Aerial Lift Program

Northern Illinois University

Environmental Health and Safety
7/17/17
## Review and Updates

<table>
<thead>
<tr>
<th>Date</th>
<th>Reviewed by</th>
<th>Changes Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/20/15</td>
<td>Mary Schlagel</td>
<td>Updated EH&amp;S duties.</td>
</tr>
<tr>
<td>5/26/16</td>
<td>Mary Schlagel</td>
<td>Updated Daily Aerial Lift Safety Checklist.</td>
</tr>
<tr>
<td>7/6/16</td>
<td>Mary Schlagel</td>
<td>Updated Responsibilities section.</td>
</tr>
<tr>
<td>7/17/17</td>
<td>Mary Schlagel</td>
<td>Updated Responsibilities, Inspection &amp; Operator Training sections</td>
</tr>
</tbody>
</table>
Contents

Contents ............................................................................................................................................. 3
Purpose .................................................................................................................................................. 4
Applicable Regulations and Standards ................................................................................................. 4
Scope ................................................................................................................................................... 4
Responsibilities ................................................................................................................................... 4
  Environmental Health and Safety Department (EH&S) ................................................................. 4
  Department Supervisors ............................................................................................................... 4
  Operators ....................................................................................................................................... 5
  Contractors ................................................................................................................................... 5
Care of Lifts ......................................................................................................................................... 5
Inspection of Lifts ............................................................................................................................... 5
Inspection of Work Area and Route to the Work Area ...................................................................... 6
Operator Training ............................................................................................................................. 6
Safe Work Practices .......................................................................................................................... 7
  Before Operating Lift ...................................................................................................................... 7
  Moving and Operation of Lift ........................................................................................................ 7
  After Operation of Lift .................................................................................................................. 8
  Maintenance .................................................................................................................................. 8
  Batteries and Charging .................................................................................................................. 8
Rented Lifts ......................................................................................................................................... 8
Appendix A ......................................................................................................................................... 9
Aerial Lift Pre Operation Checklist .................................................................................................. 10
Appendix B ......................................................................................................................................... 11
OUT OF SERVICE sign ..................................................................................................................... 12
Purpose
The purpose of this program is to establish guidelines for the safe operation of aerial lifts by University employees. It requires training in aerial lift operation to assure employee operators have a basic understanding of safe operation and potential hazards of the specific lift equipment used by their departments. This is done in order to provide a safe working environment for Northern Illinois University employees, contractors, visitors and bystanders and comply with OSHA standards.

Applicable Regulations and Standards
OSHA 29 CFR 1910.66 (Powered Platforms for Building Maintenance)
OSHA 29 CFR 1910.67 (Vehicle Mounted Elevating and Rotating Work Platforms)
OSHA 29 CFR 1910.68 (Man-lifts)
OSHA 29 CFR 1926.20 (General Safety & Health Provisions)
OSHA 29 CFR 1926.21 (Safety Training and Education)
OSHA 29 CFR 1926.451 (General Requirements)
OSHA 29 CFR 1926.452 (Scaffolds)
OSHA 29 CFR 1926.453 (Aerial Lifts)
ANSI/SIA A92.2-2009 (Vehicle Mounted Elevating and Rotating Aerial Devices)
ANSI/SIA A92.3-2006 (Manually Propelled Elevation Aerial Platform)
ANSI/SIA A92.5-2006 (Boom-Supported Elevating Work Platform)
ANSI/SIA A92.6-2006 (Self-Propelled Elevated Work Platforms)

Scope
This program applies to all powered or manually operated personnel lifting devices being operated by NIU personnel or labor contractors regardless of location. Types of lifts are:

- **Telescoping**, such as scissor lifts and vertical man-lifts. The only direction the platform or personnel basket goes is up or down. This type is generally used indoors.
- **Articulating**. The platform or basket moves up, down and sideways. There may be one or more hinged sections. This type is generally used outdoors but occasionally indoors.
- **Vehicle-Mounted or Boom-lift Trucks**, where the platform or basket is mounted on a vehicle. There may or may not be hinged boom sections. The boom may or may not be insulated against electrical hazards. This type is used outdoors for painting, street or field lighting work, mounting banners, etc.

Responsibilities

**Environmental Health and Safety Department (EH&S)**
- Perform an annual review and update of the Aerial Lift Safety Program as necessary.
- Arrange for initial and refresher operator safety training as requested by university departments.
- Report unsafe practices to the appropriate supervisor.
- EH&S reserves the right to audit all aspects of the program in each affected department.

**Department Supervisors**
- Departments arrange and pay for the annual safety inspection, testing, maintenance and repair services of aerial lift equipment on that department’s inventory.
- Maintain records of annual inspections, repairs and maintenance to lifts that are on the department’s inventory.
• Ensure EH&S receives a copy of the annual safety inspection for each lift on their inventory within a month of receiving the lift’s inspection report.
• Ensure only trained and qualified individuals use aerial lifts.
• Ensure operators of boom or bucket truck lifts are trained in fall protection.
• Ensure the operator completes the Daily Pre-Use Checklist before operating the lift.
• Verify employee compliance with the principles and practices outlined in the Aerial Lift Program
• Maintain record of an individual’s lift operator training.
• Maintain a copy of aerial lift operator safety training materials.
• See that the operator is provided with specific familiarization for each model of lift he or she will be operating.
• Tag lifts that do not pass daily inspection (are unsafe, contributing to unsafe conditions or in need of repair) as “out of service” and report the need for lift repairs to the director and EH&S. Use the standardized form in Appendix B.
• Observe the operation of aerial lifts and correct unsafe behaviors and practices.
• Inform EH&S when the department obtains a new or used lift or permanently parts with a lift. (Provide EH&S with the make, model, type of lift, serial number of the unit, the NIU inventory control number, name of department ‘owning’ it and final disposition.)

Operators
• Receive certified aerial lift operator safety training.
• Read and comply with the Aerial Lift Safety Program.
• Review the operating instructions and safety guidelines for the lift to be used.
• Complete the Daily Pre-Use Inspection Checklist before operating any lift.
• Tag lifts that do not pass daily inspection (are unsafe, contributing to unsafe conditions or in need of repair) as “out of service” and report any deficiencies or need for lift repairs to supervisor. Use the standardized tag in Appendix B.
• Do not use a lift that has failed the annual and/or subsequent inspection(s) or already has an “out of service” tag affixed to it for any reason.
• Observe the operation of the aerial lift and report unsafe practices, problems or malfunctions to the supervisor.

Contractors
• Contractors generally are expected to provide their own aerial lifts. There may be some occasions where Contractors may use NIU aerial lifts. In all cases Contractors need to provide proof of their operator’s aerial lift training or have an aerial lift-trained NIU employee operate the NIU-owned lift for them. (If the latter, let the NIU project manager know in writing so that may be arranged.) Contractor is expected to provide all appropriate fall protection equipment for his or her workers.

Care of Lifts
Aerial lifts must be operated in accordance with Occupational Safety and Health Administration (OSHA) and American National Standard Institute (ANSI) standards. They must be cared for in accordance with the manufacturer’s requirements. Modified lifts shall conform to all applicable provisions of ANSI A92.2 (Vehicle-Mounted Elevating and Rotating Platforms) and OSHA 1910.68 (Man lifts). Service and maintenance should be done in accordance with the manufacturer’s recommendations and by a qualified person.

Inspection of Lifts
Aerial lifts shall receive an annual safety inspection from a lift technician certified to work on that make and model. When an aerial lift passes inspection the certified technician shall affix a label noting the date of the passed inspection and placed on a part of the lift easily visible from the ground. A record of annual lift safety inspections shall be kept on file in the Environmental Health and Safety Department as well as the department owning and operating the equipment.

Prior to each use an aerial lift shall be inspected for general damage and defects which may affect the safe operation of the lift. Inspections must consider at least but not limited to, the following:
• Bent or broken structural members
• Cracked welds
• Hydraulic or fuel leaks
• Damaged controls, cables and wiring harness
• Loose wires
• Tire and wheel condition
• Absence or damage to outriggers, stabilizers and other structures
• Absence of a guardrail system
• Fuel, hydraulic fluid and air levels
• Electrolyte levels in batteries
• Slippery conditions on the work platform
• Other items specified by the manufacturer

A procedure checklist can be found in the operator’s manual kept on the lift itself. Operators must review the operating instructions and safety guidelines before using the lift. (If the manual is absent inform the supervisor so a replacement manual can be ordered.)

Any defect or deficiency shall be reported to the foreman and/or the head of the department owning the aerial lift. The lift must be tagged ‘out of service’ and kept out of service until the lift is evaluated and cleared or appropriate repairs have been made. Repairs shall be made only by an aerial lift technician certified to work on that make and model. The department owning the lift shall keep a record of repairs and safety inspections for each lift in its care.

**Inspection of Work Area and Route to the Work Area**
Areas where aerial platforms are to be used shall be inspected prior to operating an aerial lift and rechecked during use. The operator shall examine the work area for possible hazards, including but not limited to:

- Slopes, holes, drop-offs, trenches, pits or other leading edges
- Soft soils, particularly near creeks, streams, ponds or lagoons
- Ground or floor obstructions, such as bumps, debris, tools, other lifts or other equipment
- Inadequate height and width clearance for the platform and chassis
- Inadequate surface and support to withstand all load forces imposed by the aerial lift platform.
- Overhead obstructions and power lines
- Wind and weather conditions (winds in excess of 25 mph, lightning, audible thunder, weather warnings, snow obscuring view of ground conditions)
- Presence of unauthorized people in work area.

**Operator Training**
Prior to using an aerial lift operators are required to have received aerial lift training which includes both classroom and ‘hands-on” training. This applies to all employees that may set-up or operate an aerial lift. Lift operators shall:

- Read and understand the manufacturer’s operating instructions (manual stored aboard the lift).
- Receive training from a qualified person.
- Read or have a qualified person explain the Aerial Lift Program to them.
- Understand and perform a proper lift inspection prior to each use of a lift or once daily.
- Understand proper lift operating procedures.
- Understand how to do a worksite safety inspection.
- Know how to operate the equipment safely.
- Know how to identify malfunctions and problems.
- Know what factors affect lift stability so to avoid tip-over or collapse.
- Understand all placards, decals, warnings and instructions displayed on the aerial lift.
- Comply with manufacturers guidelines.
- Comply with safety rules and regulations.
- Inform their supervisor if they note any deficiency in the equipment, particularly when the lift must be tagged ‘out of service’ for maintenance or repair.
- Be trained in the proper use of fall protection equipment if using a boom lift or bucket truck.
- Know that the operator has authority to come down from the lift if operator has any safety concerns.

An employee already trained on lifts in general may be familiarized with a specific model he or she has not operated before. Another aerial lift trained person who is familiar with that model may do the familiarization training. Operators using articulating or bucket truck type aerial lifts are required to be trained in the use of fall protection equipment and wear it properly.

Trained lift-using employees are required to receive aerial lift refresher training every 5 years unless:
The operator is observed using a lift unsafely.
The operator is involved in an accident or near miss involving an aerial lift.
Operator evaluation indicates a need for additional training and/or practice.

In these instances the employees involved shall receive aerial lift training sooner than the required 5 years.

Record of an individual’s lift operator training shall be maintained in their departments. This record shall include:

1. Name of individual trained
2. Subject of training
3. Date of training
4. Name of trainer

Safe Work Practices

Before Operating Lift

- Inspect the lift from the ground. Test operations.
- Inspect work area and route to work area if lift must be driven to it.
  - For single man lifts, ensure that outriggers (if so equipped) are in a stowed position for moving and deploy them when in proper position for work. Stow them again before moving the lift again.
  - For scissor lifts, if the lift is designed to be driven from work site to work site it shall be done with the platform low to the ground.
  - For boom lifts, retract boom but keep platform high enough for the operator to see over the lift drive platform enough to observe traffic or pedestrians in the path of travel.
- Protect bystanders by placing barricades around worksite, posting another employee to keep bystanders at a safe distance or other effective means to isolate the work area from pedestrian and motor traffic.
- For outdoor work take note of wind speed and/or anticipated gusts. At 20 mph lifts shall be lowered to maximum height of 20 feet. At 25 mph the basket shall be grounded. If there is thunder or lightning, bring the basket all the way down and get the crew to safe shelter till the storm has passed. Wait for a minimum of one half hour after the last rumble of thunder before resuming work.
- Pay particular attention to electrical lines and other electrical hazards.
- Boom and platform load limits specified by manufacturer shall not be exceeded.
- Guardrails must be in place and access gates or gaps must be closed before raising the platform.

Moving and Operation of Lift

- In the case of boom lifts, raise basket to a height sufficient for the operator to see over the lift’s drive platform and observe any pedestrians or possible obstructions in the path of travel.
- Pay attention to direction of travel and clearances above, below and to all sides of lift.
- While driving pay attention to road hazards such as potholes, obstacles in road, uneven surfaces or soft surfaces. Carefully avoid these.
- Limit the speed of mobile aerial lifts, taking into account ground surface conditions, visibility, slope, congestion, location of personnel and other factors that may cause hazards to other people nearby.
- Lift shall not be operated on grades, side slopes or ramps that exceed manufacturer’s recommendations.
- Once in position, brakes shall be set and outriggers, if used, shall be positioned on pads or solid surfaces. When working on an incline, wheel chocks must be in place before using the lift.
- Do not sit or climb on guard rails.
- Operator’s equipment must be secured inside the work basket.
- No ladders or any other equipment or device intended to gain further height shall be used in or on the aerial lift.
- Do not exceed manufacturer’s load limits posted on lift. Load limit total includes the weight of the operator and any tools or equipment present in the platform or basket.
- Occupancy limits shall not be exceeded.
- Do not move lift while boom is extended.
- Lift shall not be used as a crane.
- The basket shall not be rested against another object (building, pole, tree, etc.) to steady the elevated platform. (Hydraulic pressure will decrease and the basket will suddenly drop several feet.)
• Horseplay and stunt driving shall not be permitted.
• Operators shall call for assistance if the basket or any part of the machine becomes entangled.
• In the event of a mechanical failure, operators shall not attempt to climb out of the basket or platform or climb down the boom. Ground controls can be used by another certified operator with the stranded operator’s permission. Permission is implied if the operator is unconscious.

After Operation of Lift
• Position lift in a suitable parking area with the basket in the stowed position, controls placed in neutral, engine idling for gradual cooling. Turn off all power. Take necessary steps to prevent unauthorized use.
• Shut off power prior to fueling. Fueling must be done in a well-ventilated area free of flame, sparks, electric arcs or other hazards that may cause fires or explosions.

Maintenance
• Any aerial lift not in safe operating condition shall be removed from service. Notify supervisor to arrange for repair and maintenance as necessary.
• Certified technicians shall make all repairs.
• Use only replacement parts currently recommended by the manufacturer.

Batteries and Charging
• A designated area for battery charging must be established and personal protection equipment (PPE) for such kept there. The area must be free of ignition sources. These could ignite the hydrogen gas coming off a battery with insufficient electrolyte.
• There must be facilities for flushing and neutralizing spilled electrolyte, fire protection, adequate ventilation for dispersal of fumes arising from dry and gassing batteries and collision prevention/protection for the charging apparatus. Note that dry batteries get hot and can splash acidic electrolyte when being filled.
• Only trained and authorized employees may charge or change batteries. They shall be trained in proper battery inspection and handling and wear personal protective equipment (PPE) while attending to these tasks. Proper PPE includes face shield, long sleeves, rubber boots, aprons and gloves. Do not recharge, refill or replace batteries without proper protection.

Rented Lifts
NIU occasionally rents aerial lifts. It is the responsibility of the rental company to familiarize NIU’s operator with the proper operation of the particular model delivered. It is the responsibility of the receiving operator to insist on this short training before accepting the lift from the renter. If the NIU operator finds the renter’s lift does not pass the same standard inspection used for NIU-owned lifts he has the right to reject the lift and must inform his supervisor that he has done so as soon as possible.
Appendix A
Aerial Lift Pre Operation Inspection Checklist

Signature of Operator performing the inspection: ____________________________ Date: __________

<table>
<thead>
<tr>
<th>Number</th>
<th>Inspection Area</th>
<th>OK</th>
<th>FAIL</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure proper operation of engine and lifting devices. Verify no indication of vibration, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Check for proper fluid levels: fuel, oil, hydraulic, coolant, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Are there any evident fluid leaks: Fuel oil, hydraulic, coolant, etc.?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Read and obey warnings, placards and control markings.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Verify external fall protection system cable tension and slip indicator have not been triggered and no damage is evident.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Platform gate—Good condition? Opens and closes properly?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Boom slide pads—No scratching evident on boom &amp; appears to be properly lubricated?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Structural damage—Is there any evidence of damage (cracks, bends, breaks, frayed wires)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Tires in good condition? No chunks of tire missing, inflated to proper pressure, etc.?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Battery fluid level to manufacture specification? (Important as dry batteries can explode!)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Battery terminals free of excessive corrosion and/or grease?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Upper and lower control panels are labeled and function normally? (Proper RPMs/idle, no evidence of vibration.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Verify platform load is within rated capacity. Do not lift unknown weights. Adhere to posted limits.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Ensure all warning devices are functional by starting engine, check alarms, emergency controls, horns, level indicators, lights, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Rotation system—Rotate turret to check for proper operation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Decals and Warning labels—are they present, readable and understood?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: (Items needing repair or adjustments) ____________________________________________

CAUTION: Any time an aerial lift is found to be unsafe, contributing to unsafe conditions or in need of repair it must be removed from service and the supervisor notified.
Appendix B
OUT OF SERVICE

Contact the department in charge of this equipment and the Environmental Health & Safety Dept. to report this equipment out of order & when restored to service.