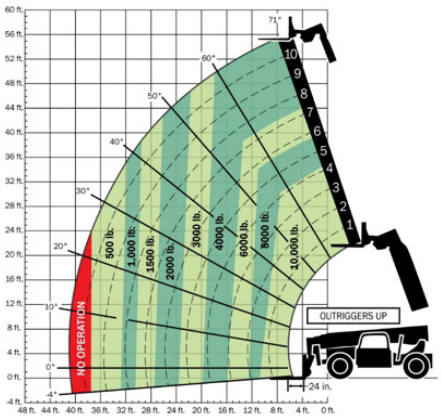
Capacity: Rated Capacity

- Do not lift a load that exceeds rated capacity.

MODEL NO.	S-50					
SERIAL NO.	6779602S89					
MAST MODEL	3.836-1.131-2.538XR					
MAST SERIAL NO.	8544633					
MAXIMUM LIFT	264	IN	671	CM		
RATED CAPACITY AT 24 INCH					610 MM LOAD CENTER	
8000	LBS TO	180	IN	3630	KG TO	457 CM
4700	LBS TO	264	IN	2132	KG TO	671 CM
RATED CAPACITY AT		36	IN	914	MM LOAD CENTER	
WITH ATTACHMENT	2X5X72 FORKS					
6600	LBS TO	180	IN	2994	KG TO	457 CM
2726	LBS TO	264	IN	1236	KG TO	671 CM
TRUCK OPERATING WT.	16830	LB	7634	KG		

THIS FORKLIFT CONFORMS TO THE REQUIREMENTS OF ASME 856.6 - 2002 SAFETY STANDARDS FOR POWERED INDUSTRIAL TRUCKS.

Sample Vertical Mast Forklift Data Plate



Sample Telehandler Capacity Chart

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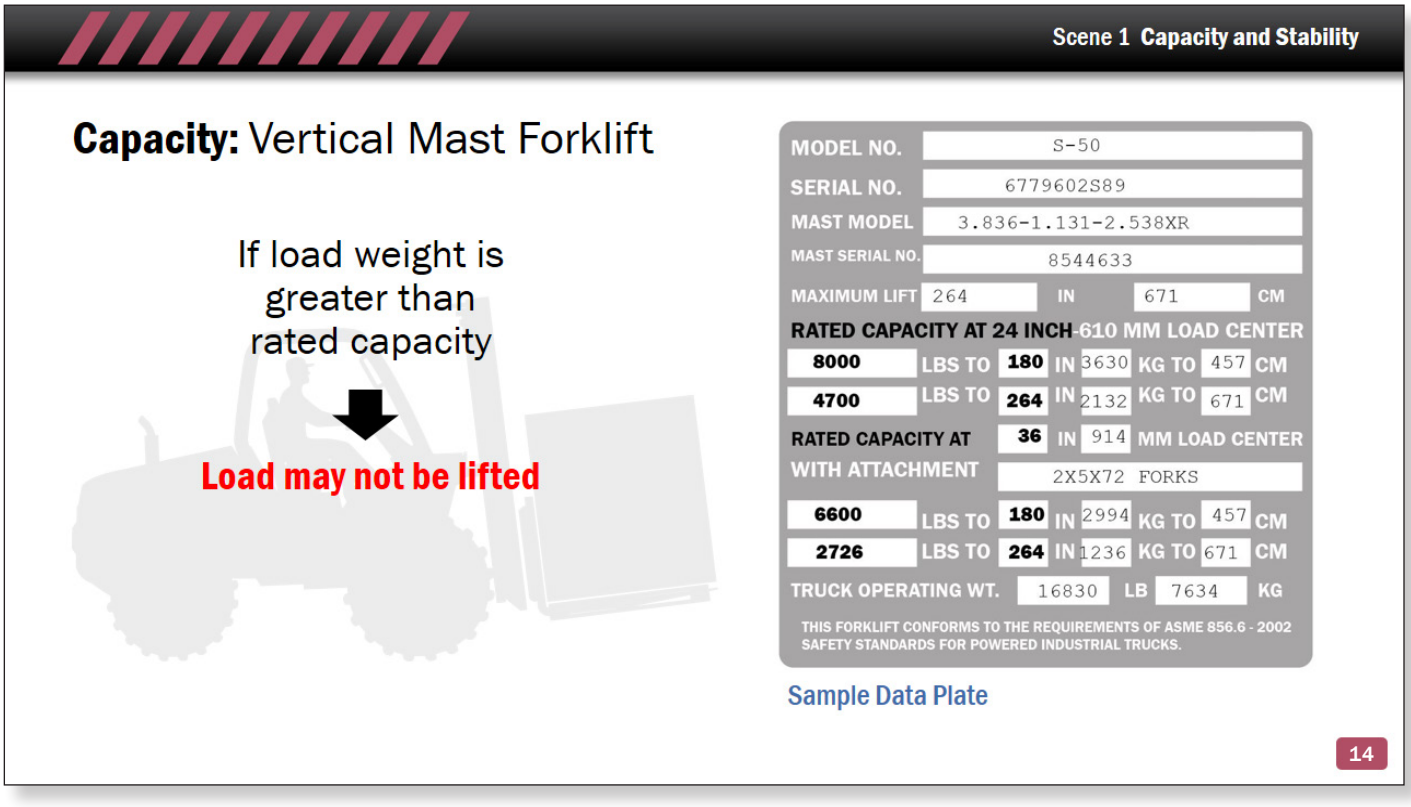
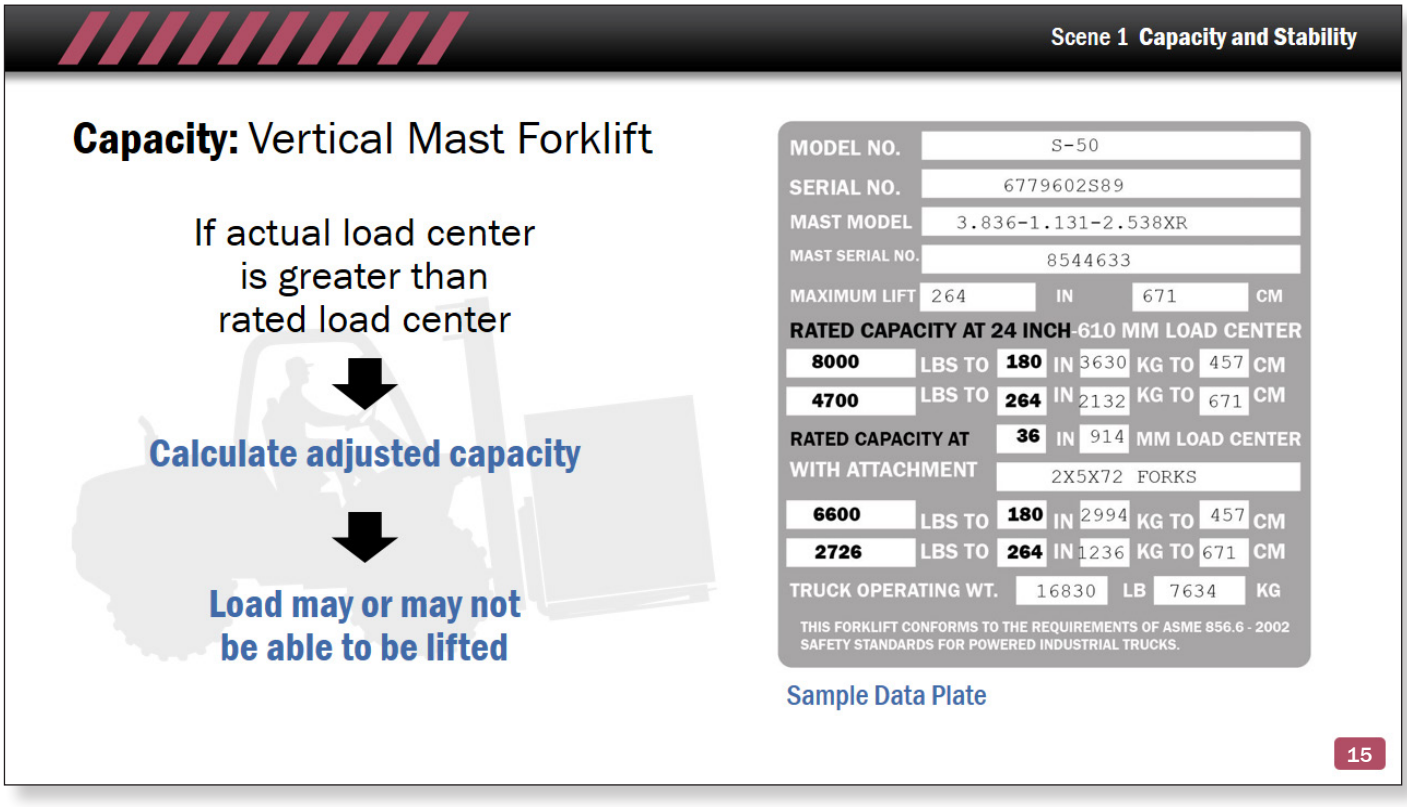
Ok, let's talk about forklift capacity. Do not lift a load that exceeds the rated capacity of the vehicle, shown on the data plate for vertical mast forklifts and on the capacity chart for telehandlers. Otherwise, the forklift may lose its balance and tip forward.



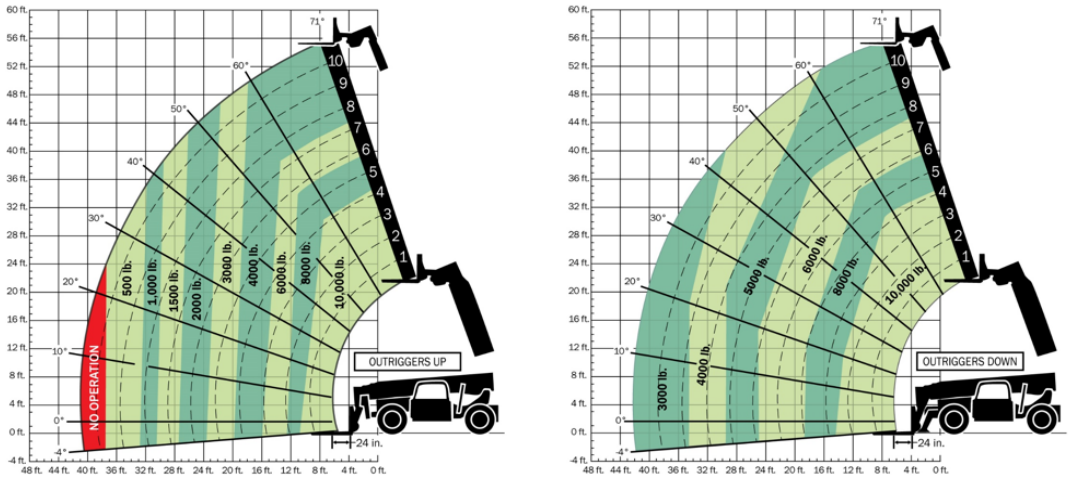
When operating a vertical mast forklift, find the weight on the data plate that corresponds to the load center and intended mast height of the load you plan to lift. If the load weight is greater than the rated capacity, the load may not be lifted.



If the value of the actual load center is greater than the rated load center, calculate an adjusted capacity to determine if the load may be lifted. We'll get to adjusted capacity shortly.

Scene 1 Capacity and Stability

Capacity: Telehandler



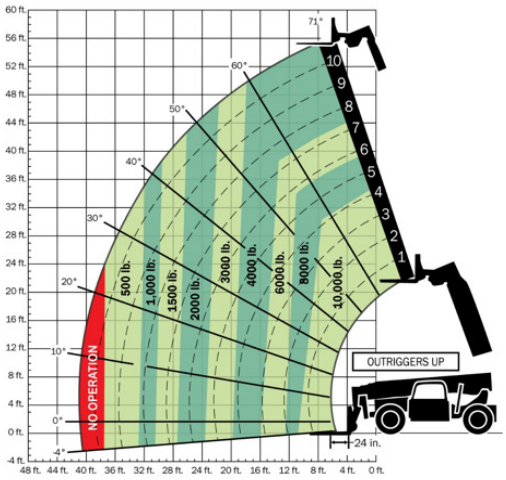
Sample Capacity Charts – Standard Forks

16

When using a telehandler, confirm that the load weight does not exceed the rated capacity shown on the capacity chart for the attachment being used and the outrigger position. Based on the intended placement position of the load, find the point where the height and distance lines intersect. Notice that when the outriggers are down, vehicle capacity increases.

Scene 1 Capacity and Stability

Capacity: Telehandler



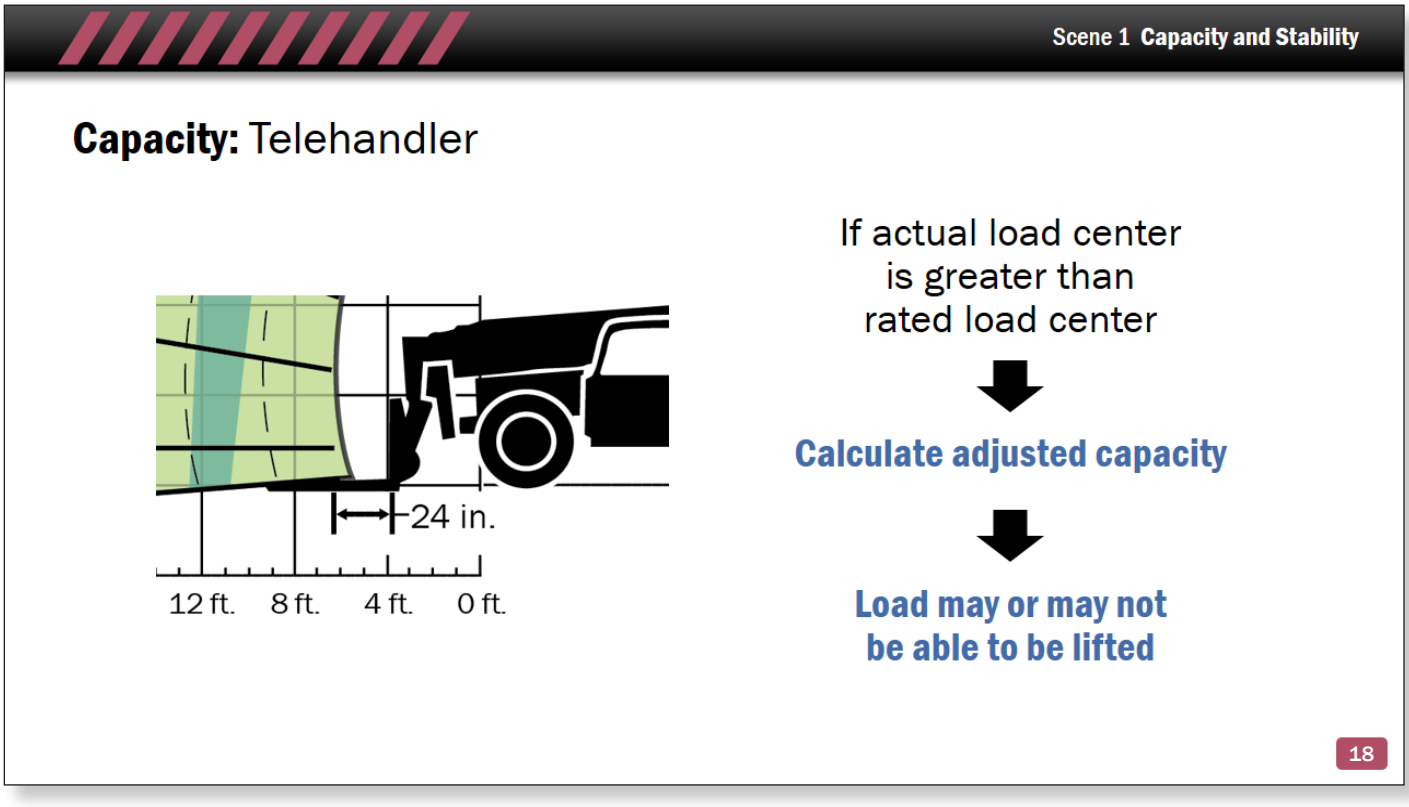
If load weight is greater than rated capacity

Load may not be lifted

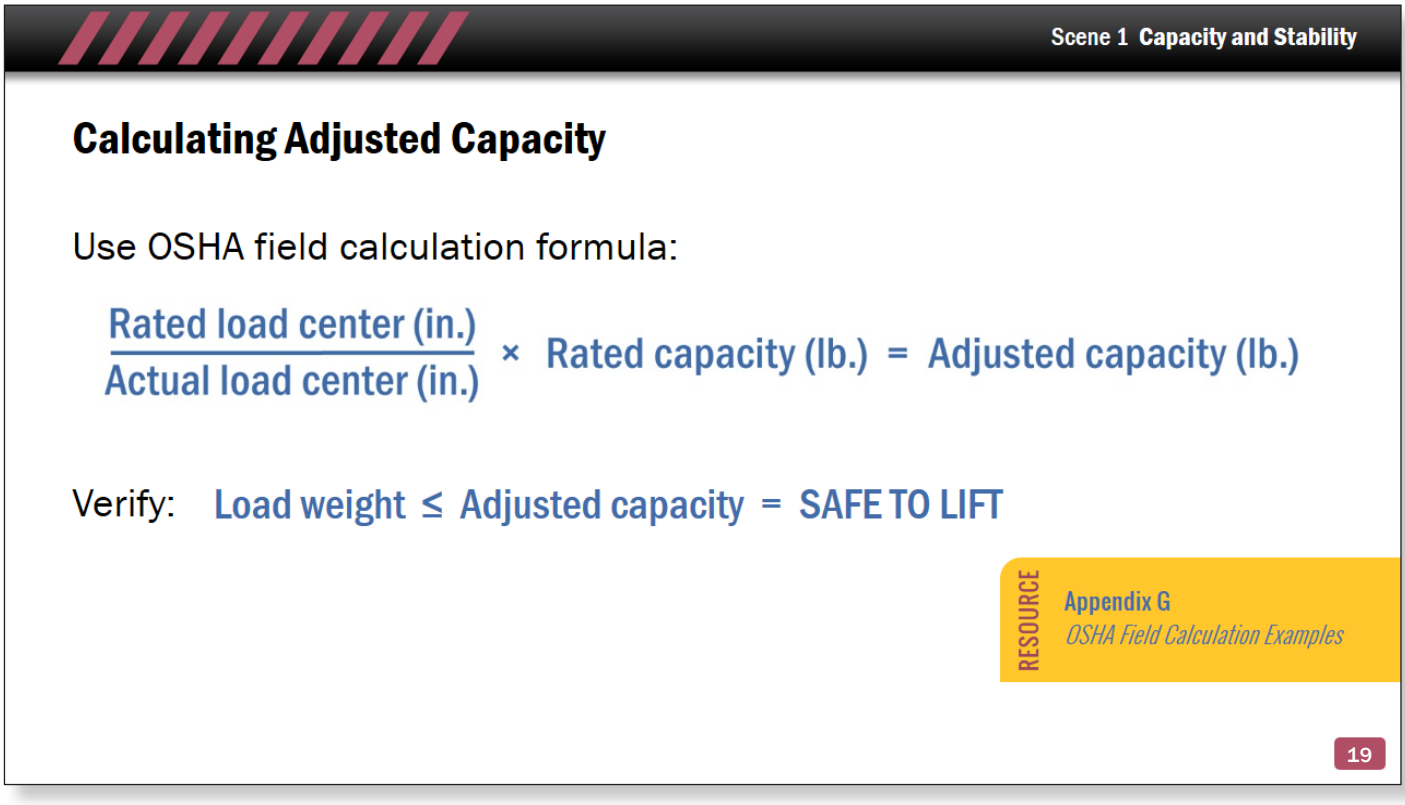
Sample Capacity Charts – Standard Forks

17

If the load weight is greater than the rated capacity, the load may not be lifted.

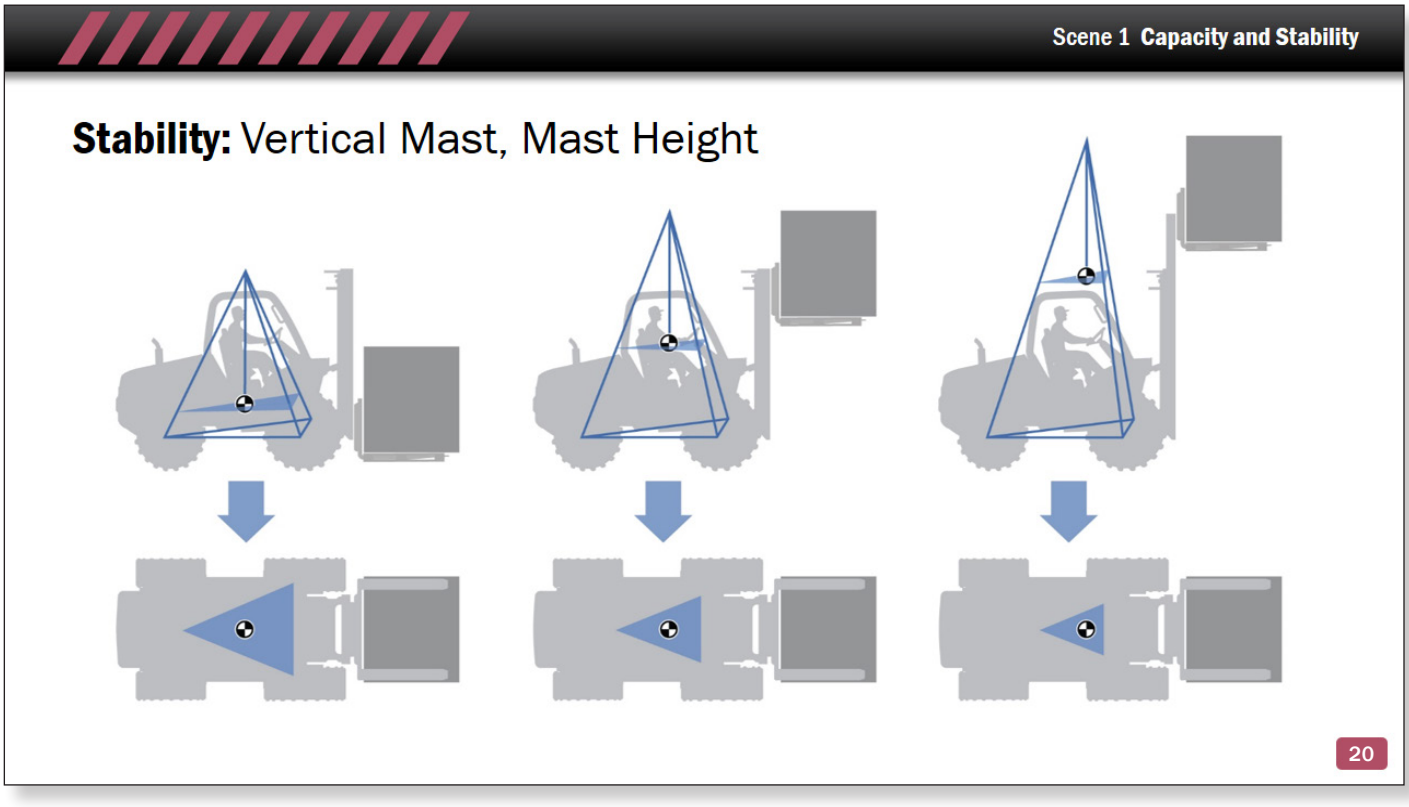


If the value of the actual load center is greater than the rated load center, calculate an adjusted capacity to determine if the load may be safely lifted.

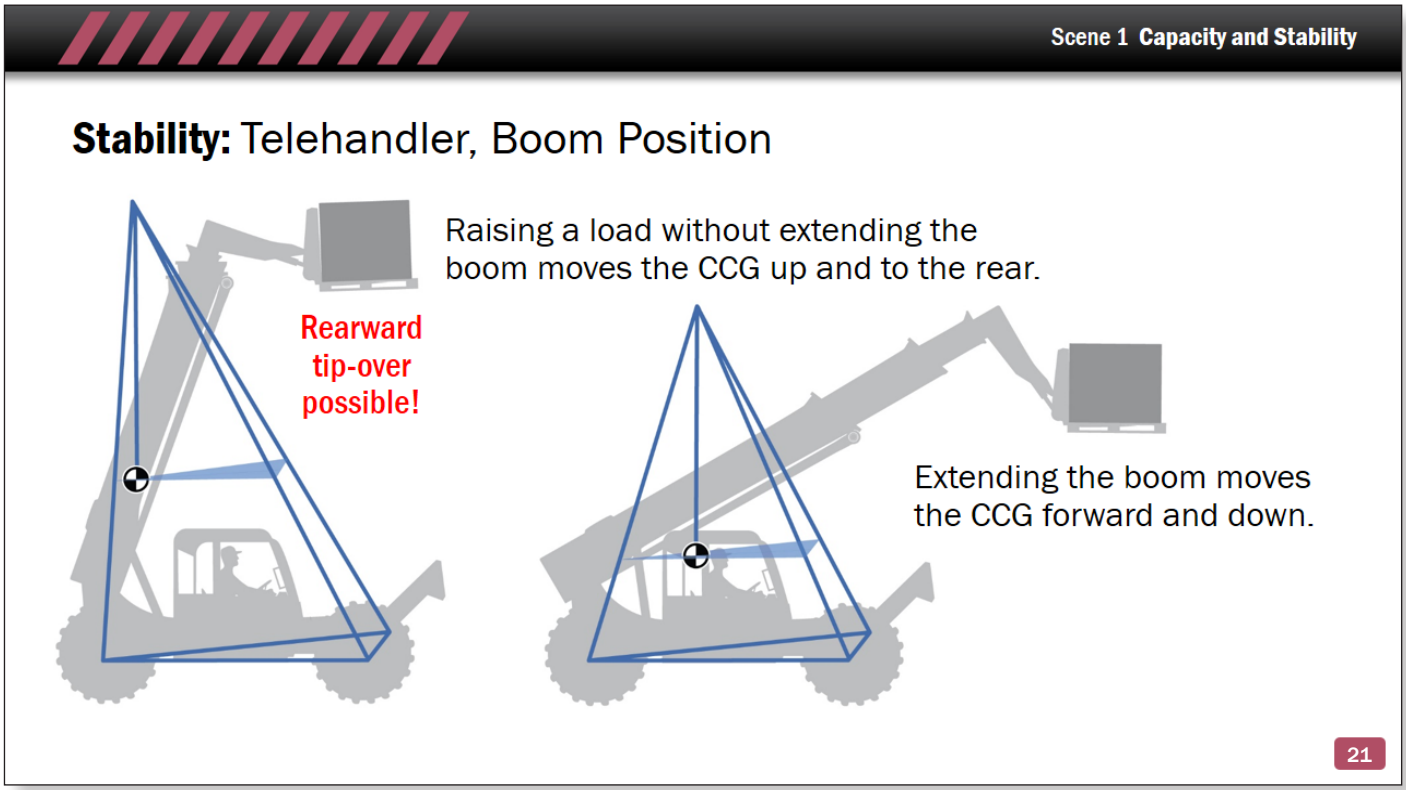


How is adjusted capacity calculated? By using OSHA's field calculation formula: the rated load center divided by the actual load center multiplied by the rated capacity equals the adjusted capacity. After performing this calculation, verify that the load weight is less than or equal to the adjusted capacity before lifting the load.

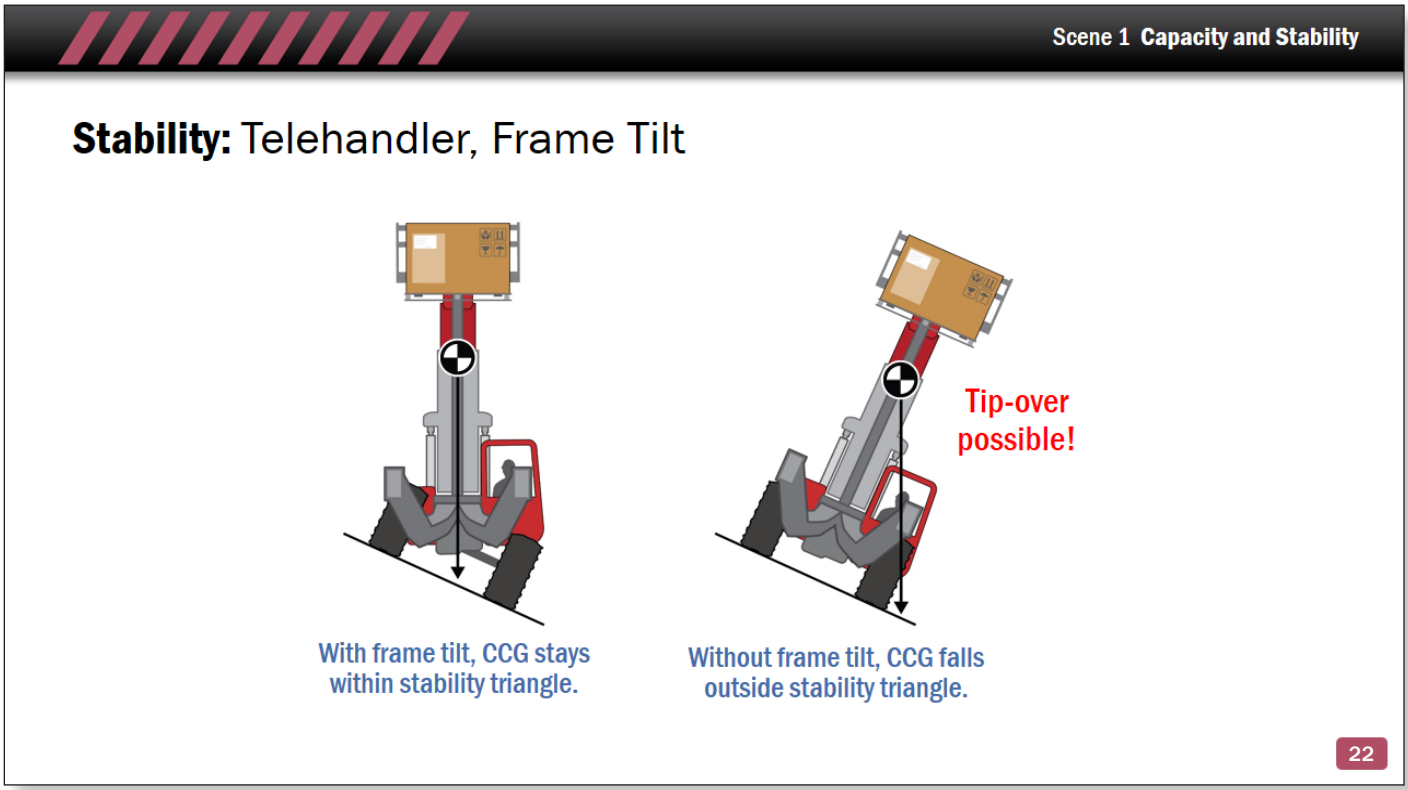
See examples of this calculation in Appendix G of the course book or under the *Resources* tab.



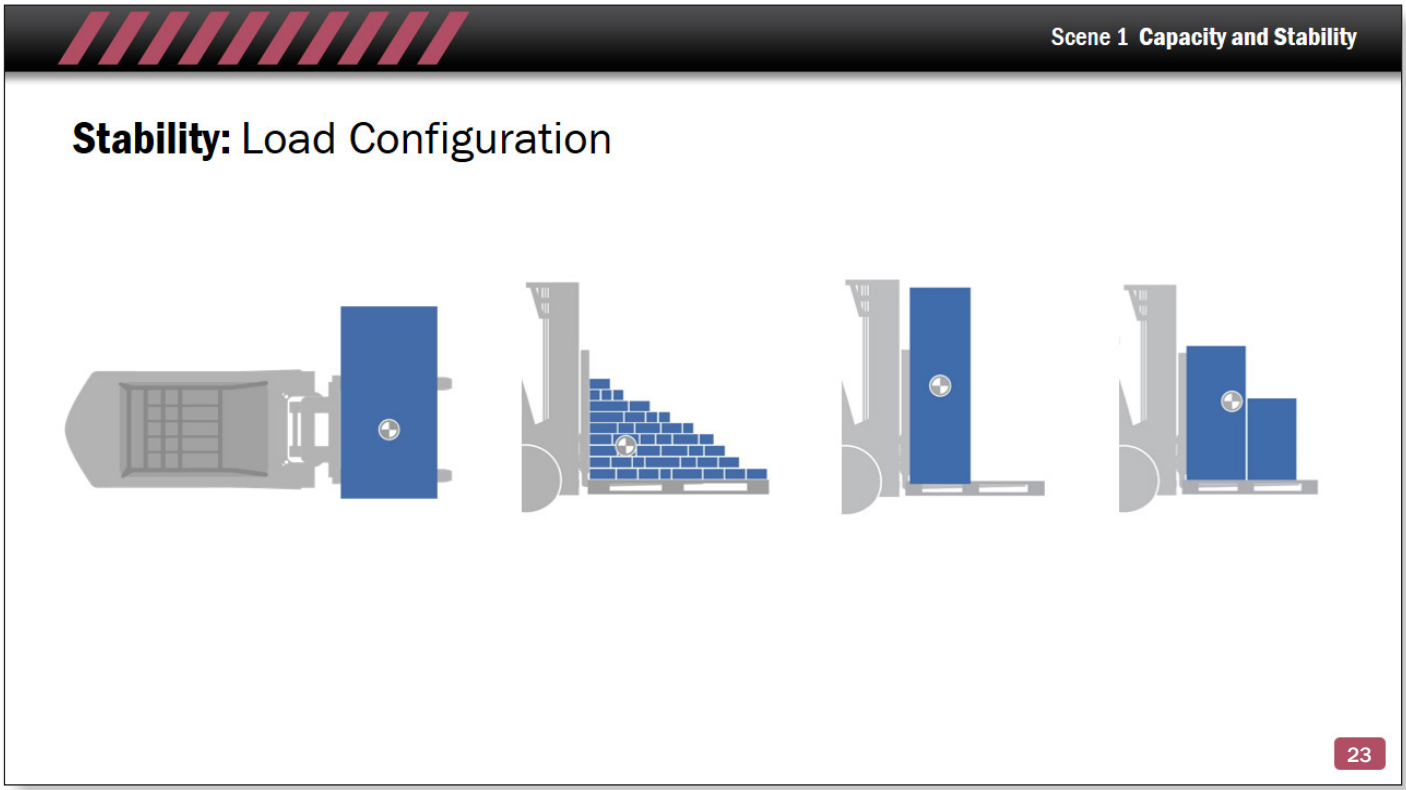
Stability is affected by several factors. On a vertical mast forklift, as the mast is raised, the area of safe operation is reduced. The CCG moves upward where the stability triangle narrows. With the mast raised, it would take little force to push the CCG outside the stability triangle's boundaries. The higher the load is lifted, the less stable the machine becomes.



Stability on a telehandler works differently than it does on a vertical mast forklift. Because the boom is part of the counterweight, raising a load without extending the boom moves the CCG up and to the rear of the machine, making a rearward tip-over possible. Extending the boom moves the CCG forward and down. However, like a vertical mast forklift, the higher the load, the smaller the area of safe operation.



Telehandlers also have frame tilt, which helps maintain stability by rotating the vehicle body to compensate for a sloped surface. Proper use of frame tilt keeps the CCG between the wheels, near the center of the stability triangle. Without frame tilt, the CCG can fall outside the boundaries of the stability triangle, resulting in a tip-over.



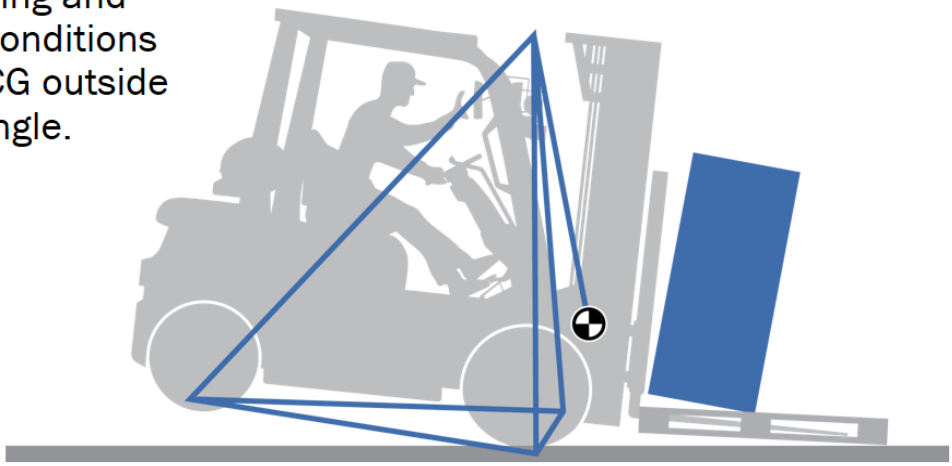
How a load is positioned on the forks plays an important role in vehicle stability. The goal is to keep the load CG centered between the forks and as close to the mast as possible.

Tilting the mast or carriage back also improves stability by moving the load CG closer to the fulcrum.

Scene 1 Capacity and Stability

Stability: A Forklift in Motion

Basic maneuvering and environmental conditions can push the CCG outside the stability triangle.



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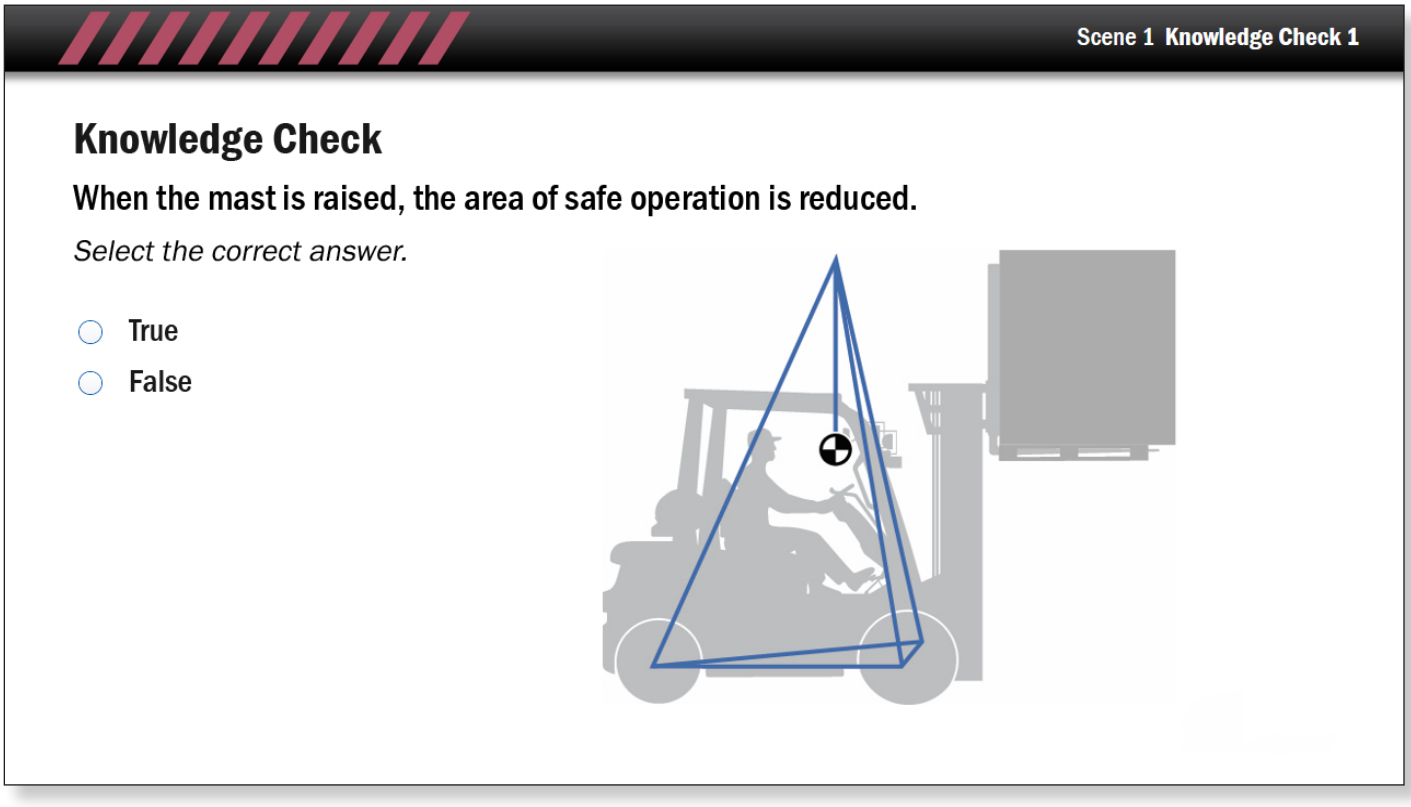
Once a forklift is in motion, basic maneuvering and environmental conditions apply force on the CCG. If the force is strong enough, the CCG can swing outside the stability triangle, resulting in a tip-over.



Let's try a couple review questions. True or false? When the mast is raised, the area of safe operation is reduced. Select the correct answer, then click the *Submit* button.

- True
- False

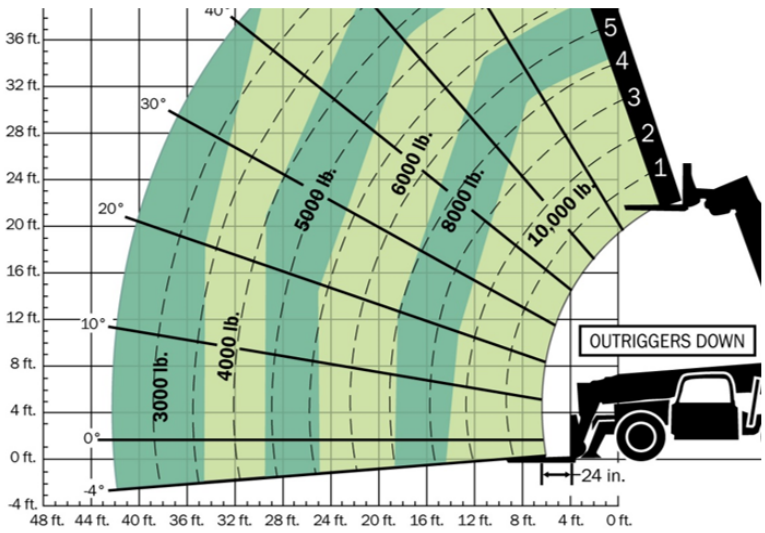
Scene 1 Knowledge Check 2

Knowledge Check

Based on this capacity chart, what is the maximum a load can weigh if it needs to be placed 20 feet high and 20 feet away from the front wheels?

Select the correct answer.

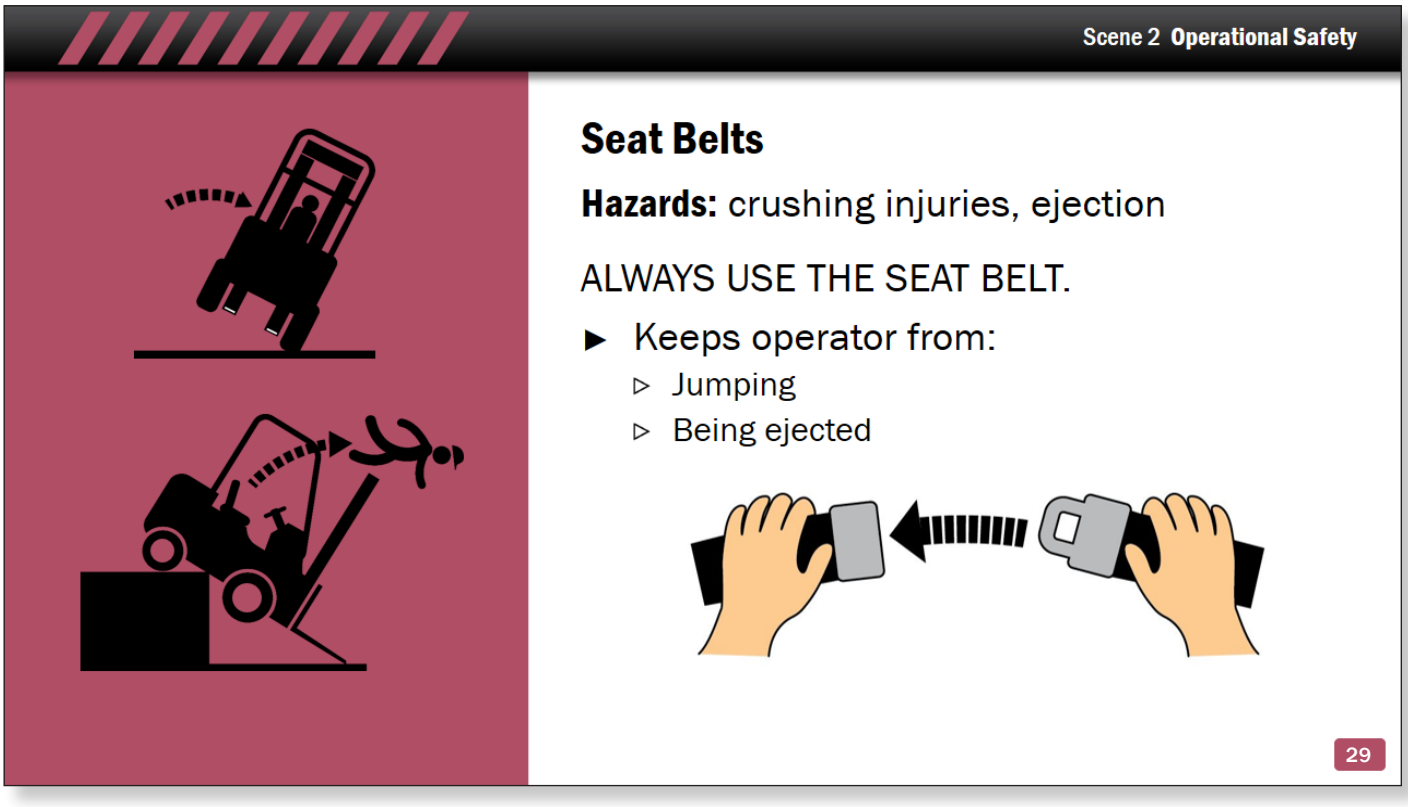
- 3,000 lb.
- 4,000 lb.
- 5,000 lb.
- 6,000 lb.



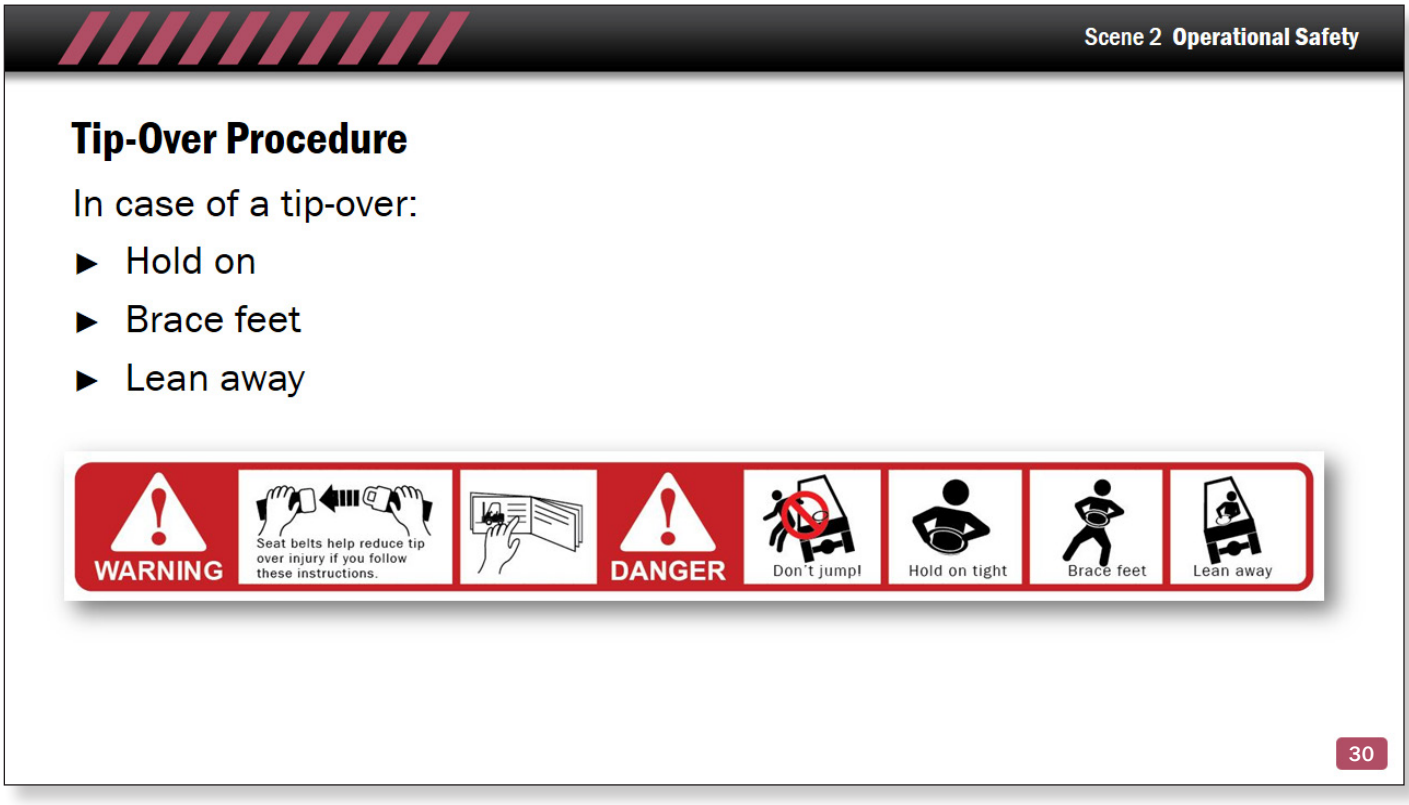
Based on this capacity chart, what is the maximum a load can weigh if it needs to be placed 20 feet high and 20 feet away from the front wheels? Select the correct answer, then click the *Submit* button.

- 3,000 lb.
- 4,000 lb.
- 5,000 lb.
- 6,000 lb.

Scene 2, Operational Safety, discusses regulations and safe practices for forklift operation. You can view Cal/OSHA's thirty-three *Operating Rules for Industrial Trucks* in Appendix B of the course book or under the *Resources* tab.



Always wear your seat belt, even if the ride is short or you get on and off the vehicle a lot. During a tip-over, a fastened seat belt keeps you from jumping from the vehicle and being crushed. A seat belt also keeps you from being ejected during a collision.



In the event of a tip-over, hold on firmly, brace your feet, and lean in the opposite direction of the tip-over.

Before operation begins, check the operator's manual or safety decal for the tip-over procedure for the make and model you are operating.

Scene 2 Operational Safety

Pedestrians

Hazards: collisions, falling loads, crushing injuries

- Yield to pedestrian traffic.
- Do not drive up to anyone standing in front of a fixed object.

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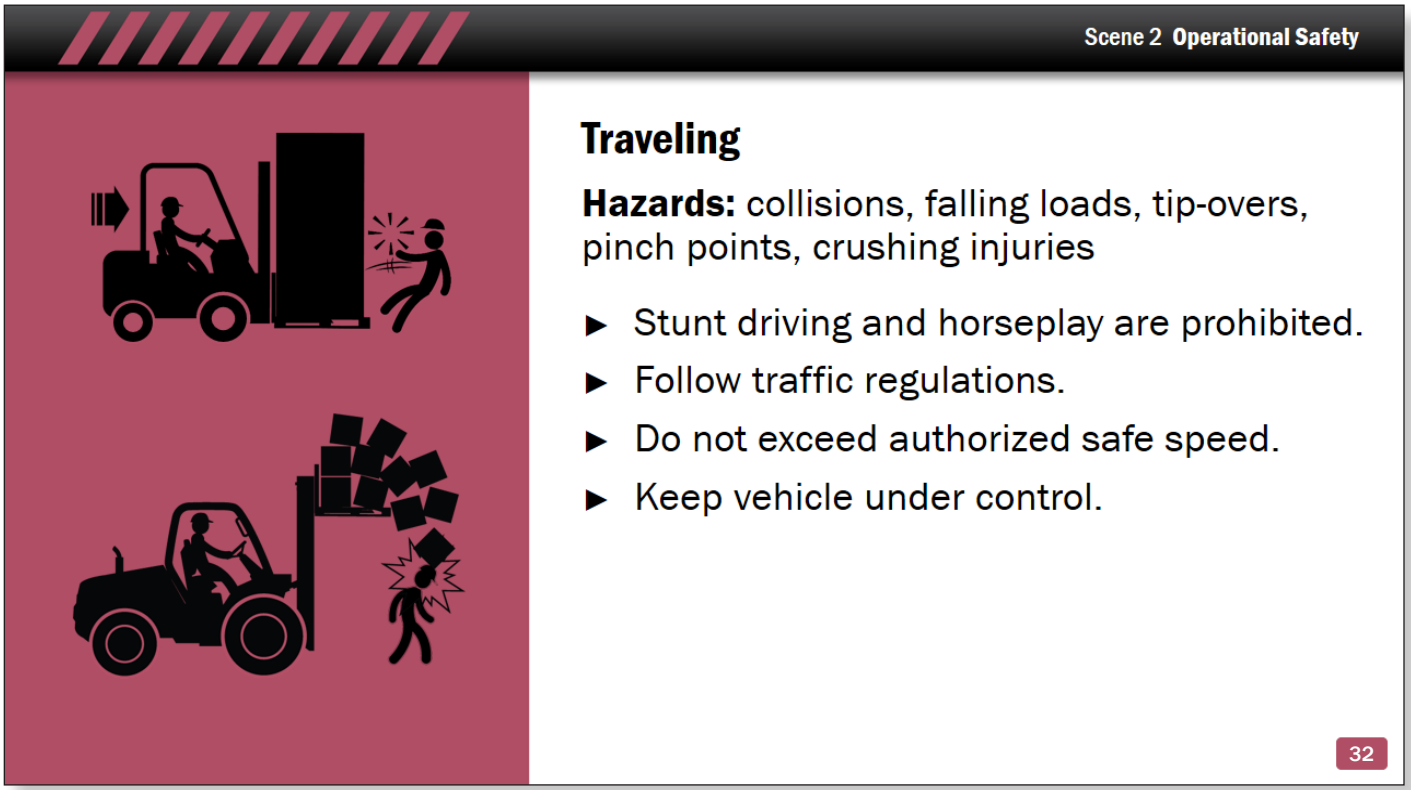
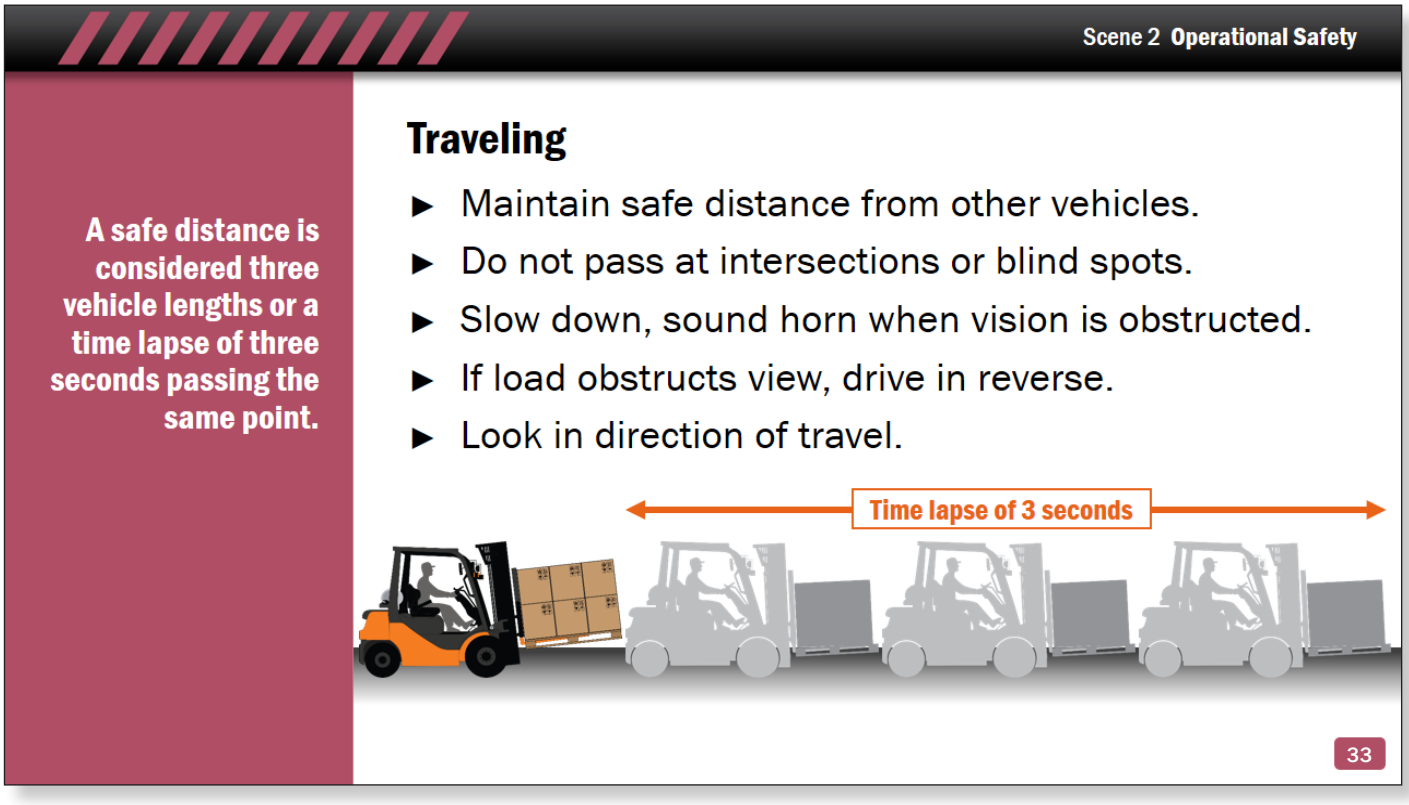
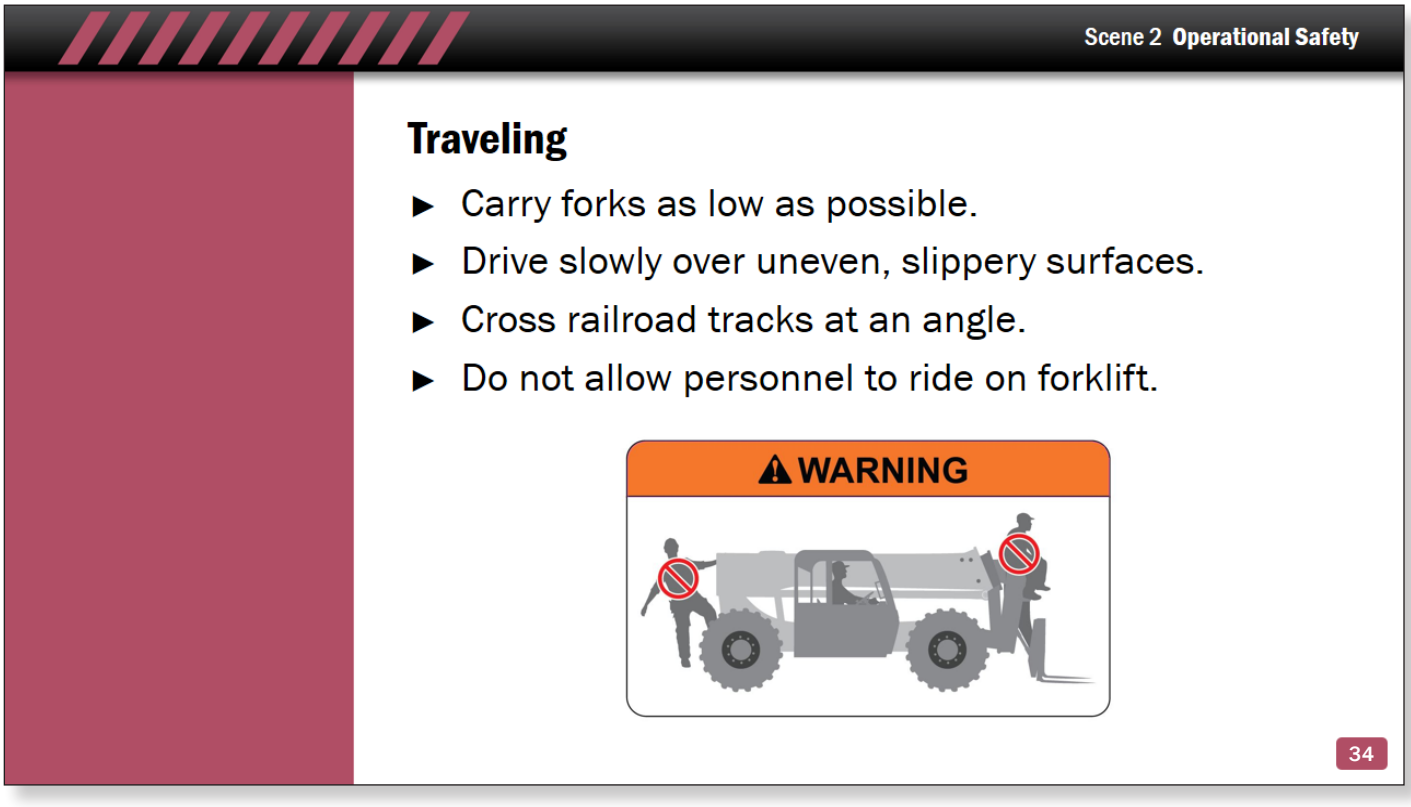
Pedestrians in the work area can be hit by a forklift or a falling load or suffer other crushing injuries. As the forklift operator, it is your job to watch out for and yield to pedestrian traffic. Pedestrians may not hear back-up alarms or see back-up lights.



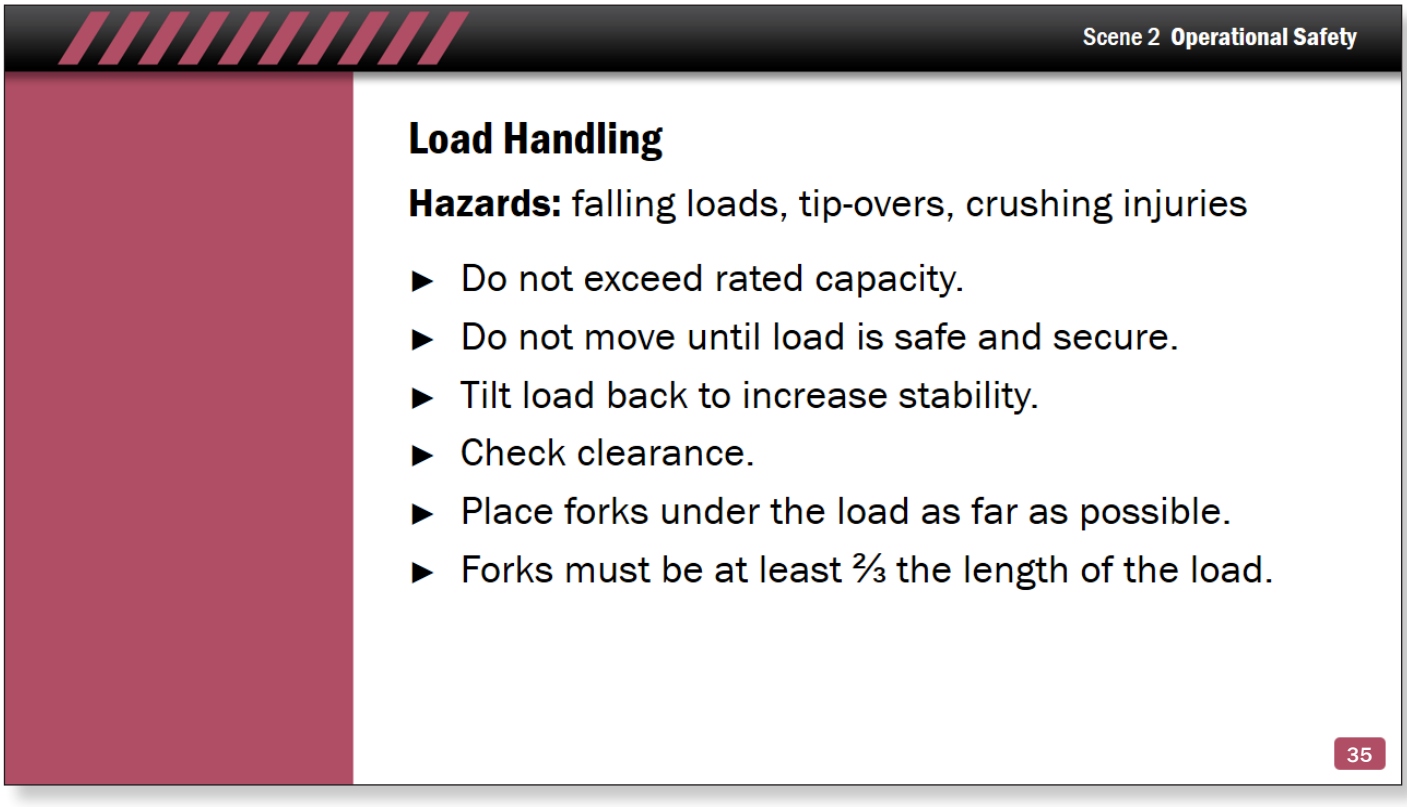
Adhere to safety regulations for traveling to avoid collisions, falling loads, tip-overs, and pinching and crushing injuries. Stunt driving and horseplay are prohibited. Follow all traffic regulations and do not exceed the authorized safe speed. It is your job to keep the vehicle under control.



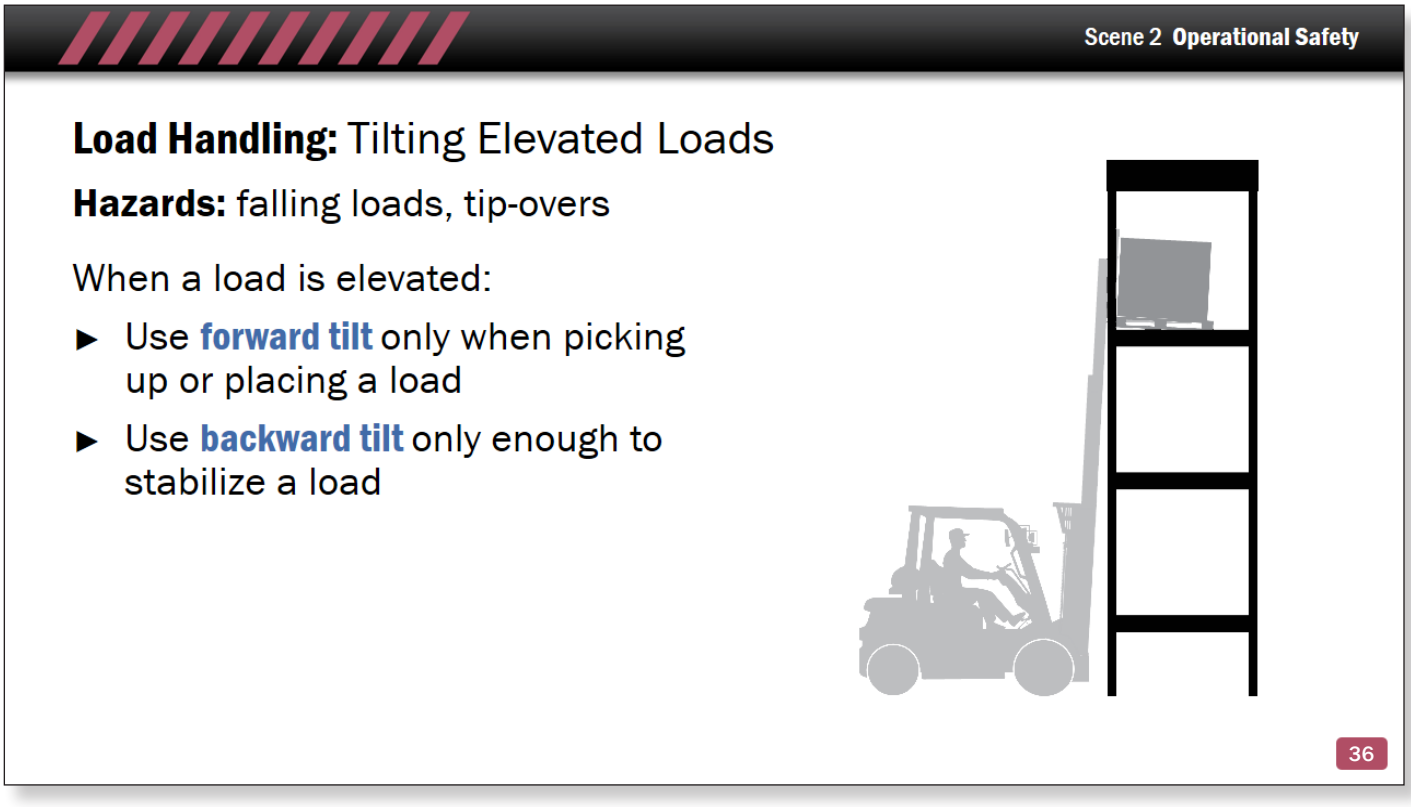
Maintain a safe distance from other vehicles. A safe distance is considered three vehicle lengths or a time lapse of three seconds passing the same point. Do not pass vehicles traveling in the same direction at intersections, blind spots, or other dangerous locations. Slow down and sound the horn at intersections or when vision is obstructed. If a load obstructs the view, drive in reverse with the load trailing. Look in the direction of travel.



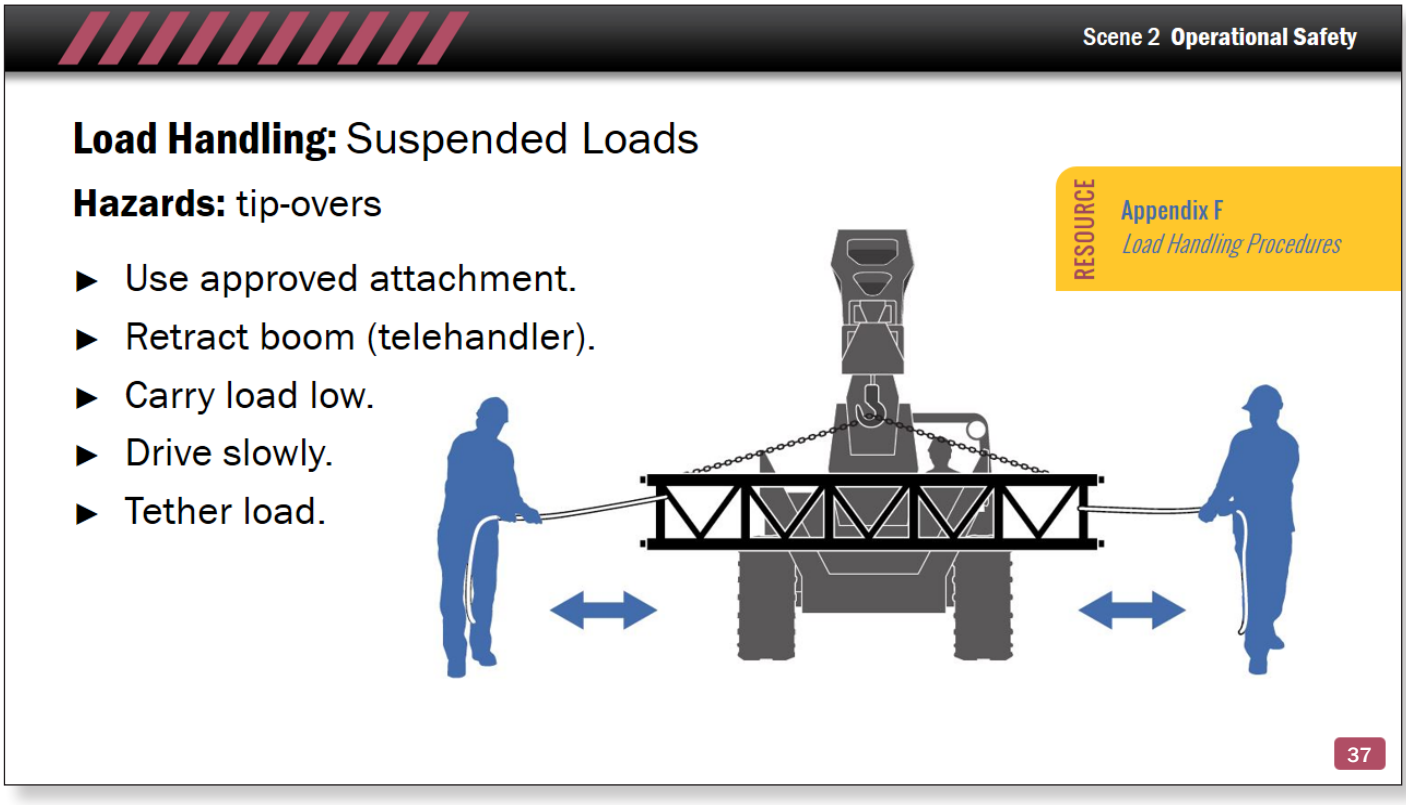
Carry the forks as low as possible. Drive slowly over uneven and slippery surfaces. Cross railroad tracks at an angle. And, do not allow personnel to ride on the forklift.



To prevent load-handling hazards like falling loads, tip-overs, and crushing injuries, do not load a forklift in excess of its rated capacity or move the vehicle until the load is safe and secure. Tilt the load back to increase stability. Ensure there is sufficient clearance for both the forklift and the load. Place the forks under the load as far as possible. The forks must be at least two-thirds the length of the load. If they are not, a different machine or attachment must be used.

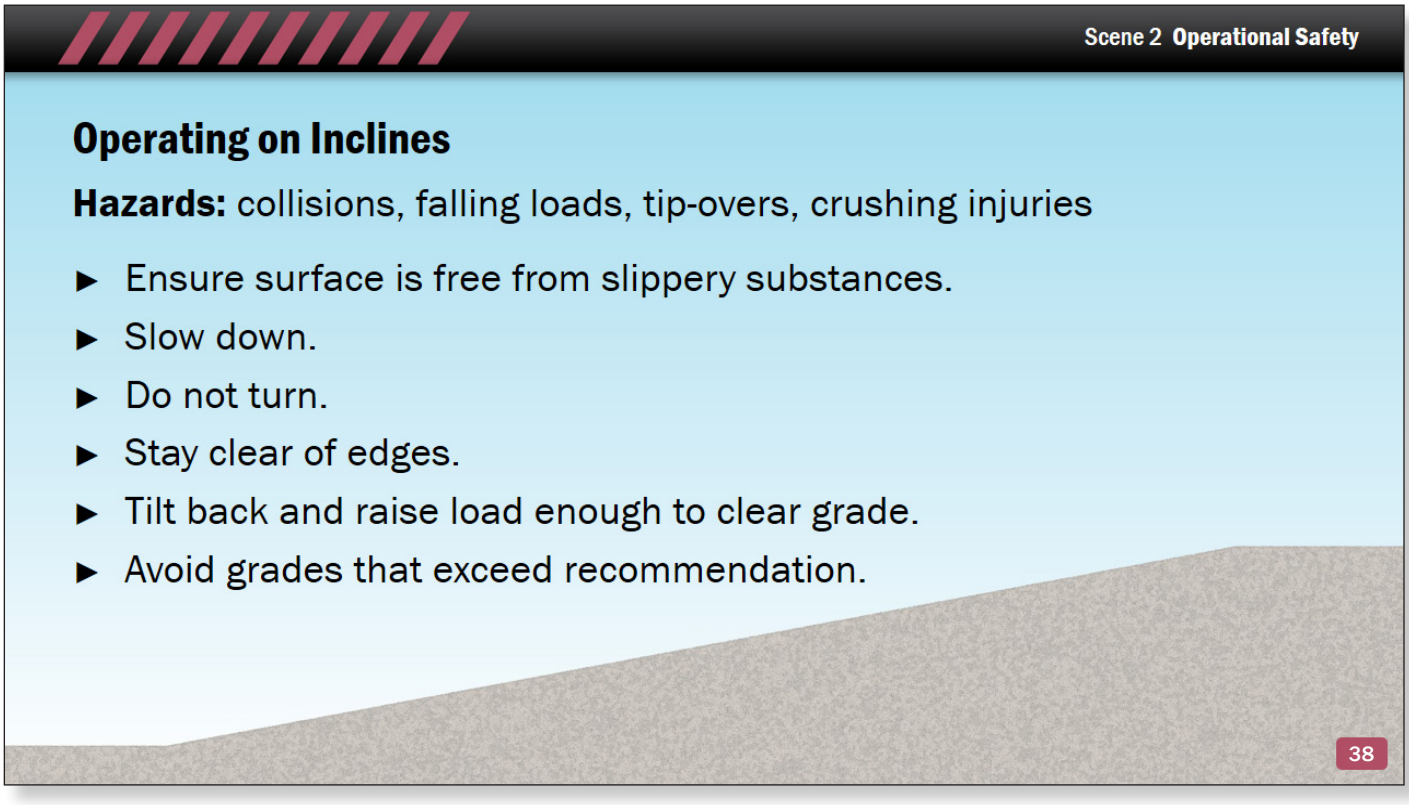


Proper use of mast or carriage tilt can also reduce the chances of a falling load or tip-over. When a load is elevated, use forward tilt only when picking up or placing the load. Use backward tilt only enough to stabilize the load.



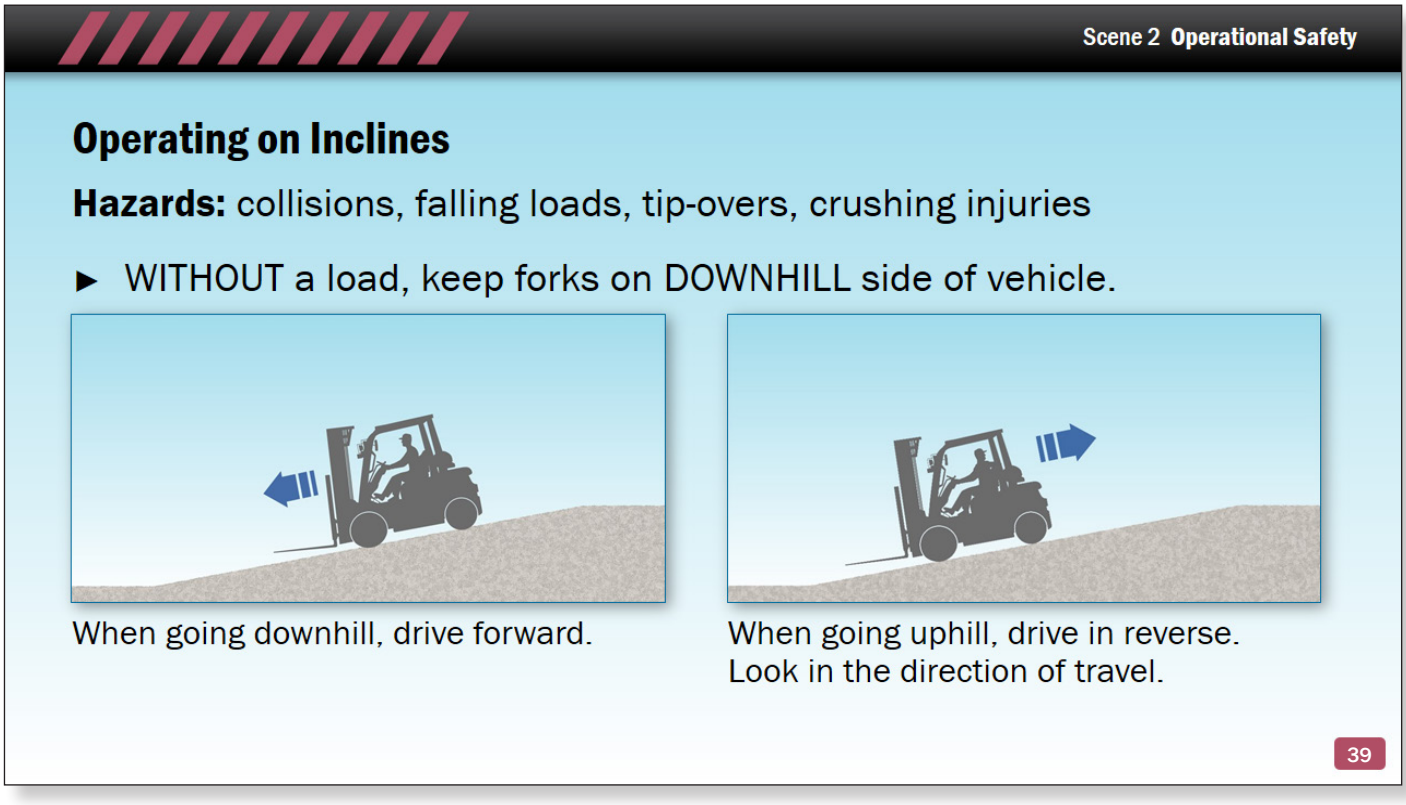
When handling a suspended load, use only an approved attachment for that task, such as a truss boom or lifting hook. If using a telehandler, fully retract the boom. Carry the load as low as possible, observing manufacturer specifications. Inspect the conditions of the terrain and adjust your speed accordingly. And, tether the load to minimize swing.

See basic load handling procedures in Appendix F of the course book or under the *Resources* tab.

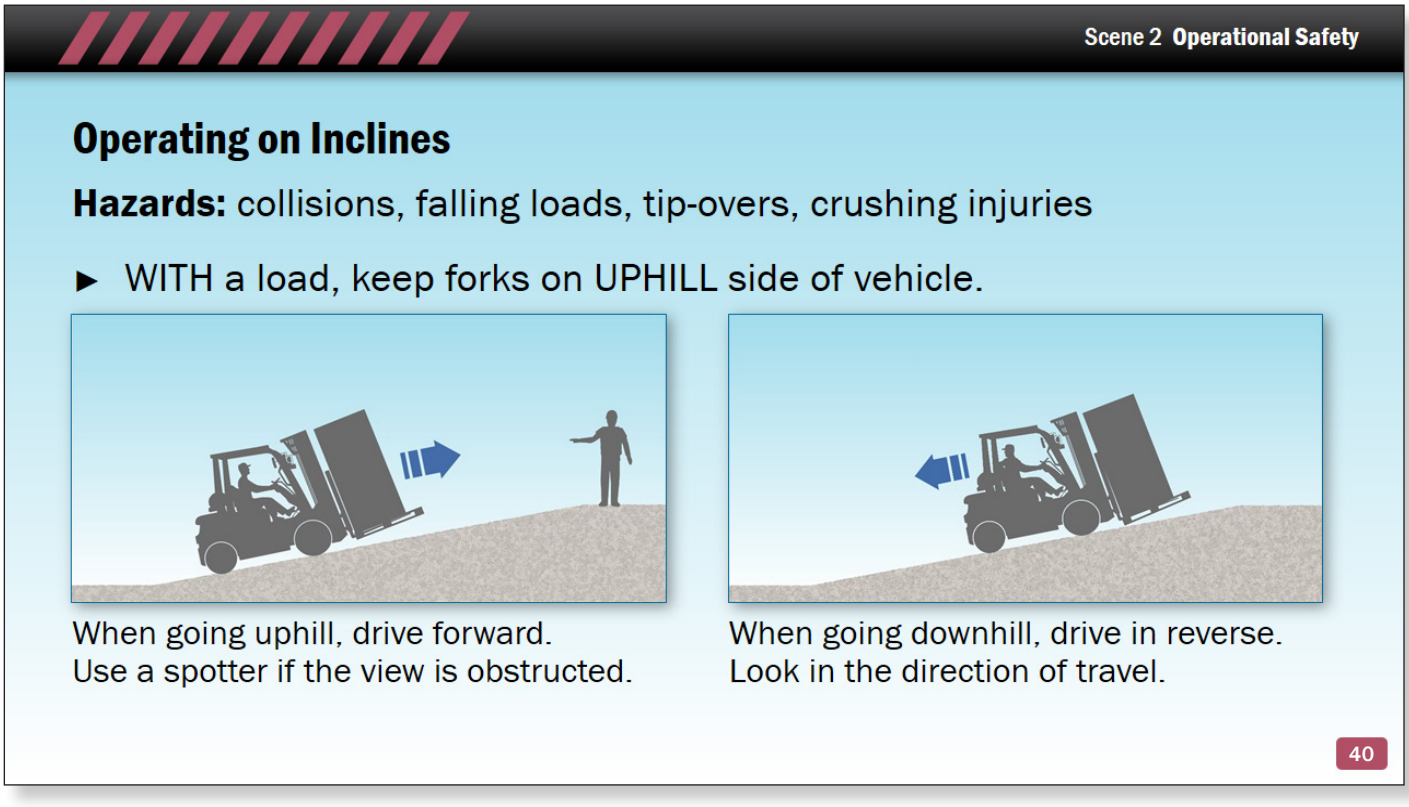


When inclines are part of your work environment, hazards include collisions, falling loads, tip-overs, and crushing injuries.

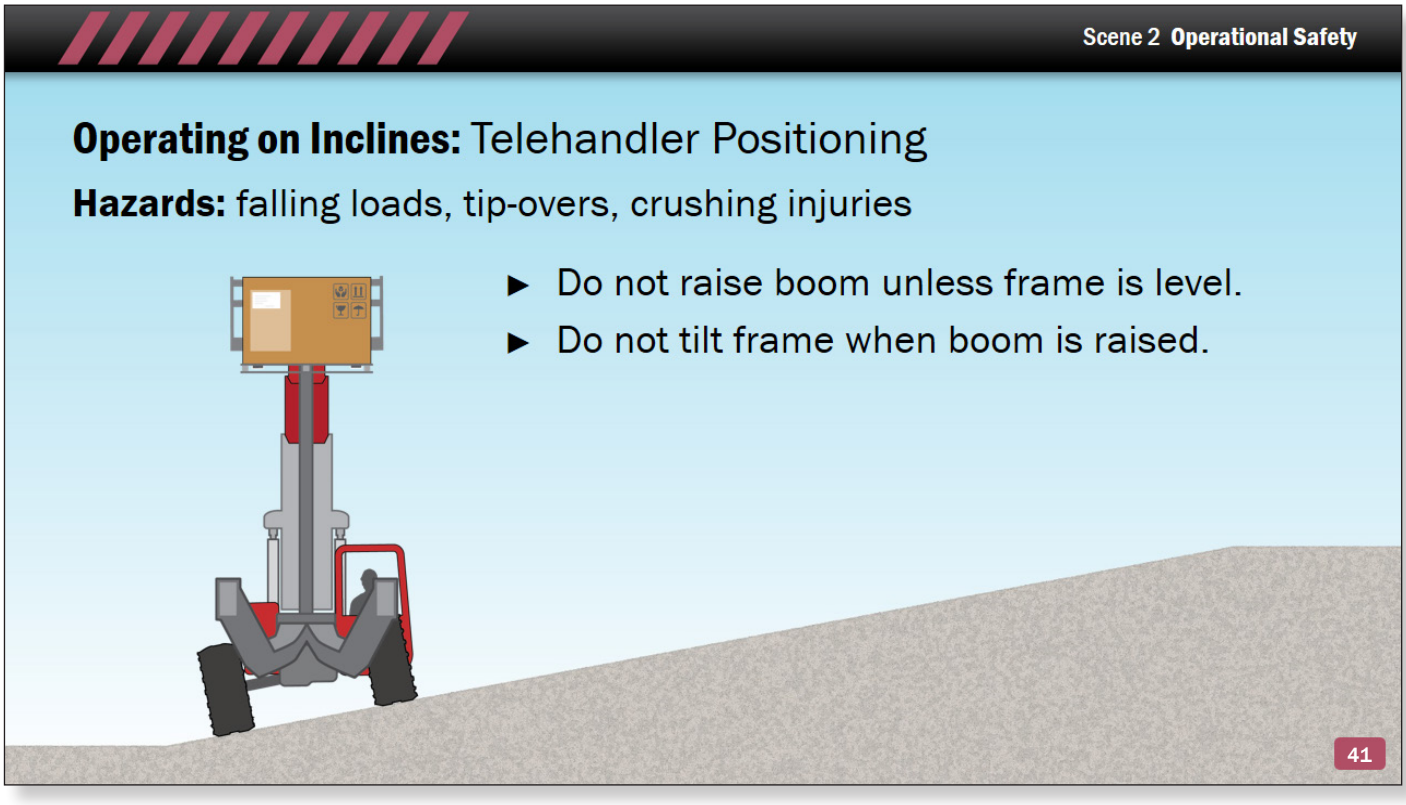
Before driving on an incline, make sure the driving surface is free from slippery substances like grease, sand, and gravel. Slow down. Do not turn while on an incline. And, stay clear of edges. Tilt the load back and raise the forks only as much as is necessary to clear the grade. Avoid grades that exceed the manufacturer's recommendations.



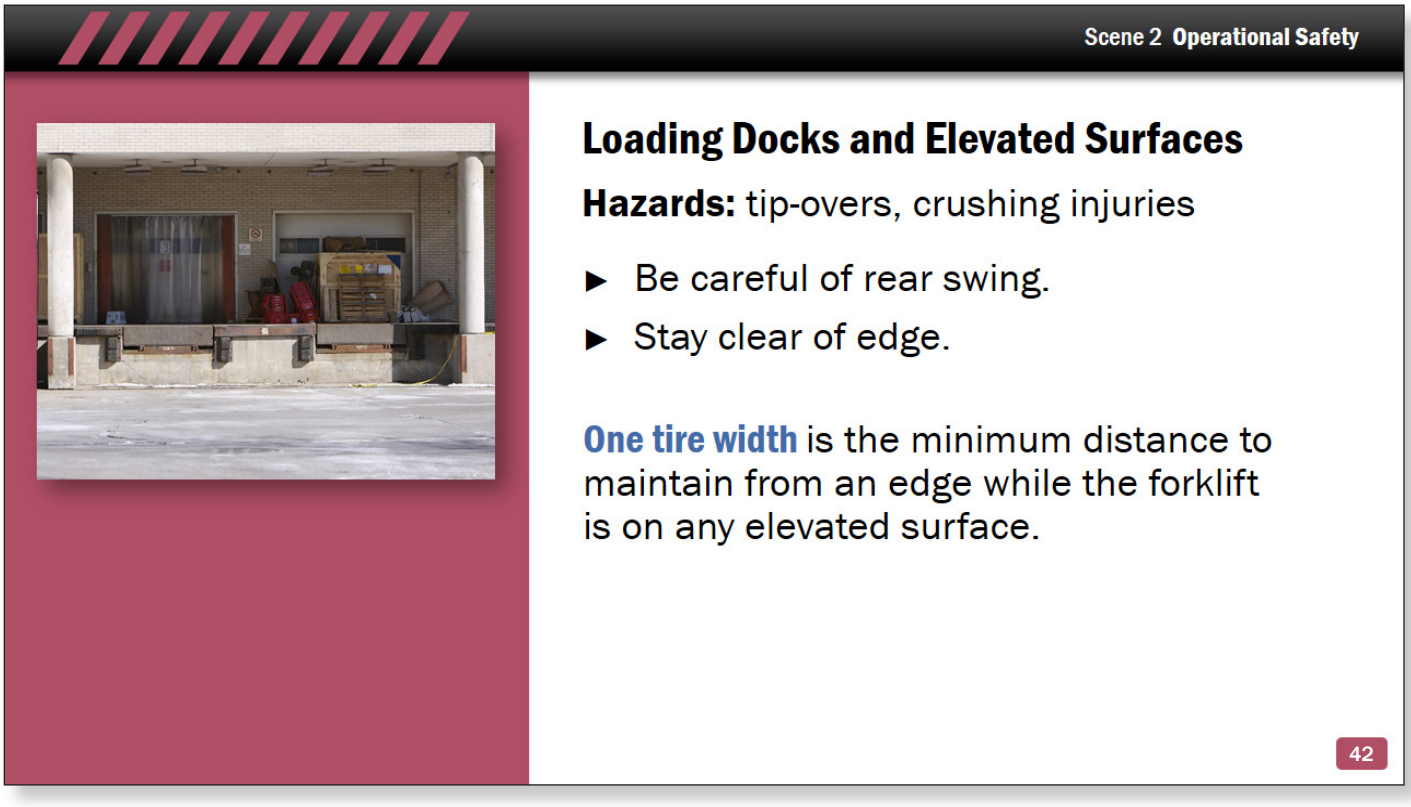
When traveling up or down an incline without a load, keep the forks on the downhill side of the vehicle. Otherwise, a rearward tip-over is possible. When going downhill, drive forward. When going uphill, drive in reverse, looking in the direction of travel.



When traveling up or down an incline with a load, keep the forks on the uphill side of the vehicle. Otherwise, the load may fall off the forks. When going uphill, drive forward. Use a spotter if the view is obstructed. When going downhill, drive in reverse, looking in the direction of travel.



When a telehandler is positioned on an incline, do not raise the boom unless the frame is level or tilt the frame when the boom is raised.



When operating on a loading dock or another elevated driving surface, the biggest safety issue is driving off the edge. This type of tip-over can cause serious crushing injuries. Be careful of the rear swing of the vehicle when turning. Stay clear of the edge. One tire width is the minimum distance to maintain from an edge while the forklift is on any elevated surface.

Scene 2 Operational Safety

Parking

Hazards: collisions, crushing injuries, inhibiting proper firefighting

- Park in designated areas.
- Stay at least 8½ ft. from railroad tracks.
- Do not block:
  - Electrical controls
  - Exits
  - Fire lanes
  - Fire extinguishers or other emergency equipment
- Dismount facing in.
- Maintain three points of contact.

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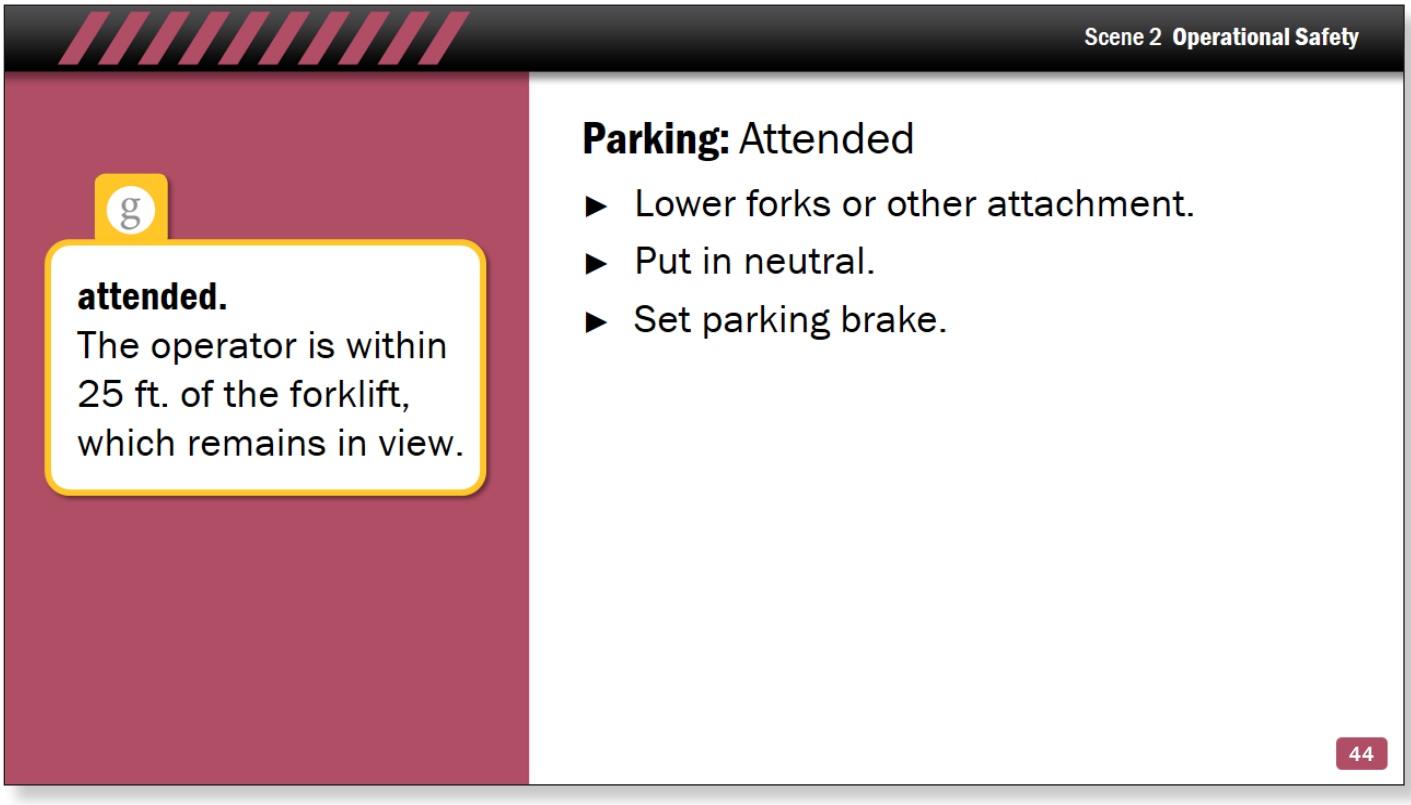
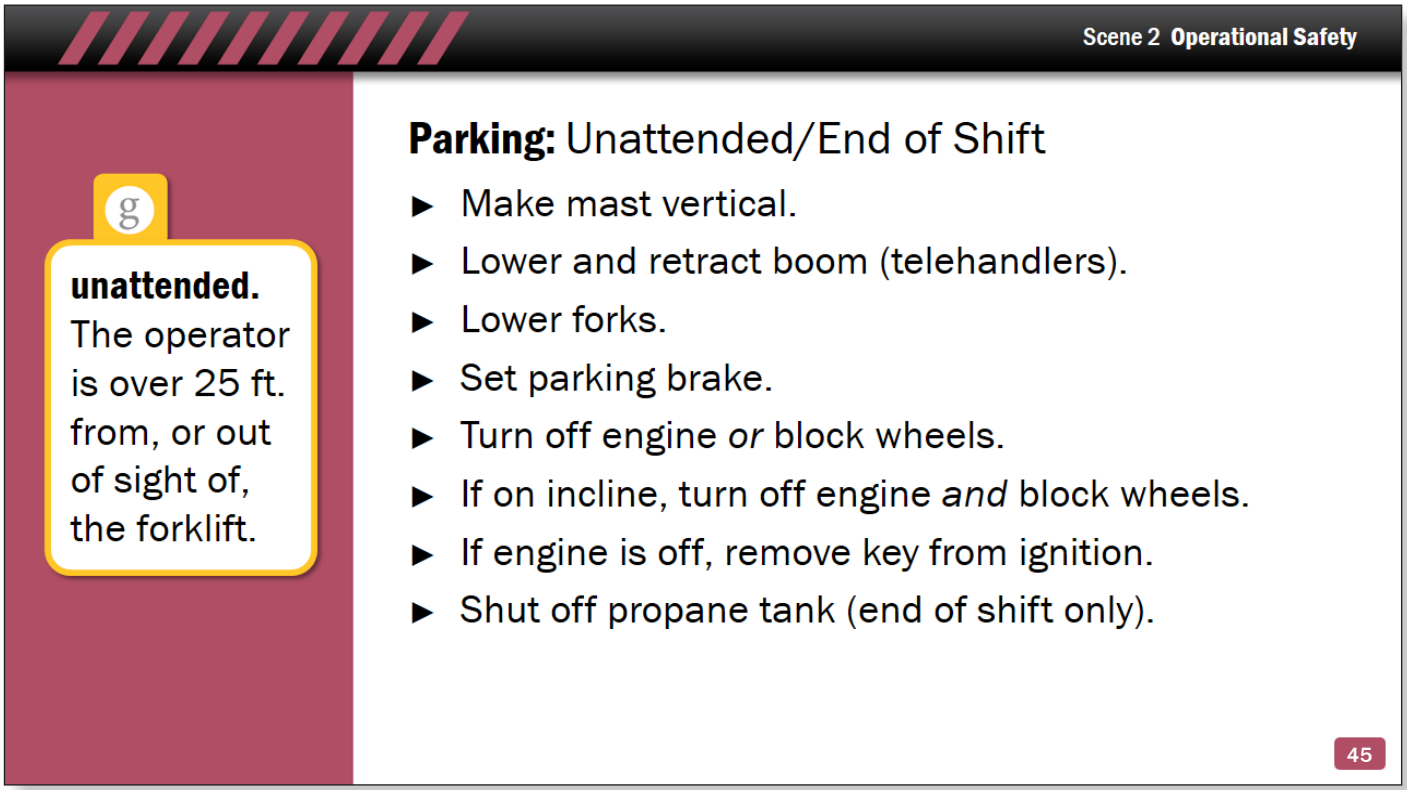
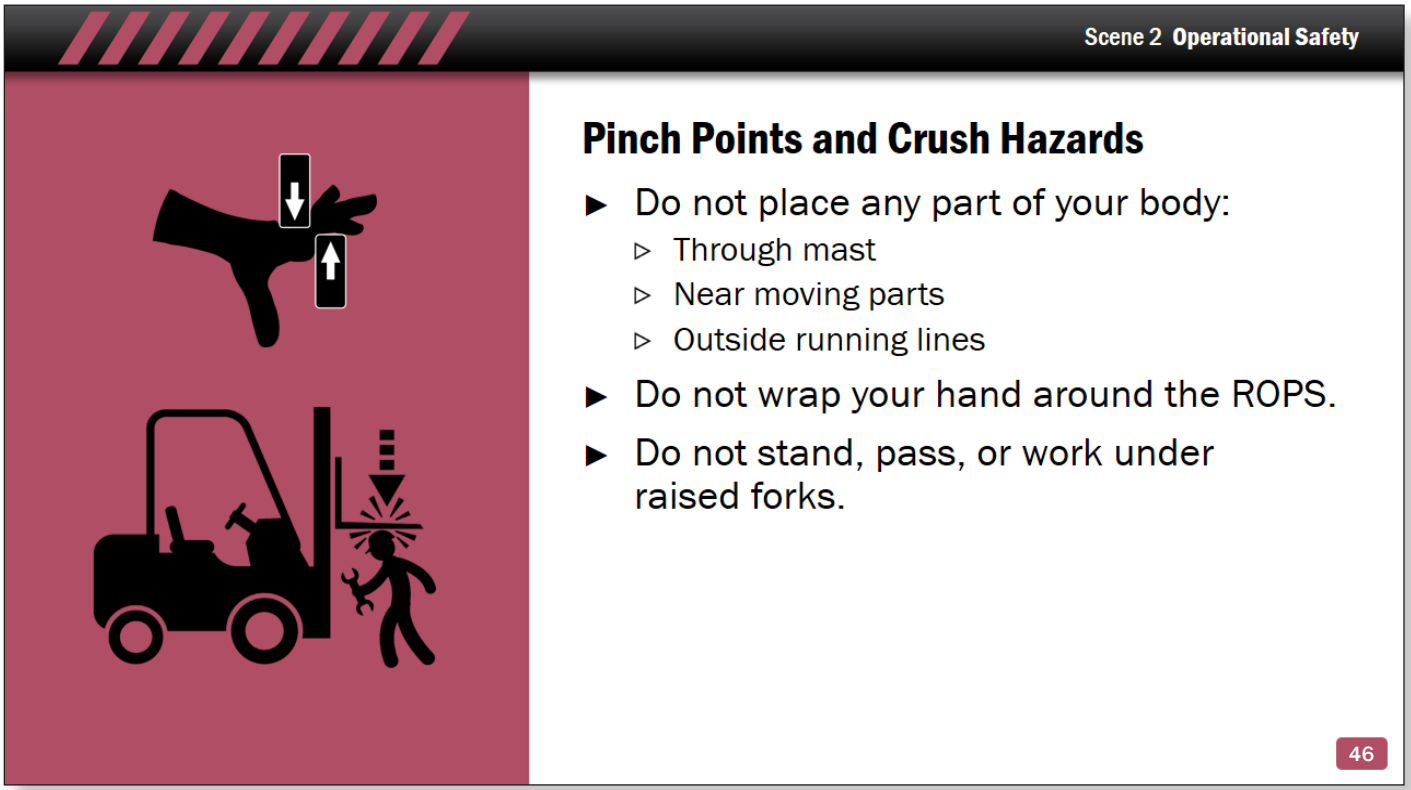
Improper parking can cause collisions and crushing injuries and inhibit proper firefighting. Park only in designated areas and away from heat sources. Do not park closer than eight and a half feet from the centerline of railroad tracks. Never block electrical controls, exits, fire lanes, or fire extinguishers or other emergency equipment. Dismount the forklift facing in, maintaining three points of contact with the vehicle.



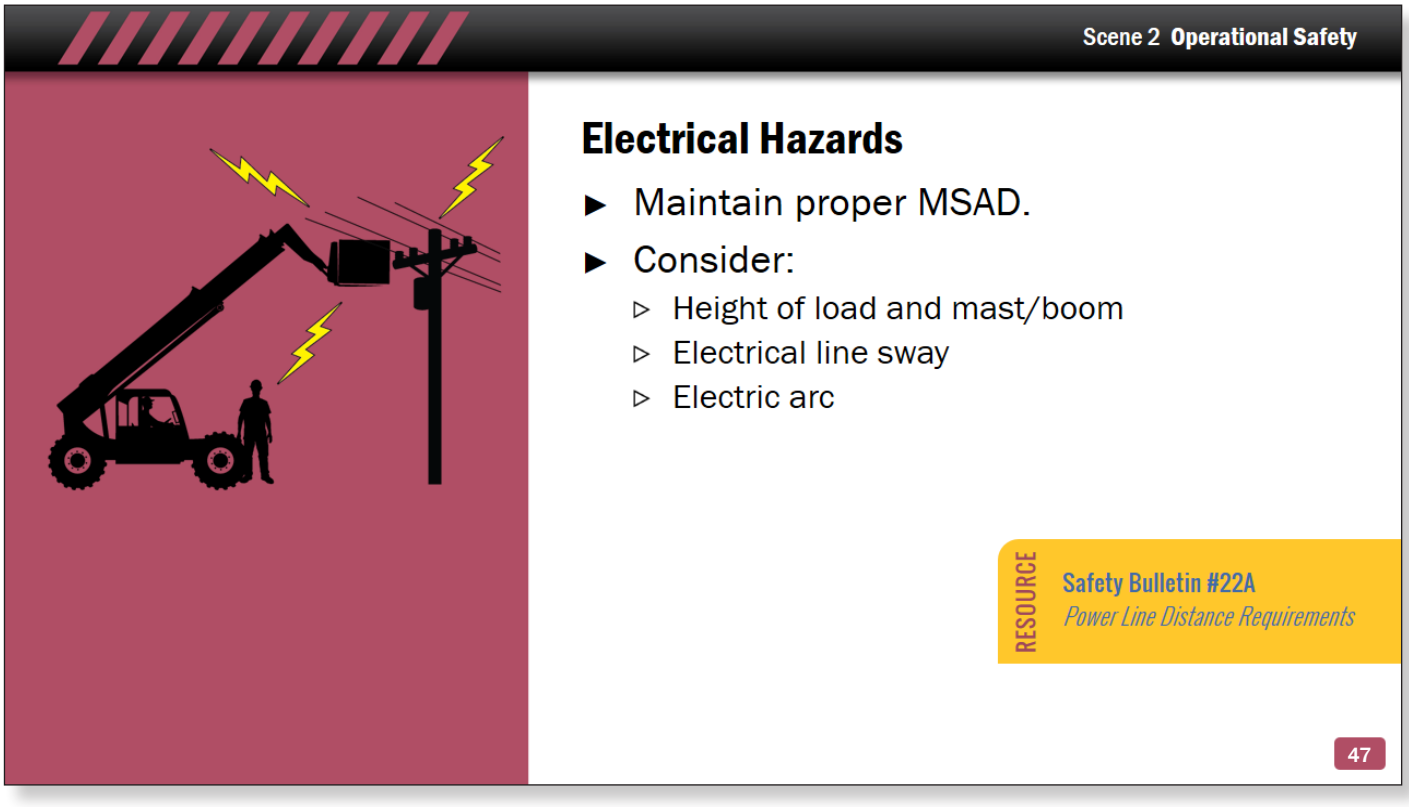
When parking a forklift that will be attended, fully lower the forks or other attachment, put the vehicle in neutral, and set the parking brake.



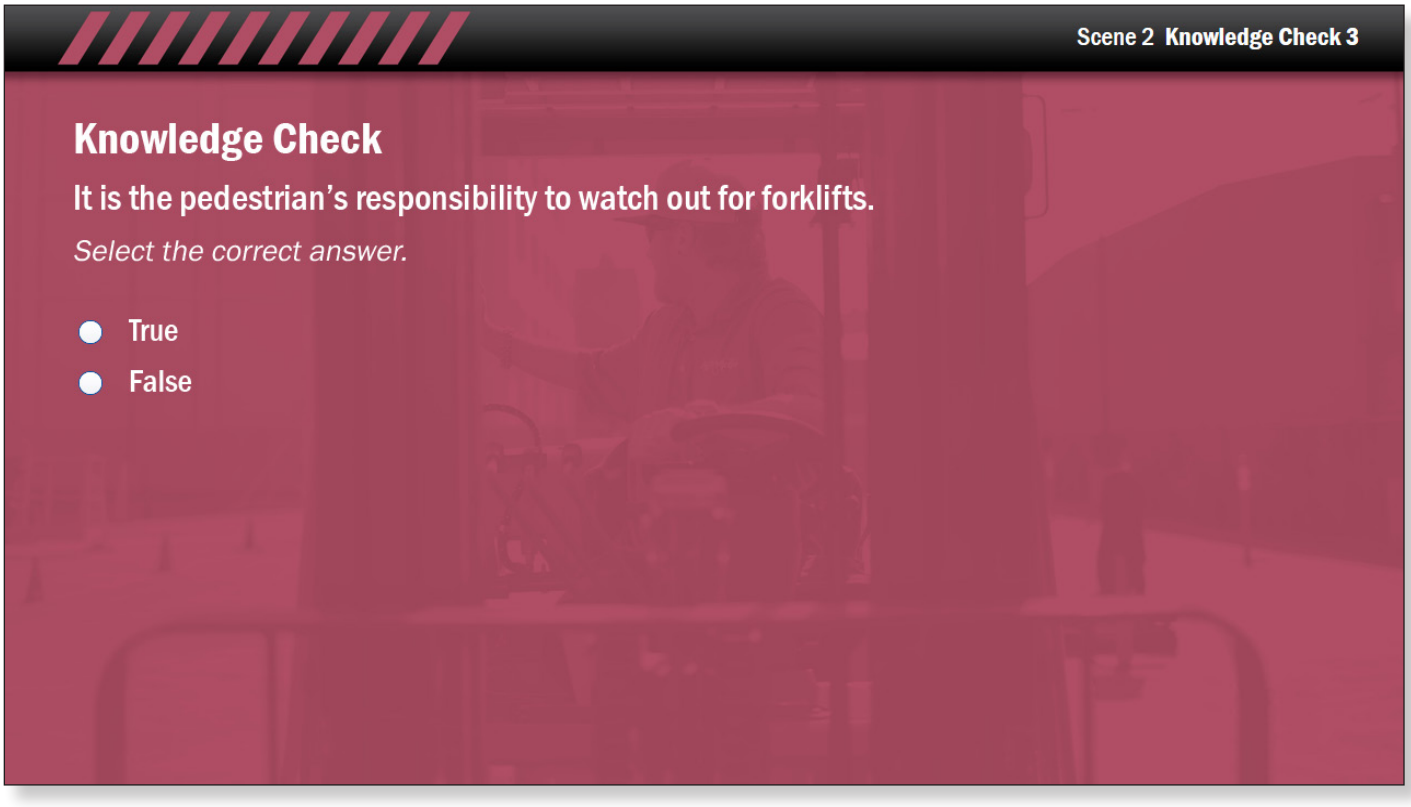
When the vehicle is unattended during a shift or at the end of a shift, leave the mast in a vertical position. On a telehandler, lower and retract the boom. Fully lower the forks or other attachment. Set the parking brake. Turn off the engine *or* block the wheels. If left on an incline, turn off the engine *and* block the wheels. If the engine is off, remember to remove the key from the ignition and take it with you. And, if the vehicle has one, shut off the propane tank.



Avoid pinch points and crush hazards. Do not place any part of your body through the mast, near moving parts, or outside the running lines of the vehicle. When driving in reverse, do not wrap your hand around the rollover protective structure (or ROPS). And, do not stand, pass, or work under raised forks, whether they are loaded or empty.

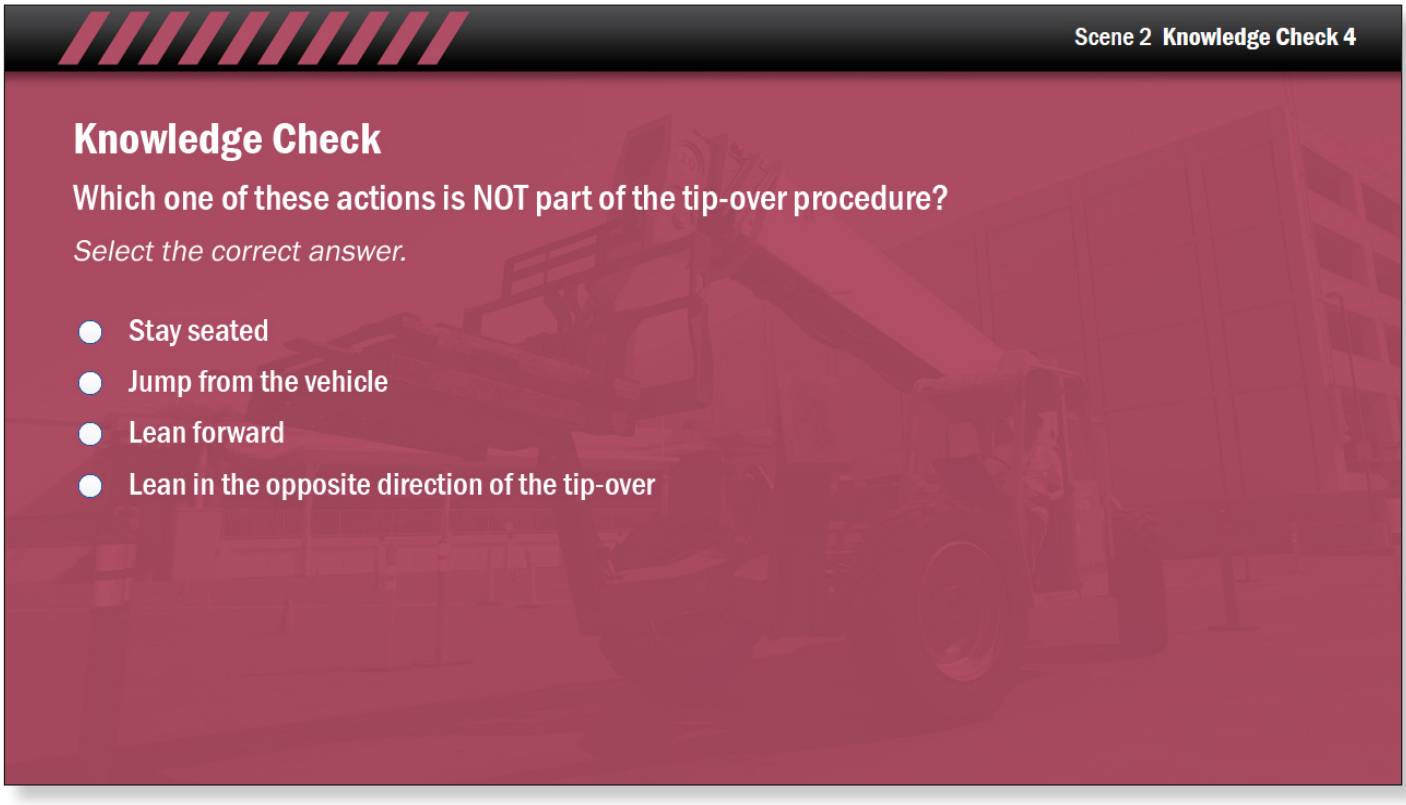


When working outside, maintain the proper minimum safe approach distance, or MSAD, from energized overhead power lines. In determining a safe distance, consider the maximum height of the load and mast or boom, electrical line sway, and electric arc, where electricity can jump from a line to another object. An energized line does not need to be touched to cause damage or injury. See MSAD clearance requirements in Safety Bulletin #22A, *Power Line Distance Requirements*, under the *Safety Pass Information* tab.



Let's review. True or false? It is the pedestrian's responsibility to watch out for forklifts. Select the correct answer, then click the *Submit* button.

- True
- False



Which one of these actions is not part of the tip-over procedure? Select the correct answer, then click the *Submit* button.

- Stay seated
- Jump from the vehicle
- Lean forward
- Lean in the opposite direction of the tip-over

Attachments extend the capabilities of forklifts. They also alter vehicle performance. In this scene, we'll discuss how attachments affect capacity, stability, and safe handling, and the regulations and best practices established to help you avoid common hazards.

Scene 3 **Attachments**

Operators must be trained on each type of attachment.

Capacity and Stability

Hazards: tip-overs

Weight and type of attachment alter performance:

- Moves CCG closer to front/higher off ground
- Reduces capacity

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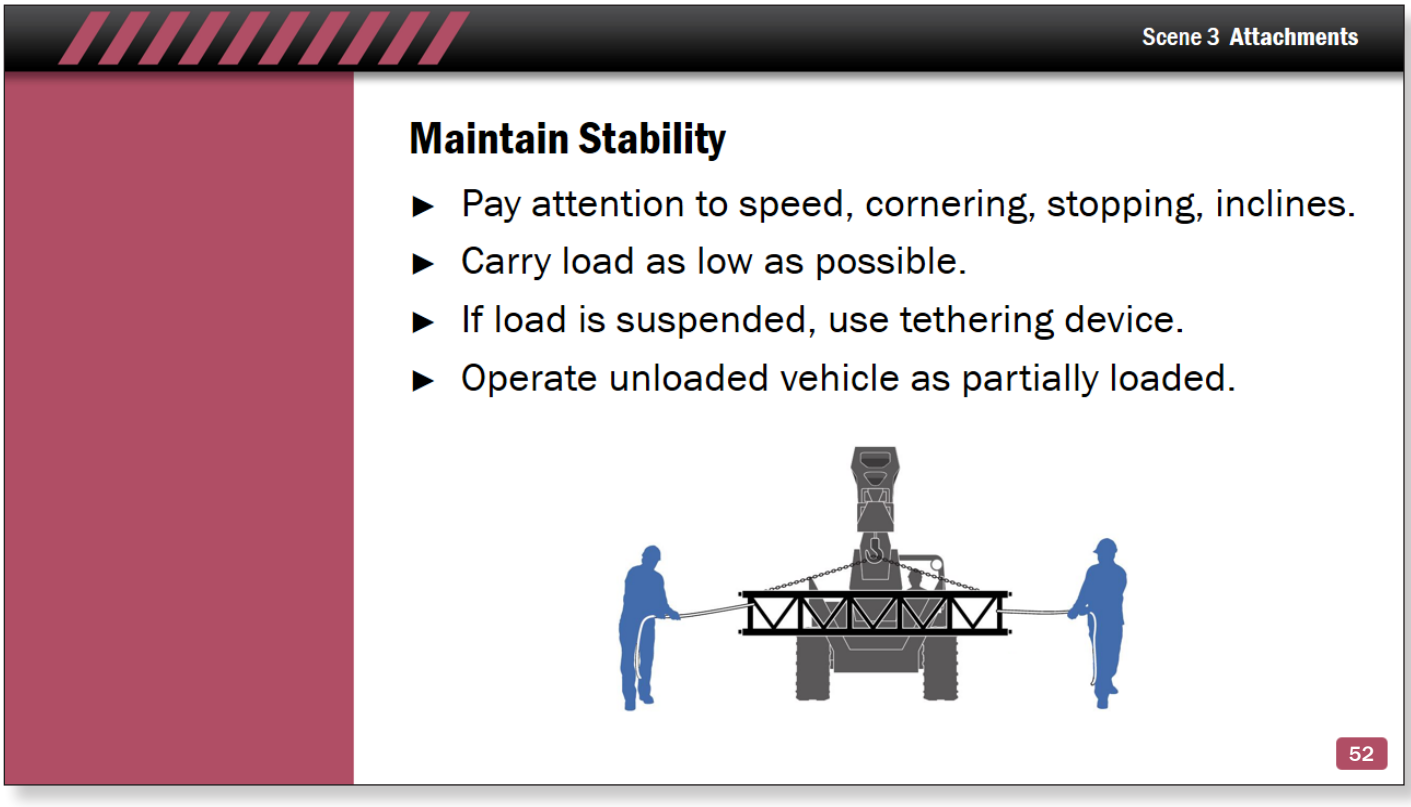
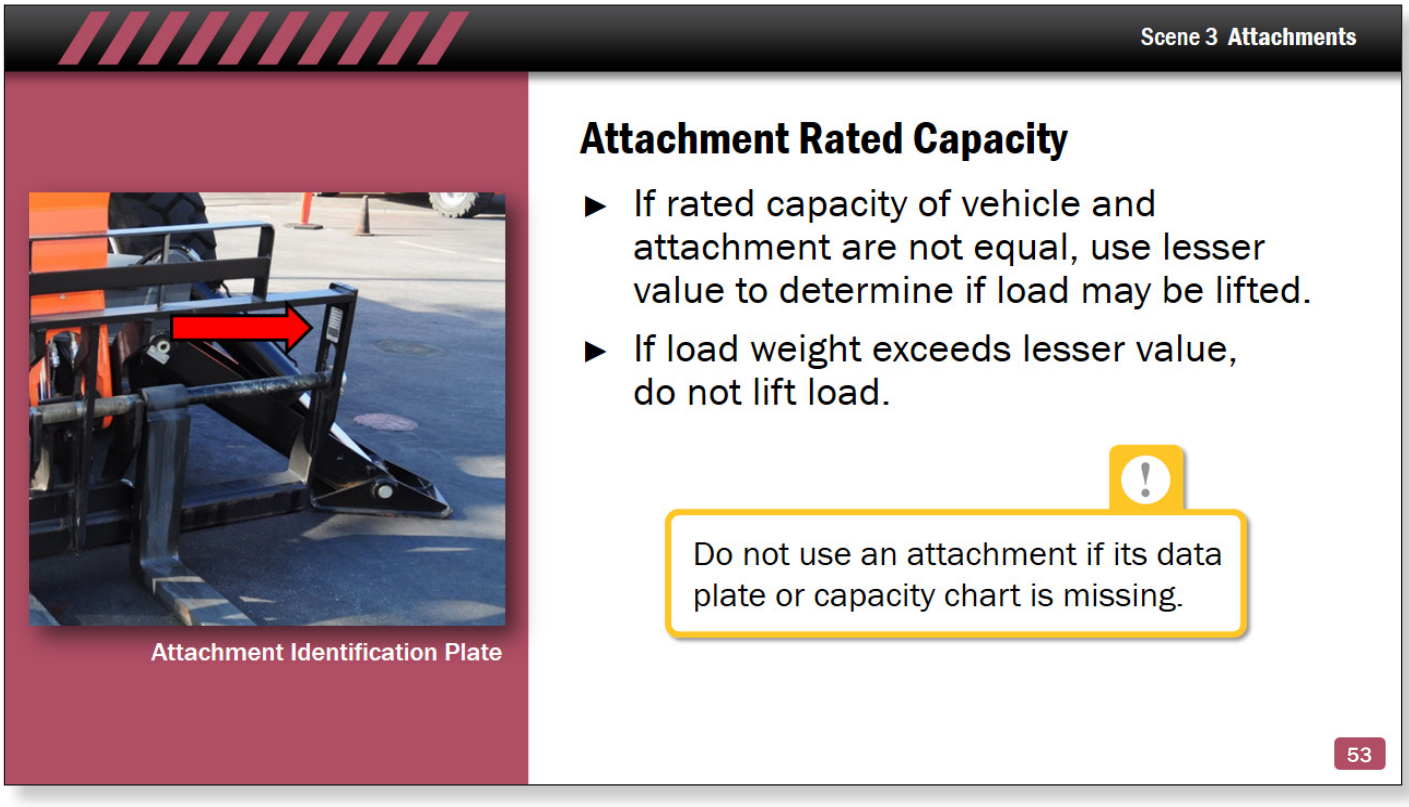
Forklift operators must be trained on how to use each individual attachment, as forklift performance will be altered. The weight and type of attachment can move the CCG closer to the front of the forklift and higher off the ground than standard forks, decreasing capacity and making the vehicle less stable.



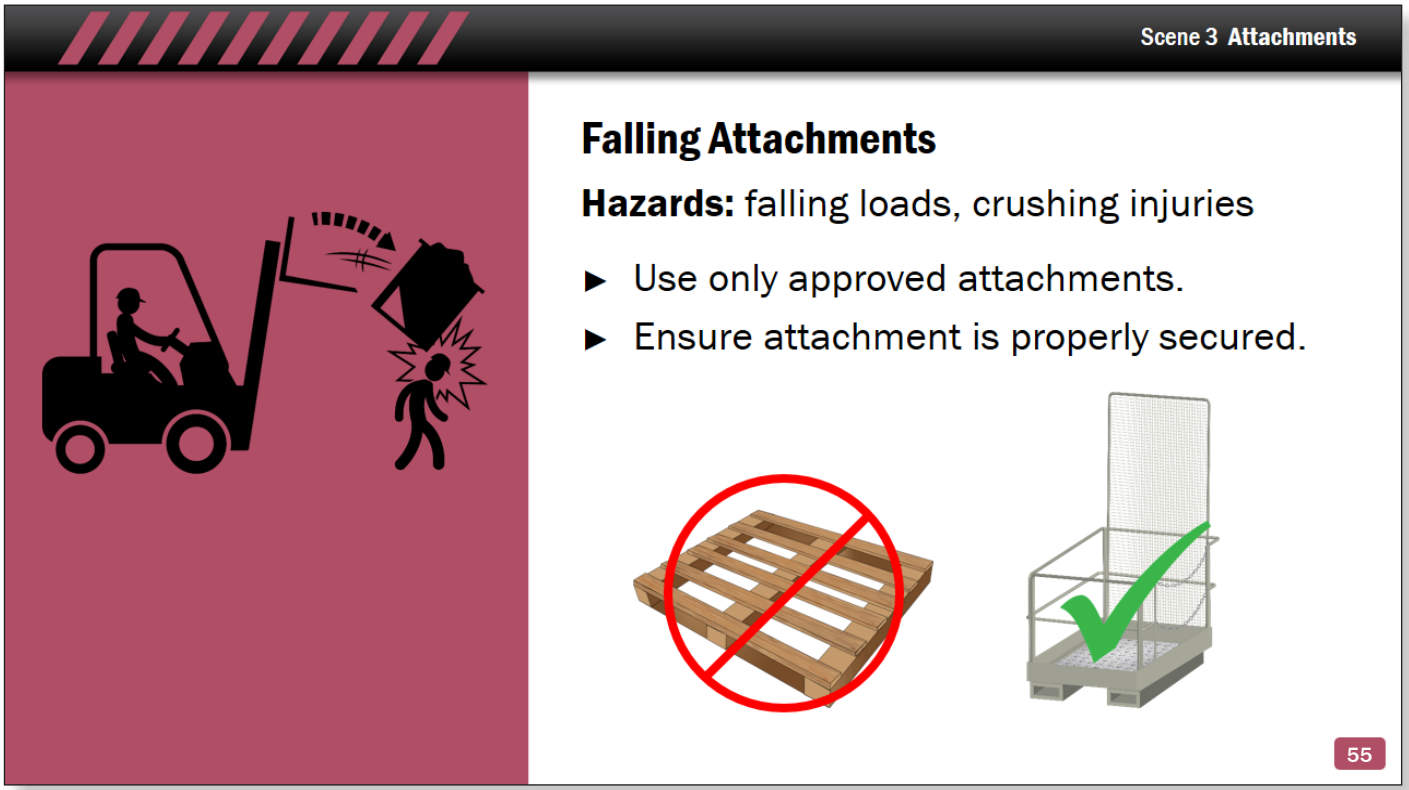
This reduction in capacity and stability means that a forklift with an attachment must be operated with heightened attention to speed, cornering, stopping, and inclines. Carry the load as low as possible, and if the attachment suspends the load, use a tethering device to restrict sway. Even if there is no load, a forklift with an attachment must be operated as partially loaded.



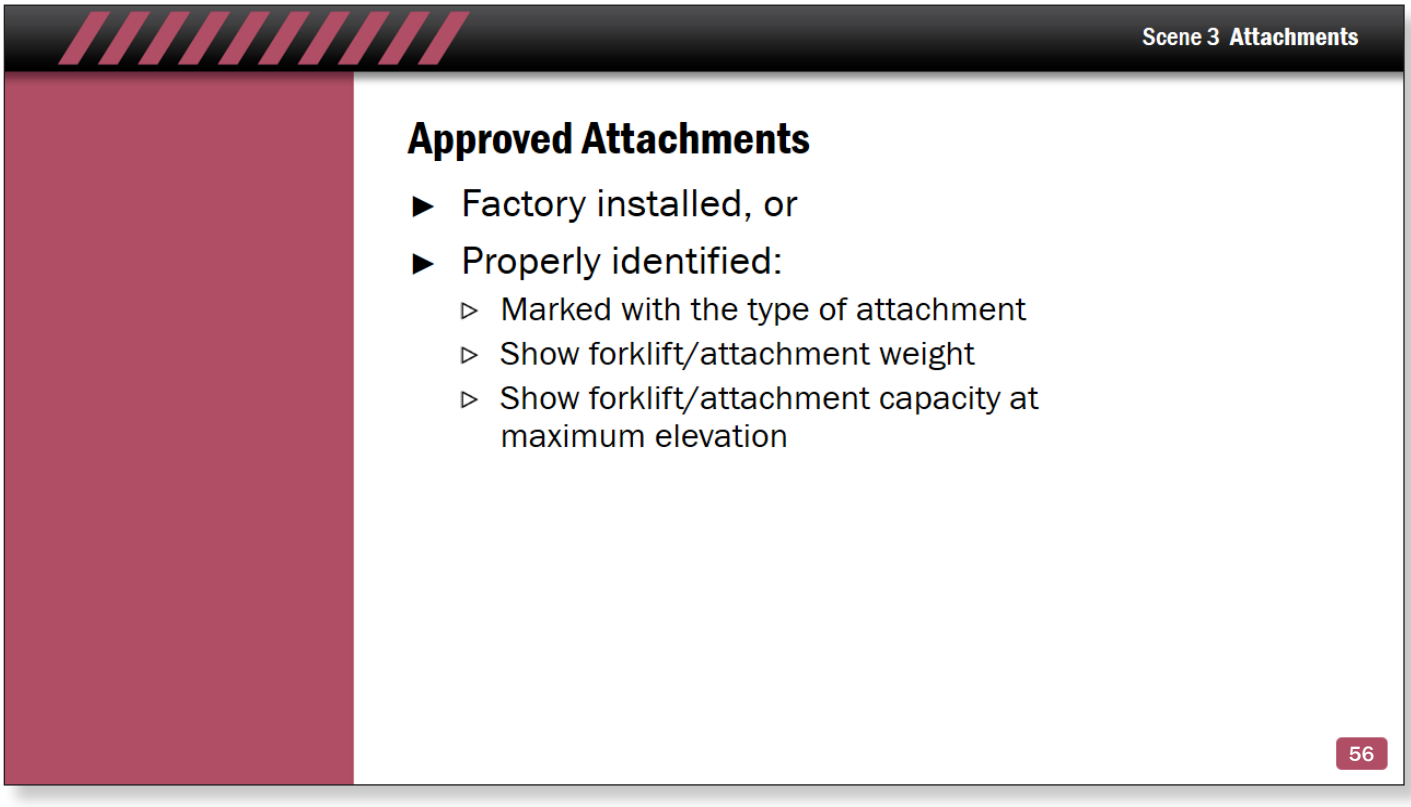
Each attachment has its own rated capacity, listed in the attachment manual and on the attachment itself. If the rated capacity of the vehicle and the rated capacity of the attachment are not equal, use the lesser value to determine if a load may be lifted. If the load weight exceeds the lesser value, do not lift the load.

Do not use an attachment if its data plate or capacity chart is missing.

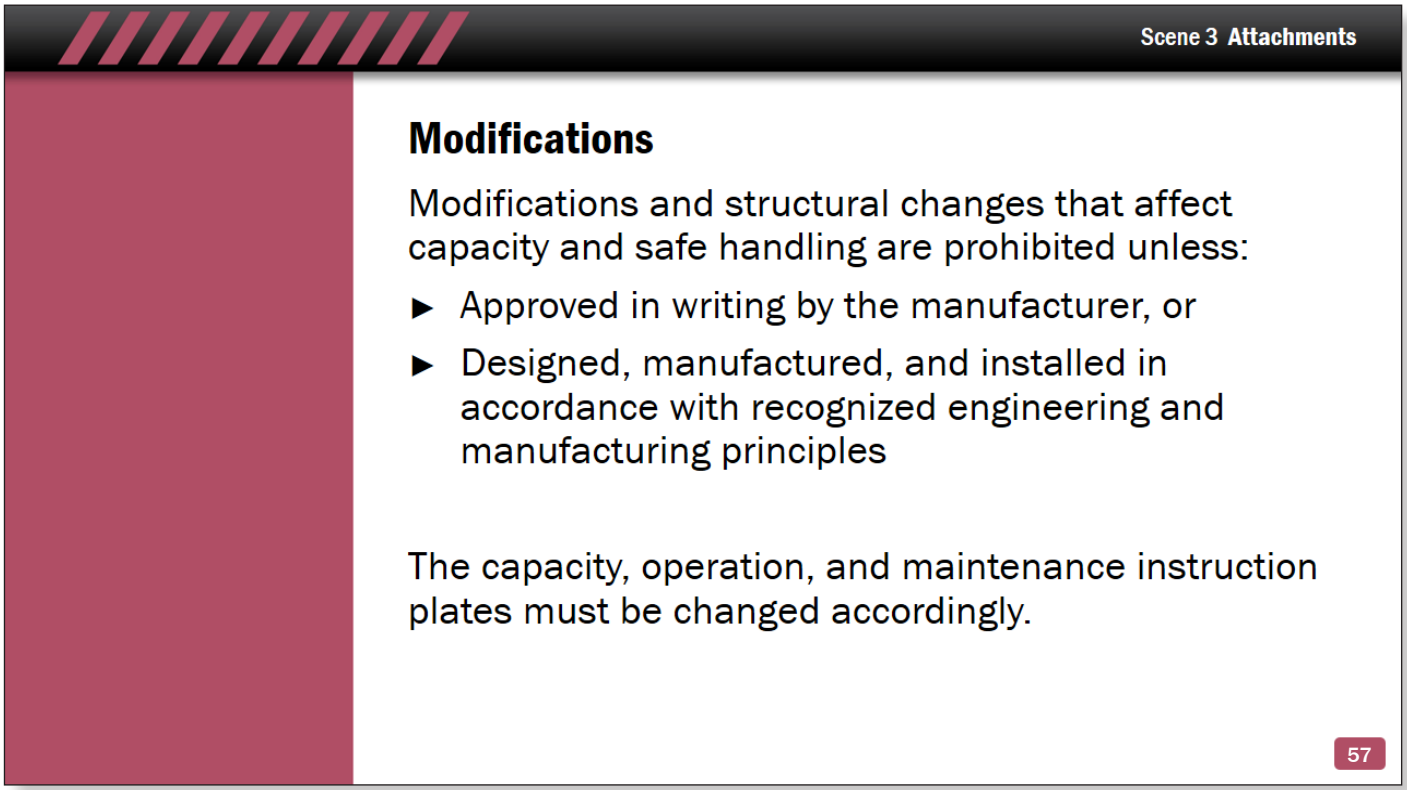
Falls most often occur because the forklift operator used the forks or a pallet to elevate personnel. Do not allow anyone on the forks, and use only approved attachments. A fall can also happen when using an approved attachment. Ensure the approved attachment is properly secured to the forks, and the worker is wearing the required personal fall protection equipment (or PFPE).



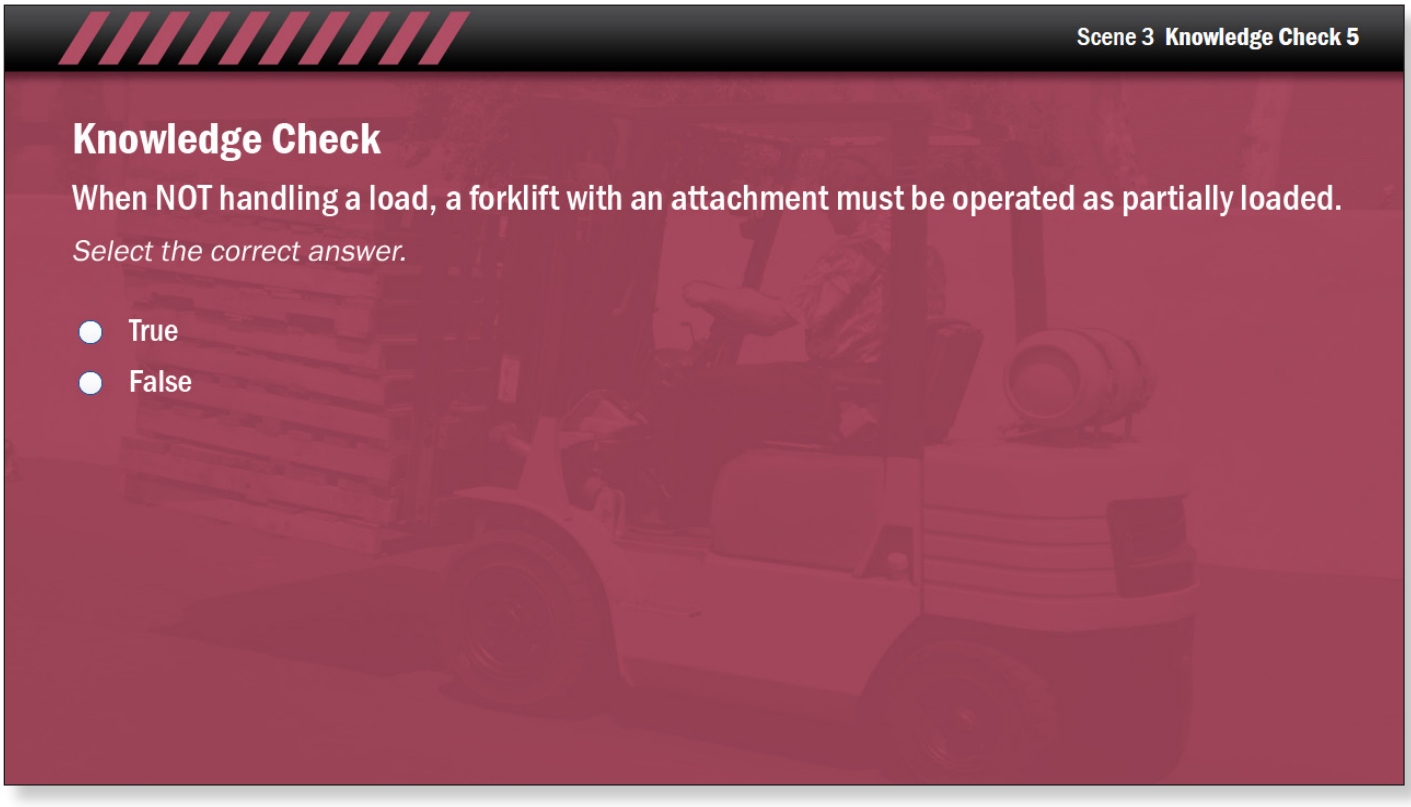
The attachment itself can fall as a result of it not being properly secured to the forks. However, a makeshift apparatus, such as a pallet or a piece of plywood, can never be properly secured to the forks. These shortcuts are the leading cause of falling attachment injuries. Use only approved attachments that are properly secured to the forks, carriage, or boom.



An attachment approved for use is either factory installed or must be marked to identify the type of attachment, show the approximate weight of the forklift and attachment combination, and show the capacity of the forklift and attachment combination at maximum elevation.

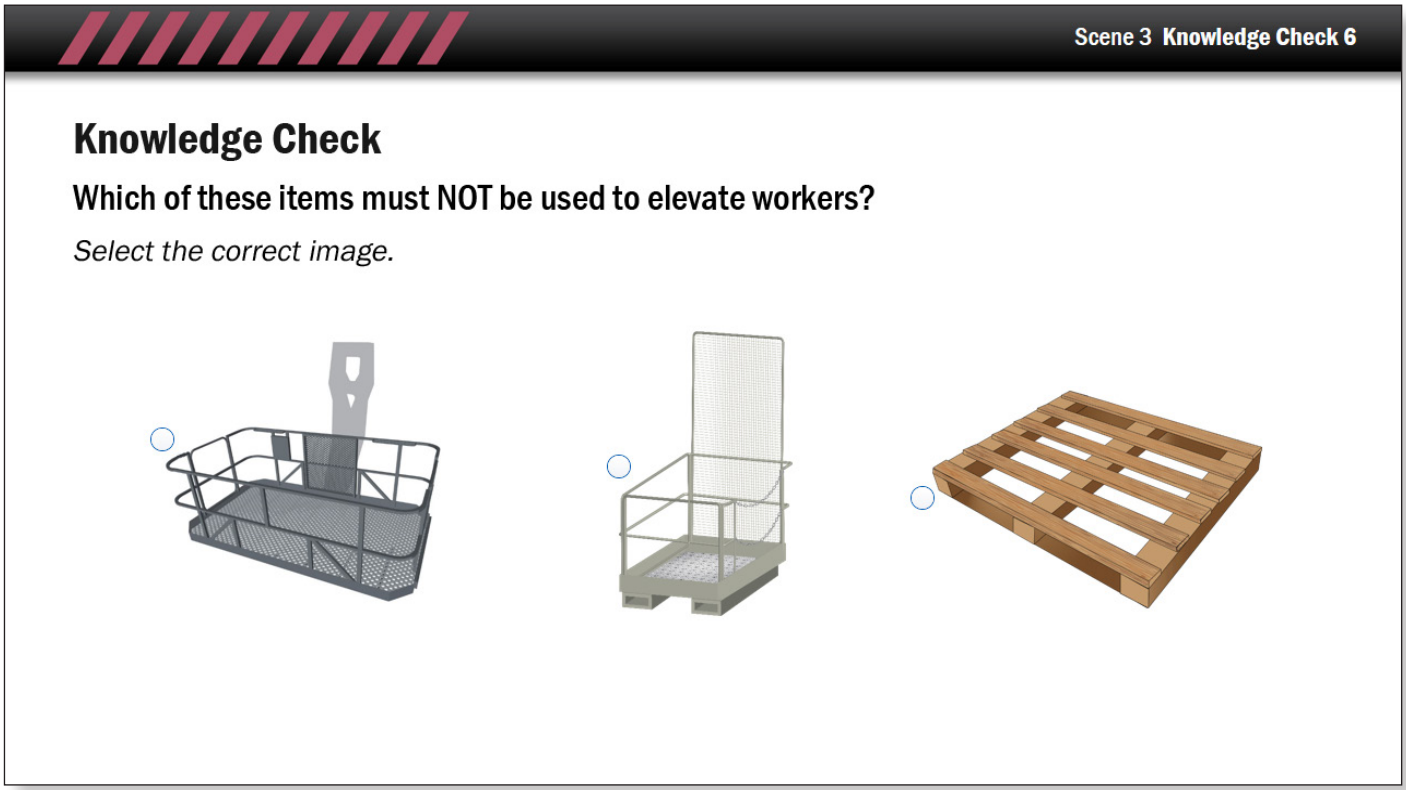


Modifications and structural changes to attachments that affect capacity and safe handling are prohibited unless approved in writing by the manufacturer, or designed, manufactured, and installed in accordance with recognized engineering and manufacturing principles. The capacity, operation, and maintenance instruction plates must be changed accordingly.



Ok, let's review. True or false? When not handling a load, a forklift with an attachment must be operated as partially loaded. Select the correct answer, then click the *Submit* button.

- True
- False



Which of these items must not be used to elevate workers? Select the correct answer, then click the *Submit* button.

Before a forklift is used each day, or when there is a change in operators, three types of pre-use inspections must occur. This scene discusses each type of inspection.

Scene 4 Pre-Use Inspections

Three Types of Pre-Use Inspections

1. A **work zone inspection** identifies hazards in the immediate work area.
2. A **walk-around inspection** is a visual assessment of the physical condition of the forklift.
3. A **function test** is a check of the forklift's controls and operation.

Never operate a defective machine.

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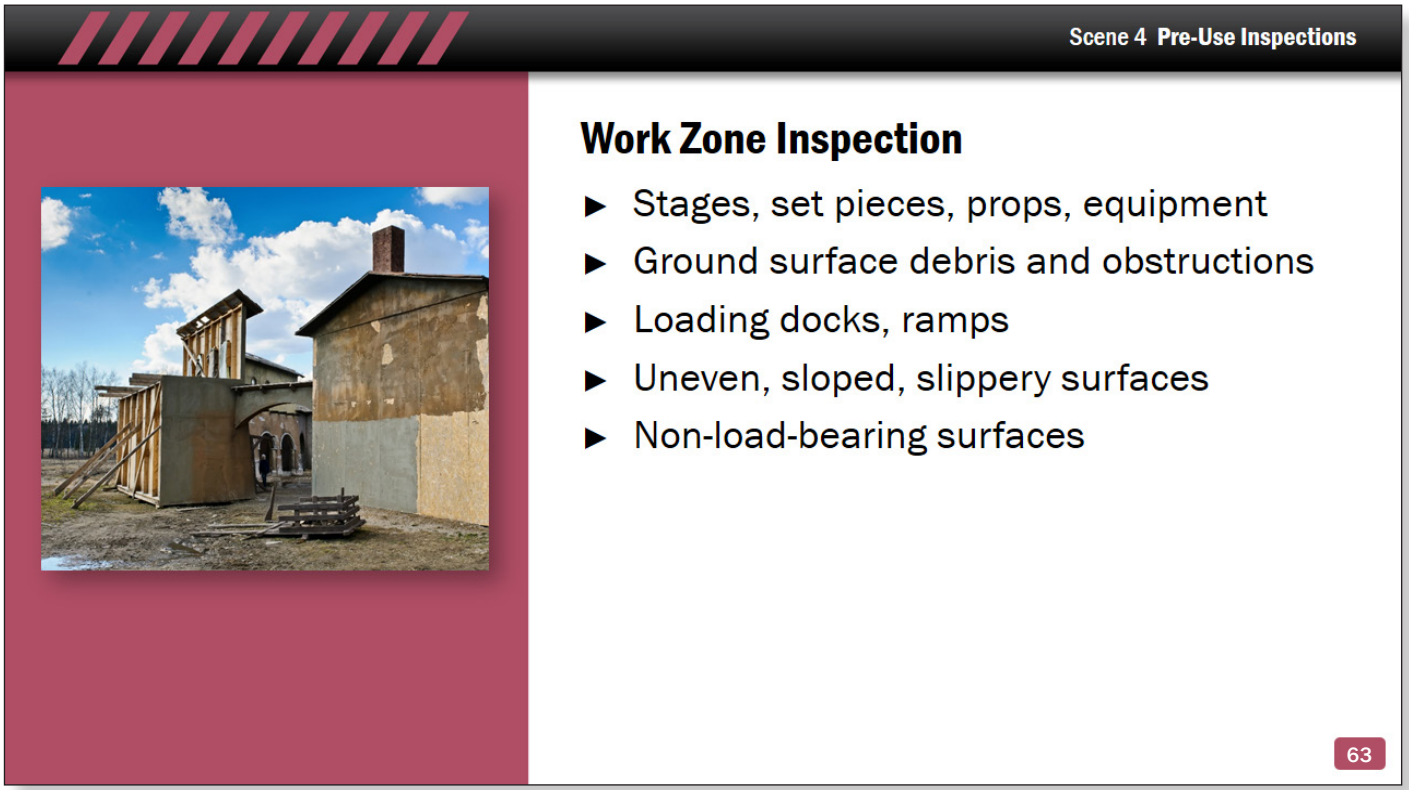
A **work zone inspection** identifies hazards in the immediate work area to help determine if the area should be avoided or if other precautions should be taken. A **walk-around inspection** is a visual assessment of the physical condition of the forklift. And, a **function test** is a check of the machine's controls, components, and general operation.

If a defect is noticed during an inspection or while driving, park the vehicle, report the issue, and get assistance. Never operate a defective machine.

When inspecting the work zone, look for the following: pedestrian and vehicle traffic; power lines and other overhead obstructions; changing light conditions caused by driving from outside to inside or vice versa; poor weather; enclosed spaces where a hazardous atmosphere can form;



stages, set pieces, props, and other production equipment; ground surface debris and obstructions; loading docks and ramps; and uneven, sloped, slippery, or non-load-bearing surfaces.

Let's look at a couple examples of non-load-bearing surfaces that are common in motion picture and television production.

Scene 4 **Pre-Use Inspections**

Work Zone Inspection: Non-Load-Bearing Surfaces

Hazards: falling through flooring

When on location:

- Consult with location manager or site representative
- Ensure driving surface can support heavy equipment

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When on location, consult with the location manager or a site representative to ensure that the work surface can support the forklift and its load. Know the maximum weight limits of the work surface, and check the forklift's weight and ground bearing pressure in the operator's manual.

Scene 4 Pre-Use Inspections

Work Zone Inspection: Non-Load-Bearing Surfaces

Hazards: falling loads, tip-overs

When using outriggers:

- Ensure work surface can support telehandler and load
- See if ground is soft or pliable
- Ask if outrigger pads can be used for stabilization

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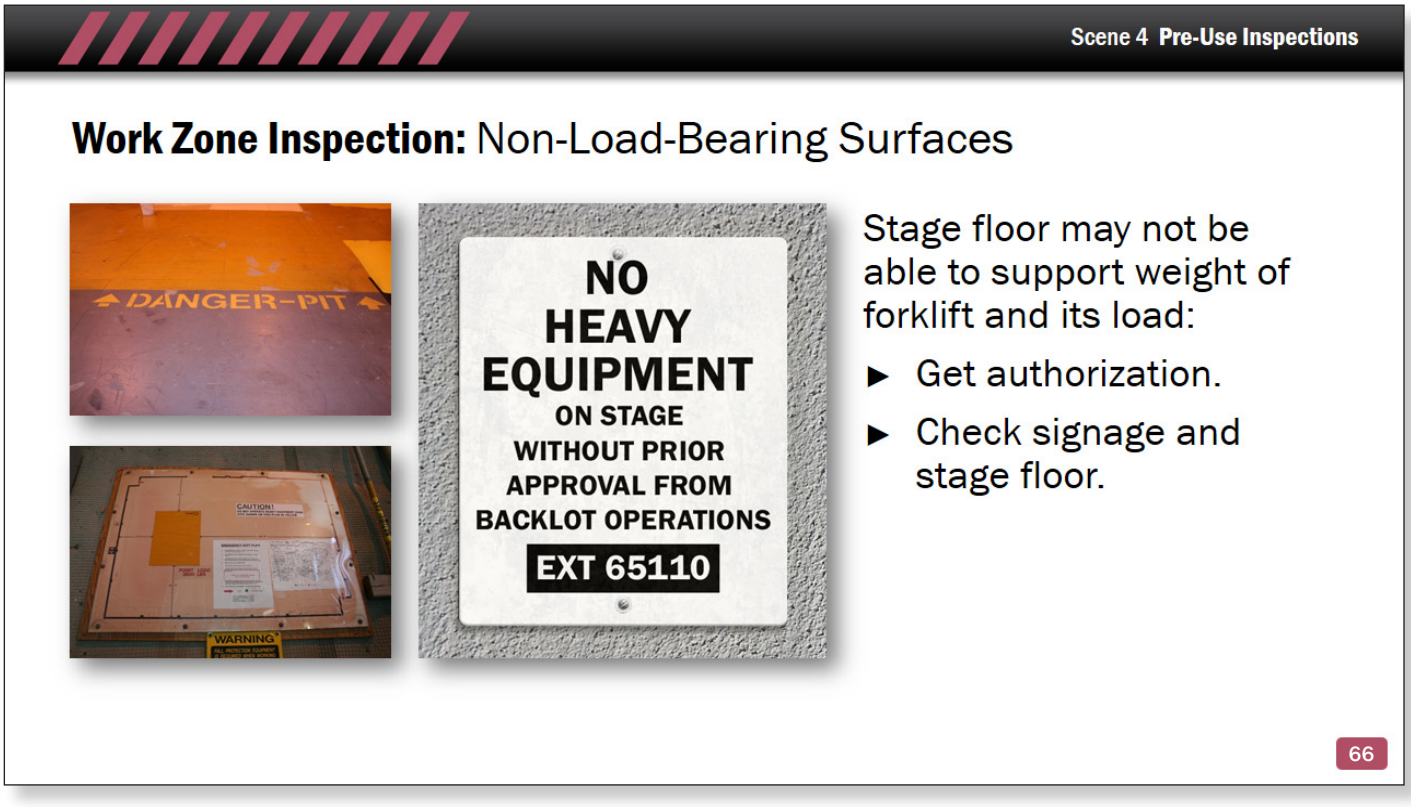
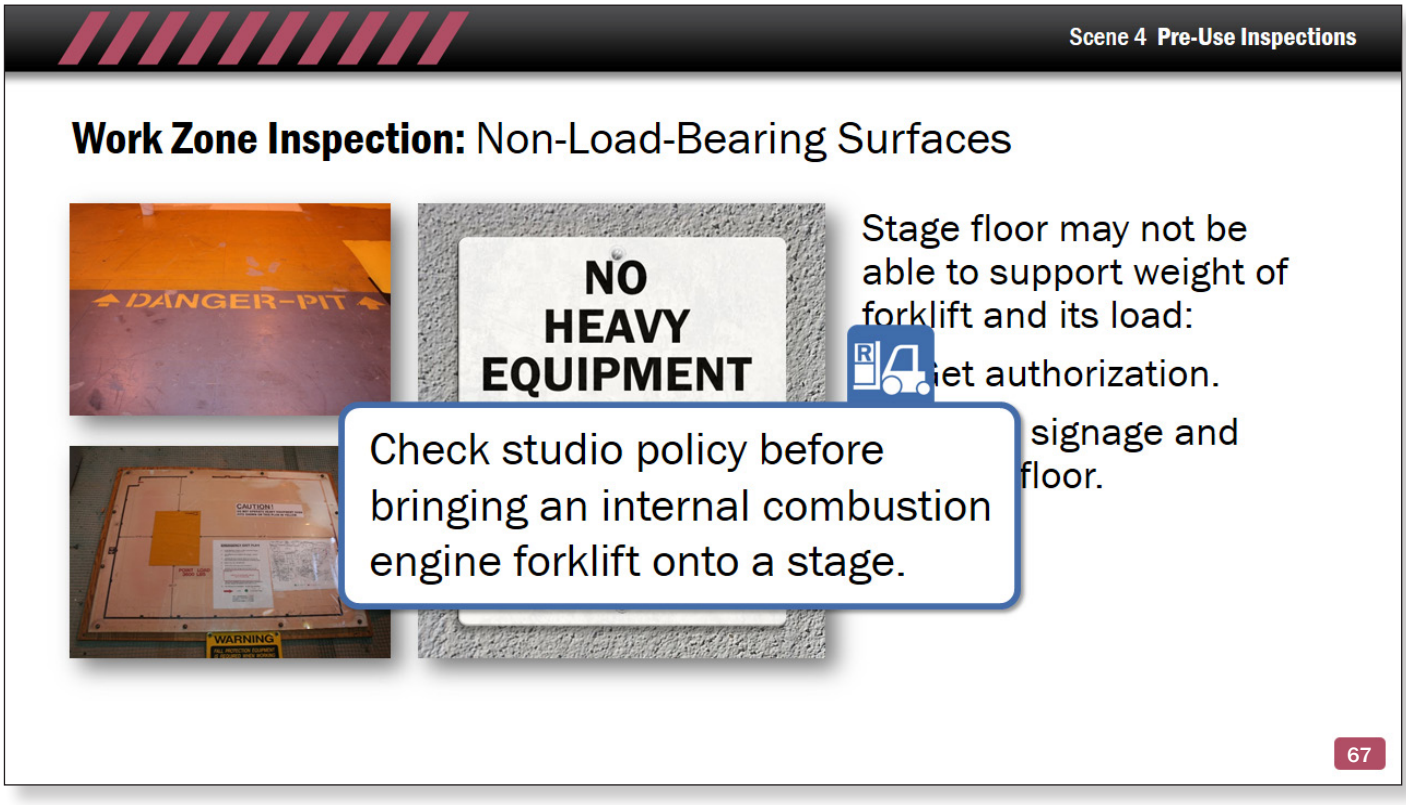
When using outriggers, ensure the work surface can support the telehandler and its load. Check for soft or pliable ground—such as grass, gravel, and sand—which can shift or sink under outriggers. And, check with your safety representative to see if outrigger pads—made of plastic, plywood, or steel—can be used to stabilize a work surface.

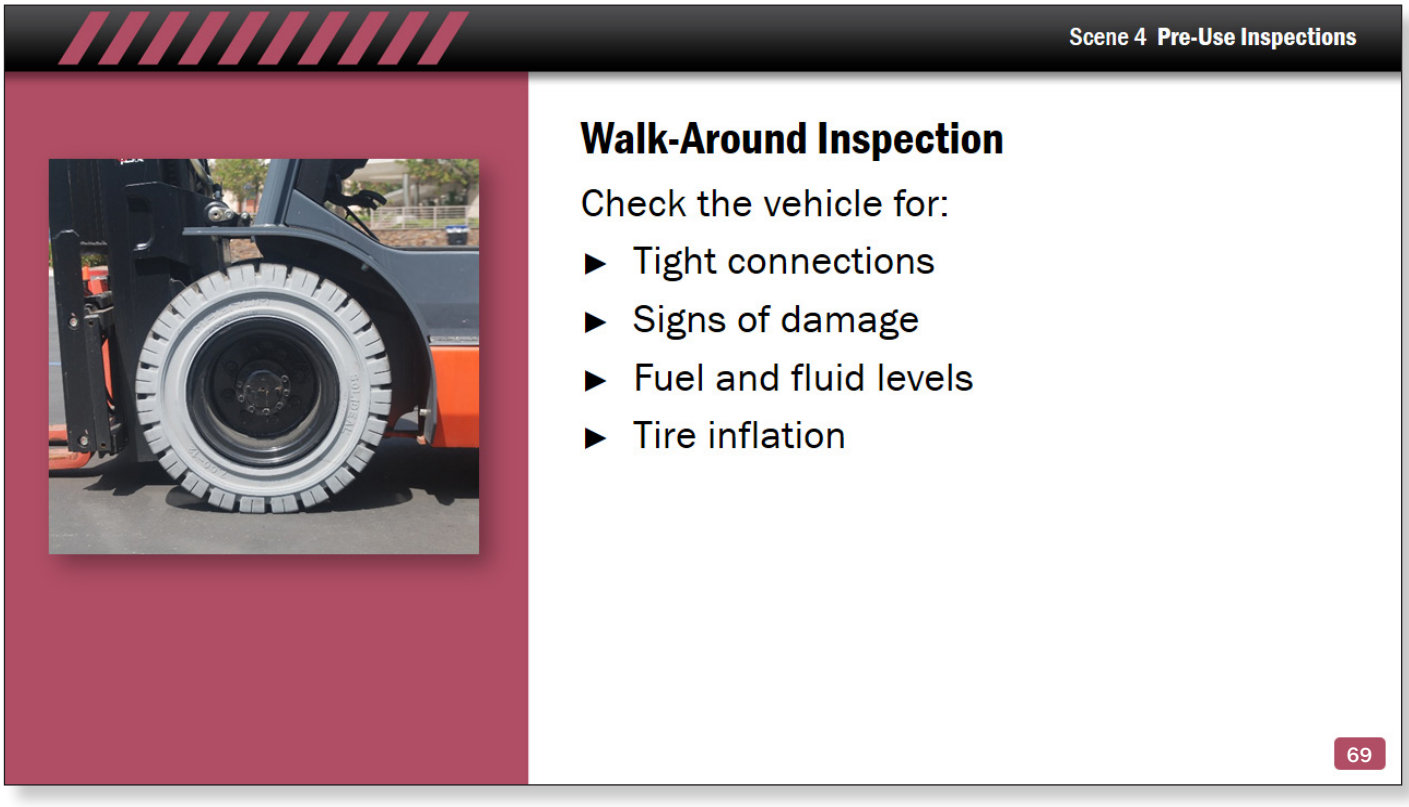


Many stages have pits and tanks located under the floor that may not be able to support the weight of a forklift and its load. Contact Backlot Operations or Studio Safety to get authorization to take a forklift onto a stage floor. Check posted signage and the stage floor itself for weight limits and markings indicating pits and tanks.

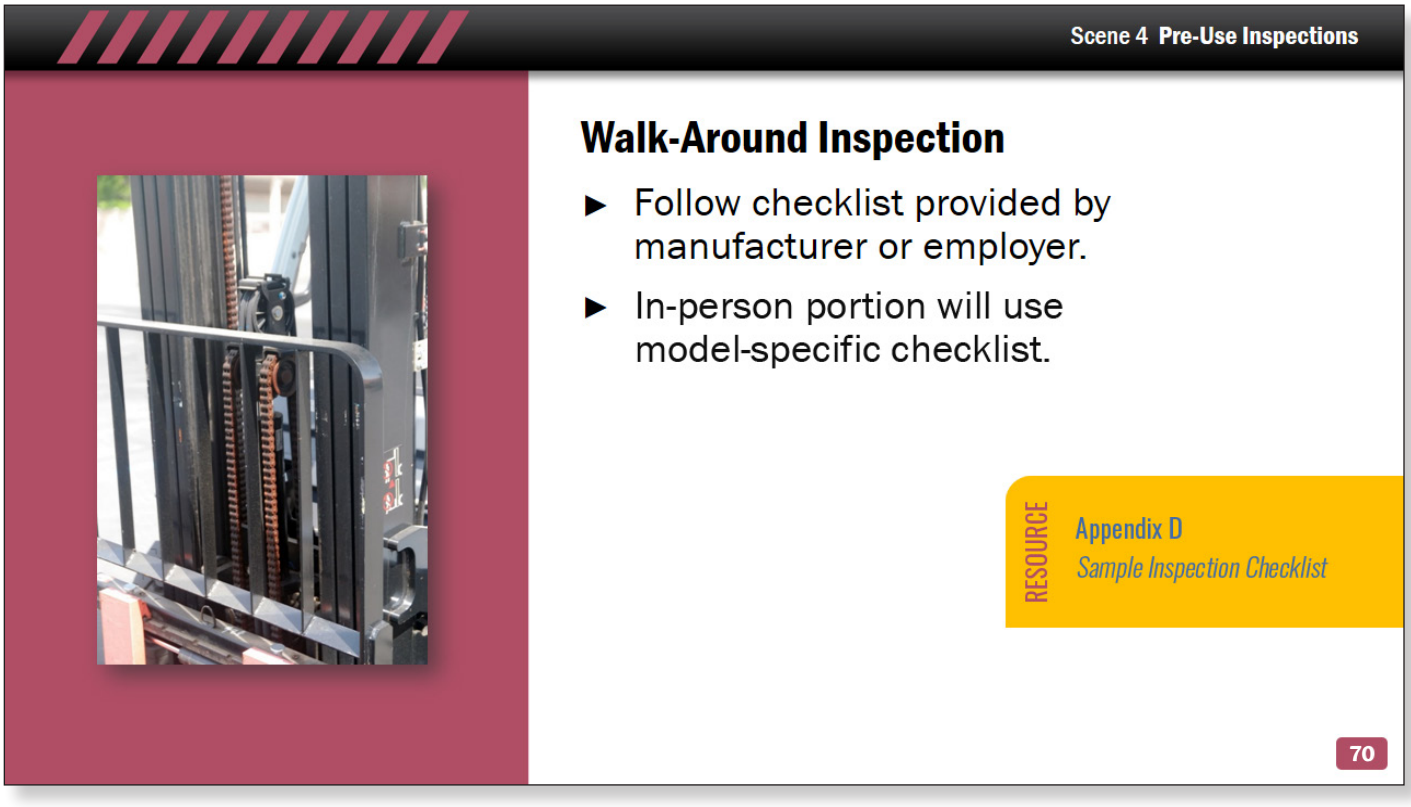


Check studio policy before bringing a forklift with an internal combustion engine indoors. The engine exhaust could create a hazardous atmosphere.

To begin the vehicle's walk-around inspection, confirm that the operator's manual is on board, the data plate and decals are in place and legible, the information on the data plate matches the vehicle and forks or other attachment, and the vehicle is powered off.



Then check all areas of the vehicle for tight connections, signs of damage, proper fuel and fluid levels, and proper tire inflation.



An inspection checklist will be provided by the manufacturer or employer. During the in-person portion of this course, the instructor will perform a walk-around inspection with you using a checklist for the model you will be operating that day.

See a sample checklist in Appendix D of the course book or under the *Resources* tab.

Scene 4 Pre-Use Inspections

Function Test

Vehicle start-up:

1. Mount forklift with three points of contact.
2. Buckle the seat belt.
3. Familiarize yourself with controls.
4. Start the engine.

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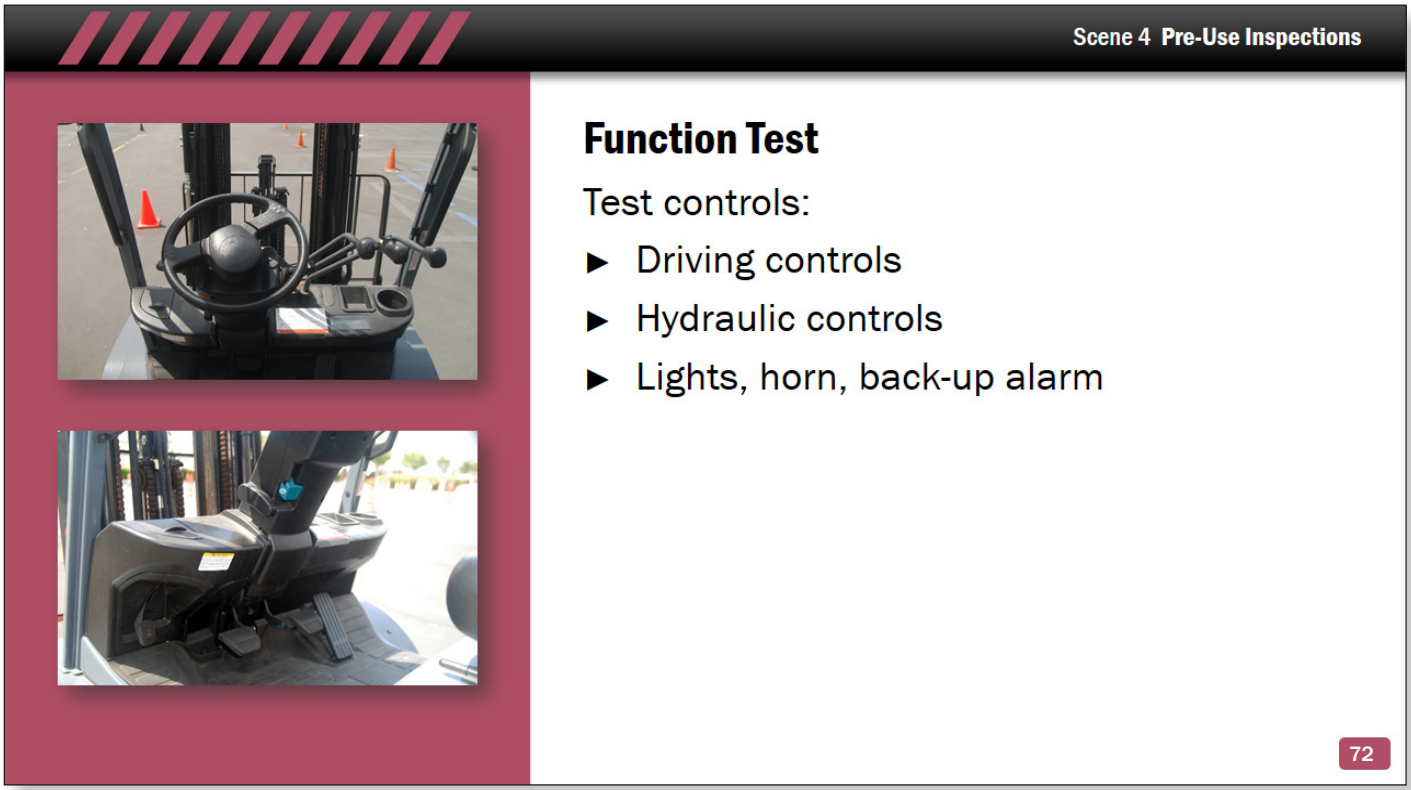
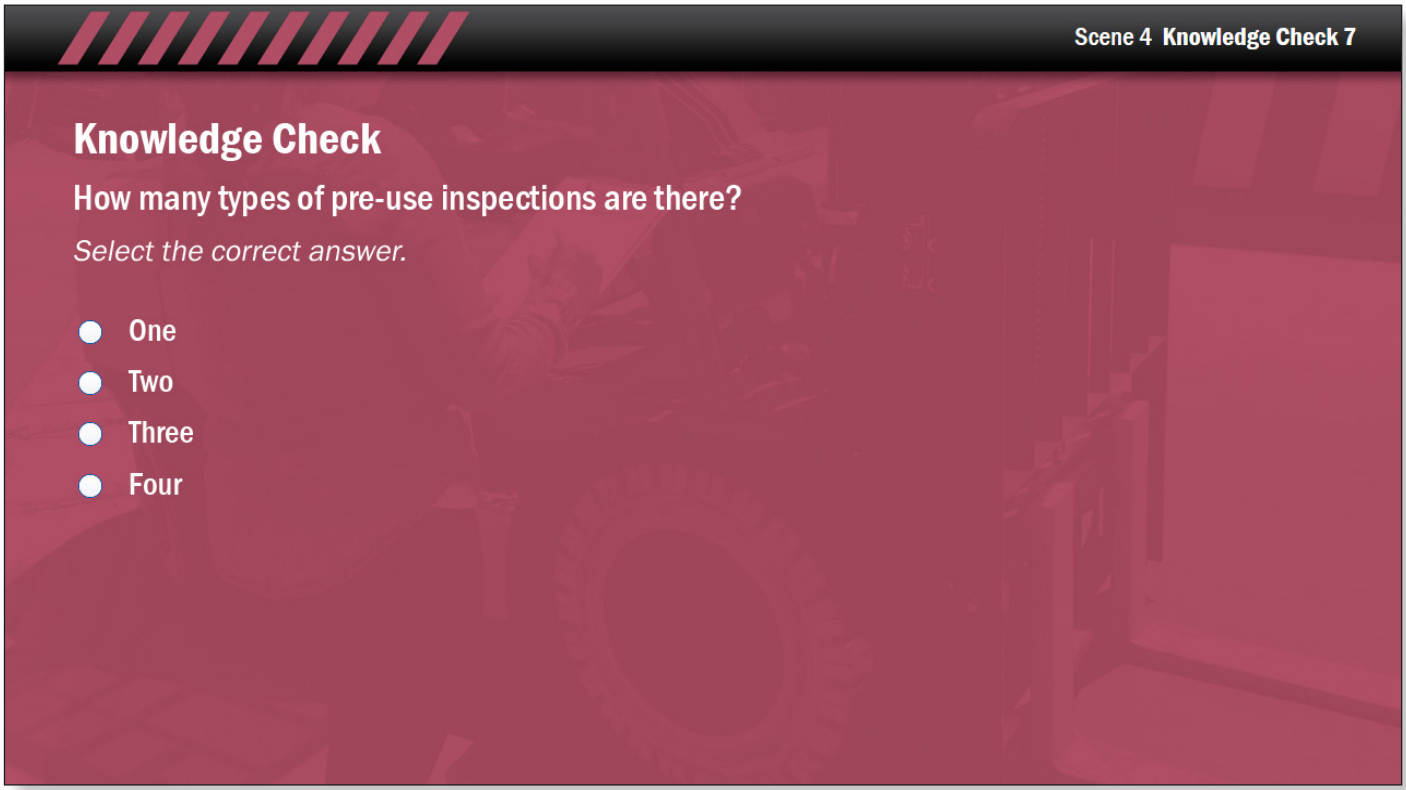
It's now time for the function test. Mount the forklift using three points of contact. Buckle your seat belt. Familiarize yourself with the directional and hydraulic controls. And, when you're ready, start the engine.

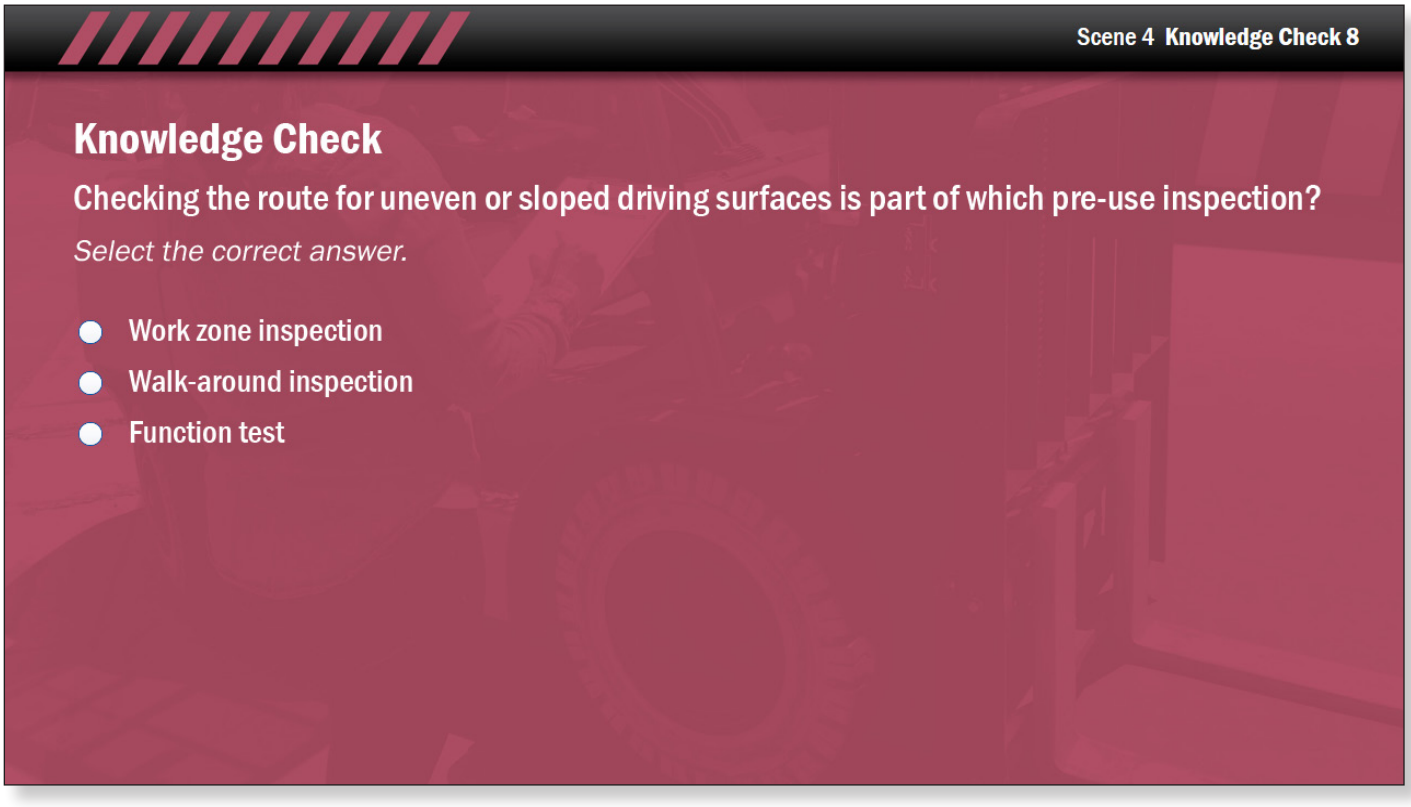


Test the driving controls, the hydraulic controls, and other vehicle features such as the lights, horn, and back-up alarm. The instructor will demonstrate a full function test during the in-person portion of this course.



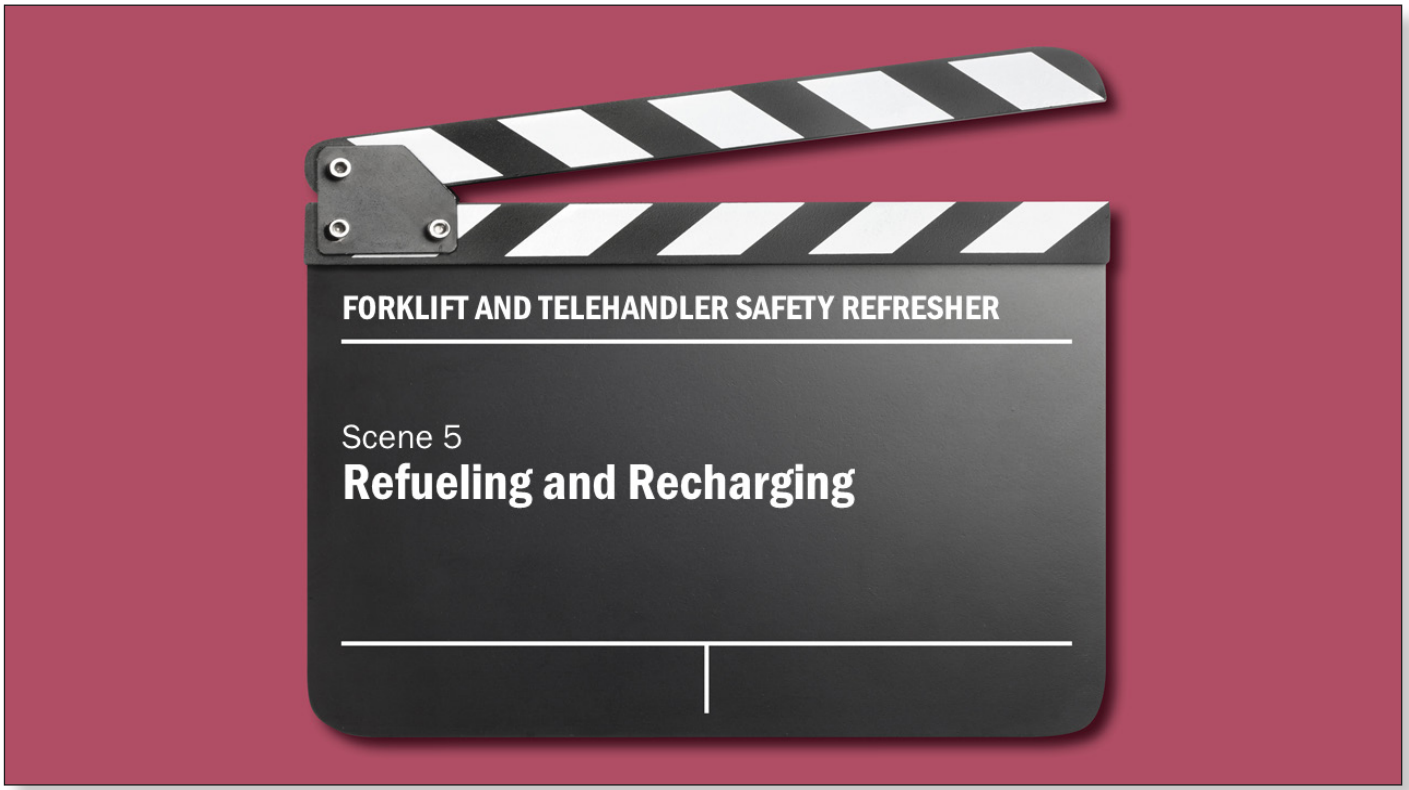
Let's review. How many types of pre-use inspections are there? Select the correct answer, then click the *Submit* button.

- One
- Two
- Three
- Four

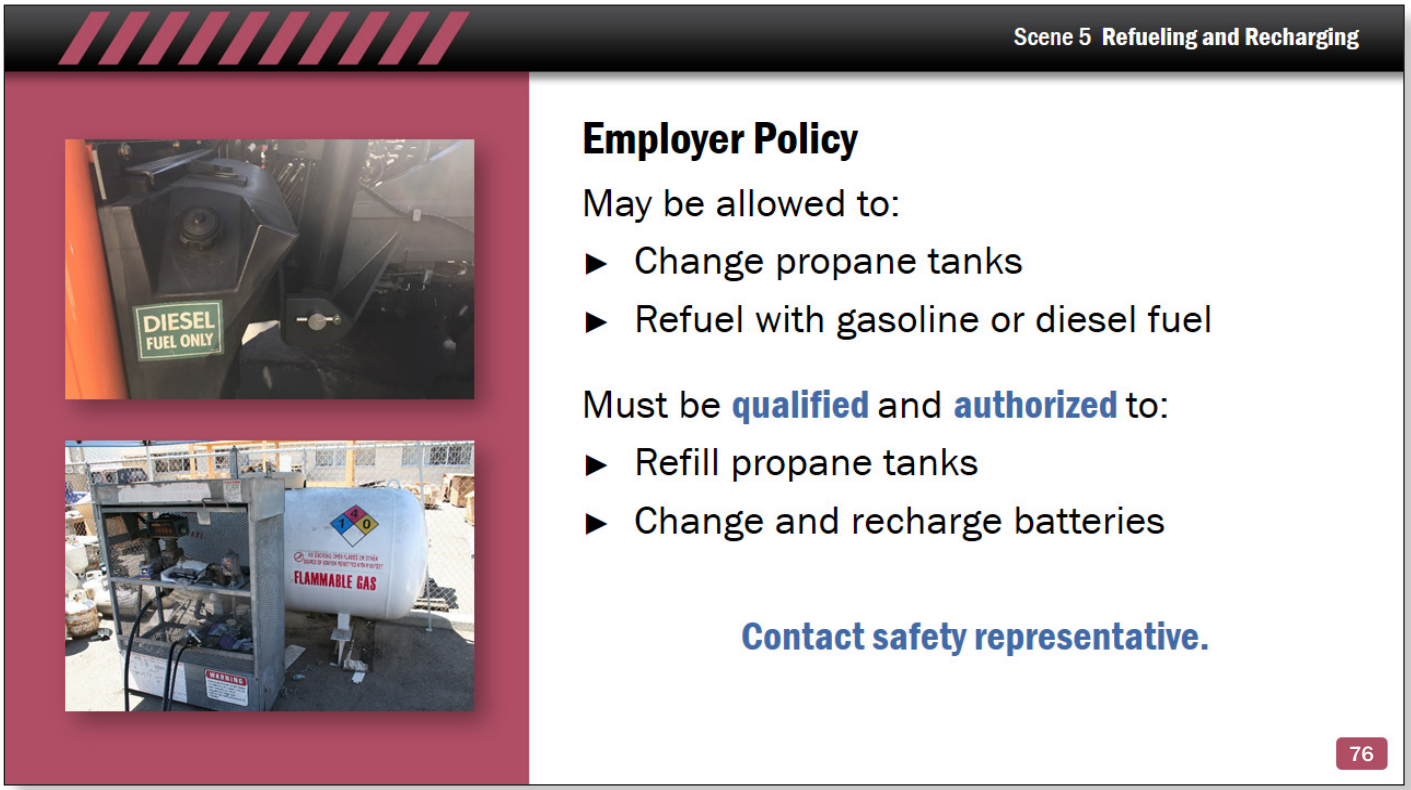


Checking the route for uneven or sloped driving surfaces is part of which pre-use inspection? Select the correct answer, then click the *Submit* button.

- Work zone inspection
- Walk-around inspection
- Function test



In this last scene we'll be discussing the hazards inherent in refueling and recharging forklifts.



Depending on employer policy, you may be allowed to change propane tanks and refuel forklifts that use gasoline or diesel fuel. However, only **qualified** and **authorized** persons may refill propane tanks and change and recharge batteries. Contact your safety representative for specifics on the procedures you are allowed to perform.

Scene 5 Refueling and Recharging

Refueling with Gas or Diesel

Hazards: explosive vapors

Take the following precautions:

- Turn off engine.
- Refuel in designated locations.
- Do not get low on/run out of fuel.
- Do not fill tank to the top.
- Do not smoke (including e-cigarettes).

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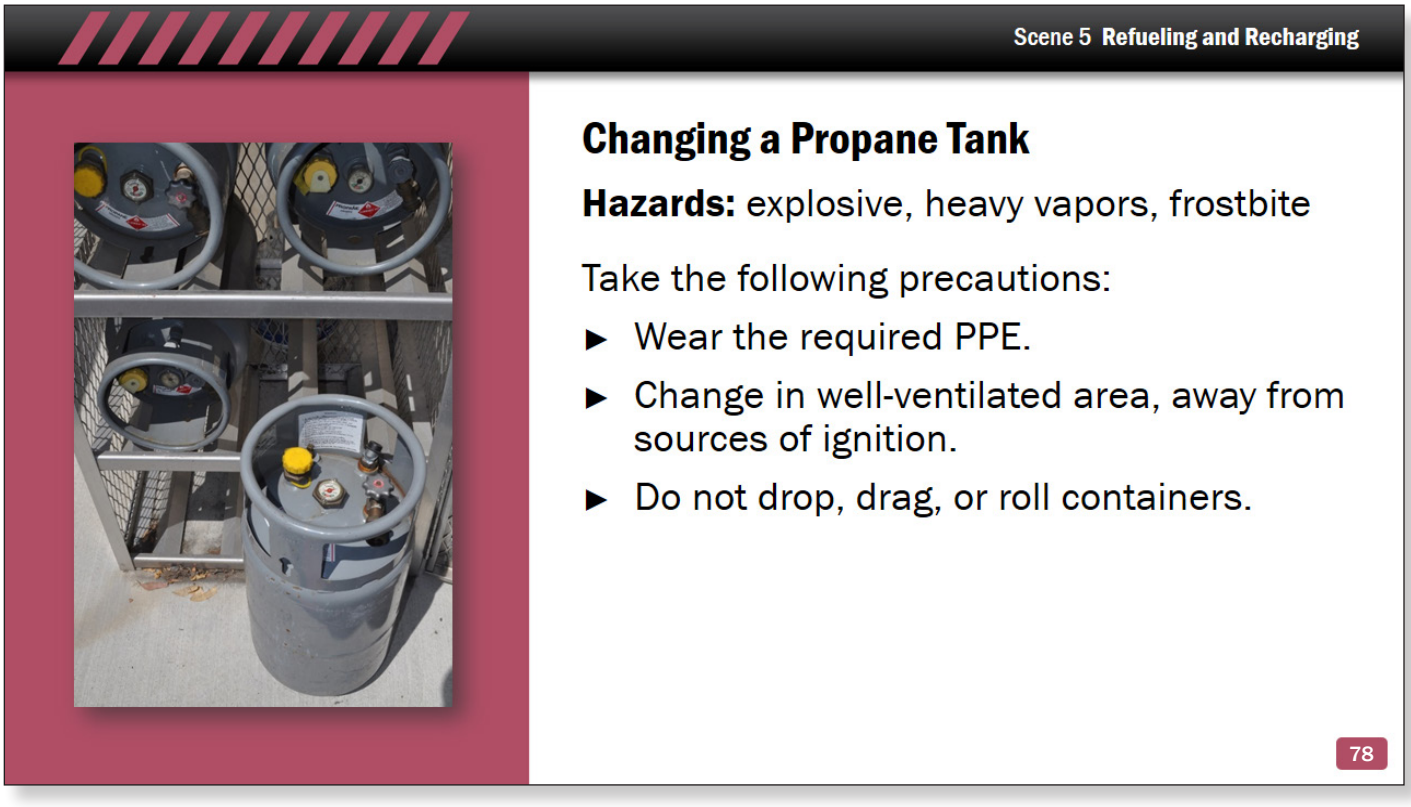
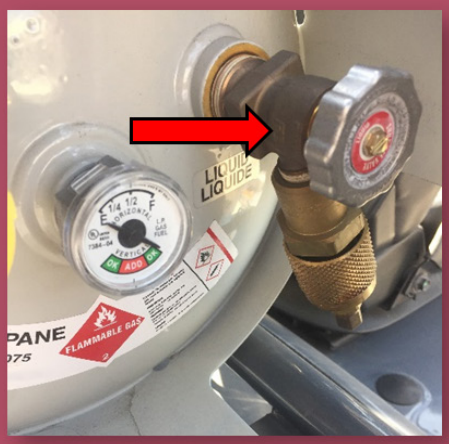
When refueling forklifts that are powered by gasoline or diesel fuel, explosive vapors are the main hazard. Take the following precautions. Turn off the engine. Refuel in designated locations with proper ventilation and away from heat sources and people. Do not allow the forklift to become low on fuel or run out of fuel, and do not fill the tank to the top. Smoking is prohibited, including e-cigarettes.



Propane vapor is flammable and heavy. If not adequately dissipated, it can collect in low-lying areas, including pockets and pant cuffs, and ignite if exposed to a heat source. Propane is also extremely cold and may cause frostbite if it comes in contact with your skin.

When changing a propane tank, wear the required personal protective equipment (PPE), which could include insulated gloves made of leather or neoprene and eye protection. Change cylinders in a well-ventilated area, away from sources of ignition. Do not drop, drag, or roll containers.

Scene 5 Refueling and Recharging



Changing a Propane Tank

- Close the tank valve.
- Run the engine until it stops.
- Disconnect fuel line and holding straps.
- Remove, inspect empty cylinder.

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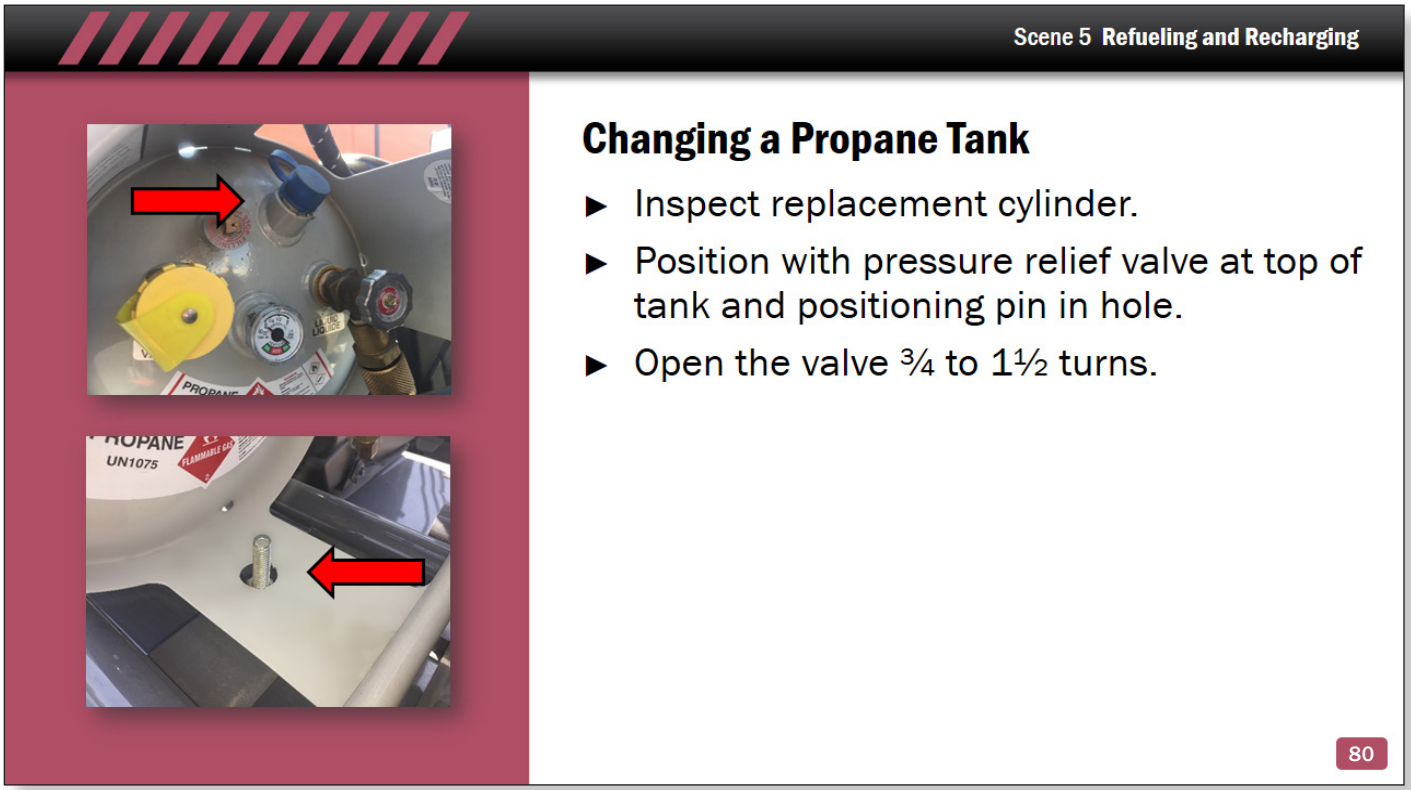
Close the tank valve, and run the engine until it stops to ensure that the fuel line is empty. Carefully disconnect the fuel line and holding straps. Remove the empty cylinder, and inspect it for damage.



Then, inspect the replacement cylinder. Remove any damaged cylinder from service. Position the replacement cylinder so that the pressure relief valve is at the top of the tank and the positioning pin is in the positioning hole.

Open the valve three-quarters to one-and-a-half turns to allow adequate propane to the engine and quick closure if a problem occurs.

Scene 5 Refueling and Recharging

Propane Leaks

If propane is seen, heard, or smelled:

- Close the valve
- Apply soapy water
- Turn valve back on
- Look for bubbles

If leak cannot be stopped:

- Do not use vehicle
- Close valve
- Report problem to supervisor

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If, at any time, propane is seen, heard, or smelled, close the valve immediately. This is an indication that the tank, connection, or fuel line is leaking. To check for leaks, apply soapy water to the tank valve, the fuel line, and the fuel line's connection points. Turn the valve back on, and look for bubbles.

If the leak cannot be stopped, do not use the vehicle. Close the valve and report the problem to your supervisor.

Scene 5 Refueling and Recharging

Changing and Recharging Batteries

Hazards: fire, shock, acid burns, crushing injuries

General safety practices:

- Recharge in designated safe locations.
- Take precautions to prevent flames, sparks, or electric arcs.
- Keep tools and other metallic objects away from uncovered batteries.
- Know where emergency equipment is located.

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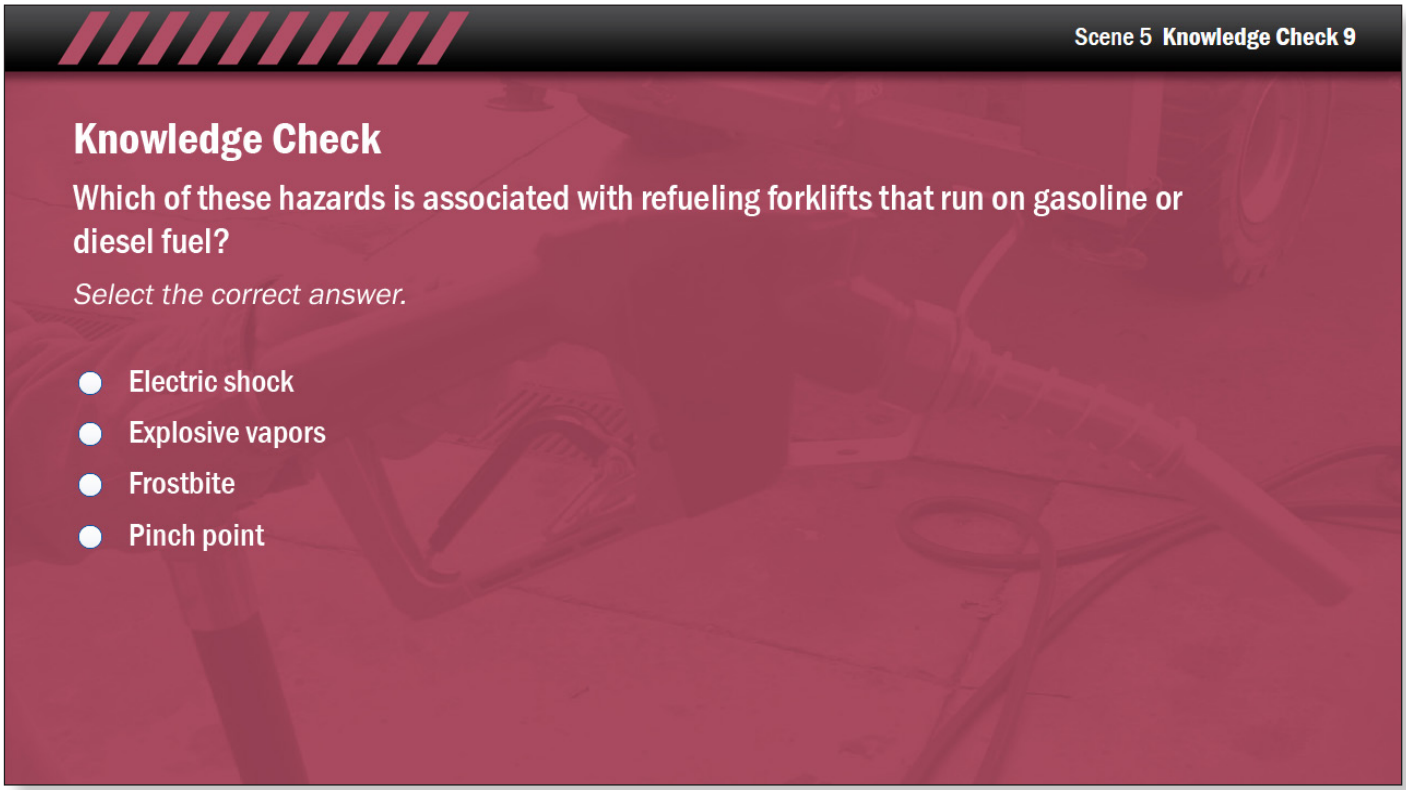
Potential hazards when changing and recharging batteries include fire, electric shock, acid burns and spills, and crushing injuries.

Forklift operators should be aware of a few basic best practices. Recharge only in designated safe locations. Take precautions to prevent flames, sparks, or electric arcs. Keep tools and other metallic objects away from uncovered batteries. And, know where emergency equipment—like neutralizing material or the eye-washing station—is located.

Only trained and authorized personnel can change and recharge batteries. Completion of this course does not provide the necessary training to perform these tasks.



Let's review. Which of these hazards is associated with refueling forklifts that run on gasoline or diesel fuel? Select the correct answer, then click the *Submit* button.

- Electric shock
- Explosive vapors
- Frostbite
- Pinch point

We've reached the end of the presentation. Before you are directed to the test, let's review some important points.

Operate with caution to avoid common hazards like collisions, tip-overs, and falling loads. Assess capacity for each unique load you intend to carry and when using a different attachment. Check with your employer for additional rules specific to the work environment. And, you can review Cal/OSHA's thirty-three *Operating Rules for Industrial Trucks* in Appendix B under the *Resources* tab.

Your safe attitude impacts how you act and react to workplace conditions and challenges. Speak up about safety issues. Ask questions. Look out for your co-workers and for yourself.

Remember, safety starts with you.

Appendix A

References and Resources

Related Industry Safety Bulletins

CSATF Safety Bulletins can be found online at: https://www.csatf.org/bulletintro.shtml

Safety Bulletin #22A, *Power Line Distance Requirements*

Cal/OSHA Regulations (CCR Title 8)

For up to date Cal/OSHA standards use search term: **Title 8 Index – State of California**

Industrial Trucks, Tractors, Haulage Vehicles, and Earthmoving Equipment, CCR Title 8, §3649-3669.

Federal OSHA Regulations (CFR Title 29)

For up to date Federal OSHA standards use search term: **Regulations (Standards – 29 CFR) Occupational Safety**

Materials Handling and Storage, CFR Title 29, §1910.178. Powered industrial trucks.

Standards

Safety Standard for Low Lift and High Lift Trucks, ANSI/ITSDF B56.1-2016

Safety Standard for Rough Terrain Forklift Trucks, ANSI/ITSDF B56.6-2016

Additional Resources

JLG Operation & Safety Manual: Models G10-55A & G12-55A AccuPlace, Part No. 3128447, January 5, 2010. JLG Industries, Inc.

Appendix B

Operating Rules for Industrial Trucks

General Industry Safety Order

§3650. Industrial Trucks. General.

(t) Industrial trucks and tow tractors shall be operated in a safe manner in accordance with the following operating rules:

(1) Only drivers authorized by the employer and trained in the safe operations of industrial trucks or industrial tow tractors pursuant to Section 3668 shall be permitted to operate such vehicles.

(2) Stunt driving and horseplay are prohibited.

(3) No riders shall be permitted on vehicles unless provided with adequate riding facilities.

(4) Employees shall not ride on the forks of lift trucks.

(5) Employees shall not place any part of their bodies outside the running lines of an industrial truck or between mast uprights or other parts of the truck where shear or crushing hazards exist.

(6) Employees shall not be allowed to stand, pass, or work under the elevated portion of any industrial truck, loaded or empty, unless it is effectively blocked to prevent it from falling.

(7) Drivers shall check the vehicle at the beginning of each shift, and if it is found to be unsafe, the matter shall be reported immediately to a foreman or mechanic, and the vehicle shall not be put in service again until it has been made safe. Attention shall be given to the proper functioning of tires, horn, lights, battery, controller, brakes, steering mechanism, cooling system, and the lift system for fork lifts (forks, chains, cable, and limit switches).

(8) No truck shall be operated with a leak in the fuel system.

(9) Vehicles shall not exceed the authorized or safe speed, always maintaining a safe distance from other vehicles, keeping the truck under positive control at all times and all established traffic regulations shall be observed. For trucks traveling in the same direction, a safe distance may be considered to be approximately 3 truck lengths or preferably a time lapse -3 seconds -passing the same point.

(10) Trucks traveling in the same direction shall not be passed at intersections, blind spots, or dangerous locations.

(11) The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.

(12) Operators shall look in the direction of travel and shall not move a vehicle until certain that all persons are in the clear.

(13) Trucks shall not be driven up to anyone standing in front of a bench or other fixed object of such size that the person could be caught between the truck and object.

(14) Grades shall be ascended or descended slowly.

(A) When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.

(B) On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.

(C) Motorized hand and hand/rider trucks shall be operated on all grades with the load-engaging means downgrade.

(15) The forks shall always be carried as low as possible, consistent with safe operations.

(16) When leaving a vehicle unattended (the operator is over 25 feet (7.6 meters) from or out of sight of the industrial truck), the brakes are set, the mast is brought to the vertical position, and forks are left in the down position, either:

(A) The power shall be shut off and, when left on an incline, the wheels shall be blocked; or

(B) The power may remain on provided the wheels are blocked, front and rear.

(17) When the operator of an industrial truck is dismounted and within 25 feet (7.6 meters) of the truck which remains in the operator's view, the load engaging means shall be fully lowered, controls placed in neutral, and the brakes set to prevent movement.

EXCEPTION: Forks on fork-equipped industrial trucks may be in the raised position for loading and unloading by the operator if the forks are raised no more than 42 inches above the same level on which the industrial truck is located, the power is shut off, controls placed in neutral and the brakes set. If on an incline, the wheels shall be securely blocked. Whenever the forks are raised, the operator will remain in the seat of the industrial truck except when the operator is actively loading or unloading materials.

(18) Vehicles shall not be run onto any elevator unless the driver is specifically authorized to do so. Before entering an elevator, the driver shall determine that the capacity of the elevator will not be exceeded. Once on an elevator, the industrial truck's power shall be shut off and the brakes set.

(19) Motorized hand trucks shall enter elevators or other confined areas with the load end forward.

(20) Vehicles shall not be operated on floors, sidewalk doors, or platforms that will not safely support the loaded vehicle.

(21) Prior to driving onto trucks, trailers and railroad cars, their flooring shall be checked for breaks and other structural weaknesses.

(22) Vehicles shall not be driven in and out of highway trucks and trailers at loading docks until such trucks or trailers are securely blocked or restrained and the brakes set.

(23) To prevent railroad cars from moving during loading or unloading operations, the car brakes shall be set, wheel chocks or other recognized positive stops used, and blue stop signs, blue flags or blue lights displayed in accordance with Section 3333 of these Orders and Title 49, Code of Federal Regulations, Section 218.27 which is hereby incorporated by reference.

(24) The width of one tire on the powered industrial truck shall be the minimum distance maintained from the edge by the truck while it is on any elevated dock, platform, freight car or truck.

(25) Railroad tracks shall be crossed diagonally, wherever possible. Parking closer than 8½ feet from the centerline of railroad tracks is prohibited.

(26) Trucks shall not be loaded in excess of their rated capacity.

(27) A loaded vehicle shall not be moved until the load is safe and secure.

(28) Extreme care shall be taken when tilting loads. Tilting forward with the load engaging means elevated shall be prohibited except when picking up a load. Elevated loads shall not be tilted forward except when the load is being deposited onto a storage rack or equivalent. When stacking or tiering, backward tilt shall be limited to that necessary to stabilize the load.

(29) The load engaging device shall be placed in such a manner that the load will be securely held or supported.

(30) Special precautions shall be taken in the securing and handling of loads by trucks equipped with attachments, and during the operation of these trucks after the loads have been removed.

(31) When powered industrial trucks are used to open and close doors, the following provisions shall be complied with:

(A) A device specifically designed for opening or closing doors shall be attached to the truck.

(B) The force applied by the device to the door shall be applied parallel to the direction of travel of the door.

(C) The entire door opening operation shall be in full view of the operator.

(D) The truck operator and other employees shall be clear of the area where the door might fall while being opened.

(32) If loads are lifted by two or more trucks working in unison, the total weight of the load shall not exceed the combined rated lifting capacity of all trucks involved.

(33) When provided by the industrial truck manufacturer, an operator restraint system such as a seat belt shall be used.

Appendix C

PIT Classifications

Class I: Electric Motor Rider Trucks

Lift Code 1: Counterbalanced Rider Type, Stand Up

Lift Code 4: Three Wheel Electric Trucks, Sit Down

Lift Code 5: Counterbalanced Rider, Cushion Tires, Sit Down

Lift Code 6: Counterbalanced Rider, Pneumatic or Either Type Tire, Sit Down

Class II: Electric Motor Narrow Aisle Trucks

Lift Code 1: High Lift Straddle

Lift Code 2: Order Picker

Lift Code 3: Reach Type Outrigger

Lift Code 4: Side Loaders: Platforms

Lift Code 4: Side Loaders: High Lift Pallet

Lift Code 4: Turret Trucks

Lift Code 6: Low Lift Platform

Lift Code 6: Low Lift Pallet

Class III: Electric Motor Hand Trucks or Hand/Rider Trucks

Lift Code 1: Low Lift Platform

Lift Code 2: Low Lift Walkie Pallet

Lift Code 3: Tractors

Lift Code 4: Low Lift Walkie/Center Control

Lift Code 5: Reach Type Outrigger

Lift Code 6: High Lift Straddle

Lift Code 6: Single Face Pallet

Lift Code 6: High Lift Platform

Lift Code 7: High Lift Counterbalanced

Lift Code 8: Low Lift Walkie/Rider Pallet and End Control

Class IV: Internal Combustion Engine Forklift Trucks (Solid/Cushion Tires)

Lift Code 3: Fork, Counterbalanced (Cushion Tire)

Class V: Internal Combustion Engine Trucks (Pneumatic Tires)

Lift Code 4: Fork, Counterbalanced (Pneumatic Tire)

Class VI: Electric and Internal Combustion Engine Tractors

Lift Code 1: Sit-Down Rider (Draw Bar Pull Over 999 lbs.)

Class VII: Rough Terrain Forklift Trucks

Vertical mast type forklift trucks

Variable reach type forklift trucks

Truck/trailer mounted forklift trucks

Appendix D

Sample Inspection Checklist

Internal Combustion Engine Industrial Truck - Gas/LPG/Deisel Truck

Record of Fuel Added

Date		Operator		Fuel	
Truck#		Model#		Engine Oil	
Department		Serial#		Radiator Coolant	
Shift		Hour Meter		Hydraulic Oil	

Safety and Operational Checks (Prior to each shift)

Pre-Operation Check (Engine off)	✓	**Explain any problems**
Leaks - Fuel, Hydraulic Oil, Engine Oil or Radiator Coolant		
Tires - Condition and Pressure		
Forks, Top Clip Retaining Pin and Heel - Check Condition		
Load Backrest - Securely Attached		
Hydraulic Hoses, Mast Chains, Cables and Stops - Check Visually		
Overhead Guard - Attached		
Finger Guards - Attached		
Propane Tank (LP Gas Truck) - Rust Corrosion, Damage		
Safety Warnings - Attached (Refer to Parts Manual for Location)		
Battery - Check Water/Electrolyte Level and Charge		
All Engine Belts - Check Visually		
Hydraulic Fluid Level - Check Level		
Engine Oil Level - Dipstick		
Transmission Fluid Level - Dipstick		
Engine Air Cleaner - Squeeze Rubber Dirt Trap or Check the Restriction Alarm (if equipped)		
Fuel Sedimentor (Diesel)		
Radiator Coolant - Check Level		
Operator's Manual - In Container		
Nameplate - Attached and Information Matches Model, Serial Number and Attachments		
Seat Belt - Functioning Smoothly		
Hood Latch - Adjusted and Securely Fastened		
Brake Fluid - Check Level		
Operational Check (Engine on)	✓	**Explain any problems**
Accelerator or Direction Control Pedal - Functioning Smoothly		
Service Brake - Functioning Smoothly		
Parking Brake - Functioning Smoothly		
Steering Operation - Functioning Smoothly		
Drive Control - Forward/Reverse - Functioning Smoothly		
Tilt Control - Forward/Reverse - Functioning Smoothly		
Hoist and Lowering Control - Functioning Smoothly		
Attachment Control - Operation		
Horn and Lights - Functioning		
Cab (if equipped) - Heater, Defroster, Wipers - Functioning		
Gauges: Ammeter, Engine Oil Pressure, Hour Meter, Fuel Level, Temperature, Instrument Monitors - Functioning		

Telehandler Forklift Pre-use Inspection Checklist

Operator:					**Make & Model:**			
Company:					**Hour Meter Reading:**			
Location:					**Date:** MM/DD/YYYY	**Unit No.:**		
POWER OFF CHECKS			**Status**		**POWER ON CHECKS**		**Status**	
	OK	**NO**	**N/A**			**OK**	**NO**	**N/A**
1) Wheels and Tires	☐	☐	☐		20) Unit starts and runs properly	☐	☐	☐
2) Lights/Strobes	☐	☐	☐		21) Instruments/Gauges	☐	☐	☐
3) Mirrors/Visibility aids	☐	☐	☐		22) Warning lights/audible alarms	☐	☐	☐
4) Engine/Engine compartment:					23) Fuel level	☐	☐	☐
a) Belts/Hoses	☐	☐	☐		24) Horn/audible warning device(s)	☐	☐	☐
b) Cables/Wires	☐	☐	☐		25) Function controls:			
c) Debris	☐	☐	☐		a) Boom & carriage – raise/lower/tilt/extend/retract	☐	☐	☐
5) Battery/Batteries:					b) Lifting attachment – proper movement	☐	☐	☐
a) Terminals tight	☐	☐	☐		c) Drive – forward/reverse	☐	☐	☐
b) Clean/Dry/Secure	☐	☐	☐		d) Steer – left/right	☐	☐	☐
6) Hydraulics:					e) Frame level	☐	☐	☐
a) Cylinders/Rods	☐	☐	☐		f) Outriggers	☐	☐	☐
b) Hoses/Lines/Fittings	☐	☐	☐		26) Braking:			
7) Fluids:					a) Service/De-clutch	☐	☐	☐
a) Engine oil Level Leaks	☐	☐	☐		b) Parking	☐	☐	☐
b) Engine coolant Level Leaks	☐	☐	☐		27) Other:	☐	☐	☐
c) Hydraulic oil Level Leaks	☐	☐	☐			☐	☐	☐
d) Fuel Level Leaks	☐	☐	☐		**GENERAL**	**OK**	**NO**	**N/A**
8) Data/Capacity Plate/Load Charts	☐	☐	☐		28) Housekeeping	☐	☐	☐
9) Windows/Glass/Doors	☐	☐	☐		29) Manufacturer's operating manuals	☐	☐	☐
10) Lifting Attachment(s)	☐	☐	☐		30) Decals/Warnings/Placards	☐	☐	☐
11) Counterweight/Counterweight bolt(s)	☐	☐	☐		31) Misc. parts – loose/missing/broken	☐	☐	☐
12) Hood/Covers/Panels	☐	☐	☐		**WORKPLACE INSPECTION**	**OK**	**NO**	**N/A**
13) Air filter indicator	☐	☐	☐		32) Drop-offs or holes	☐	☐	☐
14) Boom Sections – damage/wear pads	☐	☐	☐		33) Bumps and floor/ground obstructions	☐	☐	☐
15) Boom Angle Indicator-free movement	☐	☐	☐		34) Debris	☐	☐	☐
16) ROPS/Cab	☐	☐	☐		35) Overhead obstructions	☐	☐	☐
17) Frame level indicator	☐	☐	☐		36) Energized power lines	☐	☐	☐
18) Seatbelt	☐	☐	☐		37) Hazardous locations	☐	☐	☐
19) Other:	☐	☐	☐		38) Ground surface and support conditions	☐	☐	☐
	☐	☐	☐		39) Pedestrian/vehicle traffic	☐	☐	☐
	☐	☐	☐		40) Wind and weather conditions	☐	☐	☐
	☐	☐	☐		41) Other possible hazards	☐	☐	☐

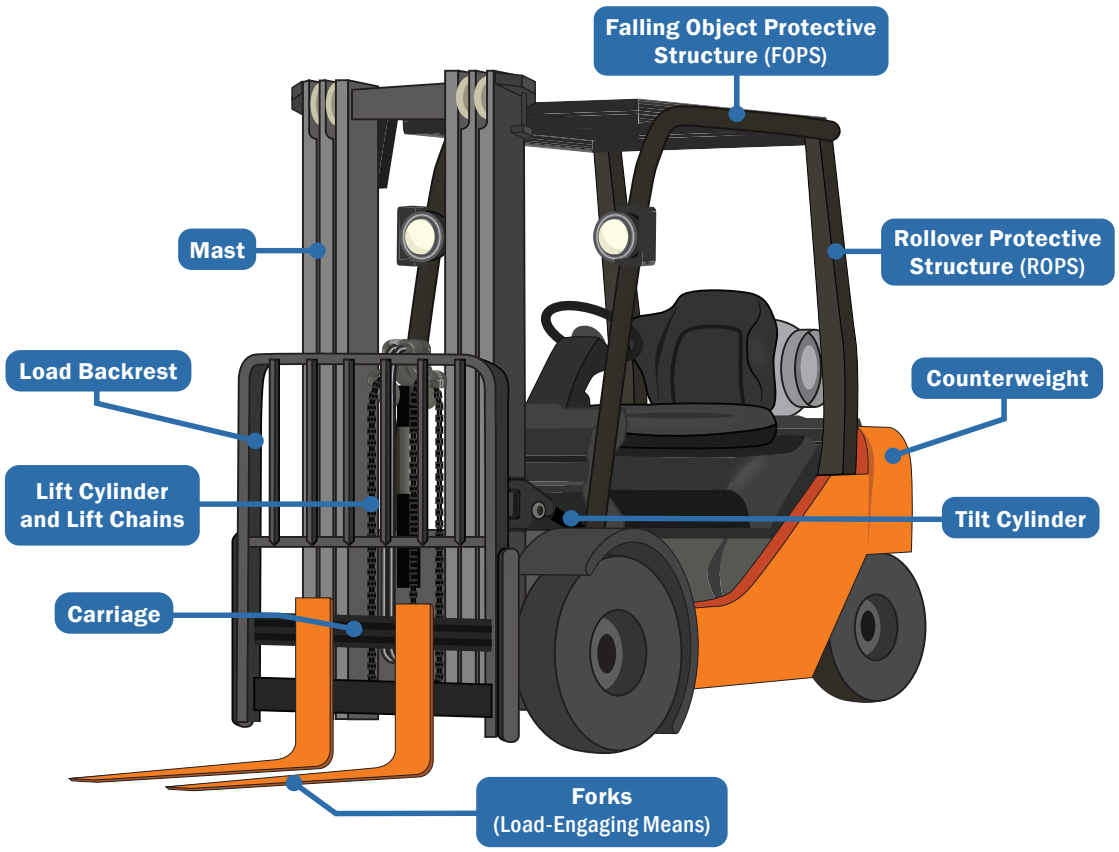
Report any problems found to your supervisor/employer. ALWAYS lock/tag-out unsafe equipment.

COMMENTS
Operator's initials:
Alternative operator's initials:

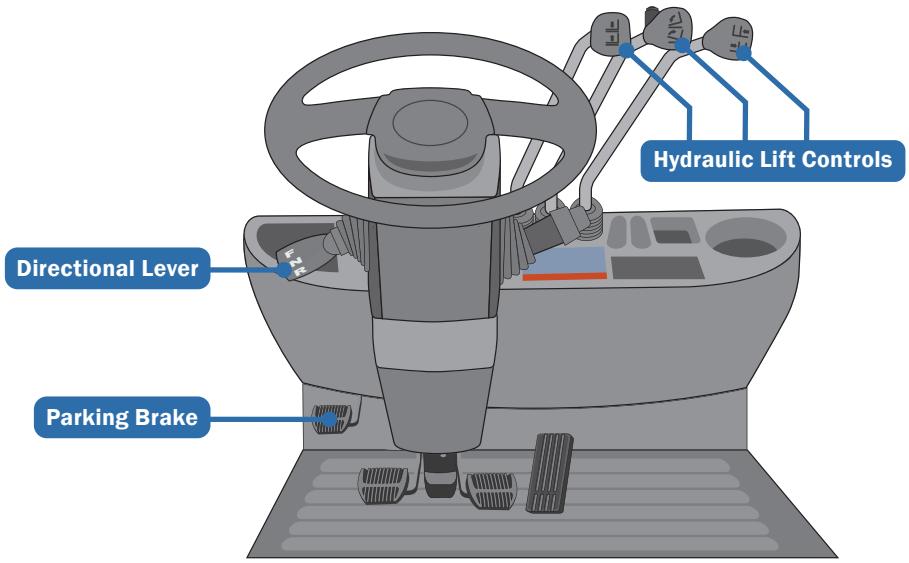
Appendix E

Components and Controls

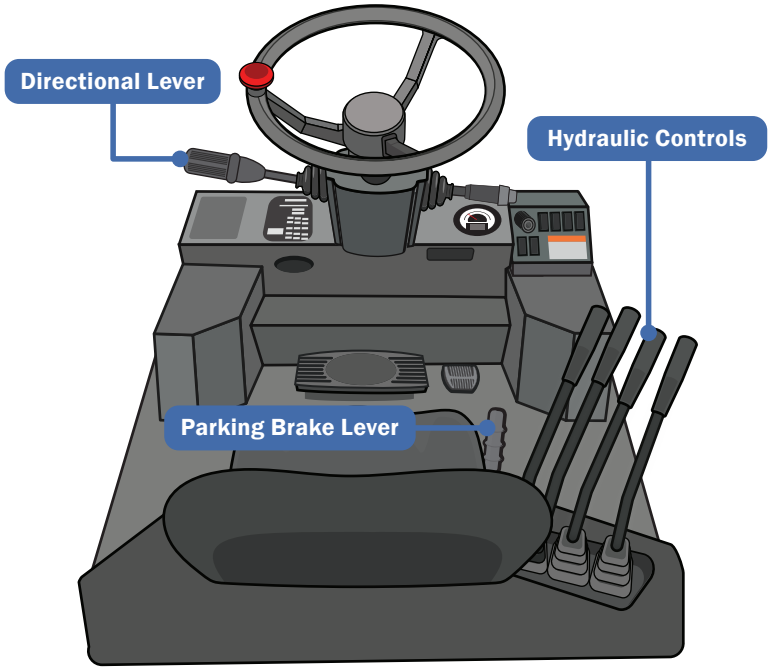
Vertical Mast Components



Vertical Mast Controls

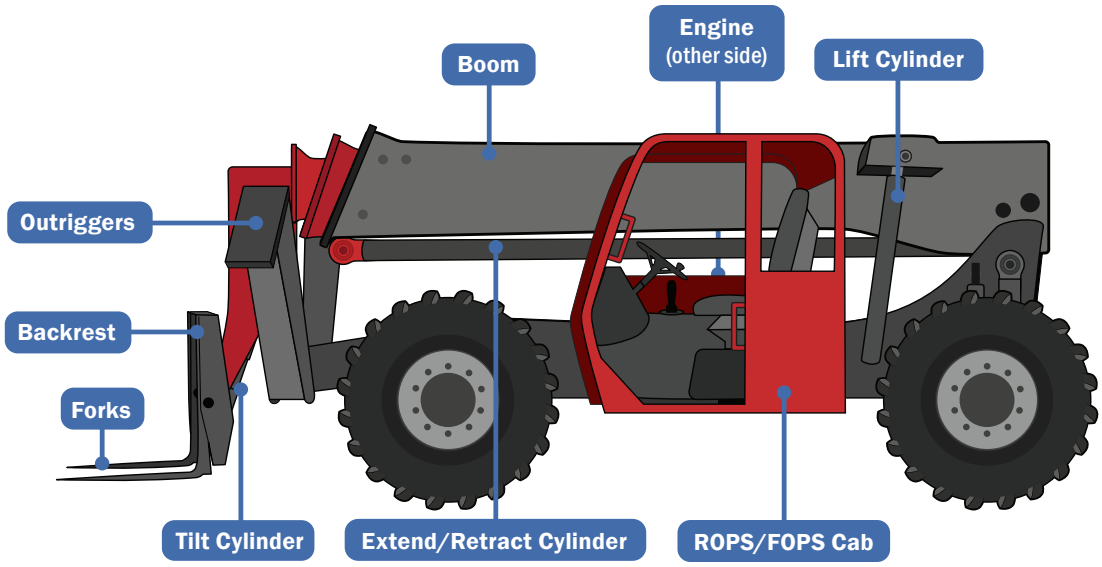


Class V

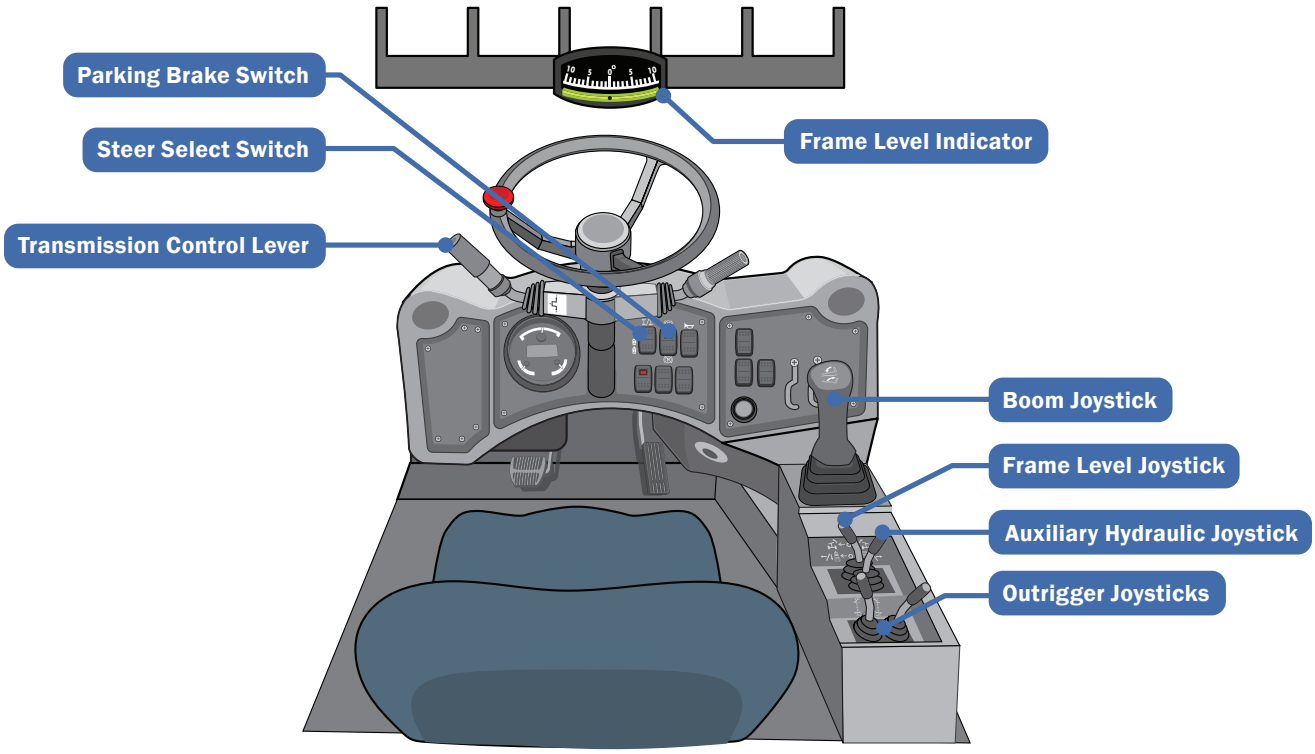


Class VII (RTFL)

Telehandler Components



Telehandler Controls



Appendix F

Load Handling Procedures

The following load handling procedures are general guidelines for vertical mast forklifts and telehandlers. The steps may be different based on the vehicle model are you are operating, the type of load being handled, the attachment being used, or the characteristics of the work zone. Refer to the operator's manual for the forklift you are operating, the attachment manual (if using an attachment), and employer policy.

General

- Put the vehicle in neutral and set the parking brake before lifting/placing load.
- Look in the direction of travel when driving in reverse.

Lifting a Load

1. Approach the load slowly and carefully.
2. Square the forklift to the load.
3. Level the mast/carriage so that there is no tilt.
4. Adjust the width of the forks to fit the load.
5. Position the forks to be level with the pallet.
6. Drive the forks fully under the load.
7. Lift the load only as much as needed for safe travel.
8. Tilt the mast back for added stability.

Placing a Load

1. Position the vehicle in a location where even or sloped surfaces are minimized.
2. Square the forklift to the placement area.
3. Level the mast/carriage so that there is no tilt.
4. Position the load to the necessary height.
5. Inch forward slowly and carefully.
6. Lower the load.
7. Lower the forks until the load is disengaged.
8. Back out slowly.
9. Position the mast/boom for safe travel.

Placing a Suspended Load

1. Check that the landing point is level and can support load.
2. Check the capacity chart for boom extension range (telehandler).
3. Align the load to the placement height.
4. Position the mast/boom above the placement area.
5. Lower the load until it is in position.
6. Disconnect the load from the attachment.
7. Back out slowly.
8. Position the mast/boom for safe travel.

Appendix G

OSHA Field Calculation Examples

Calculate a forklift's adjusted capacity using OSHA's field calculation formula:

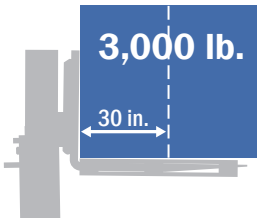
$$\frac{\text{Rated load center (in.)}}{\text{Actual load center (in.)}} \times \text{Rated capacity (lb.)} = \text{Adjusted capacity (lb.)}$$

After performing this calculation, verify that the load weight is less than or equal to the adjusted capacity before lifting the load.

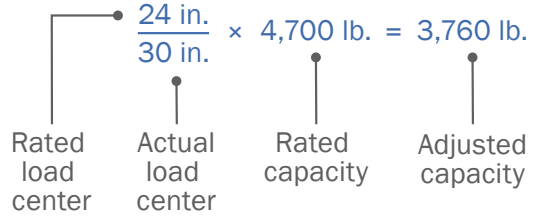
$$\text{Load weight} \leq \text{Adjusted capacity} = \text{SAFE TO LIFT}$$

Examples:

1 Vertical Mast



A load is 3,000 lb. with a 30-in. load center and its intended placement requires that the mast be fully raised to 264 in. The data plate (Figure G.1) shows that, when using forks with a 24-in. rated load center and the mast is fully raised, the rated capacity is 4,700 lb. Use the field calculation formula to calculate the adjusted capacity for this scenario.



Is the load weight ≤ to the adjusted capacity?

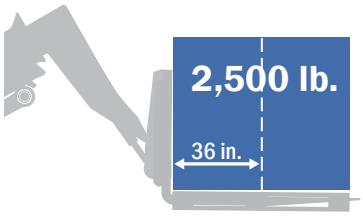
Yes, 3,000 < 3,760. The load is safe to lift.

MODEL NO.	S-50						
SERIAL NO.	6779602S89						
MAST MODEL	3.836-1.131-2.538XR						
MAST SERIAL NO.	8544633						
MAXIMUM LIFT	264	IN	671	CM			
RATED CAPACITY AT	24 INCH	610 MM LOAD CENTER					
8000	LBS TO	180	IN	3630	KG TO	457	CM
4700	LBS TO	264	IN	2132	KG TO	671	CM
RATED CAPACITY AT	36	IN	914	MM LOAD CENTER			
WITH ATTACHMENT	2X5X72 FORKS						
6600	LBS TO	180	IN	2994	KG TO	457	CM
2726	LBS TO	264	IN	1236	KG TO	671	CM
TRUCK OPERATING WT.	16830	LB	7634	KG			

THIS FORKLIFT CONFORMS TO THE REQUIREMENTS OF ASME 856.6 - 2002 SAFETY STANDARDS FOR POWERED INDUSTRIAL TRUCKS.

Figure G.1. Example data plate.

2 Telehandler: Outriggers Up



A load is 2,500 lb. with a 36-in. load center and needs to be placed 20 ft. high and 20 ft. from the front wheels. The *Outriggers Up* capacity chart for forks with a 24-in. rated load center (Figure G.2) shows that the rated capacity is 3,000 lb. for a load that needs to be placed 20 ft. high and 20 ft. out. Use the field calculation formula to calculate the adjusted capacity for this scenario.

$$\frac{24 \text{ in.}}{36 \text{ in.}} \times 3{,}000 \text{ lb.} = 2{,}000 \text{ lb.}$$

Rated load center | Actual load center | Rated capacity | Adjusted capacity

Is the load weight ≤ to the adjusted capacity?

No, 2,500 > 2,000. The load is not safe to lift.

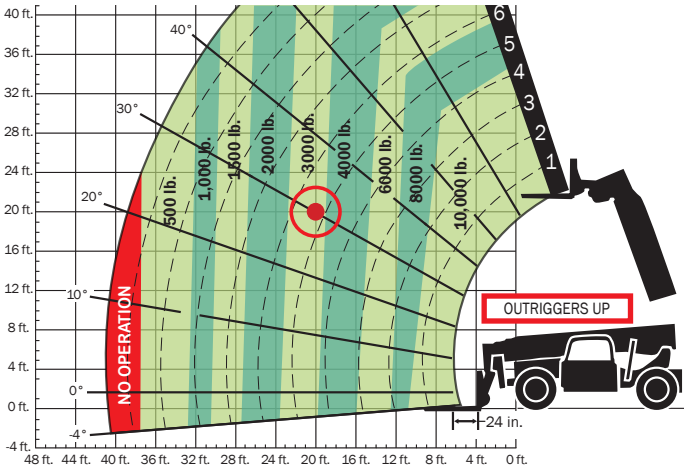


Figure G.2. Example capacity chart: Outriggers up, forks with 24-in. rated load center.

3 Telehandler: Outriggers Down

A load is the same as the above example and still needs to be placed 20 ft. high and 20 ft. from the front wheels. The *Outriggers Down* capacity chart for forks with a 24-in. rated load center (Figure G.3) shows that the rated capacity is now 6,000 lb. Use the field calculation formula to calculate an adjusted capacity for this scenario.

$$\frac{24 \text{ in.}}{36 \text{ in.}} \times 6{,}000 \text{ lb.} = 4{,}000 \text{ lb.}$$

Rated load center | Actual load center | Rated capacity | Adjusted capacity

Is the load weight ≤ to the adjusted capacity?

Yes, 2,500 < 4,000. The load is safe to lift.

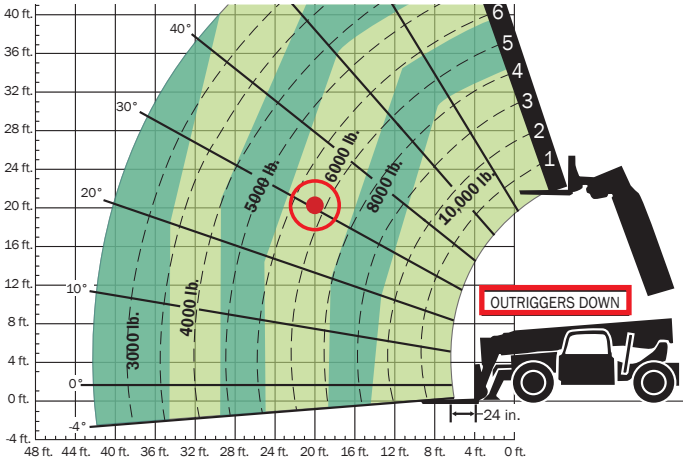


Figure G.3. Example capacity chart: Outriggers down, forks with 24-in. rated load center.

Glossary

adjusted capacity. The maximum weight a vehicle can safely carry based on the load's load center and intended placement position (height/distance).

attachment. A device other than conventional forks or load backrest extension, mounted permanently or removably on the elevating mechanism of a truck for handling the load.

authorized person. A person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the jobsite.

capacity. The capacity of a truck equipped with load carriage and forks, or with attachments, is the weight at a specific load center that a given truck can transport in a carry position and stack to the specified elevation of the load-engaging means.

center of gravity (CG). The point of an object where weight is evenly distributed on all sides and from where a single applied force could support it.

combined center of gravity (CCG). The center of gravity of a loaded powered industrial truck.

counterweight. The weight that is built into the truck's basic structure and is used to offset the load's weight and to maximize the vehicle's resistance to tipping over.

dynamic stability. The dynamic forces that result when a vehicle and load are put into motion. An unloaded forklift's center of gravity and a loaded forklift's combined center of gravity can shift outside of the stability triangle as a result of certain movements, such as stopping, starting, turning, or operating on grades.

falling object protective structure (FOPS). A structure fitted to a PIT over the head of an operator for the purpose of providing protection from falling objects.

fulcrum. The pivot point on which a lever rests or is supported.

lateral stability. A truck's resistance to overturning sideways.

lift height. The height to which the top of the fork is raised when the mast is fully extended.

line of action. The imaginary, vertical line that runs through an object's center of gravity.

load center. The distance from the face of the forks to the line of action.

load-engaging means. The general term for any device attached to the forklift's carriage or mast that carries or pulls the load.

longitudinal stability. The truck's resistance to overturning forward or rearward.

minimum safe approach distance (MSAD). The distance a worker or conductive object must stay away from an energized power line, based on its voltage.

overhead guard. See *falling object protective structure (FOPS)*.

personal fall arrest system. A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of the aforementioned components/devices.

personal fall restraint system. A system used to prevent an employee from falling. It consists of an anchorage, connectors, and body belt/harness. It may include lanyards, lifelines, and rope grabs designed for that purpose.

powered industrial truck (PIT). A mobile, power-propelled truck used to carry, push, pull, lift, stack, or tier material.

pneumatic tire. A tire made of reinforced rubber and filled with compressed air. Designed for use on improved surfaces, and may be used outdoors, as well as indoors.

qualified person. A person designated by the employer who by reason of training and experience has demonstrated ability to safely perform their duties and, where required, is properly licensed in accordance with federal, state, or local laws and regulations.

rated capacity. The weight established by the manufacturer at a required load center that a given PIT can transport and stack to a height established by the manufacturer.

rollover protective structure (ROPS). A structure designed to protect vehicle operators from injuries caused by vehicle overturns.

rough terrain forklift (RTFL). A wheeled PIT designed primarily as a fork truck with a vertical mast and/or a pivoted boom—variable reach or fixed length—which may be equipped with attachments and is intended for operation on unimproved, natural terrain as well as disturbed terrain.

solid/cushion tire. A tire made of smooth, solid rubber and fitted around a metal band. Designed for use inside on smooth, dry surfaces.

stability. The truck's resistance to overturning laterally (side-to-side) or longitudinally (forward or backward).

stability triangle. The imaginary line drawn between the three points of the suspension system representing the area in which the center of gravity or combined center of gravity can move about without causing the vehicle to tip laterally or longitudinally.

stability pyramid. The three-dimensional area of safe operation formed by the stability triangle and the single point over the combined center of gravity and at the level of the highest point of the forklift.

static stability. The stability of a truck when not in motion.

telehandler. See *variable reach fortklift.*

variable reach forklift. A type of rough terrain forklift with the capability of extending and retracting the forks (and load) in a longitudinal direction.

vertical mast forklift. A type of forklift with a vertical assembly on the front of the truck that does the work of raising, lowering, and tilting the load. Vertical mast forklifts come in a variety of sizes and can be designed for indoor or outdoor use.

Industry Safety Resources

Safety Bulletins

Safety Bulletins are researched, written, and distributed by the Industry Wide Labor-Management Safety Committee for use by the motion picture and television industry. The Industry Wide Labor-Management Safety Committee is composed of Guild, Union, and Management representatives active in industry safety and health programs.

These Safety Bulletins are guidelines recommended by the Safety Committee. They are not binding laws or regulations. State, federal, and/or local regulations, where applicable, override these guidelines. Modifications in these guidelines should be made, as circumstances warrant, to ensure the safety of the cast and crew.

The Committee and these Safety Bulletins are representative of the commitment of both Labor and Management to safe practices in the motion picture and television industry. The members of the Committee and all those who contributed to its work have devoted a great deal of time and effort to these guidelines because of the importance of safety to our industry.

Safety is everyone's responsibility.

Current safety bulletins are available on the CSATF website:

http://www.csatf.org/bulletintro.shtml

24-Hour Industry Safety Hotline

The 24-hour industry safety hotline number directs callers to an automated system that will assist them in reaching the desired Studio Safety Hotline.

888-7-SAFELY

A list of the Studio Safety Hotlines can also be found on the CSATF website:

http://www.csatf.org/studio_safety_hotlines.pdf