

Toolbox Talks

Aerial lift safety

Introduction

An aerial lift is any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel.

Most commonly, this includes articulating boom lifts and scissor lifts.



Figure 1. Common types of aerial lifts. Left: vertical only/scissor lift. Center: articulating boom lift. Right: telescoping boom lift.

Hazards of aerial lifts

According to NIOSH, between 1992 and 2003, 306 workers died from aerial lift incidents. Most work-related deaths from aerial lifts involve scissor lifts and boom-supported lifts. In 2000, falls surpassed workplace homicide to become the second-leading cause of work-related death.

The primary hazard of aerial lifts is falls. Serious or fatal falls may occur when employees fall from the work platform, but more commonly, workers are injured or killed when the aerial lift “upsets” (tips over) when it is operated on surfaces that are uneven, broken, soft, etc. Examples include driving the aerial lift into depressions in the ground such as potholes, soft soil, over curbs, etc.

Aerial lifts also pose a crush hazard. Bodies or body parts may be crushed in moving parts of the aerial lift (e.g., scissor mechanisms), or between moving parts of the aerial lift and adjacent fixed objects.

Employees may also be killed or injured by contact with exposed energized electrical parts, such as overhead power lines, electrical wiring, or fixtures. This may occur when the employee in the work basket is injured by direct contact. However, if employees on the ground are making simultaneous contact with the aerial lift and the ground when an energized conductor is contacted, they too may be killed or injured.

Employee training

Aerial lifts may only be operated by trained, authorized employees. Do not allow unqualified or untrained employees to operate them.

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Modifying the aerial lift

Aerial lifts may not be modified from the original design without the written consent of the manufacturer or any other equivalent entity, such as a nationally recognized testing laboratory.

Manufacturer's warnings, instruction, ratings, etc.

All aerial lifts must be maintained, serviced, and used only as permitted by the manufacturer.

Always read and observe all manufacturer's instructions and warnings. All manufacturer-provided warning labels, instructions, etc. must be maintained in a legible condition.

Rated capacities may not be exceeded.

Inspection

Be sure to inspect the aerial lift every day.

- Checking tire condition and inflation.
- Hydraulic hoses and connections.
- Controls and instrumentation.
- Visual inspection of welds.
- Fall protection equipment, including anchorage points.
- Railings, flooring, gate, and gate latches.
- Unusual noise, odor, behavior, movement.
- Electrically insulating equipment/materials.

Preventing falls from the work basket

For vertical-only aerial lifts such as scissors lifts, the guard rails must be in place, and be in good

condition. A chain or swinging gate must be installed and used where employees enter and exit the basket. Always be sure the gate can not swing outward.

Employees operating an articulating or telescoping aerial lift must wear a full-body harness and lanyard attached to a safe anchorage point within the aerial lift. Fall protection requirements are much more important in this type of unit because they are more prone to "catapult" type movements, which can eject the employees from the basket. Employees may never attach lanyards to fixed points or objects outside/adjacent to the basket, such as building components, poles, etc.

Regardless of the type of lift in use, employees may never leave the workbasket when it is elevated. Employees must always have both feet firmly in contact with the floor of the workbasket. They may not sit, stand, or climb on railings, or use any type of object, such as a ladder or box, to elevate themselves from the workbasket.

Tip-over/Roll-over incidents

If provided, outriggers must always be used as directed by the manufacturer. If operating surfaces are overly soft or unstable, pads must be used in conjunction with outriggers.

Many of these incidents also result from operating aerial lifts on unsafe surfaces. This includes ground surfaces that are overly soft, unstable, or uneven (potholes, curbs, etc.). The travel path must be inspected prior to travelling over it.

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Aerial lifts may not be used on excessive inclines or declines. Consult the manufacturer on limits.

Weather

Snow, ice, or rain may cause poor traction between the vehicle and the driving surface, or may cause slick footing for employees on the working platform.

Rain may cause puddles and soft ground, leading to instability and rollovers.

Use of aerial lifts when lightning is present may cause electrocution from lightning strikes.

High winds may cause the aerial lift to topple.

Heat and direct sun may cause employees to develop heat-related illness.

Always consult and follow manufacturer's recommendations on safe conditions for operation.

Electrical safety

Aerial lifts may not be used near exposed energized conductors or parts, such as overhead power lines, except by employees who are qualified for such work.

Clearance distances outlined in 29 CFR 1910.333(c) must be maintained at all times.

Questions

If you have questions on this topic, please contact the Office of Occupational Health and Safety at (612) 626-5008 or uohs@umn.edu, or see the website at <http://www.ohs.umn.edu>.