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Keep aerial lift hazards in check

Aerial lifts are used widely in both industrial and construction settings because they are versatile and relatively easy to operate. However, fatalities and serious injuries result each year from the improper use of these devices.

Electrocutions, falls and tipovers are the most frequent incidents. Others include being caught between the lift bucket or guardrail and objects such as steel beams or joists and being struck by falling objects. A worker can also be catapulted out of a bucket if it or the boom is struck by something.

There are numerous types of aerial lift equipment. Here are some common ones:

Bucket trucks and cherry pickers contain a bucket-like platform attached to a long arm (boom). As the arm unfolds, the platform rises.

Scissor lifts use criss-cross braces that extend and stretch upward. They are also considered to be mobile scaffolds.

Articulating boom lifts are able to extend up and over machinery and other obstacles to reach elevated positions not easily approached by a straight boom lift.

Telescoping boom lifts are used for applications that require high reach capability.

Man-lifts are electric or air-powered compact lifts that allow units access through standard doorways and operation in narrow corridors.

Anyone who operates an aerial lift should receive proper training, and that means knowing not just how the machine functions, but how to inspect it and recognize potential hazards. Operators must always abide by applicable safety regulations in their jurisdiction and wear required personal protective equipment (PPE), including fall protection.

Lifts should be inspected at the beginning of each shift. Here some key things to check:

- Welds between cylinders and booms for cracks or wear.
- All pivot pins for security of their locking devices.
- All exposed cables, sheaves and levelling devices for wear and secure attachment.
- Hydraulic system for any sign of deterioration, frayed hoses or leaks.
- Lubrication and fluid levels.
- Boom and basket for cracks or abrasions.
- Load capacity posting, and other operational and instructional markings.
- Emergency controls and safety devices.

Aerial lifts should only be used on a level surface that won't shift and is within slope limits listed by the manufacturer. Outriggers, brakes and wheel chocks should be set even if the surface is completely level.

Here are some ways to prevent the most serious aerial lift hazards:

Electrocutions. Non-electrical workers should stay at least three meters (10 feet) away from overhead power lines. Electrical workers must de-energize or insulate power lines or use proper PPE and tools. Insulated buckets protect from electrocution due to electric current passing through a person and the boom to ground. An insulated bucket does not protect you if there's another path to ground.

Falls. To help stay inside guardrails or in buckets, use either a full-body harness or a positioning device on bucket trucks or boom-supported lifts. Work should only be performed in areas that can be reached from inside the basket of the lifting device. Never attempt to climb outside the basket or extend the upper body beyond the railing of the basket.

Obstacles. In addition to being vigilant for power lines, operators should keep at least three meters away from other vehicles, tools and equipment, trenches, pits, potholes and debris.

Tipover. Avoiding collisions and uneven or steeply-sloped surfaces are obvious precautions, but there are others:

- Do not exceed the manufacturer's rated load capacity limits. This means allowing for the combined weight of workers, tools and materials.
- Avoid unnecessary travel with the lift in an elevated position.
- Do not elevate the lift on a slope or drive onto a slope when it is elevated.
- Do not use the lift in windy conditions.

An aerial lift boom or basket should never be positioned above pedestrians or other workers. If a lift is to be used near pedestrian traffic, isolate the work area by establishing a perimeter and diverting the pedestrian traffic. Signs, caution tape and barriers should be used to create the perimeter.

The Quiz

These questions are meant to help you remember what was discussed today — not to test your patience or challenge your intelligence. The answers are at the bottom of the page. Cover them up, and complete the quiz as quickly as you can.

1. Electrocutions, falls and tipovers are the most frequent incidents causing injury or death with aerial lifts.
   TRUE ____ FALSE ____

2. Are there more than two types of aerial lifts?
   YES ____ NO ____

3. Which of these are important to check before using an aerial lift:
   A. Exposed cables, sheaves and levelling devices
   B. Hydraulic system
   C. Emergency controls and safety devices
   D. Lubrication and fluid levels
   E. All of the above

4. Slope limits are not usually specified by aerial lift manufacturers.
   TRUE ____ FALSE ____

5. Aerial lifts not engaged in electrical work should be no closer than what distance from power lines:
   A. 1.5 meters (five feet)
   B. 3 meters (10 feet)
   C. 10 meters (33 feet)
   D. None of the above

6. Work should only be performed in areas that can be reached from within the bucket or basket of an aerial lift.
   TRUE ____ FALSE ____

7. Which of these are ways to keep an aerial lift from tipping over:
   A. Operate only on surfaces that are level and won't shift.
   B. Do not exceed manufacturer's load limits.
   C. Avoid driving onto a slope with the lift elevated.
   D. Use the aerial lift in windy conditions.
   E. Always use the lift with outriggers, brakes and chocks set.

8. Is a checklist always available for pre-use inspection of all aerial lifts in your workplace?
   YES ____ NO ____ DON'T KNOW____

ANSWERS: 1. True, 2. Yes., 3. E., 4. False, 5. B., 6. True, 7. A., B., C. E., 8. Your answer

Hold These Thoughts

Inspection is an essential but often ignored way to ensure the safety of those working with and near aerial lifts.

The device should be examined carefully before each use, and the best way to do that is with an appropriate checklist.

Other regular inspections should also take place, following manufacturer requirements. This is often every three months or after 150 hours of use, whichever comes first. In addition, the owner of a lift should do a detailed yearly inspection, also as required by the manufacturer.

Many organizations rent aerial lifts instead of buying them, so you might not know which model you will be using, even though operator controls and other key features seem similar on each model. Also, you might not know the maintenance history of the lift.

The dealer or company renting out the lift should:

- Be sure the lift is properly inspected and serviced before rental.
- Provide operator and maintenance manuals and maintenance history. These should be in a weatherproof container in the lift's cab.
- Make sure the operator controls are easy to reach and properly marked.

Employers should be sure:

- An aerial lift is not modified without written permission of the manufacturer.
- An aerial lift is used only under conditions approved by the manufacturer.
- Proper personal fall protection is provided and used.

For the Record

Date of Meeting: _____
Location: _____
Start Time: _____ Finish Time: _____

Topic: _____
Department:_____
Meeting Leader: _____

In Attendance:

It really happened...

A window washer was killed when the elevated scissor lift he was operating flopped sideways, throwing him to the pavement below. He died shortly afterward from massive head and back injuries.

At the time of the accident, he was repositioning the self-propelled lift. It was equipped with an operational tilt sensor that automatically lowers the operator's platform when the tilt exceeds three degrees to any side. He was operating the lift on an eight-degree slope, exceeding the slope capacity by five degrees. However, the wires leading to the tilt sensor had been intentionally disconnected, leaving the window washer without any tilt protection.

To prevent similar incidents, these safe work practices should be followed:

- Ensure the elevating work platform(s) is equipped with fully functioning tilt sensors.
- Never override hydraulic, mechanical, or electrical safety devices.
- Maintain and operate elevating work platforms in accordance with the manufacturer's instructions.
- Before operating scissor lifts, check tilt sensors manually to ensure they are functioning.
- Use outriggers, if provided.