Occupational Health and Safety

Aerial Lift Safety Program

Revision Date: 6-19-2017

TABLE OF CONTENTS

Aerial Lift Safety Program

1.0 Overview

Aerial lifts are commonly used in construction, inspection, athletic events and repair services to lift University employees to an elevated work position. Proper operation and use of aerial lifts can make completion of tasks at elevation, safer and more efficient. However, unsafe use, operation and aerial lift work practices can result in serious injury. This program has been developed due to the hazards associated with improper use and the university's concern for the safety of individuals in and around this type of equipment. In addition, this program outlines general, operating, maintenance, inspection and training requirements governing safe aerial lift use at the University.

2.0 Policy

Departments using aerial lifts must ensure that supervisors and operators comply with all aspects of this safety program. All university employees must successfully complete a training program, and receive certification prior to the operation of any aerial lift. Contractors operating aerial lifts on university projects are expected to meet or exceed the requirements found in this program, and comply with all applicable statues and regulations governing the use of powered industrial trucks as listed in Section 3.0 of this document.

3.0 Requirements

Several OSHA regulations and ANSI standards apply to aerial lifts and include provisions for design, operator training, and safe operating practices, these include:

- 29 CFR 1910.67 (Vehicle Mounted Elevating and Rotating Work Platforms)
- 29 CFR 1926.453 (Aerial Lifts)
- 29 CFR 1926.451 & .452 (Scaffolds)
- 29 CFR 1926.20 (General Safety and Health Provisions)
- 29 CFR 1926.21 (Safety Training and Education)
- Section 5 of the OSHA Act, commonly referred to as the "General Duty Clause."
- American National Standards Institute (ANSI), A92.3, Manually Propelled Elevating Aerial Platforms
- ANSI, A92.6, Self-Propelled Elevating Work Platforms
- ANSI, A92.2, Vehicle Mounted Elevating and Rotating Aerial Devices
- ANSI, A92.5, Boom-Supported Elevating Work Platforms

4.0 Purpose

This program has been developed to reduce the risk of physical injury or property damage in areas where aerial lifts are in operation. It also brings the university into compliance with federal, state, and local law.

5.0 Scope

This program applies to the operation of all aerial lifts operated by university employee. Please see Appendix B – Examples of Aerial Lifts for specific examples. Please list below the types of lifts used by the department.

Aerial Lift Procedures

5.1 Pre-Use Inspection

- Prior to the operation of any aerial lift the Pre-Use Inspection Checklist found in Appendix A must be completed. This applies at the beginning of every work period, and whenever a new equipment operator takes control of the aerial lift.
- Any safety defects (such as hydraulic fluid leaks; defective brakes, steering, lights, or horn; and/or missing fire extinguisher, lights, seat belt, or back-up alarm) must be reported for immediate repair. They must also be locked and tagged, and taken out of service.

5.2 General Safe Work Practices

- Operators shall not wear any loose clothing or any accessory that can catch in moving parts.
- Before machine is started, the operator must walk completely around the machine to ensure everyone and everything is clear of the machine.
- Articulating boom and extendable boom platforms, primarily designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

- Modifications and additions that may affect the capacity or safe operation of an aerial/scissor lift are strictly prohibited without the manufacturer's written approval. Capacity, operation, and maintenance instruction markings will be changed as necessary if the manufacturer approves a modification.
- The insulated portion (if applicable) of an aerial / scissor lift shall not be altered in any manner that might reduce its insulating value.
- Any signs, plates, or decals which are missing or illegible must be replaced.
- If the aerial / scissor lift becomes disabled, a "out of service" tag or equivalent shall be attached to the controls inside the platform in a conspicuous location.
- Aerial/scissor lift devices with noted, reported deficiencies shall not be operated until repairs are made and equipment is authorized for use.
- Operators must report all accidents, regardless of fault and severity, to their Supervisor.

5.3 Safe Work Practices Before Operation

- Consideration shall be given to the amount of wind. Follow the manufacturer's instruction regarding operation in windy conditions. As a general rule aerial lifts shall not be operated in winds exceeding 25mph although this can vary depending on the model of equipment
- At 25mph wind speeds or anticipated gusts, lifts will be grounded.
- If at any time, video personnel/staff feels unsafe in lifts, they may make decision to ground the lifts and cease with videotaping games or practices…no questions asked.
- Guardrails must be installed and access gates or openings must be closed before raising the platform.
- Boom and platform load limits specified by the manufacturer shall not be exceeded.
- Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position (if equipped).
- Consideration shall be given to the protection of bystanders via barricading, having another employee keep bystanders at a safe distance or by other means.
- Aerial lifts shall not be operated from trucks, scaffolds, or similar equipment.
- ANSI and OSHA standards specify minimum safe distances that are to be maintained while working in an aerial lift, as indicated in the table below. If these distances cannot be achieved, do NOT use the equipment.

<50 KV	10 ft
50 - <199 KV	15 ft
200 – 349 KV	20 ft
350 – 499 KV	25 ft
500 – 749 KV	35 ft
750 – 1000 KV	45 ft

5.4 Safe Operation

- Attention shall be given towards the direction of travel, clearances above, below and on all sides.
- Employees shall not sit or climb on the guardrails of the aerial lift.
- Planks, ladders or other devices shall not be used on the work platform.
- An aerial lift shall not be moved when the boom is elevated in a working position with employees in the basket.
- Aerial lift shall not be placed against another object to steady the elevated platform.
- Aerial lift shall not be used as a crane or other lifting device.
- Aerial lift devices shall not be operated on grades, side slopes or ramps that exceed the manufacturer's recommendations.
- The brakes shall be set and outriggers, when used, shall be positioned on pads or a solid surface.
- Speed of aerial lift devices shall be limited according to the conditions of the ground surface, congestion, visibility, slope, location of personnel and other factors that may cause hazards to other nearby personnel.
- Stunt driving and horseplay shall not be permitted.
- Booms and elevated platform devices shall not be positioned in an attempt to jack the wheels off the ground.
- The area surrounding the elevated platform shall be cleared of personnel and equipment prior to lowering the elevated platform.
- All equipment must be secured on the inside of the aerial lift
- Operators are to call for assistance if the platform or any part of the machine becomes entangled.

5.5 Safe Work Practices After Operation

- Safe shutdown shall be achieved by utilizing a suitable parking area, placing the platform in the stowed position, placing controls in neutral, idling engine for gradual cooling, turning off electrical power, and taking the necessary steps to prevent unauthorized use.

- Aerial lifts shall be shut off prior to fueling. Fueling must be completed in well ventilated areas free of flames, sparks or other hazards which may cause fires or explosions.

5.6 Changing and Charging Batteries

- Battery charging installations must be located in areas designated for that purpose
- Facilities must provide for: flushing and neutralizing spilled electrolyte, fire protection, protection of charging apparatus from damage by trucks, adequate ventilation for dispersal of fumes from gassing batteries.
- Precautions must be taken to prevent open flames, sparks, or electric arcs in battery charging areas.
- Employees charging and changing batteries shall be authorized to do the work, trained in the proper handling, and required to wear protective clothing, including face shields, long sleeves, rubber boots, aprons, and gloves.

5.7 Maintenance

- Any aerial lift not in safe operating condition must be removed from service. Authorized personnel must make all repairs.
- Repairs to the fuel and ignition systems of aerial lifts that involve fire hazards must be conducted only in locations designated for such repairs.
- Aerial lifts in need of repairs to the electrical system must have the battery disconnected before such repairs.
- Only use replacement parts that are currently recommended by the manufacturer.

6.0 Responsibilities

6.1 Departments Utilizing Powered Industrial Trucks

- Must implement and administer the Aerial Lift Safety program.
- Review the Aerial Lift Safety program annually for compliance and effectiveness.
- Verify that all employees who operate or work near aerial lifts are properly trained.
- Maintain written records of operator training on each model of aerial lift and the name of the trainer.

- Maintain written records of all inspections performed by the aerial lift owner, including the date any problems found, the date when fixed, and the name of the person performing the repairs.
- Maintain written records of the name and purchaser of each aerial lift.
- Make recommendations for revisions if necessary.
- Establish expected operating conditions for aerial lift and send to OHS to review prior to operation

6.2 Supervisors

- Coordinate employee training, and certify that all operators receive annual training including, but not limited to, the items listed in Section 8.0 of this document.
- Ensure that only trained and qualified individuals use aerial lifts.
- Verify employee compliance with the principles and practices outlined in the Aerial Lift Safety Program.
- Provide specific operational training for each aerial lift.
- Observe the operation of aerial lifts, and correct unsafe practices.

6.3 Operators

- Read the Aerial Lift Safety Program.
- Complete the Daily Pre-Use Inspection Checklist before operating any aerial lift.
- At least annually review the procedures outlined in Section 6.0 of this document.
- Observe the operation of the aerial lift, and report unsafe practices to your supervisor.

6.4 Occupational Health and Safety Coordinator

- Annually review and update the Aerial Lift Safety Program as necessary.
- Provide orientation and initial training as requested by university departments and/or contractors.
- Provide the general safety training requirements for program.
- Monitor the effectiveness of program by receipt of copies of inspection checklists.
- Evaluate designated areas for aerial lift use.
- Define appropriate eyewash facilities for battery changing/charging areas.
- Observe the operation of aerial lifts, and report unsafe practices to the appropriate supervisor.

7.0 Training Requirements

- Employees who are authorized to operate aerial lifts must receive training prior to engaging in their duties, and at least every three (3) years thereafter. The training is to ensure that the Aerial Lift Safety Program is understood. The supervisor will also ensure that authorized aerial lift operators have acquired the necessary practical skills required for safe operation. Training is offered by Occupational Health and Safety, Rental Company and the department in possession of the lift. The department along with the rental company will perform an operational training with each employee to determine if operators have the knowledge, training, and skills necessary to use the aerial lift. Operational training will consist of a combination of general safety instruction, practical/operational training (demonstrations performed by the trainer, and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace. All operational training must be conducted under close supervision.

7.1 Initial Training

- Receive instruction on the intended purpose and function of each control.
- Prior to operating any Aerial Lift the trainee will read and understand the manufacturer's operating instruction(s) and aerial lift procedures (Section 6.0), or receive training by a qualified person on the contents of the manufacturer's operating instruction(s) and users safety rules.
- Be informed of the Aerial Lift operating limitations and restrictions as defined by the manufacturer.
- Understand by reading or having a qualified person explain all decals, warnings, and instructions displayed on the Aerial Lift.
- During operational training, trainees may operate a aerial lift only under the direct supervision of authorized trainers, and where such operation does not endanger the trainee or other employees.
- All training and evaluation must be completed before an operator is permitted to use an aerial lift without continual and close supervision.

7.2 Annual Training – must include at least the following

- Review of the Aerial Lift Inspection & Maintenance Record • Review of Section 6.0 – Procedures.
- Updated information on new equipment.
- Review of university written program.

7.3 Training Records

- Each department must maintain a record of all individual training, including:
    - Subject of training.
    - Date of training.
    - Name of individual trained.
    - Name of supervisor or Occupational Health and Safety person providing the training.
    - Training records must maintained by the department for a minimum of 3 years.

8.0 Program Evaluation

- The aerial lift program shall be evaluated on an annual basis utilizing the protocols set forth by Occupational Health and Safety. The evaluation team will consist of a department representative and a designee from Occupational Health and Safety. Occupational Health and Safety will define the scope of the evaluation. The final report will be developed by the department representative and OHS utilizing the information received during the evaluation. The deficiencies determined in the report will be documented and corrective action plans will be developed.

Appendix A
Aerial Lift Inspection & Maintenance Record

OSHA regulation 29 CFR Part 1926.453(b)(2)(i) requires owners and operators to perform daily pre-shift inspections of their aerial lifts. This Aerial Lift Inspection & Maintenance Record is provided to help you meet this requirement. The information contains a pre-use inspection checklist, frequent inspection checklist, work area inspection checklist and a maintenance record. If you have any questions about the use of the inspection and maintenance record please call:

Michael Turner
UK Occupational Health and Safety
michael.turner1@uky.edu
859-257-3862

Department	
Manufacturer	
Model #	
Serial #	
Aerial Lift ID	
Aerial Lift Location	

Repair & Maintenance Record

Date	Description of Work	Maintenance Performed By

Pre-Use Inspection Checklist for Aerial Lifts

Instructions: The operator shall inspect aerial lifts prior to placing the machine in service at the beginning of each work shift. Deficiencies noted on the inspection form shall be corrected prior to operation. If the deficiencies cannot be corrected, the aerial lift shall not be used and lockout/tag-out procedures initiated according to the Aerial Lift Policy.

Aerial Lift Make: _____ Model: _____ S/N: _____

Date Completed: _____ Inspected By: _____

Inspection Item	OK	Repair	Comments
Operating and emergency controls			
Safety devices			
Structural and other critical components present and all associated fasteners and pins in place			
Personal protective devices (harness, lanyard etc)			
Fluid levels checked (hydraulic oil, engine oil, coolant etc)			
Hydraulic power unit, reservoir, hoses, fittings, cylinders, and manifolds			
Electrical components, wiring harness, and electrical cables			
Loose or missing parts			
Tires and wheels			
Placards, warnings, and control markings			
Owner's manual legible and stored inside container located on platform			
Outriggers, stabilizers and other structures			

Guardrail system			
Cracks in welds or structural components			
Dents or damage to machine			
Other items specified by manufacturer			

This form must be kept on file for 30 days and is subject to review by the Occupational Health & Safety Office. Documentation of repairs shall be maintained with the aerial lifts preventive maintenance records.

Frequent Inspection Checklist for Aerial Lifts

Instructions: Any time an aerial platform lift has not been used for a period of 3 months or more (or after the lift has been purchased) a frequent inspection shall be performed by a qualified person and shall include the following:

Aerial Lift Make: _____ Model: _____S/N: _____

Date Completed: _____ Inspected By: _____

Inspection Item	OK	Repair	Comments
All functions and their controls for speed(s) smoothness, and limits of motion			
Lower controls including the provisions for overriding of upper controls			
All chain and cable mechanisms for adjustment, wear or damaged parts			
All emergency and safety devices			
Lubrication of all moving parts, inspection of filter element(s), hydraulic oil, engine oil, and coolant as specified by the manufacturer			
Visual inspection of structural components and other critical components such as fasteners, pins, shafts and locking devices			
Placard, warnings and control markings			
Additional items specified by the manufacturer			

This form must be kept on file for 30 days and is subject to review by the Occupational Health & Safety Office. Documentation of repairs shall be maintained with the aerial lifts preventive maintenance records.

Work Area Inspection Checklist for Aerial Lifts

Instructions: Before an aerial lift is used and during use, the operator shall check the area in which the aerial platform lift is to be used for possible hazards such as, but not limited to:

- Drop-offs or holes
- Slopes
- Bumps and floor obstructions
- Debris
- Overhead obstructions and high voltage conductors
- Hazardous locations and atmospheres
- Tools and/or other equipment
- Inadequate surface and support to withstand all load forces imposed by the aerial platform lift
- Wind and weather conditions
    - At 20mph wind speeds or anticipated gusts, lifts will be lowered to a maximum height of 20 ft
    - At 25mph wind speeds or anticipated gusts, lifts will be grounded
- Presence of unauthorized people
- Other possible unsafe conditions

This form must be kept on file for 30 days and is subject to review by the Occupational Health & Safety Office.

Appendix B: Example of Aerial Lifts

	**Vehicle Mounted Aerial Lift / Bucket Truck** The lift platform is an integral part of an over the road vehicle.
	**Articulating Boom Aerial Lift** This aerial lift has at least 2 hinged sections which are used to increase mobility.
	**Man Lift / Cherry Picker** This piece of equipment lifts personnel vertically, but not horizontally.
	**Scissor Lift** This piece of equipment lifts personnel vertically, but not horizontally.
	**Extendable / Telescoping Aerial Lift** This aerial lift has a boom that extends horizontally and vertically.