

# Scissor Lift and Aerial Lift Training

## Safe Operating Procedures

Aerial/scissor lifts pose a serious safety hazard if not used properly. It is the imperative to train employees on the hazards of operating aerial lifts and to ensure such equipment is safety maintained. While learning of the hazards it is important to start with the basics of the difference between a scissor lift and an aerial lift.

### **Aerial Lifts:**

An aerial lift is any vehicle-mounted device used to elevate personnel, including:

- Extendable boom platforms, Aerial ladders, Articulating (jointed) boom platforms, vertical towers, and any combination of the above.

### **Scissor Lifts:**

A scissor lift is a mechanical lifting platform used to provide temporary access for people and equipment to elevated and inaccessible areas.

- Although most people consider scissor lifts to be a type of aerial lift, they are covered in the OSHA Standard 1926 for Scaffolding.

While working with a scissor lift or aerial lift there are a lot of potential hazards that they share. Along with this training we will show not only the similarities in their hazards, but also a lot of the differences between them. Each have their own unique safety procedures, and the right lift is dependent on the job.

### **Recognize Scissor & Aerial Lift Hazards**

Fatalities are a major concern whenever you have to deal with falling from a height. Even though that is a major concern there are plenty more hazards that come in conjunction when working on any style of lift. Understanding what is at risk can be the best protection when working with anything that presents a major hazard. Luckily there aren't many injuries, but a lot of these injuries result in serious damage to ones body.

OSHA found that most injuries and fatalities involving scissor lifts and other aerial lifts were the result of employers not addressing:

- Fall Protection, Stabilization, Positioning

The following hazards can occur when using aerial lifts and scissor lifts:

- Fall from elevated level, Objects falling from lifts, Tip-overs, Ejections from the lift platform, Structural failures (collapses), Electric shock (electrocutions), Entanglement hazards, contact with objects, Contact with ceilings and other overhead objects.

## **Scissor and Aerial Lift Statistics**

- Between January 2020-December 2021 there have been 46 recorded Aerial Lift incidents that have resulted in a fatality.
- All of these have occurred through tip overs, falling from height, and electrocution

## **Working on Scissor & Aerial Lifts**

When working on a lift you have a large chance of coming in contact with other hazards like electricity. With a full metal platform you have potential to have the whole lift become charged with electrocution causing serious injuries to all parties. Lifts are very important with electrical work, but without caution a fatality hard to prevent.

### **Electrical Hazards:**

- Workers or metallic portions of any lift contacting live electrical components is a common cause of injury or death.
- Workers must be made aware of all electrical hazards in the work area, and the work practices and PPE required to keep them safe.
- Elimination of the electrical hazard must be prioritized.

### **Portable Electric Tools:**

- All lifts can conduct electricity.
- An insulation failure in a power tool can electrify the whole structure.
- All portable electric equipment must be protected by a ground fault current interrupter (GFCI) or a company Assured Equipment Grounding Conductor Program.

## **Pre-Start Inspection:**

Inspections are the life blood of making sure that all major tool or machine is running properly. It is imperative to do all inspections of your lift prior to use. If there is any items not properly working on lift you will need to take it out of service for repair before it's next use. Without these checks the potential for a mechanical failure goes up exponentially as we are not keeping things in proper order. Along with these pre inspections preventive maintenance should be performed on these consistently.

Follow the manufacturer's recommendations and include a check of:

### **Vehicle Components**

- Proper fluid levels (oil, hydraulic, fuel and coolant);
- Leaks of fluids
- Wheels and tires
- Battery and charger
- Lower-level controls
- Horn, gauges, lights and backup alarms
- Steering and brakes

## **Lift Components**

- Operating and emergency controls
- Personal protective devices
- Hydraulic, air, pneumatic, fuel and electrical systems
- Fiberglass and other insulating components
- Missing or unreadable placards, warnings, or operational, instructional and control markings
- Mechanical fasteners and locking pins
- Cable and wiring harnesses
- Outriggers, stabilizers and other structures
- Loose or missing parts
- Guardrail systems

## **Work Area**

- Drop-offs, holes, or unstable surfaces such as loose dirt
- Inadequate ceiling heights
- Slopes, ditches, or bumps
- Debris and floor obstructions
- Overhead electric power lines and communication cables
- Other overhead obstructions
- Other hazardous locations and atmospheres
- High wind and other severe weather conditions, such as ice
- The presence of others near the work

## **Working With a Scissor & Aerial Lift**

While working with your lift there are a lot of factors to keep in mind. Mainly the environmental aspect is huge factor to keep in mind. Whether it be inclement weather or another human factor there are a lot of hazards that can affect the work happening with a lift.

Being proactive can help reduce the chance of an accident occurring. Here are some key things to remember:

- Never work on lift that is covered in ice, snow, or other slippery materials
- Employees may not work on lift during high winds or storms
- Debris should not be allowed to accumulate on platform
- Do not drive with the lift platform raised (unless the manufacturer's instructions allow this)
- Do not exceed vertical or horizontal reach limits

## **Key Items:**

- Do not exceed rated load
- Do not stand or sit on guardrails
- Do not override safety devices
- Do not use a ladder, scaffolding, or other devices to increase size or working height of platform
- When using the lift above or near an overhead hoist travel way, the overhead hoist must be locked out.
- When loads are being hosted near the lift, tag lines must be used to prevent the load from contacting the scissor lift.

## **Lift Capacity:**

Max capacity on your lift includes not just your weight, but also the weight of the items you are bringing with you. These lifts can hold a lot of weight but they are not perfect so keeping an eye out can be a major advantage. All max capacity should be listed on the machine in question with not variances. Along with these capacities there will also be a height limit that should not be exceeded.

## **Aerial:**

- Never exceed the rated load of a lift.
- Be sure to review the workload for the various configurations, and never exceed the load capacity indicated.
- Workload can be based on the angle for some of these lifts.

## **Scissor:**

- Never exceed the rated load of a lift.
- Lifts must be capable of supporting its weight and at least 4 times the maximum intended load.
- The stall load on the hoist mechanism must not exceed 3 times the rated load.

## **Fall Protection:**

Fall protection is different based on the lift you are working with. Fall protection is one of the best life lines to have when working in an elevated way. Falls from an elevated surface will almost always result either a serious injury or in major cases death. With this not only will this training outline the importance of it, but any use of a fall harness will need an additional annual fall harness training for anyone involved.

## **Protection from Falling Objects:**

- Area below must be barricaded if there is a risk of falling objects
- Employees working under lifts must wear hard hats

If employees need to access the areas beneath

- Scaffolding, toe boards, screens and canopies must be used to protect employees from the falling object hazards.

**Aerial:**

- Personal fall harness required
- Inspect harness and lanyard before each use
- Attach lanyard to the boom or basket
- Never belt off to an adjacent structure or equipment
- Because of the bounce and instability harnesses are required
- Fall harness training required

**Scissor:**

- OSHA does not require fall harness
- If harness is used, never tie off to rails
- Tie off overhead, or designated areas
- Railing acts as fall protection

**Moving Scissor & Aerial Lifts:**

Moving a lift seems rather basic, but one of the leading ways of a tip over of a lift is from the transportation of the lift. There are many ways to properly move a lift, but a few guidelines will help to keep you and everyone around you safe while in transit. Along with moving requirements you will need to do a pre inspection of the area of travel to prevent connection to level changes, debris, or any human obstruction. Following these tips will keep the job running quick and smoothly with no added issues.

**If you move a lift:**

- It must be stabilized to prevent tipping during movement
- Employees may not ride on scissor lifts while moved unless they are trained on the requirements.

**Moving Requirements:**

- Occupied scissor lifts should not be moved unless absolutely necessary.
- If occupied scissor lifts must be moved, the following requirements must be met:
  - The surface on which the lift is being moved is with 3 degrees of level, and is free of pits, holes, and obstructions.
  - The scissor lift is moved at a speed no greater than 1 foot per second.
  - No employee is on any part of the lift that extends beyond the wheels.
  - The height to base width ratio of the scaffold during movement is two to one or less, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements.
  - The employee is aware that the lift will be moved.

## **Operation/Traveling/Loading:**

- Do not exceed the load-capacity limits.
- Do not use the aerial lift as a crane.
- Do not carry objects larger than the platform.
- Do not drive with the lift platform raised (unless the manufacturer allows this).
- Do not operate lower level controls unless permission is obtained from the worker(s) in the lift (except in emergencies).
- Do not exceed vertical or horizontal reach limits.
- Do not operate an aerial lift in high winds above those recommended by the manufacturer.
- Do not override hydraulic, mechanical, or electrical safety devices.
- Operators need to be trained and authorized
- Ensure operating on level ground, in isolated/blocked area
- Set outriggers on pads or on a level, solid surface.
- Set brakes when outriggers are used.
- Use wheel chocks on sloped surfaces when it is safe to do so.
- Set up work zone warnings, such as cones and signs, when necessary to warn others.

## **Overhead Protection:**

- Be aware of overhead clearance and overhead objects, including ceilings.
- Do not position aerial lifts between overhead hazards if possible.
- Treat all overhead power lines and communication cables as energized and stay at least 10 feet (3 meters) away.
- Ensure that the power utility or power line workers de-energize power lines in the vicinity of the work.

## **Key Points to Remember**

Here are some key points to remember from this training on Lockout/Tagout:

- Recognize scissor and aerial lift hazards
- Recognize lift safety and proper usage
- Use and operate fall protection systems
- Implement safe work practices
- Inspect scissor and aerial lifts