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1. Purpose

Aerial lifts and booms 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 work practices can result in serious injury.

2. Objective

The University of Alaska Anchorage (UAA), in its continuing effort to provide employees with safe and healthful working conditions, and to comply with the Occupational Safety and Health Act, is implementing the following procedures for the use of lifts and booms.

3. Scope

This program applies to UAA employees, students, faculty, staff, and outside contractors working on UAA equipment who work with, or are around, lifts and booms.

4. Definitions

Aerial Device - any vehicle-mounted device, telescoping or articulating, or both which is used to position personnel

Articulating boom platform - an aerial device with two or more hinged boom sections

Extendable boom platform - an aerial device with a telescopic or extendible boom

Mobile unit - a combination of an aerial device, its vehicle, and related equipment

Platform - any personnel-carrying device (basket or bucket) which is a part of an aerial device

5. Authority and Responsibilities

In addition to the roles and responsibilities outlined in the UAA Training Program, the following apply to the Lifts and Booms Program.

EHS/RM

- Assist departments with selection of appropriate lift equipment for job tasks based upon the work-environment
- Create, track, and/or conduct inspections on fall protection equipment where applicable with this standard

Supervisor

- Ensure operators adhere to specific safe-work practices whenever using these types of powered industrial equipment including use of personal protective equipment (PPE) and fall arrest equipment as required

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- Ensure employees, student workers, faculty, staff, and outside contractors are trained, licensed and authorized to operate the specific type of equipment in the department prior to work with lifts and booms
- Ensure proper maintenance of equipment per manufacturers recommendations

Department Safety Coordinator

- Periodically inspect equipment
- Ensure defective, damaged, or prohibited equipment are removed from service
- Ensure shiftly aerial lift and boom inspections are taking place and documented

Employees

- Conduct documented safety inspections of lifts and booms prior to use
- Do not use, and report to supervisor and/or Department Safety Coordinator, any equipment found to need repair, be defective, or is inoperable

Contractors and Vendors

- Ensure all employees operating lifts and booms at UAA are certified and trained for the specific equipment to be used
- Provide proof of training certification for specific equipment used
- Ensure all lifts and booms used on site are maintained per manufacturers recommendations

6. Hazards Associated with Aerial Lifts

The following hazards, among others, can lead to personal injury or death:

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

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7. Engineering Controls

Engineering controls are design plans or changes to the working environment to prevent or reduce employee exposure to potential hazards associated with aerial lifts and booms. The following example of engineering controls should be considered in area design to reduce the risk of falls:

- Relocation of equipment requiring access to a new location where workers can reach them without the use of aerial lifts and booms
- Installation of stairways and work platforms in areas where tasks require frequent use of aerial lifts and booms to reach a location
- Include accessibility of frequently used maintenance items in engineering design and review of new installations

8. Administrative Controls

Administrative controls are safe work practices and procedures designed to reduce the risks associated with aerial lifts and booms. Examples of administrative controls include the following:

- Training for employees who work with lifts and booms
- Routine inspections of lifts and booms to ensure they are in safe working condition
- Immediate removal of any lift and boom that are found to be damaged or defective
- Provide employees with the proper equipment for their job tasks

9. Procedures

Pre-Use Inspection

Prior to use the following inspections must be performed on lifts and booms:

- Prior to the operation of any aerial lifts and booms 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. The defective equipment must also be locked and tagged and taken out of service
- Do not operate any aerial lift if any components are defective until it is repaired by a qualified person

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Work Zone Inspections

Prior to aerial lift and boom operators must inspect the work zone for hazards and take corrective actions to mitigate any hazards before and during operation of aerial lifts and booms. Items to identify include:

- 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 obstruction
- Other hazards locations and atmospheres
- High wind and other severe weather conditions such as ice
- The presence of others in close proximity to the work

During Lift Operation

Operators must do the following during lift operation:

Fall Protection

- Ensure that access gates or opening are closed including attaching chain guard at the entrance of scissor lifts
- Stand Firmly on the floor of the bucket or lift platform
- Do not climb on or lean over guardrails or handrails
- Do not use planks, ladders, or other devices as a working position
- Use a body harness or a restraining belt with a lanyard attached to the boom or bucket while in a boom lift or per manufacturers recommendation
- Do not tie-off to adjacent structures or poles while in the bucket.

Operation/Traveling/Loading

- Do not exceed the load-capacity limits. Take the combined weight of the worker(s), tools and materials into account when calculating the load
- Do not use the aerial lift as a crane
- Do not carry objects larger than the platform

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- Do not drive with the lift platform raised (unless the manufacturer's instructions allow this)
- Do not operate lower level controls unless permission is obtained from the worker(s) in the lift (unless in an emergency)
- 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

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 away
- ANSI and OSHA standards specify minimum safe distances from power lines based on voltage 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

- Ensure that the power utility or power line workers de-energize power lines in the vicinity of the work

Stability in the Work Zone

- 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

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Safe Work Practices After Operation

The following should be considered after the use of lifts and booms:

- 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

Changing and Charging Batteries

The following is required for battery changing/charging areas:

- Battery charging installations must be 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

Maintenance

The following must be followed for lift and boom maintenance activities:

- Any aerial lift not in safe operating condition must be removed from service, and repaired by authorized personnel
- 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

10. Training

The training program is to ensure that the Aerial Lift and Boom Safety Program is understood by workers using that equipment. The supervisor will also ensure that authorized aerial lift operators have acquired the necessary practical skills required for safe operation. ESH/RM will assist in the

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determination of suitable trainers to 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. Operational training will be conducted under close supervision.

Departments must provide training to personnel operating lifts upon initial assignment and at least annually thereafter on the following:

- Review of the Aerial Lift Inspection & Maintenance Record
- Review of Procedures
- Updated information on new equipment
- Review of written program

Retraining will be provided when the following occur:

- Change in workplace operations or equipment
- A near loss or accident occurs during aerial lift use

11. Program Evaluation

The aerial lift program shall be evaluated on an annual basis utilizing the protocols set forth by EHS/RM. The evaluation team will consist of a department safety coordinator and a designee from EHS/RM. EHS/RM will define the scope of the evaluation. The final report will be developed by the EHS/RM utilizing the information received during the evaluation. The deficiencies determined in the report will be documented and corrective action plans will be developed.

12. References

Several OSHA and AKOSH regulations 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 AKOSH Act, commonly referred to as the “General Duty Clause.”

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13. Revision History

Revision Number	Date Revised	Description of Change	Revised By	Approved By
0	10/08/2018	Initial Issue		VC Shuford
1	06/17/2021	Format and review	N VanG	
2				
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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 Program.

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 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			