

Aerial & Scissor Lifts

1. Purpose

The purpose of this policy is to provide the minimum requirements for the use of aerial and scissor lifts. This work instruction applies to all aerial lifts, including extensible and articulating boom platforms, forklifts or similar equipment used with manufacturer-approved personnel lifting accessories, and scissor lifts.

2. Scope

This procedure applies to employees and on-site contractors who utilize aerial lifts, employees whose duties require them to operate, service, repair, or maintain aerial lifts and scissor lifts, and supervisors of employees who use aerial lifts and scissor lifts while working on behalf of USPL. For guidance on air-hoist operated scaffolds, see USPL's *Guidance for BP Personnel on the Operation and Maintenance Requirements For Third Party Owned/Operated Suspended Scaffold Air Hoist Systems*.

Additional sections of this safety manual contain related policies and should be consulted for specific requirements and guidance:

- Authorization to Work
- Cold Work
- Fall Protection
- Level II HITRA
- Personal Protective Equipment
- Working at Heights

3. Minimum Requirements

	Minimum Requirements	Supporting Documentation
1.	Only trained persons shall operate an aerial lift.	Section 6.1
2.	Before the aerial lift is used, the worksite shall be surveyed for hazards.	Section 6.1
3.	Employees working in an aerial lift shall utilize appropriate fall arrest or fall restraint systems.	Section 6.2
4.	The lift operator shall visually inspect the aerial or scissor lift prior to each day's use.	Section 7.1

4. Definitions

Aerial Lift An entire device that is designed and manufactured to raise personnel to an elevated work position on a platform supported by masts or booms. Aerial lifts include: vehicle-mounted elevating work platforms, self-propelled elevating work platforms, and boom-supported elevating work platforms.

Aerial Work Platform The personnel-carrying component of an aerial lift, such as a bucket, basket, stand, or equivalent. The term "Aerial Work Platform" is used interchangeably with "Aerial Platform" in this policy.

Articulating Boom	An aerial lift with two or more hinged boom sections.
Competent Person	One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate or mitigate the hazards.
Contractors	Contractors refer to all third party groups performing work on USPL assets.
Extensible Boom Platform	An aerial lift (except ladders) with a telescopic or extensible boom.
Fall Arrest	Any combination of an anchorage, connectors, body harness, lanyard, deceleration device or lifeline used to arrest a fall from any working level.
Fall Protection	Equipment and methods to both guard against the injurious consequences of a fall and to prevent a fall where possible. There are several types of fall protection including fall arrest systems, fall restraint systems, and guardrails.
Fall Restraint	A combination of equipment to prevent a user from reaching a point where a fall could occur from an elevated surface.
Insulated Aerial Lift	An aerial lift with dielectric components designed and tested to meet the specific electrical insulating rating consistent with the manufacturer's identification plate.
Scissor Lift	A self-propelled elevating work platform (mobile scaffold) utilizing a scissor type framework for positioning the platform vertically.
Signal Person (Spotter)	A person capable of giving direction to both the lift operator and 3rd parties while the lift is traveling to prevent contact, damage, and injury.

5. Roles and Responsibilities

5.1. Authorization to Work Person in Charge (ATW PIC)

- A. Shall verify that aerial and scissor lifts are inspected prior to use by the operator(s) and documented on the Authorization to Work form.
- B. Shall ensure that any aerial or scissor lift identified as unsafe by the operator is not used.
- C. Shall verify that the type of fall protection identified on the Cold Work Permit is compatible and properly worn and used.
- D. Shall stop work if conditions change, or if work with aerial lift or scissor lift exceeds current ATW job scope.

5.2. Aerial or Scissor Lift Competent Person

- A. Shall perform a documented annual inspection of the aerial or scissor lift.
- B. Shall tag equipment out of service if an item is found deficient and cannot be fixed prior to use.

5.3. Aerial or Scissor Lift Operator (USPL Employee and Contractor)

- A. Shall not modify aerial or scissor lifts without manufacturer's prior written approval.
- B. Shall test the lift controls each day prior to use to determine that such controls are in safe working condition.
- C. Shall perform a visual inspection of the aerial or scissor lift prior to each shift's use (see Appendix I).
- D. Shall consider the work area where the aerial or scissor lift will be used and provide input to the ATW PIC identifying any additional hazards and mitigations (see Appendix II).
- E. Shall complete the aerial lift-specific or scissor lift-specific operator orientation prior to operating.
- F. Shall operate aerial lifts in accordance with training received and manufacturer's recommendations.
- G. Shall report defective or malfunctioning equipment and any incident involving the use of aerial or scissor lifts to their supervisor as soon as practical.
- H. Shall obey the signals of the Signal Person (if used) and stop the task if contact with the Signal Person is broken.
- I. Shall stop work if conditions change, or if work with aerial lift or scissor lift exceeds current ATW job scope.

5.4. Signal Person

- A. Shall function as the sole signaler at any given time (but anyone can give the stop signal).
- B. Shall have a direct line of sight of equipment movement and make sure contact with anything at ground level or overhead is avoided.
- C. Shall adhere to a clear, agree-upon, standard set of signals for communicating with the operator, or if out of the operator's direct line of sight uses agreed-upon verbal commands by radio.
- D. Shall control the job site access to prevent other personnel from walking under the elevated work platform.
- E. Shall verify that overhead obstructions have been identified and mitigated.
- F. Signal persons are not necessary when the equipment is being used to complete work unless required on an ATW or Level II HITRA.
- G. Shall stop work if conditions change, or if work with aerial lift or scissor lift exceeds current ATW job scope.

6. Procedures

6.1. General Requirements

- A. Only trained persons shall operate an aerial lift.
- B. Before the aerial lift is used, the worksite shall be surveyed for hazards. Appendix II may be used as a list of possible conditions to be considered.
- C. Before and during each use, the operator shall:
 - 1. Check for overhead obstructions and electrical conductors.

2. Ensure that the load on the platform and/or load lifting devices are in accordance with the manufacturer's rate capacity.
 3. Ensure that outriggers and stabilizers are used if the manufacturer's instructions require their use.
 4. Ensure that guardrails are properly installed, and the gates are closed.
 5. Use outrigger pads when necessary to provide firm footing.
- D. If a vehicle mounted aerial lift has a separate power source to operate the movement of the base (e.g. truck) versus the movement of the aerial platform:
1. The vehicle engine shall be shut off.
 2. The wheels shall be chocked if outriggers are not used.
 3. The ignition key shall be removed and kept with equipment operator before using the aerial platform.
- E. The aerial platform shall not be operated in any manner on grades, side slopes or ramps exceeding those for which the aerial platform is rated by the manufacturer.
- F. For aerial lifts, the brakes shall be set and when outriggers are used they shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline provided they can be safely installed.
- G. When so equipped, outriggers or stabilizers and extendable axles shall be fully extended and placed on firm level surfaces or mats as required by the manufacturer. Stabilizer mats and pads shall be:
1. At least three times larger in surface area than the footprint the mats support,
 2. Level where the outrigger or stabilizer contacts the mat to prevent the outrigger from sliding off,
 3. Strong enough to withstand the loads imposed by the outrigger(s).
- H. Floor protection shall be utilized whenever a lift is to be used inside USPL buildings on finished floors or where this is potential to damage structure, i.e., tank bottom welded seams.
- I. Lift controls shall be operated in a smooth, controlled manner at all times. Avoidance of sudden starts, stops, or changes in direction. Never jam the controls from one travel direction to another.
- J. All body parts and equipment shall remain inside the platform while moving the equipment.
- K. When boom lifts must be moved on an incline, the boom shall be positioned uphill of the wheels and the wheels chocked if it is parked on an incline.
- L. Operators shall maintain a firm footing on the aerial platform floor while working thereon. Operators shall not sit or climb on the edge of the platform or use planks, ladders, or the railings of the platform to gain a work position or as a climbing device to access other work levels.
- M. People must not be allowed under a lift. If aerial lifts are going to be used in an area near pedestrians, operators shall isolate the work area by establishing a perimeter and safely diverting the traffic flow (walking & driving). Danger signs, caution tape, barriers, and a worker directing others to stay away are all acceptable means of establishing a work area perimeter.

6.2. Fall Protection

- A. Employees working in a man lift, bucket truck, boom lift or aerial lift other than a scissor lift shall utilize appropriate fall arrest or fall restraint systems. Employees working in a scissor lift with properly designed and maintained guardrails have adequate fall protection. Operators

shall reference the equipment's requirements for the appropriate type of fall protection system to be utilized.

1. Use of Fall Arrest equipment shall be compatible with the aerial or scissor lift and designed for the requirements set by the manufacturer. A Cold Work – Working at Heights permit shall be required.
 2. Use of Fall Restraint systems shall meet the design standards of the aerial or scissor lift. A Cold Work – Working at Heights shall not be required but can be issued locally if the AO chooses.
- B. Guardrails shall be in place and access gates properly closed per the manufacturer's instructions while lift is in use.
 - C. Operators that work in a scissor lift where the guard rails are not in place shall be required to wear an approved fall arrest or fall restraint system.
 - D. It is recommended that lanyards used for lifts be as short as possible to restrain an employee from being thrown from the aerial platform.
 - E. Employees shall remain tied-off until the work is finished and the platform has been safely lowered to the ground.
 - F. Tying off to an adjacent pole, structure or other equipment is prohibited while working from the platform.

6.3. Moving and Traveling

- A. An aerial lift truck shall not be moved when the boom is elevated in a working position with personnel in the platform except for equipment which is specifically designed for this type of operation.
- B. 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 except for equipment which is specifically designed for this type of operation.
- C. When lowering elevated aerial platforms, the operator shall inspect the area around the machine to ensure that no personnel, equipment, or obstructions are in the path of travel. If the area in the path of movement is not visible, the platform shall not be lowered until determined to be clear by a signal person located at ground level
- D. The use of a signal person should be considered when:
 1. The operator cannot see the path of travel.
 2. A lift is working within 15 feet of live power lines.
 3. A lift is traveling within 5 feet of stationary equipment, vehicles, or plant.
- E. If aerial or scissor lifts are transported, e.g. on a truck or trailer, or used on a moveable surface, e.g. a marine work vessel, they shall be secured or restrained as appropriate for the task.

6.4. Use of Lifts near Live Electrical Lines

- A. When an unqualified person, as defined in the Electrical Safety policy, is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:
 1. For voltages to ground 50kV or below – 10 feet.
 2. For voltages to ground over 50kV – 10 feet plus 4 inches for every 10kV over 50kV.

- B. Any overhead wire shall be considered to be an energized line unless it has been disconnected and is visibly grounded in the work area. Exact voltage shall be determined prior to working near live electrical lines.

6.5. Elevated Lift Egress and Access

- A. Exiting and accessing an elevated platform is permissible only when it is determined to be the safest means of access to an elevated work area, and is allowed by the manufacturer.
- B. The manufacturer's instructions and the following minimum procedures shall be used to access or exit an elevated platform:
 - 1. 100% fall protection shall be maintained while exiting or entering an elevated aerial platform. The employee shall secure a second lanyard to an anchorage point outside the platform before disconnecting their lanyard from the platform anchor point and exiting maintaining one point of tie-off at all times.
 - 2. The floor of the platform should be at the same level as the structure to be accessed.
 - 3. At no time shall employees exit or enter over the lift controls.

6.6. Fueling and Recharging Equipment

- A. The equipment shall be lowered to grade, parked, on a level surface and shut down prior to refueling or battery charging.
- B. Fueling and battery charging shall be done in a well-ventilated area free from flame, sparks, or other hazards that may cause a fire or explosion because of the fuel or the hydrogen generated from battery charging.
- C. Refueling shall be prohibited in any area where there is any primary source ignition (i.e. capable of igniting flammable vapors) work within 35 feet.

7. Aerial and Scissor Lift Inspections

7.1. Aerial and Scissor Lift Pre-Use Inspection

- A. The aerial or scissor lift operator shall visually inspect the aerial or scissor lift prior to each day's use.
 - 1. Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.
 - 2. Follow the manufacturer's inspection list for other items, or the suggested items listed in Appendix I.
 - 3. Specific documentation of this visual inspection is not required.
 - 4. Any suspected deficient items shall be carefully examined or tested and a determination made as to whether they constitute a safety hazard. All unsafe items shall be replaced or repaired before use. If left unattended, the lift shall be tagged out of service.

7.2. Aerial and Scissor Lift Annual Inspection

- A. The aerial or scissor lift operator or other competent person shall perform an inspection of each USPL owned aerial and scissor lift.
 - 1. The inspection shall be performed annually, and after any incident involving the lift.

2. The inspection shall be documented using Appendix III, Aerial and Scissor Lift Annual Inspection Report, or other similar form, and maintained for five years.

Note: Aerial and scissor lift annual inspections for equipment not owned by USPL is not required to be documented.

3. Any suspected deficient items shall be carefully examined or tested and a determination made as to whether they constitute a safety hazard. All unsafe items shall be replaced or repaired before use. If left unattended, the lift shall be tagged out of service.

8. Maintenance

- A. Any problems or malfunctions that affect the safety or operation of an aerial or scissor lift shall be repaired and functionally tested before continued use.
- B. Maintenance shall be performed on aerial and scissor lifts in accordance with the manufacturer's recommendations.

9. Training

- A. Only personnel who have received general instructions regarding the inspection, application and operation of aerial lifts, including recognition and avoidance of hazards associated with their operation, shall operate an aerial lift. Such items covered shall include, but not necessarily be limited to, the following issues and requirements:
 1. The purpose and use of manuals.
 2. That operating manuals are an integral part of the aerial lift and must be properly stored on the vehicle when not in use.
 3. A pre-use inspection.
 4. Responsibilities associated with problems or malfunctions affecting the operation of the aerial lift.
 5. Factors affecting stability.
 6. The purpose of placards and decals.
 7. Workplace inspection.
 8. Applicable safety rules, regulations, and policies.
 9. Trained to operate.
 10. Operator warnings and instructions.
 11. Actual operation of the aerial lift. Under the direction of the trainer, the trainee shall operate the aerial platform for a sufficient period of time to demonstrate proficiency in the actual operation of the aerial platform.
 12. Proper use of personal fall protection equipment.
- B. Personnel who will use aerial or scissor lifts not owned by BP shall be familiar with the specific equipment operation, receive an orientation from the service provider delivering the equipment, or review the instruction manual provided with the equipment.

10. References

1. OSHA Regulations, 29 CFR 1926.453 Aerial Lifts.
2. OSHA Regulations, 29 CFR 1926.502 Fall Protection.
3. ANSI / SIA Standard A92.2-2001, "Vehicle-Mounted Elevating and Rotating Aerial Devices".
4. Equipment Manufacturers Institute, Aerial Platform Safety Manual for Operators and Mechanics, Chicago, Illinois, Revised 1995.

Appendix I – Aerial and Scissor Lift Pre-Use Inspection

Items determined in accordance with the manufacturer's recommendations shall be inspected for defects. The results of this inspection are reported to the ATW PIC who documents the results by answering the ATW question, Are equipment and tools judged to be fit for purpose and intact by the operator(s)? The following lists examples of inspections and tests that may be performed by the operator prior to each day's use in accordance with the manufacturer's recommendations:

1. Operating controls and associated mechanisms for conditions interfering with proper operation.
2. Visual and audible safety devices for malfunction.
3. Hydraulic or pneumatic systems for observable deterioration or excessive leakage.
4. Fiberglass and other insulating components for visible damage or contamination.
5. Missing or illegible operational and instructional markings.
6. Electrical systems of / or related to the aerial lift for malfunction, signs of excessive deterioration, dirt and moisture accumulation.
7. Visual inspection of bolts, pins, and other fasteners for loose, deformed or missing fasteners and other locking devices.

All unsafe items shall be replaced or repaired before use.

Appendix II - Aerial and Scissor Lift Work Area Considerations

The following list is an example of conditions to be considered at the work area:

1. Have the work areas been established and appropriate barriers (e.g. caution tape, concrete "Jersey" barriers, fencing) been used to create a perimeter in pedestrian or vehicle traffic areas if necessary?
2. Are overhead obstructions (e.g. tight working conditions, adjacent structures, pipe racks, ceiling grids, power lines) identified and mitigated?
3. Has the ground or floor surface been evaluated to determine it can support the lift weight, the slope doesn't exceed the manufacturer's rating, or if outrigger pads are needed?
4. Have hazardous energy sources (e.g. electrical power cables or panels, chemical lines, gas lines, drain lines, utilities) been identified and mitigated?
5. Sharp edges have been identified and mitigated? This includes both on the equipment and in the work areas.
6. The size of the aerial or scissor lift does not create any additional hazards.
7. Are wind and weather conditions safe for operation?
8. Does the aerial platform contain only the tools and other loose articles necessary to complete the job and are tools stored to prevent falling?
9. If it is necessary to exit the aerial platform while elevated, has the scenario been evaluated to determine if a Cold Work – Working at Heights permit is required?
10. Is a signal person available if the equipment is travelling, or lowered into an area not visible to the operator?
11. The route of travel and use is free of ground obstructions that would interfere with the safe use of the lift, and has sufficient strength to support the load?
12. Is the intended path of the boom and platform a minimum of 10 feet from power lines or any other dangerous obstacles e.g. mechanical devices, other aerial lifts, structures / beams)?

Appendix III - Aerial and Scissor Lift Annual Inspection Report

Aerial and Scissor Lift Annual Inspection		
Manufacturer and Type of Lift:		
Model or Equipment Number:		
Date:		Hours on machine:
Inspector's Name Printed:		Inspector's Signature:
Inspection Item & Description	P/F/NA	Comments and / or Repairs Made:
Pass (P), Fail (F), or Not Applicable (N/A) Status		
Operating controls and associated mechanisms operate properly, including all boom / platform movements?		
Visual and audible safety devices functioning?		
No deterioration or excessive leakage of hydraulic or pneumatic systems?		
No visible damage or contamination to fiberglass and other insulating components?		
Operational and instructional markings present and legible?		
Electrical systems function properly and do not show signs of excessive deterioration, dirt, or moisture accumulation, including those not readily visibly on a pre-use inspection?		
Bolts, pins, and other fasteners are not loose, deformed, or missing?		
Structural members, including welds, are not deformed, cracked or corroded?		
Parts such as pins, bearings, shafts, dears, rollers, locking devices, chains, chain sprockets, wire and synthetic ropes do not show signs of excessive wear, cracks, or distortion?		
Hydraulic and pneumatic relief valve settings are per the manufacturer?		
Hydraulic system has proper oil level?		
Hydraulic and pneumatic fittings, hoses, and tubing do not show signs of leakage, abnormal deformation, or excessive abrasion?		
Compressors, pumps, motors, and generators do not have loose fasteners, leaks, unusual noises or vibrations, loss of operating speed, or excessive heating?		
Hydraulic and pneumatic valves do not show signs of malfunction, cracks in the external valve housing, leaks, or sticking spools.		
Vacuum prevention systems on Category "A" aerial lifts function properly?		
Hydraulic and pneumatic cylinders and holding valves function properly and are not visibly damaged?		
Hydraulic and pneumatic filters are clean and do not show foreign material in the system indicating other component deterioration?		

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If the aerial lift is rated as an insulated lift, the electrical insulating components and system(s) are clean and do not show other conditions that compromise insulation?		(Enter date of last test if lift is used for bare-hand electrical work)
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