Training Solutions, Delivered!

SAFE OPERATION OF SCISSOR & BOOM LIFTS

Leader's Guide, Fact Sheet & Quiz

Item Number: 3348

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

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.

b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.

c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.

d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes *before* the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

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

b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.

c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.

d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

3348 SAFE OPERATION OF SCISSOR & BOOM LIFTS
FACT SHEET

LENGTH: 19 MINUTES

PROGRAM SYNOPSIS:
Elevated work platforms such as scissor and boom lifts allow us to safely perform various tasks and maintenance operations at heights that otherwise may be unreachable. While there are many different styles of lifts designed for various applications and site conditions, they all have one thing in common: the potential for serious injury or death when operated in a careless manner. Electrocution, falls, crushed body parts and tip-overs are just a few examples of incidents that often result from unsafe operation. This video discusses the procedures lift operators must follow to prevent these types of incidents.

Topics include operator training and authorization, factors that affect stability, pre-operational inspection, testing of functions and controls, safe driving procedures, use of harnesses and lanyards and avoiding falls from platforms.

PROGRAM OBJECTIVES:
After watching the program, the participant will be able to explain the following:
- How leverage, weight capacity and other factors affect elevated work platform stability;
- What to check during a pre-operational inspection;
- Why it is important to inspect the path of travel and work area before use;
- How to safely drive the vehicle;
- How to avoid falls from elevated platforms.

INSTRUCTIONAL CONTENT:

BACKGROUND
- Elevated work platforms come in various configurations, such as boom lifts which can maneuver the work platform beyond the base of the vehicle, as well as the commonly used scissor-type lifts, which keep the work platform over the base of the vehicle.
- There are many different styles of lifts available from a wide variety of manufacturers, each type designed for various applications and site conditions.
- While each type of lift platform may look and perform differently, they all have one thing in common: the potential for serious injury and death when operated in an unsafe manner.
- Electrocutions, falls, crushed body parts and tip-overs are just a few examples of the types of incidents that result from the unsafe or careless operation of an elevated work platform.

TRAINING & AUTHORIZATION
- Only trained and authorized employees may operate an aerial work platform. If you have not been trained or have not been properly authorized by your company, then you many not operate an elevated work platform.
- Understand that authorized operators have a responsibility not to allow unauthorized personnel to operate a lift.
- All operators must undergo general operator training. In this training, you will become familiar with the operator's manual, where it is stored and the important information it contains.
- You will learn how to properly perform a pre-operational inspection, the location and purpose of all safety placards and decals, the operation and function of the various directional controls and safety devices, how to perform a route of travel and workplace inspection and why it is important to do so, as well as general safe operating procedures and practices to ensure the safety of both operators and pedestrians.
- Before becoming a certified operator, you will be required to operate the platform in the presence of a qualified person to demonstrate your proficiency using the equipment.

LEVERAGE
- One of the most important things to understand about aerial work platforms are the factors that affect stability. One factor is leverage.

- You may be familiar with how a lever works. A small amount of force placed on one end can generate a large amount of force on the other.
- While generally helpful, this principle works against us when applied to an elevated work platform. Raising a platform over a narrow base of support creates a long lever arm; a small amount of sidewise or horizontal force on the raised platform can place enough force on the base to cause a tip-over.
- When the platform can be extended beyond the base, the leverage is even greater. The maximum amount of horizontal force a fully loaded lift can withstand before tipping is called the horizontal load; this information can be found in the operator's manual or warning labels for each lift.
- You may be surprised at how little force is required to turn over a fully elevated platform. For example, some scissor lifts have a maximum horizontal load of just 150 pounds.

WEIGHT CAPACITY

- Another factor that affects stability is the weight placed on the platform. Every lift has a maximum platform capacity that it is designed to lift safely; this capacity can be found on the data plate and in the owner's manual.
- Overloading your lift with excess personnel, tools and equipment can lead to a tip-over.
- Overloaded platforms are top heavy and will become unstable at less than full elevations, and they may tip over under seemingly normal conditions. Make sure you understand your platform's capacity before use.

SLOPES & SURFACE CONDITIONS

- The surface condition and the slope of the work area also affect stability. Work platforms are designed to safely elevate on a flat, level surface, but is not designed to be elevated or travel on a slope while elevated.
- Adding a sloped surface to other stability characteristics increases the effect of both leverage and platform load, making the lift unstable.
- Similarly, when a wheel drops into even a small pothole, trench, floor drain or similar item, an elevated lift may also become unstable and tip over.

INSPECTING THE TRAVEL PATH & WORK AREA

- You should inspect your path of travel before using the lift, especially if it will be elevated while moving. Even if you are familiar with the area, inspect it for holes, drop-offs, curbs, slopes or similar items that can lead to a tip-over.
- While inspecting the intended travel path and work area, be sure to check for overhead obstructions.
- Be especially cautious of any type of overhead cranes that may be working in the area. If you plan to work in the path of an overhead crane, it should be locked and tagged out of service to prevent a collision.
- Make sure the path of travel or work area can support the weight of your platform. Check the capacity of any bridge plates, grates, covers or similar devices before crossing.
- When outdoors, avoid soft soil conditions that may settle or shift under the weight of your vehicle.
- When moving from the work area to the next, lower your platform before traveling to maximize stability. When it is necessary to move small distances or maneuver with the platform raised, proceed slowly and cautiously while maintaining a clear view of the travel surface.
- In all cases, keep a safe distance from drop-offs, holes, ramps and other obstacles that may overturn the vehicle.

OTHER TIPS FOR MAINTAINING STABILITY

- When using ropes, cords, hoses or similar items, moving the lift while caught or entangled can pull the lift over.
- Be careful not to allow the platform to be caught on anything solid while going up or down.
- Do not hoist or lower tools and supplies from an elevated lift.
- Never use the lift as a crane or for any other lifting function other than lifting personnel as intended.

PRE-OPERATIONAL INSPECTION

- Whether you are a new operator or one with years of experience, you must perform a pre-operational inspection prior to using the lift. This inspection should be done before use each day or at the start of each shift.
- During your training, you will be instructed on how to inspect your lift, but there are basics that apply to most types of elevated work platforms.
- Locate the weatherproof storage compartment and verify the presence of the operator's and maintenance manuals. These manuals contain important information and must stay with the lift at all times.

- As a lift operator, you must be familiar with the operator's manual and refer to it when operating questions arise.
- Next, walk completely around the platform and look for fluid leaks, loose parts, structural damage and other conditions that might render the unit unsafe.
- Check the tires for any defects such as cuts, bulges or embedded objects and make sure they have the recommended amount of air pressure.
- Air hoses, fuel lines and hydraulic lines should be visually inspected for leaks or damage and critical fluid levels should be checked, such as those contained in the hydraulic and brake systems.
- Visually inspect wiring harnesses and cables for worn or damaged areas.
- All guardrails, gates and other safety devices should be in place and secured. These should be in good condition with no cracked welds or missing sections.
- Verify that all swinging gates will only swing in; they should never swing out.
- All safety and warning labels should be legible and in good condition.

TESTING FUNCTIONS & CONTROLS

- After completing all visual inspections, a functional test of the operating and emergency controls must be performed.
- Aerial work platforms have operating controls on the body of the lift as well as in the work platform. A switch is used to select which controls are in operation.
- As part of your training, you will learn how to operate the specific controls for the lift you will be operating.
- In general, the lift controls should cause the lift to move in the direction the control is used. Upon release, the control should automatically return to a neutral position, stopping the movement of the lift.
- Test the function of the controls on the body of the lift to ensure each function operates properly. Be sure to test the emergency stop button to ensure its proper operation.
- Next, test the function of the controls located on the work platform to ensure they operate properly.
- If your vehicle has a foot pedal, the controls should not work unless the pedal remains depressed. Releasing the pedal should stop all movement; be sure to test the emergency stop button here as well.
- The working platform contains the driving controls for the vehicle itself. The vehicle cannot be driven from the lower control panel.
- Test the forward, reverse and stopping functions. There is no brake pedal on some types of vehicles; simply letting go of the control will stop the vehicle.
- If you discover any damage, defect or improper operation during your inspection, mark the vehicle out of service and report the situation to your supervisor. Never use a damaged or defective lift.

MOUNTING THE VEHICLE

- Once you are confident that your vehicle is in good working order and that your path of travel and intended work area are safe, it is time to mount the vehicle.
- Inform any affected co-workers that you intend to move the vehicle and make sure no one is under or around the lift. Squarely face the machine and maintain three-point contact while climbing up and into the platform.
- Be sure not to use any operational levers as hand holds when climbing on or off and stay clear of the foot controls.

SAFE DRIVING PROCEDURES

- When driving the platform to and from the work area, maintain a safe travel speed. You will need to adjust your speed based on changing conditions such as congestion, visibility, inclines, and other factors.
- Be aware that boom lifts can pivot around the base, changing the operator's orientation. The same control movement that causes a right-hand turn while facing one way will cause a left-hand turn while facing the other.
- Many lifts have markings to assist the operator in gaining his orientation before moving. When driving this type of lift, take a moment to make sure you know which way the lift will go before moving.
- Some vehicles have a large blind spot when driving from the lowered position; you may need to use a safety spotter when this is the case.
- After arriving at your destination mark your immediate work area with cones to alert other vehicles and pedestrians of your presence. When using a boom lift, be sure your barricaded area is sufficient to include the intended swing radius of the boom.

OVERHEAD OBSTACLES & POWER LINES

- When raising or lowering the platform, keep hands and arms inside the rails. Passing near a solid object creates a pinch point that can cause major injury. Also, keep an eye out for overhead obstacles to avoid hitting your head while elevating.
- Take extra precautions to avoid high-voltage power lines. Most elevated work platforms are not electrically insulated and provide no electrical protection.
- Most manufacturers recommend a 10-foot safety distance for lines less than 50,000 volts. For voltages higher than 50,000 volts, the minimum safe approach distance increases as the voltage increases; these distances can be found in the operator's manual or the National Electric Code.

USE OF HARNESSES & LANYARDS

- On an articulating boom lift, the platform can move away from the base of the vehicle and move in three directions. Because of these various directions of movement and platform extension, a harness and lanyard is legally required to prevent the operator from being ejected from the platform during a sudden unexpected movement.
- In this application the harness and lanyard are not being used as fall protection; instead, they are being used as a restraint device to prevent the operator from going over the rail.
- A scissor lift works differently from a boom lift. The platform only goes straight up or straight down and does not extend beyond the base. There is minimal risk of occupant ejection from normal movement of this type of platform and a restraint device is not legally required.
- Even so, many companies, but not all, require a harness and lanyard be used while operating a scissor lift as a matter of internal policy. Always follow your company's specific policies and procedures.
- In all cases, when a lanyard and harness are used, inspect the components to be sure they are in good working condition and only connect to the lift manufacturer's supplied anchor point.

AVOIDING FALLS FROM PLATFORMS

- The best advice that can be given regarding safety while in an aerial work platform is to stay inside the guard rails and keep both feet on the floor.
- Do not climb over the rails to access other work platforms. The lift is not to be used as a personal elevator.
- Avoid the temptation to get something that is just out of reach. If you can't reach it with both feet on the floor, reposition the vehicle or find another way to do the job; but do not stand on or climb over the rail for any reason.
- Also do not stand on any item while in a lift in an effort to reach higher.
- In both the boom lift and scissor lift the only true fall protection is the guardrail, not the lanyard. Aerial work platforms are not designed to withstand the shock load generated by a person falling while tied off to the platform.

TYING OFF OUTSIDE THE PLATFORM

- Another common fall protection mistake is tying off to something outside the platform.
- There is no reason to tie off outside the basket; remaining inside the guardrails and keeping both feet on the floor assures that you will not fall.
- When operators tie off outside the basket, they can be seriously injured should they or a co-worker decide to move the lift, causing them to be dragged over the rail.
- In the unlikely event of a hydraulic leak or failure, the basket will lower in a smooth, controlled manner. Should this occur, it is much better to descend with the basket rather than be left hanging from the rafters.

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ANSWERS TO THE REVIEW QUIZ

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

SAFE OPERATION OF SCISSOR & BOOM LIFTS
REVIEW QUIZ

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

Name_____Date_____

1. Authorized platform operators have a responsibility not to allow unauthorized personnel to operate a lift.

a. True
b. False

2. What should you do if you are going to be operating a boom or scissor lift in the path of an overhead crane?

a. Make sure the crane and its load are elevated high enough for you to travel safely underneath
b. Notify the crane operator you will be working in the area and keep the crane clear of the lift
c. Have the crane locked and tagged out of service to avoid collision

3. Swinging gates on lift platforms should only swing out.

a. True
b. False

4. An elevated work platform can be driven from either the platform control panel or the lower control panel.

a. True
b. False

5. Most manufacturers recommend that you keep your lift a _____ foot distance away from power lines less than 50,000 volts.

a. 3
b. 5
c. 10

6. A harness and lanyard for an operator on an articulating boom lift is used _____.

a. To protect the operator in the event of a fall
b. As a restraint device to keep the operator from going over the rail

7. There is no reason you should ever tie-off your lanyard to something outside the platform.

a. True
b. False

8. Supplies should only be hoisted up to an elevated lift when their weight won't overload the maximum platform capacity.

a. True
b. False