

## Policy and Procedure 8-18

# Workplace Safety – Aerial Lift Operations

**Issued By:** Bettina K. Ring, State Forester



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**Codes/Mandates:** OSHA 29 CFR 1910.67, Vehicle-mounted Elevating and Rotating Work Platforms – General Industry  
OSHA 29 CFR 1910.21, Definitions  
OSHA 29 CFR 1926.453, Aerial Lifts - Construction  
OSHA 29 CFR 1926.501(a)(1) and (b)(1), Fall Protection  
OSHA 29 CFR 1926.502, Fall Protection

**References:** N/A

**Forms:** N/A

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## PURPOSE

Lift vehicles are very convenient and indispensable. However, they can be dangerous equipment. Many people are injured and killed every year while working from aerial lifts. The two main causes are from falls and electrocutions. There are

many causes for falls, among them are: standing on or leaning and reaching over railings; stumbling over tools on the platform; being struck by falling objects; being knocked out of a bucket when the vehicle suddenly jerks due to improper operation or colliding with other vehicles, and when the bucket cables or the boom breaks and the bucket falls. Beside falls and electrocutions, workers are also injured or killed from: being struck by falling objects; collapses and tip-overs; entanglements; impact with objects, such as ceilings and other overhead objects, and getting caught between the lift bucket or guardrail and a structure. The purpose of this policy is to outline the procedures and training requirements that will provide for safe use of aerial lifts.

## POLICY

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VDOF uses aerial lift vehicles in some of the daily operations of the agency. Bucket trucks, for instance, are used for harvesting pinecones, pollination of chestnuts, general landscape maintenance and inspection and repair of buildings. Scissor lifts are used primarily for building maintenance. VDOF recognizes the inherent dangers involved in operating lift vehicles. The intent of this policy is to make the use of aerial lifts at VDOF safe by adhering to the training, inspection, maintenance and general operational requirements set forth in the OSHA standards for operation.

## DEFINITIONS

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**“Agency”** and **“VDOF”** means the Virginia Department of Forestry.

**“Commonwealth”** means the Commonwealth of Virginia.

**“Authorized (Approved) aerial lift operators”** means those people who have passed an approved Aerial Lift Training Course and who have been observed to operate the equipment in a safe and knowledgeable manner.

**“Approved aerial lift training course”** are in-house courses offered through VDOF or VDOT or other courses of at least equivalent content that are approved by the agency safety officer.

**“Aerial lift”** is any vehicle-mounted device that telescopes and/or articulates to position personnel above the ground, such as bucket trucks, aerial ladders, articulating booms, scissor/genie lifts, extendable boom platforms, vertical towers, etc.

**“Tailgate training”** is hands-on training customized to the type(s) of lift(s) an employee will be operating on the job. Tailgate training sessions are typically conducted in the field as small group sessions by an appointed, experienced operator. They are often conducted at the start of a job that employs the use of the lift (e.g., cone picking).

## PROCEDURES

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### General Provisions

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- ◆ Only trained and authorized (approved) operators are allowed to operate VDOF aerial lifts.
- ◆ VDOF lift operators may only operate lifts that they have been qualified to operate (see tailgate training requirement).
- ◆ Supervisors (direct or on-the-job) are responsible for ensuring that operators have the appropriate tailgate training before allowing them to use a lift; and, operators are responsible for notifying the supervisor if they have not received tailgate training on the specific machine that they need to operate.
- ◆ At least two operators will always be present when an aerial lift is being used, one in the bucket and one on the ground.
- ◆ The maintenance and operating manuals are considered to be integral parts of the aerial platform and are required to be on the machine at all times. They should be stored in the weather resistant storage compartment.

- ◆ Any lift not in safe operating condition will be removed from service. The lift will be tagged out of service {see VDOF Policy and Procedure 8-17 Workplace Safety – Lockout Tagout}.
- ◆ No lift shall be operated if the annual inspection is out-of-date.
- ◆ The insulated portion of an aerial lift shall not be altered in any manner that might reduce its insulating value.
- ◆ Aerial lifts may be “field modified” for uses other than those intended by the manufacturer, provided the modification has been certified in writing by the manufacturer to be in conformity with all applicable provisions of ANSI A92.2-1969 and to be at least as safe as the equipment was before modification.
- ◆ Operators should review previous inspections, especially the previous pre-use inspection, for any issues, comments or notes prior to operating the lift.
- ◆ Under no circumstance, will a person override hydraulic, mechanical or electrical safety devices.
- ◆ Fuel tanks will not be filled while the engine is running

In addition to any other markings or decals that are placed on the lift by the manufacturer, the following information must be clearly displayed on all lifts:

- ◆ Make, model, serial number and manufacturers name and address
- ◆ The rated workload, including rated number of occupants
- ◆ Maximum platform height

## Vehicle Positioning and Stabilizing

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- ◆ Operators will check the job site for hazards before driving a lift vehicle onto the site and will identify and mark hazards, such as holes, drop-offs, soft ground, bumps, debris, overhead power lines and other obstructions.
- ◆ Aerial devices are not to be operated on grades, side slopes or ramps that exceed the manufacturer’s recommendations. A five percent maximum incline is the most common manufacturers’ recommendation.
- ◆ Prior to executing a lift, the vehicle in which the lift is mounted needs to be positioned in such a way as to allow the boom and basket a full range of motion inside the work area.
- ◆ Lift vehicles will be positioned so that there is a minimum distance of 10 feet from all dangerous obstacles, such as other vehicles, tools and equipment, other lifts, trenches and pits, mechanical devices, pot holes, etc.
- ◆ Aerial lifts will not be positioned so that any part of the lift, or its load, is closer than 10 feet to an electrical line of 50kV (add a half an inch for each 1kV above 50kV).
- ◆ Aerial lifts will not be positioned against another object to steady the elevated platform.
- ◆ Once a lift vehicle is in the desired position, the brakes will be applied and outriggers (if equipped) and wheel chocks will be installed in order to stabilize the lift. (See section below on use of outriggers). Some lifts allow vehicle movement while the boom is extended and do not require stabilizing equipment. The aerial lift will be stabilized and will not be moved when the boom is elevated, unless the vehicle is designed to do so.

## During Operation of the Lift

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- ◆ The lift platform chains will be latched, or doors will be closed, prior to performing a lift and remain that way for the duration of the lift. Only when the platform is safely resting will they be removed or opened.
- ◆ Personnel are not, under any circumstances, to work closer than 10 feet from power lines.
- ◆ To prevent falls, personnel will:
  - Only perform work in areas which can be reached from inside the basket of the lifting device
  - Always stand firmly on the floor of the basket

- Not sit or climb on the edge of the basket
- Never attempt to climb outside of the basket or over extend the upper body beyond the railing of the basket.
- Make sure the floor is clear of debris
- Not use lifts in combination with other devices, such as ladders, planks or scaffolding, for the purpose of increasing work distance
- ◆ The lower controls are not to be operated unless permission has been obtained from the employee(s) in the elevated platform, except in the case of an emergency.
- ◆ Personnel shall not position themselves between overhead hazards, such as joists and beams, or the rails of the basket. Accidental movement of the lift could result in crushing.
- ◆ Unless the vehicle is specifically designed to do so, an aerial lift will never be moved when elevated.
- ◆ If an elevated platform becomes caught, snagged or otherwise does not operate properly, personnel will be removed from the platform prior to freeing the elevated platform using the ground controls.
- ◆ Operators will ensure the area surrounding the elevated platform is clear of personnel and equipment prior to lowering the platform.
- ◆ The manufacturer's rated load limits for working platforms will not be exceeded.
- ◆ Chainsaws must be tethered at all times while operating from a lift.
- ◆ Operators are responsible for safeguarding the people in the vicinity of the lifting equipment.
- ◆ Neither the lift boom nor basket must ever be positioned above pedestrians and other workers.
- ◆ If a lift is going to be used in an area near people, operators are required to isolate the work area by establishing a perimeter (can use danger signs, caution tape, cones, etc.) and safely diverting any pedestrian and/or vehicular traffic. The operator of the lift must ensure that the lift, boom and basket remain within the perimeter at all times.
- ◆ Aerial lifts will not be used as a crane or other lifting device.
- ◆ Employees will not position booms and elevated platform devices in an attempt to jack the wheels of the lift off the ground.
- ◆ Operation of aerial lifts outdoors is prohibited in adverse weather conditions including, but not limited to, the following:
  - When there are wind speeds of 25 mph or wind warning in effect of 25 mph or more
  - When lightening is visible
  - When thunderstorm warnings are in effect
  - Icy conditions
  - During sleet or snow
- ◆ To help avoid tip-over accidents, employees will:
  - Not exceed the manufacturer's rated load capacity limits
  - Not drive near leading edges or holes
  - Not raise the platform on a slope or drive onto a slope when elevated.
  - Not drive on uneven or soft surfaces when elevated
  - Conduct workplace inspections to identify hazards
  - Not use the platform in windy conditions

## Inspections

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### Lift Inspections

- ◆ Aerial lifts will be inspected and dielectrically tested annually, 29 CFR 1910.67 (c)(3). The inspection shall be performed by a qualified mechanic who is authorized to perform maintenance duties on the lift. The inspection must include all items specified by the manufacturer and the electrical tests shall be made in conformance with the requirements of ANSI A92.2 – 2001, Section 5.
- ◆ The supervisor of the unit owning the lift is responsible for ensuring that all required inspections are conducted and properly documented.
- ◆ Lifts needing corrective actions will be immediately removed from service until the fixes have been completed.
- ◆ All inspection records must be maintained and be readily available for review.
- ◆ A copy of the most recent pre-use inspection must be stored on the lift.
- ◆ Preventative maintenance inspections will be conducted in accordance with timeframes noted in the owner's manual.
- ◆ Pre-use inspections will be conducted by the operator of the vehicle prior to using the lift each day. The objective is to identify any hazards, damage or leaks and ensure that all controls are properly working. The pre-use inspection should check:
  - Operating and emergency controls and safety devices
  - Personal protective devices
  - Air, hydraulic and fuels systems for leaks
  - Cables and wiring harness
  - Parts - broken, damaged, lose or missing
  - Tires for bulges, cuts and pressure
  - Weld integrity for damage such as cracks and rust on or around welded pieces
  - Required decals, stickers, warnings, placards, etc. – ensure that all are in place, legible and understandable
  - Outriggers, stabilizers and other structures
  - Guardrail system
  - Lights (beam, directional and safety)
  - Other items specified by the manufacturer

### Workplace Safety Inspections

A workplace inspection (inspection of the physical surroundings) must be conducted prior to using the lift. The operator must visually check the workplace area where the lift is to be used to identify potential hazards. Hazards include but are not limited to:

- ◆ Slopes and uneven ground
- ◆ Drop-offs, holes, bumps, floor obstructions, debris
- ◆ Overhead obstructions and energized power lines
- ◆ Hazardous locations and atmospheres
- ◆ Inadequate surface and support to withstand all load forces imposed by the aerial lift platforms.
- ◆ Wind and weather conditions
- ◆ Presence of pedestrians or any other unauthorized people

- ◆ Other possible unsafe conditions

## Personal Protective Equipment (PPE) and Fall Protection

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- ◆ A PPE hazard assessment must be conducted, by the job supervisor, prior to conducting any work to determine what type of PPE is required for the job. The supervisor is responsible for ensuring that any required PPE is provided, personnel are shown how to use it and that the PPE is properly worn.
- ◆ Minimally, all users of lifts (elevated to four or more feet off the ground for general industry and six foot for construction) are required to wear an approved personal fall arrest system consisting of a full body harness and a lanyard properly attached to an approved attachment point. Other PPE, such as hardhats, gloves, protective eyewear, etc., shall be worn as per the determination of the job hazard assessment.
- ◆ In addition to the fall arrest system, operators conducting chainsaw operations in the lift must comply with PPE requirements for chainsaw operations {see VDOF Policy and Procedure 8-20 Workplace Safety – Chainsaw Operations and 8-14 Workplace Safety – Personal Protective Equipment}.
- ◆ All personnel must remain tied-off until work is finished and the basket has been safely lowered.
- ◆ Safety harnesses will be attached, via the lanyard, to an approved anchor point only – never to an adjacent structure or another portion of the lift.
- ◆ Personal fall arrest system requirements:
  - Limit maximum arresting force on an employee to 1,800 pound when used with a body harness.
  - Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
  - Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six feet, or free fall distance permitted by the system, whichever is less.
- ◆ All PPE, including the personal fall arrest system, must be inspected prior to each use for mildew, wear, damage and other deterioration. Defective PPE and components must be removed from service.
- ◆ Personnel fall arrest systems or components subjected to impact loading must be immediately removed from service and must not be used again for employee protection unless inspected and determined by a competent person to be undamaged and suitable for reuse.
- ◆ Minimally, PPE will be replaced according to timeframes recommended by the manufacturer (check for expiration dates).
- ◆ When using an aerial lift, the following safety equipment should be on site: first aid kit, fire extinguisher, 60 foot lifeline and wheel chocks.

## Maintenance and Repair of Lifts

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- ◆ Maintenance and repair of aerial lifts will be performed by trained and experienced professionals.
- ◆ Lifts will be de-energized and locked and tagged out before maintenance or repairs are performed. If performing repairs in-house, follow agency lockout tagout procedures {see VDOF Policy and Procedure 8-17 Workplace Safety – Lockout Tagout}.
- ◆ Welding operations will be conducted as per Automotive Welding Society (AWS) Standards.
- ◆ Repairs to the fuel and ignition systems of the lifts that involve fire hazards, must be conducted only in locations designated for such repairs.
- ◆ The battery must be disconnected for any repair involving the electrical system.
- ◆ All parts used in the repair and maintenance of the lift must be recommended by the manufacturer.

- ◆ Spillage of oil or fuel must be carefully cleaned up and the fuel tank replaced before restarting the engine.
- ◆ Proper Personal Protective Equipment (PPE) must be used when conducting maintenance.

## Battery Changing and Charging

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- ◆ Battery changing and charging must be conducted in an intrinsically safe environment with adequate ventilation.
- ◆ Facilities must provide for:
  - Flushing and neutralizing of spilled electrolytes
  - Fire protection (10-lb ABC fire extinguisher within 20 feet)
  - Protection of charging apparatus
  - Emergency eyewash – must be accessible in any area where electrolyte is added to the batteries
- ◆ Precautions must be taken to prevent open flames, sparks or electric arcs in battery charging areas
- ◆ Proper PPE (protective clothing including face shields, long sleeves, boots, aprons and gloves) must be worn.

## Platform and Railing

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- ◆ Platform width must be not less than 18 inches and must have slip resistant surface.
- ◆ For lifts that have railing verses buckets:
  - The platform must have a guardrail system completely around its periphery.
  - The railing should be removable or able to be lowered. The means used to secure it in the normal operating position must be readily accessible for inspection and maintenance.
  - The guardrail system must include a top rail that is between 39 and 45 inches high, a mid-rail that is approximately half-way from the platform to the top rail and a toe board that is at least four inches high.

## Outriggers Use

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- ◆ Outriggers will be positioned on a cribbing pad or a solid surface such as concrete or asphalt. Cribbing will always be used when positioning outriggers on soil.
- ◆ Outriggers will be positioned on level ground. If positioned on soil, check the soil density to ensure that the surface is stable and not recently backfilled.
- ◆ Always bring the outrigger straight down, never at an angle.
- ◆ Employees will not stand behind an outrigger, or between an outrigger and another object, when it is being retracted. The center of gravity can shift during lifting activities and the sudden release of the outrigger could cause the vehicle to lunge.

## Training

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### Trainers

- ◆ Aerial lift trainers for VDOF must complete VDOF's Aerial Lift Operator Course and VDOT's Aerial Lift Operator Course; have demonstrated experience operating aerial lifts, and be approved by the agency safety officer.

## Instructors

- ◆ Personnel teaching tailgate training sessions must complete VDOF's Aerial Lift Operator Course; have demonstrated experience as a lift operator for the type of aerial lift/s at the tailgate session, and be approved by an agency lift trainer or the agency safety officer.

## Operators

- ◆ Prior to operation of an aerial lift, employees (paid and non-paid) must complete the Aerial Lift Operator Course. Upon satisfactory completion the employee will be designated as an approved aerial lift operator.
- ◆ In addition to the Aerial Lift Operator Course and prior to operation of an aerial lift, employees (paid and non-paid) must complete a Tailgate Training session for each model of lift he/she will be using on the job. Tailgate training qualifies the operator to use a particular piece of equipment. This is required before initial use of the machine and then at least annually as a refresher. They are conducted to ensure that employees who have not used a particular model lift, or employees who do not use lifts regularly, are trained/refreshed on specific operations. The instructor must ensure that each operator is proficient with the operation of the particular machine the employee will be operating.
- ◆ All lift operators must have current first aid and CPR training.
- ◆ Prior to operating an aerial lift that includes chainsaw operations, the operator must also have completed the following VDOF Chainsaw Training Course.
- ◆ Operators must review the Virginia Department of Labor and Industry's Unique Standard Overhead High Voltage Line Safety Act 59.1-406-414. Found in the VLC.
- ◆ It is highly recommended that aerial lift operators also receive formal fall protection training.
- ◆ It is recommended that all operators read the operator manual for the lift they will be using.

## VDOF's Aerial Lift Operator Course

- ◆ Is designed to provide a broad understanding of lift safety and basic operations and includes both formal classroom instruction as well as a field practical.
- ◆ The formal classroom instruction will cover at minimum:
  - The hazards associated with aerials lifts, particularly those associated with falls, falling objects and electrocutions
  - The purpose and use of operator manuals and where they must be located
  - General lift operation
  - Importance of adhering to maximum load capacities, manufacturer requirements and/or warnings, safety placards and warnings
  - Proper fueling and/or battery charging procedures
  - When and how to perform inspections
  - Identification of malfunctions and problems
  - Safety rules, policies and regulations (i.e., VDOF, OSHA)
  - Use, care and inspection of any required PPE with emphasis on the correct use of a personal fall arrest system
- ◆ The field practical employs the use of demonstrations, hands-on practice and an evaluation. It ensures that the employee can safely operate a lift, as the employee must show operational proficiency during this part of the course. The practical will minimally include the following:
  - Demonstration on the operation of all controls (The operator manual will be used by the instructor to customize this part of the instruction.)

- Demonstrate the use of all switches, drive mechanisms, adjustments and controls (both lower and upper controls)
- Demonstrate the use of outriggers and stabilizing equipment
- Demonstrate the use of all gauges, horns and lights
- Explanation of the hydraulics
- Identification of workplace specific hazards and ways to avoid unsafe conditions including factors affecting stability
- Supervised operator practice
- Operator skills evaluation

## Tailgate Training Session

- ◆ The content is the same as that in the practical part of the operator course (see above) except that it is specific to the machine being operated by the employee.

## Retraining Requirement

- ◆ Retraining shall be provided to authorized or affected employees when:
  - If an operator has been observed to operate a lift in an unsafe manner;
  - If an operator has been involved in an accident or near-miss incident;
  - If an operator has received an evaluation that reveals the operator is not operating the lift safely;
  - If a new lift has been introduced or the operator has been assigned to a different type of lift, and
  - If conditions in the workplace change in a manner that could affect the safe operation of the lift.

## Training Records

- ◆ Completion of the VDOF's Aerial Lift Operator Course will be documented on personnel transcripts in the VLC. Trainers should coordinate with the VLC Administrator to ensure that these records are established.
- ◆ Tailgate training should be documented by the employee in their time accounting records as training received with a note made on the model of machine; it should be documented by the instructor in their time accounting records as training given with a note on the model of machine.

## AUTHORITY

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This policy and procedure is issued by the Virginia state forester.

## INTERPRETATION

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The director of human resources and agency safety officer are responsible for the interpretation of this policy and procedure.