Alabama Home Builders Self Insurers Fund

Mobile Elevated Work Platform

Presented by the AHBSIF Loss Control Department
I. Introduction
This presentation will provide participants with the following:

- The importance of mobile elevated work platform safety
- Daily maintenance and safety check procedures
- Components, stability, and proper operating procedures
- Safe handling of fuels and batteries
II. Mobile Elevated Work Platform Basics

Section 1- Awareness
Recognition of emphasized messages:

- **NOTE**
  - This message is used when special information, instructions, or identification are required relating to procedures, equipment, tools, pressures, capacities, and other special data.

- **IMPORTANT**
  - This message is used when special precautions should be taken to ensure a correct action or to avoid damage to or malfunction of the lift or component.

- **CAUTION**
  - This message is for proper precautions which, if not followed, can result in personal injury

- **WARNING**
  - This message is used when a hazard exist which can cause result in injury or death if proper precautions are not taken.

- **DANGER**
  - This message is used when an extreme hazard exists which will result in death or serious injury if proper precautions are not taken immediately.
Benefits of operator training

- Improved safety for the operator and others
- The operator learns how to preform a pre-shift inspection
- The equipment is better cared for
- Employees understand the value of the equipment and how to use it efficiently
- Operator training and progress is documented
- OSHA requirements are fulfilled
Terminology and Classifications

Mobile Elevated Work Platform or **MEWP** are classified in groups.

- **Group A**- MEWPs with platforms that move vertically but stay inside the tipping lines.
- **Group B**- All other MEWPs, typically boom-type MEWPs where the platform extends past the machine’s chassis.

*Under each group, they are classified into types*

- **Type 1**- Can only be driven in the stowed position
- **Type 2**- Can be driven elevated but is controlled from the chassis
- **Type 3**- Can be driven elevated but is controlled from the work platform
Mobile Elevated Work Platform Types

Manually Propelled Vertical Lift
- Least expensive
- Easy to transport
- Compact
Mobile Elevated Work Platform Types

**Trailer Mounted Boom**
- Up and over access while mounted to a trailer
- Equipped with outriggers
Mobile Elevated Work Platform Types

Electric or Rough Terrain Scissor Lift
- Platform/ground controls
- Compact
Mobile Elevated Work Platform Types

**Straight Boom Platform**
- Uses a single arm to lift the platform to desired height.
- The length of the arm limits the reach.
- Extends beyond it’s base.
Mobile Elevated Work Platform Types

Articulated or Telescopic Booms
- Extends beyond it’s base
- Commonly referred to as:
  Knuckle booms or up and over booms
- Good for hard to reach areas
Components and Stability
Components of a Boom Lift
Components of a Scissor Lift
Avoid Hazardous Situations
Stability

- Lower the platform for maximum stability when traveling
- If traveling while elevated, move slowly and proceed with caution
  - Ensure that all ropes, cords and tools are not caught or hung on anything outside the platform before travel
  - Never use the lift as a crane
- Travel on flat, firm level surfaces
Stability

- Do not elevate on a sloped surface.
- Do not travel while elevated on a sloped surface.
  - The lift can become unstable and cause tip-over
  - Be aware of the work site, avoid holes, drop offs, curbs and soft terrain
- The weight on the platform can affect stability
  - The maximum weight capacity can be found on the data plate and the operator manual
Stability

- When a platform is elevated over its base, it creates a long lever arm. A small amount of sideways or horizontal force on the elevated platform, can place enough force on the base to cause tip-over.

- Never push or pull when in the elevated position, this can cause tip-over.

- The maximum amount of horizontal force a fully loaded lift can withstand before tipping is called **Horizontal Load**. This information can be found in the operator’s manual or warning labels for each lift.
Pre-Shift Inspection
Pre-Shift Inspection

• Read the operators manual for the machine you are using.
  - The operator manual must always be kept with the machine.
  - If the operator manual is not available, contact the manufacturer.
Pre-Shift Inspection

• Refer to the operator manual for machine specific check list
• If any damage is found, remove the machine from service.
• Check for excessive wear, loose parts, and any modifications made without approval from the manufacturer.
• All decals must be clean and legible.
Pre-Shift Inspection

• Inspect the work area
  - Look for holes, slopes, curbs, drop offs and unstable terrain. These factors can lead to tip over.
  - Check for overhead obstructions such as power lines, trees or any structure that could cause collision.
  - Alert others in the work area that the lift will be in use.
Pre-Shift Inspection

- Complete a walk around visual inspection
  - The machine could be damaged or modified
- What to check
  - Platform and guard rail condition, ensure the entry gate is in good working condition
  - Tires and wheels
  - Leaks
Pre-Shift Inspection

While inspecting your scissor lift, ensure the pothole safety mechanism is functioning correctly.
Pre-Shift Inspection

Control Function Test
- Use a firm level area free of overhead obstructions to run the function test
- Follow the function test outlined in the operator's manual
- If the machine fails the test, remove from service

Common Function Test
- Check and complete ground control console test before checking platform controls
- Lift function
- Emergency stop
- Tilt alarm
- Platform and ground control console: ensure all switches and levers return to neutral
Fuels and Batteries
Liquefied Petroleum Gas (LPG)

- Burns cleaner than gas engines.
- Produces a poisonous gas that is not easily detectable, must be operated in well ventilated areas.
- LPG is heavier than air and will seek low lying areas.
- LPG is extremely flammable, must avoid all sources of ignition.
Liquefied Petroleum Gas (LPG)

- It acts like a liquid. It can soak into clothing.
- It is compressed under high pressure in the tank.
- LPG in a liquid state has a temperature of 44° below zero. Can cause frostbite on contact with skin.
- Chemicals are added to give the gas an odor which helps identify leaks.
Gasoline and Diesel

- The difference between these two fuels is their ignition temperatures.
- Gasoline
  - Extremely flammable
  - Colorless
  - Distinctive
- Diesel
  - Has higher ignition point than gas
  - Colorless
  - Slight odor, harder to detect than gas
Gas and Diesel Refueling

- Most lifts filler caps are equipped with a venting device and a fuel screen.
- The screen serves as a fire-retardant device by keeping fire out of the fuel tank.
- Check when refueling to make sure the screen is in place.
Gas and Diesel Refueling

- Safe refueling checklist:
  - Refuel in designated areas with good ventilation
  - Smoking and open flames are prohibited
  - Shut off the lift, lower the platform, put the lift in neutral, and set the parking brake before beginning
  - Don’t overfill the tank
  - Clean up any spills
  - Use only clean, properly marked fuel cans
Batteries

- A lead-acid battery is a portable power source for supplying direct current electricity.
- The most common voltages include 12, 24, 36, and 48 volts.
- Discharging a battery below 80% of its total capacity can result in shortened battery and truck component life.
Battery Hazards

- Sulfuric Acid- Small amounts can cause severe contact burns to the skin.
- Gasses- Batteries produce hydrogen and oxygen mixture continuously. Keep all ignition sources away.
- Electricity- Batteries can produce very high discharge rates. Avoid direct shorting situations.
- Battery Weight- Use care when handling, charging, and using batteries in the lift.
Battery Chargers

- Two types:
  - Single phase charger has two wires and a ground with one transformer and two fuses.
  - Three Phase charger has three wires and a ground in the power supply cable. It has three transformers and three fuses.

- Always correctly match the charger to the voltage and amp hour ratings of the battery.

- Also check the input voltage and cycle. Input voltage is most commonly 220, 440, or 480, with US standard 60 cycles.
Battery Charging

Battery recharging requires a special service area in accordance with OSHA section (g)(1). The area must be:

- Well ventilated
- Truck off, set parking brake
- Jewelry is prohibited
- Personal protective equipment should include safety glasses, head protection, aprons, and gloves
- All battery cables should be disconnected before charger hook-up
- Handling must be done according to manufacturers recommendations
Battery Charging

- Vent caps must be left on during charging
- If the battery is charged while still in the lift, the compartment must be left open
- The charger should be turned off before it is connected to the battery then turned on to begin the charging cycle.
- Color coded connectors help prevent connecting a battery of the wrong voltage to the wrong charger or lift.
- Chargers should be properly set to avoid over or under charging.
- The charger should be turned off before disconnecting from the battery.
Emergency Situations
Are you prepared?

- Does the facility or site have an evacuation procedure?
- Are emergency contact numbers readily available?
- Do any of your employees/co-workers have CPR or First Aid training?
- Does the facility or site have a first aid kit?
Handling an Emergency

The three C’s, Check, Call, Care help us remember what to do in an emergency situation.

- **Check**: check the area for your own safety first, then the victim’s
- **Call**: for help, 911 or whom ever is in the immediate area that can provide assistance
- **Care**: administer care to the victim, this may be first aid or at least stabilization
## Fire Prevention – Extinguishers

<table>
<thead>
<tr>
<th>Code</th>
<th>Type Description</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Common Combustibles</td>
<td>Wood, paper, cloth etc.</td>
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<tr>
<td>B</td>
<td>Flammable liquids and gases</td>
<td>Gasoline, propane and solvents</td>
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<tr>
<td>C</td>
<td>Live electrical equipment</td>
<td>Computers, fax machines</td>
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<tr>
<td>D</td>
<td>Combustible metals</td>
<td>Magnesium, lithium, titanium</td>
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<tr>
<td>K</td>
<td>Cooking media</td>
<td>Cooking oils and fats</td>
</tr>
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</table>
How to Use a Fire Extinguisher

P-A-S-S

Pull - Pull the pin at the top of the extinguisher that keeps the handle from being activated

Aim- Aim the nozzle at the base of the fire

Squeeze- Maintain a distance of eight to ten feet away from the fire and squeeze the handle. Discharge will only occur if the handle is being squeezed.

Sweep- Sweep the nozzle back and forth at the base of the fire until it appears to be out.
Fundamentals of Operation
Safe MEWP Operation

- Trained Operators Only
  - OSHA requires that only trained operators be allowed to operate the MEWP

- Stunt Driving and Horseplay is Strictly Prohibited
  - MEWPs are heavy and powerful machines that demand an operator’s attention and respect

- Read and Understand Operator Instructions
  - You must read and understand the operator’s manual for each MEWP you operate

- Faulty Equipment and Maintenance
  - If at anytime the MEWP needs repair or is defective in any way, it must be taken out of service and fixed
Fundamentals of operation

- Inform any personnel that will be in the work area that you plan to move/operate the machine
- When stepping onto the work platform, squarely face the machine, use a three-point position of contact, meaning: two feet and one hand, or two hands and one foot.
- Ensure the gate latches properly
- Be sure not to use any operational levers as hand holds.
Fundamentals of operation

- Rope off or use cones to mark your area of work. Take into consideration the swing radius of the extended boom.
- Never allow anyone to work or walk below the elevated platform.
- Do not hoist tools or equipment into the elevated platform.
Fundamentals of operation

- Always keep feet firmly planted on the work platform
- Never climb the guardrail
- Do not use a ladder or any other equipment to extend your reach
- If you cannot reach the desired work area, reposition the machine or use another method to accomplish the task
Fundamentals of operation

- When elevating or descending, keep all body parts inside the platform guardrail area to avoid potential pinch points.

- Use the employers required PPE
  - A hard hat is recommended; your head will be the highest point while on the lift.

- ANSI standards require you wear a full body harness and lanyard attached to the basket on Group B MEWPs, that is any MEWP that extends out past the base of the machine.
  - The harness is to ensure the operator is not ejected from the platform from a sudden unexpected movement.
Fundamentals of operation

- Inspect the harness and lanyard to ensure they are in good working condition
- Only connect to the lift manufacturers supplied anchor point
1926 Standards

- Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition
- Only authorized persons shall operate the aerial lift
- Belting off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted
- 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.
Hands-On Section

• Pre-Operation Inspection
• Pre-Operation Site Inspection
• Familiarization with operating controls
• Driving exercises
  - Function test
  - Lift
  - Figure 8
## Boom Lift Pre-Operational Checklist

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<th>Item</th>
<th>OK</th>
<th>Repair</th>
<th>Item</th>
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<tbody>
<tr>
<td>Boom Riser</td>
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<td>Engine Oil Level</td>
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<td>Boom Mast</td>
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