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Aerial Lift Safety Policy

Policy:

Aerial lifts are to be operated in a safe manner consistent with local, state and federal laws. OSHA Regulation 29 CFR 1926.453 and 29 CFR 1910.67 pertain to power aerial lift equipment and powered platforms, manlifts, and vehicle-mounted work platforms.

Pagoda Electrical, Inc. personnel required to operate aerial lifts must be trained to operate the equipment. Personnel permitted to operate aerial lifts must demonstrate the knowledge and ability to operate the equipment safely to the satisfaction of a qualified examiner.

The use of aerial lifts is limited to necessary Pagoda Electrical, Inc. business. The Company will insure that all aerial lift equipment are inspected daily and before each use for safety and mechanical operability. Any aerial lift found to be defective or unsafe will not be used until the defect or unsafe condition is repaired/remedied.

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** or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

Unless otherwise provided in this section, aerial lifts acquired for use on or after January 22, 1973 shall be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix. Aerial lifts acquired before January 22, 1973 which do not meet the requirements of ANSI A92.2-1969, may not be used after January 1, 1976, unless they shall have been modified so as to conform with the applicable design and construction requirements of ANSI A92.2-1969.

Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to job-sites above ground:

- Extensible boom platforms- An aerial device (except ladders) with a telescopic or extensible boom. Telescopic derricks with personnel platform attachments shall be considered to be extensible boom platforms when used with a personnel platform.

- Aerial ladders- An aerial device consisting of a single- or multiple-section extensible ladder.
- Articulating boom platforms- An aerial device with two or more hinged boom sections.
- Insulated aerial device- An aerial device designed for work on energized lines and apparatus.
- Vertical towers- An aerial device designed to elevate a platform in a substantially vertical axis; and
- A combination of any such devices. Aerial equipment may be made of metal, wood, fiberglass reinforced plastic (FRP), or other material; may be powered or manually operated; and are deemed to be aerial lifts whether or not they are capable of rotating about a substantially vertical axis.

For operations near overhead electric power lines, Pagoda Electrical, Inc. shall comply with OSHA Regulations 29 CFR 1910.333(c)(3).

Aerial Lift Responsibilities:

a. Operator

- Carries a required, valid state driver's license
- Inspects daily the aerial lift before it is used. Items to be checked should include the bucket, batteries, wheels, cables, lights, horns, back-up visual and audible alarms, mirrors, steering, brakes, tires and controls.
- Reports any defects or malfunctions to the supervisor immediately. Does not use a malfunctioning vehicle if the defect impairs the safe operation or use of the vehicle.
- Operates equipment safely and in accordance to operating instructions.
- Wears appropriate protective equipment at all times.

Employees must meet the following requirements before they are "certified" to operate an aerial lift:

- 18 Years of age
- Is physically qualified to operate the industrial truck and has no movement limitations concerning their arms, legs, foot, head, waist, back, hands or fingers.
- Does not have an established medical history that would interfere with their ability to operate the aerial lift to include:
    a) Epilepsy
    b) Mental, nervous, or other functional or psychiatric disorder
    c) Arthritis, neuromuscular, or vascular disease
- Has the visual acuity and binocular vision of at least 20/40 (with or without corrective lenses), and the field of vision of at least 70 degrees in each eye.
- Does not have an average hearing loss in the better ear greater than 40 decibels at 500 Hz, 1000 Hz, and 2000 Hz with or without a hearing aid.
- Has a valid drivers license
- Complete the "Aerial Lift" written Certification Examination of 70% or better
- Perform a minimum of 4-hours "On-the-Job Training" in operating an aerial lift.

b. Operator's Supervisor

The Supervisor will provide on-the-job training about how to physically operate the aerial lift and additional supervised training as necessary.

The Supervisor shall conduct annual refresher training on safety practices and potential hazards. This is necessary to deter bad habits and to reinforce basic operating procedures. Additional training will be conducted when deemed necessary by the Operator Supervisor or the Safety and Health Manager

The Supervisor will discuss with and instruct the employee so that the employee can gain an understanding of the following key elements:

- Basic operation of the aerial lift to include its major components, principals of loading, load capacity, operating "nuances", etc.
- Maintenance and inspection of the aerial lift
- Starting and operating the aerial lift - parking, turning, load traveling, stacking, backing up, etc.
- Refueling procedures

- Personal Protective Equipment- safety harnesses, safety shoes, hard hat with chin strap, gloves, hearing protection, etc.

The Supervisor

1. Ensures that employees under his/her supervision who operate aerial lifts are properly trained in the operation of the aerial lift..

2. Ensures that vehicles are used only for official Pagoda Electrical, Inc. business and carries only Pagoda Electrical, Inc. employees who are authorized passengers.

3. Ensures all operators of aerial lifts are properly trained in the operation of the vehicles.

4. Ensures all aerial lift operators have the necessary medical examinations to ensure that the operator is physically qualified to operate the equipment.

5. Regularly inspects aerial lift vehicles and aerial lift systems.

c. On-the-Job Coach

Provides on-the-job (hands on training) on how to physically operate the aerial lift. This training will be divided into specific areas listed below:

- Pre-Operation and Inspection of a Arial Lifts
- Proper start-up and mastery of controls
- Maneuvering Skills
- Safety procedures
- Re-fueling or re-charging
- Actually operating the aerial lift in working situations

Once the employee completes the minimum training time, shown consistent safe operating skills, and has demonstrated the ability to handle the equipment, the On-the-Job coach certifies the employee according to the Aerial Lift Operator Performance Test.

d. Safety and Health Manager

1. Maintains with the Supervisor, records of employee qualification tests.

2. Assists, when necessary, in selection and designation of jobs which require aerial lifts.

3. Periodically and routinely inspects aerial lifts and aerial lift operations.

4. Coordinates with the supervisor, training programs for use and operation of the aerial lifts.

Training Program:

An aerial lift is a potentially dangerous tool when the operator has not read the operator's manual. Pagoda Electrical, Inc. shall provide required manuals to operators and maintenance mechanics. Pagoda Electrical, Inc. requires a qualified person to train all operators/users on:

- Any electrical, fall, and falling-object hazards.
- Proper use of Personal Protective Equipment
- Procedures for dealing with hazards.
- How to operate the aerial lift correctly (including maximum intended load and load capacity). The operator/user must show he/she knows how to use the lift.
- Manufacturer requirements.

If situations and hazards change, the make of aerial lift changes, or the operator/user is not operating a lift properly, the operator/user must be retrained.

In addition to the lack of training, many lift accidents are caused by misapplication of the machine, obstacles, and lack or use or incorrect use of outriggers.

Operators/users of aerial platform lifts shall attend an aerial lift training session. The contents of the training will include, but not be limited to the following:

a. Importance and use of vehicle and aerial equipment operating manuals.
b. Pre-start, operating and shut down inspection process.
c. Common hazards situations and remedy procedures to take
d. Factors affecting equipment stability.
e. Personal Protective Equipment
f. Purpose of placards, decals, warnings and instructions.
g. Conducting Safety Inspections and Using Safety Inspection Checklists
h. Identification of equipment limitations, malfunctions and problems.
i. Factors affecting equipment stability.

j. Safety rules, regulations and policy.
k. Pagoda Electrical, Inc. requirements for Authorization to Operate.
l. Actual Physical Operation of the aerial platform.
m. Demonstrate competency.

General Requirements:

Only authorized AND TRAINED persons shall operate an aerial lift. Never allow unauthorized persons around the lift or jobsite. Cordon off and restrict area beneath an aerial lift. Use barricades and signs as necessary

Never modify any part of the lift without written permission from the manufacturer.

Employees will never use a damaged aerial lift device/machine or damaged parts of the aerial lift/machine.

Never refuel the aerial lift vehicle while the engine is running.

If working near traffic, employees will put out work-zone warnings, like cones and signs.

Two operators shall always be present; one in the bucket/ platform and one on the ground.

Intercom or other communication device provided and operational with ground crew

Drivers and operators shall check the operator's manual for the height of the aerial lift prior to leaving Pagoda Electrical, Inc. property. They must know this information when driving under bridges, overhead projections and underpasses.

Pagoda Electrical, Inc. shall provide required manuals to operators and maintenance mechanics and shall ensure the operating manual is with the vehicle at all times.

Employees shall never leave the aerial lift unattended unless the key is taken out of the ignition and the vehicle/lift is secured from unauthorized use.

Ladder trucks and tower trucks- Aerial ladders shall be secured in the lower traveling position by the locking device on top of the truck cab, and the manually operated device at the base of the ladder before the truck is moved for highway travel.

Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition. Tests shall be made at the beginning of each shift during which the

General Requirements Cont'd:

equipment is to be used to determine that the brakes and operating systems are in proper working condition.

STOP work if something malfunctions

Refer to the operator's manual for the location of aerial lift equipment crush points.

Belting off to an adjacent pole, structure, or equipment while working from an aerial lift is not permitted.

Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.

Employees and workers will not to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. Movement of the lift could crush the worker(s).

Personnel must maintain a firm footing on the platform floor while working thereon. Use of planks, ladders, or any other devices on the aerial platform for achieving additional height or reach is prohibited.

Employees shall never override hydraulic, mechanical, or electrical safety devices.

Employees shall not position the boom and/or elevated platform device in the attempt to jack the wheels off the ground. Use a truck jack to lift the aerial machine (if needed) and not the boom and bucket!

The operator must ensure that guardrails are installed and access gates or openings are closed per manufacture's instructions.

To prevent falls, Pagoda Electrical, Inc. requires a full body harness and lanyard (lanyard not longer than 2 foot in length) or a restraining device attached to the boom or basket with a lanyard at the platform position. The lanyard must be short enough to prevent the employee from climbing the sides of the platform or bouncing out of the basket. This would be considered a restraint device and must not permit any fall.

Body belts are NOT acceptable as part of a personal fall arrest system. The use of a body belt in a tethering system or in a restraint system is acceptable and is regulated under 1926.502(e). In short, a body belt is only a "Positioning Device" and not a fall arrest

General Requirements Cont'd:

device, like a full body harness. A body belt shall be rigged such that an employee cannot free fall more than 2 feet (.9 m). Please refer to 1926.502(e) for more body belt requirements

The aerial lift must be able to withstand the vertical and lateral loads caused by an arrested fall.

Boom and basket load limits specified by the manufacturer shall not be exceeded.

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.

An aerial lift truck shall not be moved when the boom is elevated in a working position with men in the basket.

Once an employee is elevated in the bucket, the lower controls should only be used with the permission of the elevated worker, or in case of an emergency.

If the elevated boom, platform or work area becomes caught, snagged or does not operate properly, personnel, if on the platform, shall be removed from the platform prior to freeing the elevated platform by using ground controls.

Climbers shall not be worn while performing work from an aerial lift.

The insulated portion of an aerial lift shall not be altered in any manner that might reduce its insulating value.

Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled and secure and outriggers are in stowed position.

The vehicle has a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when an observer signals that it is safe to do so.

Electrical tests- All electrical tests shall conform to the requirements of ANSI A92.2-1969 section 5. However equivalent d.c.; voltage tests may be used in lieu of the a.c. voltage specified in A92.2-1969; d.c. voltage tests which are approved by the equipment

General Requirements Cont'd:

manufacturer or equivalent entity shall be considered an equivalent test for the purpose of this paragraph.

Schedule insulating dielectric tests for the aerial lift according to the operator's manual (if applicable).

Bursting safety factor- The provisions of the American National Standards Institute standard ANSI A92.2-1969, section 4.9 Bursting Safety Factor shall apply to all critical hydraulic and pneumatic components. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All non-critical components shall have a bursting safety factor of at least 2 to 1. Inspect hydraulic and pneumatic system components (Bursting Safety Factor) on aerial lift devices per ANSI/SIA A92.2 requirements.

Perform electrical system safety tests on aerial lift devices per ANSI/SIA A92.2 requirements.

Articulating boom and extensible 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.

- Aerial lifts used in general industry on in construction activities must meet the requirements of 29 *CFR* 1910.67 or 29 *CFR* 1926.453 standards respectively. The lower controls of the subject lifts must be able to override the upper controls in an emergency. Thus, when employees are working from the basket on the subject lifts, the key must not be removed from the switch control panel when the setting is in the upper control position, unless the key or a duplicate key, is in possession of a person who is readily available and immediately accessible to the aerial lift.

- When the subject lifts are operated from the basket and the required switch operation to the lower controls is removed, potential rescuers may have difficulty reaching an injured or incapacitated employee who is unable to operate the basket controls, unless the rescuers can immediately locate the key and lower the injured or incapacitated employee using the lower controls.

- The subject aerial lifts' lower controls have the capability to override the upper controls only if the key is in the lower controls mode. In order for such lifts to meet the requirements of the OSHA and ANSI standards, it is essential that: (1) the key remains in the key switch, so that it can be set to activate the lower controls, and can provide a means to lower the platform, or (2) the key, or a duplicate key, is in the possession of a person who is readily available and immediately accessible to the aerial lift, so that in an emergency, the lower controls can be used to override the upper controls and lower the aerial lift.

Pagoda Electrical, Inc. shall immediately remove from service aerial platforms that do not operate properly or are in need of repair. A qualified mechanic will make all repairs using equivalent replacement parts. De-energize and lockout/tagout aerial lifts before any maintenance or repairs. Each aerial lift will be inspected as the manufacturer requires.

Greatest Dangers:

Failure to observe safety precautions when operating an aerial lift device can result in serious injury or death. The most commonly reported serious accidents are:

1. Lift Overturns

Aerial lifts can overturn, causing serious injury or death. When an aerial lift becomes unstable or out of balance, it can overturn. Employees shall check the area where they are positioning the lift, noting all land elevation changes. **Copies of the below checklist will be available on the job site and will be used by the operator each time the lift is used.**

Once the area has been assessed the operator/employee shall:

- Safeguard pedestrians at all times. Do not drive a truck up to anyone standing in front of a stationary or fixed object (e.g., a bench or parked vehicle).
- Do not allow anyone to stand or pass under the elevated portion of any lift.
- Not permit unauthorized personnel to ride on or operate an aerial lift.
- Always position the vehicle on a flat, solid surface.
- Never exceed the load capacity.
- Not operate a lift in snow, ice, thunderstorms or high winds.
- Not operate aerial lift on grades, slopes or ramps that exceed the manufacturer's recommendations.

 Check the operator's manual for the greatest slope the vehicle can safely be used on.
 Not push or pull toward anything while raised in the bucket.
 Never drive the vehicle with the lift elevated.
 Never use the bucket as a crane
 Always set the brakes before engaging the power supply or lowering outriggers.
 Chock all wheels of the vehicle to prevent it from rolling or sliding.
 Use outriggers on solid surfaces.
-If ground is soft, use outrigger pads beneath the outriggers for support, according to the operator's manual.
-If the ground is too soft for the use of outrigger pads, contact the supervisor before proceeding.
 Never exceed the load limits given by the manufacturer. These can be found on data plates in and around the bucket and in the operator's manual.
 When maneuvering the boom, avoid jerking the controls with sudden starts and stops.
 Minimize reach by positioning the lift as close to the work as possible while still allowing necessary clearances for safe operation.

Lifting Loads

- Do not pick up loads unless the lift is specifically rated and designed to handle the load. This may cause the lift to overturn or the lift may be damaged by the stress.
- Before lifting a load, check the operator's manual for the maximum lifting capacity when the boom is at different angles.
- Do not tie loads to the boom; use the lifting device outlined by your operator's manual.
- Only lift loads when the lift is positioned on level ground.
- Ensure the load is balanced.
- Do not lift at an angle.
- Move controls slowly; avoid jerking.
- Allow extra overhead clearance when raising and lowering loads because the load may jerk unexpectedly when the load moves.

2. Falls from Lift

Individuals can be seriously injured or killed if they you fall from a lift. **Employees shall secure themselves in the bucket.** Employees shall follow the following general guidelines:

a.. Enter the bucket with your hard hat and chin strap on and latch the bucket door behind you (if applicable).
b. Put on your harness and wear fall protection
c. Make sure bucket floor is clear of debris.
d. Attach one end of the lanyard to the safety harness and the other to the anchor point specified in the operator's manual. Never tie the lanyard to an adjacent structure or you may be pulled out of the bucket when the boom moves.
e. The weight of the operator and tools should never exceed the load limits set by the manufacturer.
f. Keep both feet on the floor of the bucket.
g. Do not sit, stand, or climb on the edge of the basket.
h. Do not attempt to climb down from the bucket when it is raised.
i. Never use a ladder, step stool, upturned 5 gallon bucket, or any item inside the bucket for the purpose of increasing work height.
j. Do not lean over the bucket or reach too far or you may lose your balance.
k. Never ride in the bucket of an aerial lift while the vehicle is in motion.

Avoid Being Struck by Falling Objects

- Keep all coworkers and unauthorized persons out from underneath a raised boom.
- Ensure that material being cut, as from a tree, does not fall into the bucket, on the boom, or on a coworker below.
- Do not drop debris after it has been cut. Use a rope to slowly lower debris to the ground.

3. Contacting Power Lines

Individuals can be seriously injured or killed if they come into contact with an electric line. It is Pagoda Electrical, Inc. policy that all employees, whether qualifed or not, shall keep a minimum of 22 feet approach distance (including sway distance) away from any electric power generation, transmission, or distribution equipment involved (power lines, etc.), along with the associated hazards. This includes keeping 22 feet away from the possible sway distance of power lines and for sway of the boom. Working over electric power lines and equipment is never permitted, regardless of the distance. Employees shall keep in mind that falling construction material, tree limbs, etc. can fall onto electric power lines and electric equipment. The Safety and Health Manager shall contact the power company to have the lines de-energized or shielded, prior to permitting any work near power lines and equipment.

General Precautions regarding power lines:

For operations near overhead electric power lines, Pagoda Electrical, Inc. shall comply with OSHA Regulations 29 CFR 1910.333(c)(3).

Employees must use extreme caution when operating aerial lifts and equipment around electrical lines. Operators/employees shall:

- Plan ahead to have power lines de-energized or shielded.
- NOT physically touch any power line with any part of the body, clothing or equipment
- Keep all/any part of the boom and/or basket or aerial equipment at least 12 feet away from power lines to allow for sway of the boom and sway of the lines. For lines rated 50kV or below, minimum clearance/minimum approach clearance between the lines and any part of the equipment or load shall be 12 feet (OSHA regulations state 10 feet clearance, but Pagoda Electrical, Inc. is more conservative and requires 12 feet).
- Never use a non-insulated lift device around power lines.
- Always ensure the vehicle is grounded. Refer to your equipment's operator's manual for electrical grounding instructions.
- Check your operator's manual to determine the maximum voltage to which your equipment is rated.
- Never drill holes in the bucket's platform or liner; this will decrease the effectiveness of the insulation.
- Boom insulation will not protect employees if they pass between two wires or if the boom insulating material is damaged.
- Workers on the ground are not to touch the aerial lift when it is in use around power lines.

4. Boom Collapse

The boom on a lift can collapse if it has had poor maintenance or is damaged. Employees can be seriously injured or killed during a collapse.

Preventing Boom Collapse is best prevented by proper maintenance. Do not operate equipment if you see leaking hydraulic valves, hoses and/or fittings.

Communication on Site:

Employees shall:

1. Know what jobs each employee will be performing and where they will be when the lift is in use.
2. Discuss hand, flag and horn signals that will be used.
3. Speak loudly or use an intercom (if applicable) when in the lift so that those on the ground know what is going on.

Safe Start Up and Shut Down (overview):

Start Up Safety Procedures

1. Ensure the vehicle is positioned on level ground.
2. Set the parking brake.
3. Chock the wheels.
4. Engage the power supply.
5. Set the outriggers. When working on soft ground, place outrigger pads beneath outriggers to prevent sinking, according to the instructions found in the operator's manual.
6. Ensure the vehicle is stable before entering the bucket/platform and raising or lowering the boom.
7. Check the operator's manual for additional procedures.

Safe Shut Down Procedures

1. Slowly lower the boom to rest on its supports.
2. Check in bucket for loose objects
3. Secure the boom according to the operator's manual.
4. Raise the outriggers.
5. Shut off the power supply.
6. Depress the parking brake.
7. Remove the outrigger pads (if applicable) and wheel chocks.
8. Remove the key.
9. Check the operator's manual for additional procedures.

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The below checklist shall be performed prior to using the aerial platform lift equipment. Only authorized and trained personnel shall use/operate the lift. Documentation of the inspection shall be maintained by the Safety and Health Manager, with **a copy of the most recent inspection document stored on the lift**.

If there are any items that are not satisfactory place the aerial lift out of service and contact the Safety and Health Manager.

Inspector/Operators Name _____ Date of Inspection _____

Inspector's Signature _____ Date _____

□ Review previous inspection checklist? □ Previous Deficiencies Corrected?

Never use a damaged aerial lift device/machine or damaged parts of the aerial lift/machine

Pre-Start Checklist on the Work Site AND During Use

- □ All other vehicles and machinery out of the way?
- □ Wind and weather conditions.
- □ Hazardous locations and atmospheres
- □ Debris, structures, trees, fences, poles, utilities or other physical structures?
- □ Area clear of unauthorized people?
- □ Safe distance from ditches, holes, drop offs and embankments?
- □ Overhead obstructions and high voltage lines/conductors
- □ Safe distance from overhead obstructions
- □ 12 foot sway distance away from overhead power lines? If no, contact Pagoda Electrical, Inc. Safety and Health Manager before conducting any work. S&H Manger to contact power company for assistance.
- □ Work going to be conducted ***over*** electric power lines and electrical equipment so that falling debris could fall onto the power line or equipment? Contact the Safety and Health Manager prior to commencement of work. S&H Manger to contact power company for assistance.
- □ Other possible unsafe conditions.

Machine Placement

- □ Level surface?
- □ Solid surface? If not, outrigger pads used?
- □ Surface slope is not greater than manufacturer's recommendations?
- □ Inadequate surface and support to withstand all load forces imposed by the aerial platform lift.

Tires and wheels

- □ Proper inflation?
- □ No visible damage?
- □ Bulges, cuts?
- □ Lug bolts tight?

Outriggers and stabilizers

- □ Stand away from outriggers as they are lowered to avoid being crushed.

- No damage?
- No missing parts?

Boom

- No structural damage?
- Weld integrity ?
- No cracks or damaged connectors?
- Clean and dry?
- Tie down
- Hydraulic or oil leaks
- Cables
- Wiring Harness

Platform

- Platform width shall not less than 18 inches wide and shall have a slip resistant surface.
- The platform shall have a guardrail system completely around its enclosure.
- Platform and guardrail is removable or can be lowered. The means used to secure the platform And enclosure shall be readily accessible for inspection and maintenance
- The guardrail system shall 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 4 inches high.

Controls

- Tested according to manufacturer's directions?
- Emergency Controls tested according to manufacturer's directions?

Pneumatic System

- Level ok?
- No leaks?

Fuel System

- Fluid level ok?
- No leaks?

Hydraulic System

- Fluid level ok?
- No leaks?

Brakes

- Tested according to manufacturer's directions?

Safety Devices

- All guards in place?

- Guardrail system and locking gate in place and operational
- Lights, alarms and interlocks tested?
- Back-up audible and visual alarms tested and in working order before each use

Personal protective devices

- Full body harness and 2 ft lanyard (that is attached to the boom or basket- Don't attach lanyards to objects outside the basket.)
- Close-Fitting Clothes and No Jewelry. Pull back and secure long hair
- Hard Hat with chin straps
- Gloves
- Hearing protection (ear muffs or plugs)
- Safety Shoes/boots and Leg protection.
- Face shield/Goggles/safety glasses with side shields
- Wear inherently buoyant life preservers while working over water
- Other Protective Clothing
- Operator and flagger should wear highly visible, reflective clothing when working near traffic.

Other items

- Tools required to do the work
- Parts required to do the work
- Intercom or other communication device operational with ground crew
- Traffic warning signs, cones, warning flags, traffic directional equipment. Place flaggers and cones far enough ahead of the work site to warn drivers to slow down in plenty of time to avoid running into equipment and personnel. Keep the boom and bucket away from traffic lanes.
- Placards and Warnings
- Fire Extinguisher charged
- Operational Manual in the vehicle and not at the main office.
- Miscellaneous - Loose/missing parts (locking pins/chains/locks/bolts, etc.)