PRO-LIFT
Training & Assessment Services

TLILIC0005 Licence to operate a boom-type elevating work platform (boom length 11 metres or more)

Student guide

PRO-LIFT
Training & Assessment Services

Contents

Welcome

Welcome to **TLILIC0005 Licence to operate a boom-type elevating work platform (boom length 11 metres or more)**

Information provided may help to ensure your safety.

This unit

This unit specifies the skills and knowledge required to safely operate a boom-type Elevating Work Platform (EWP) where the length of the boom is 11 metres or more in accordance with all relevant legislative requirements. Competence in this unit, does not in itself result in a Risk Work Licence (HRWL) to operate this plant. Boom-type elevating work platform means a telescoping device, hinged device, or articulated device, or any combination of these, used to support a platform on which personnel, equipment and materials may be elevated. A person performing this work is required to hold a boom-type elevating work platform HRWL.

This unit requires a person operating an EWP to:

1. plan for the work/task
2. prepare for the work/task
3. perform work/task
4. pack up

Licensing/Regulatory Information

Licensing/Regulatory Information - Legislative and regulatory requirements are applicable to this unit of competency. This unit is based on the licensing requirements of Part 4.5 of the Model Work Health and Safety (WHS) Regulations and meets Commonwealth, State and Territory HRWL requirements. The National Assessment Instrument (NAI) is the mandated assessment for the HRWL to operate the relevant licencing class as detailed in this unit.

Elements covered in this unit are:

1. Plan work/task
2. Prepare for work/task
3. Perform work/task
4. Pack up

WHS Law

Legislation is law passed by Parliament. It governs many areas, including health and safety at work.

It can be national, or relevant to individual states and territories.

You need to know the WHS legislation that covers your job and workplace.You are required by law to comply with them.

You need to understand how WHS Acts, regulations, codes and standards affect your work, job and workplace.

Acts & Regulations

Acts - Are law. They describe how to provide health and safety in the workplace

The *Work Health and Safety Act*

2011 QLD / NSW

2004 –Victoria

The Act is the cornerstone of legislative and administrative measures to improve occupational health and safety

Regulations - are made under the Act. They set out the practical steps to follow to comply with the Act

Codes of practice & Australian Standards

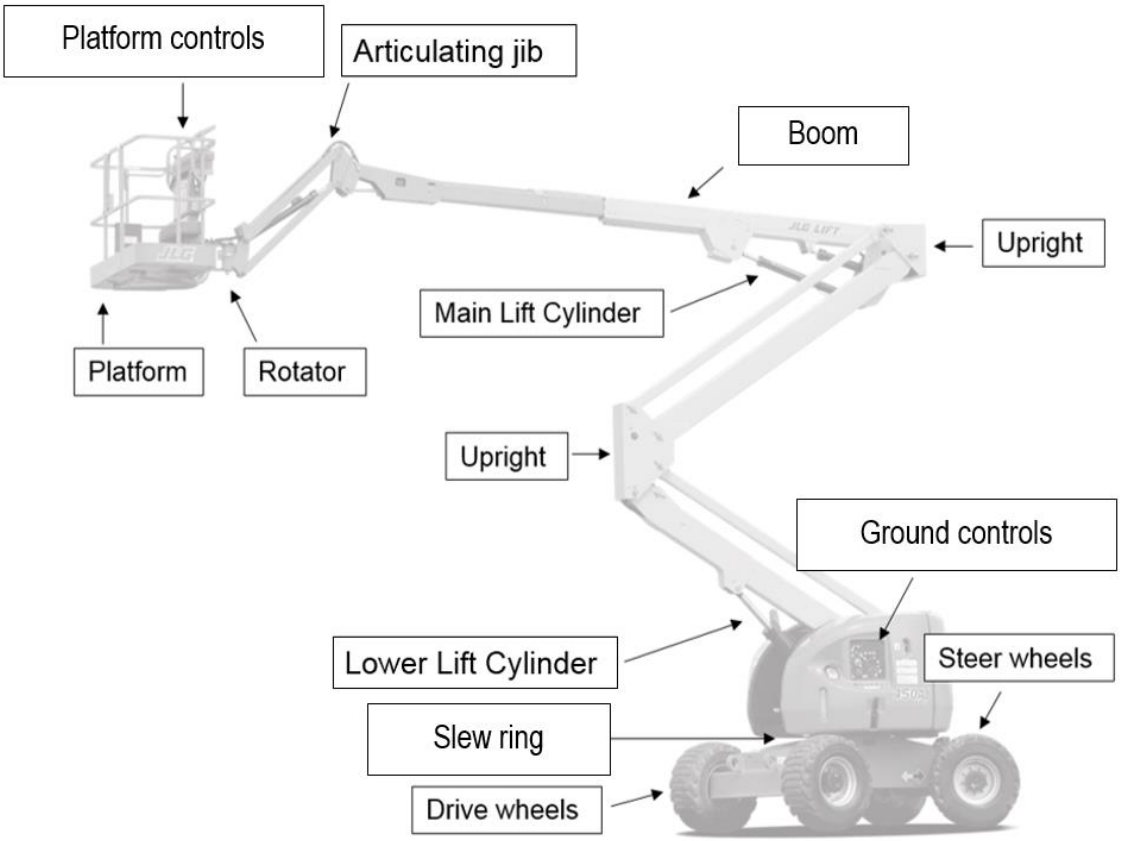
Codes of practice - Give practical guidance on how to legally comply with regulations and Acts.

Australian Standards - Developed to provide minimum levels of performance or quality. Cover hazards, work processes and product.

The safest way to carry out the work activity is to read, understand and follow your

- Safe work method statements
- Codes of practice

Parts



Identify & confirm task

Identify your task requirements by ***obtaining work orders*** or a ***work plan*** which may be verbal, documented/written, or electronically generated.

Confirm task requirements with your ***supervisor.***

Planning before work

Other than site hazards, you should you plan for

- Permits
- Risk assessment
- Access
- Communications
- Training
- Location

Locate workplace safety information

- Legislation and regulations
- Australian Standards
- WHS/OHS policy
- Codes of practice
- Manufacturer instructions
- Safe working or job procedures

Health and safety

Employers have an obligation to ensure the health and safety of all workers by;

- Providing and maintaining safe plant and equipment
- Providing and maintaining a work environment without risks to health and safety
- Providing adequate facilities
- Providing and maintaining safe work systems and or procedures

Duty of Care requirements

Duty of Care requirements.

- Take reasonable care for own health and safety
- Take reasonable care for the health and safety of others who may be affected by your actions
- Comply with anything your employer does to meet WHS/OHS requirements
- Do not interfere or misuse anything provided in a workplace for WHS/OHS

Work health and safety regulator

A high-risk worker not working safely under a high-risk work licence can face action from the work health and safety regulator

- Suspend their HRW licence
- Cancel their HRW licence
- Not renew their HRW licence
- Order to undergo re-assessment

New equipment

An employer must provide ***Internal training, supervision, instruction and or information*** before an operator can work with a new type of EWP.

Check the voltage

If you need to work closer than the prescribed safe operating distances for power lines

- Contact the relevant power company and seek an exemption
- Ask to have the power turned off
- Use a qualified safety observer (spotter)
- Insulate line

If you want to know the voltage of powerlines that you are working near, contact ***authority responsible for the powerline.***

Minimum safe operating distances

Minimum safe operating distances you must remain away from power lines per state

QLD

- Up to 132KV = 3m
- 132kv to 330kv = 6m
- More than 330kv = 8m

WA

- Less than 33KV = 3m
- Over 33kv = 6m
- Over 133kv = 8m

NT

- 50v to 1kV = ...3m
- 1kV to 33kV = ……3m
- 33kV to 66kV = ….4m
- 66kV to 132kV =...5m

Power lines

Minimum safe operating distances you must remain away from power lines per state

VIC

- Distribution lines - 6.4m or 3.0m with a qualified spotter
- Transmission lines - 10m or 8m with a qualified spotter

NSW

- Up to 132KV = 3m
- 132kv to 330kv = 6m
- More than 330kv= 8m

SA/TAS/ACT

- Distribution lines - 6.4m or 3.0m with a qualified spotter
- Transmission lines - 10m or 8m with a qualified spotter

Identify overhead power lines by observing

- Tiger tails
- Safety signage
- Danger signs
- Marker balls
- Painted bottom section of poles
- Spinners

Check ground suitability

Factors related to ground suitability that must be checked for to ensure the safe operation and stability of the EWP.

- Rough uneven ground
- Backfilled ground
- Soft soils
- Bitumen (damaged, cracked)
- Concrete (damaged, cracked)
- Rough uneven or difficult terrain
- Railway tracks
- How hard that the soil is compacted (Degree of compaction)

Unstable

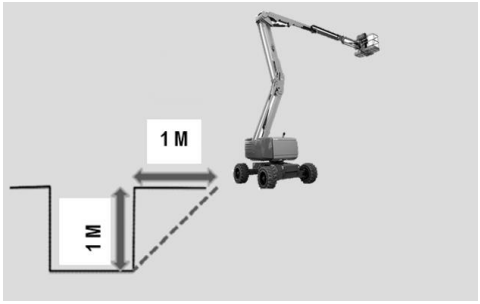
If the ground is unstable under one outrigger

- Stop and lower boom
- Pack and stabilise the out rigger
- Relocate
- Report

Unstable ground

Setting up an EWP near a trench or recently backfilled ground is dangerous, *the trench or ground could subside, it could cave in (collapse) and tip the machine over.*

When setting up any part of an EWP near an excavated trench, *the distance away should be equal to the depth of excavation.*



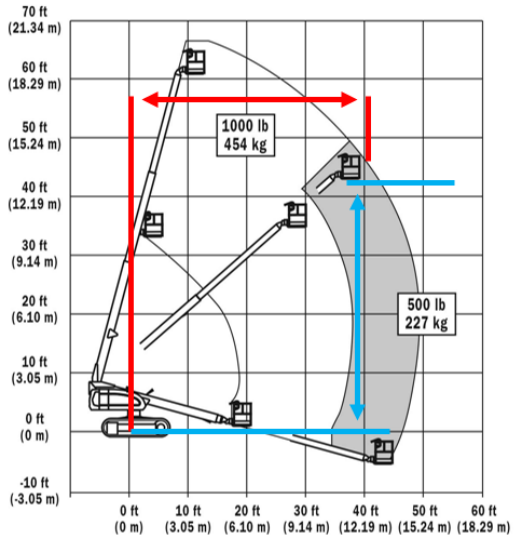
Ground bearing ability

To safely set up an EWP on a concrete slab, you must first ensure the concrete slab is able to support the EWP and the load, this can be done by checking with a competent person, obtaining the engineering report or directly contacting the engineer.

Trench covers

Trench covers and steel grates must be inspected to *ensure rated capacity and to ensure they are located correctly*

Nominal reach & Vertical distance



Nominal reach, measured horizontally from the centre point of slew ring to outer edge of platform

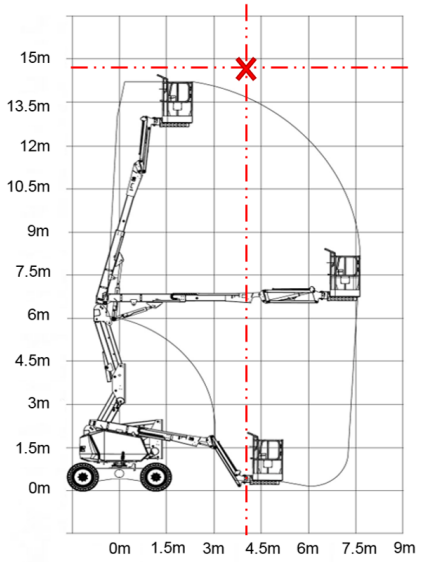
Vertical distance from platform floor to surface supporting elevating work platform

Nominal reach & Vertical distance

You will need to consider the nominal reach and vertical distance of the platform for determining safe operating capability

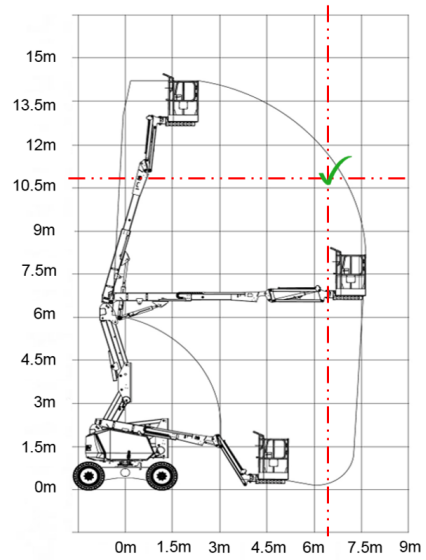
Can you access a bridge pile 14.5m high where the EWP must be positioned 4m from the centre of slew ring to the bridge pile?

No

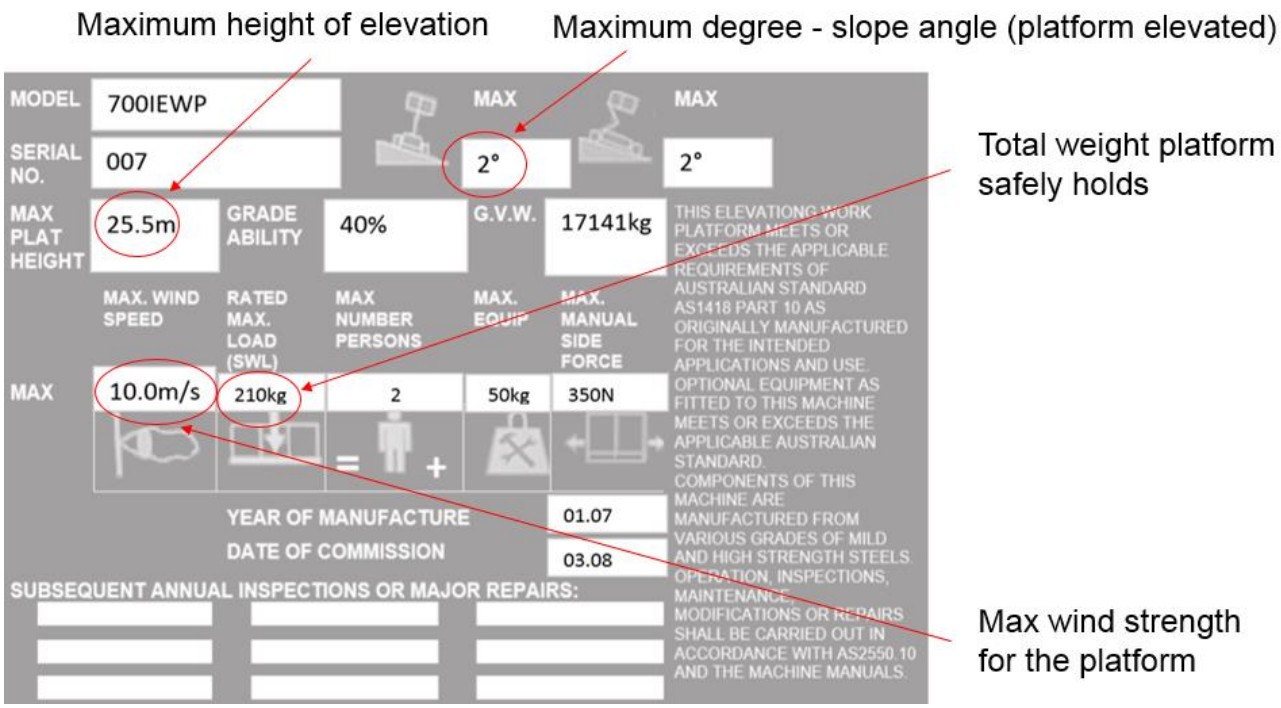


Can you access an external building wall 11m high where the EWP must be positioned 6.5m from the centre of slew ring to the building external?

Yes



Data Plate



EWP capacity and capabilities

You must ensure all signs, labels and load charts are displayed correctly and clearly

- To ensure operator is aware of safety requirements and or functions
- To ensure operator is aware of capacity and capabilities at all times

Accumulated weight

It is necessary to calculate the weight of your accumulated tools, persons, materials and equipment before loading and operating an EWP

This is done to ensure *the accumulated weight of these things does not put you outside of the machines safe operating limit*

Rated capacity

Locate the rated capacity of the EWP

- On the work platform
- In the manufacture's specifications
- On the Data / compliance plate

Wind velocity

Locate the maximum wind velocity for your EWP

- Manufacturer specifications / Operator manual
- Marked on the work platform
- On the data plate

Calculation

You need to waterproof an external building wall and have been provided with an EWP rated capacity of 195kg.

- A waterproofing bucket weighs 20kg holding 15 litres
- Your weight is 85kg
- The additional waterproofing equipment needed to be carried weighs 10kg

How many waterproofing buckets can you carry on to on the platform at one time?

195 kg – 85 kg – 10 kg = 100 kg

Number of buckets that can be lifted = 100kg ÷ 20kg = 5 buckets

Safe operations

Calculate the total weight in / on the platform including the weight of all persons and equipment to ensure the rated capacity of the EWP is not exceeded.

Calculations

An EWP has a rated capacity of 200Kg

Operator weight = 85Kg

200Kg – 85Kg = 115Kg

The maximum weight of tools and equipment you can safely take up with you is 115Kg.

Wind hazards

Hazards that can affect operating the EWP in strong windy conditions are

- Uncontrollable boom movement
- Instability / Machine roll over
- Damage to EWP
- Falling objects

Plan path of movement

When planning the appropriate path of movement for the EWP and boom

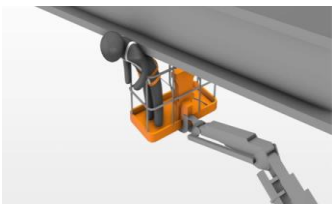
- Weight of the Load
- Sufficient clearance from surrounding structures and obstacles
- Stability of the EWP
- Requirement for spotters
- Other vehicles and workers

Check path of movement

It is important to check your path of movement before commencing EWP operations

- So that we have identified all hazards
- So that we have applied appropriate controls measures
- It is safe to continue operations

Crush or entrapment

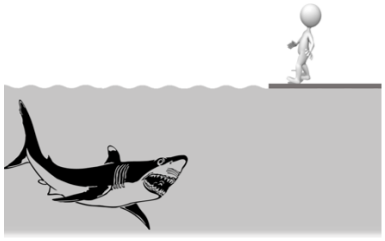


- Any point where a person may be pinched trapped or crushed between objects due to the movement of an EWP
- Eliminate the Hazard by choosing appropriate paths of movement that are free from obstructions, if operating free from obstruction is not possible then always work in slow mode and have a spotter
- Use controls - Exclusion zones at ground level can be a preventative measure

Hazard vs Risk

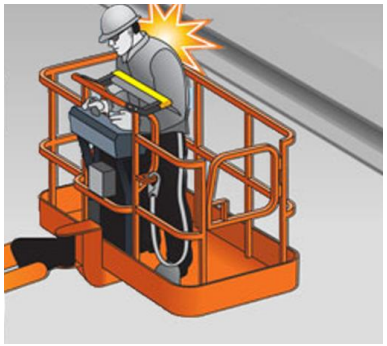
A **Hazard** is *something that has the potential to harm you*

A **Risk** is *the possibility of harm (death, injury or illness) from exposure to a hazard*



Potential hazards

- Power lines /Overhead service lines
- Service pipes
- Other vehicles
- Pedestrians
- Underground services
- Trees
- Buildings and surrounding structures (Pinch/crush points)
- Bridges



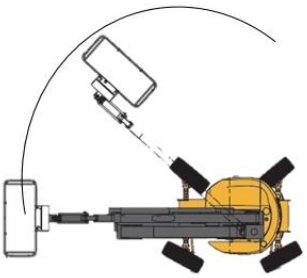
Risk control measures

You must apply risk control measures before you commence any work, or as soon as a hazard is identified.

Apply risk control measures

You must apply risk control measures before any work starts or as soon as a hazard is identified during operation.

Hazard and control



Hazard and control for a person inside the operating radius of the EWP

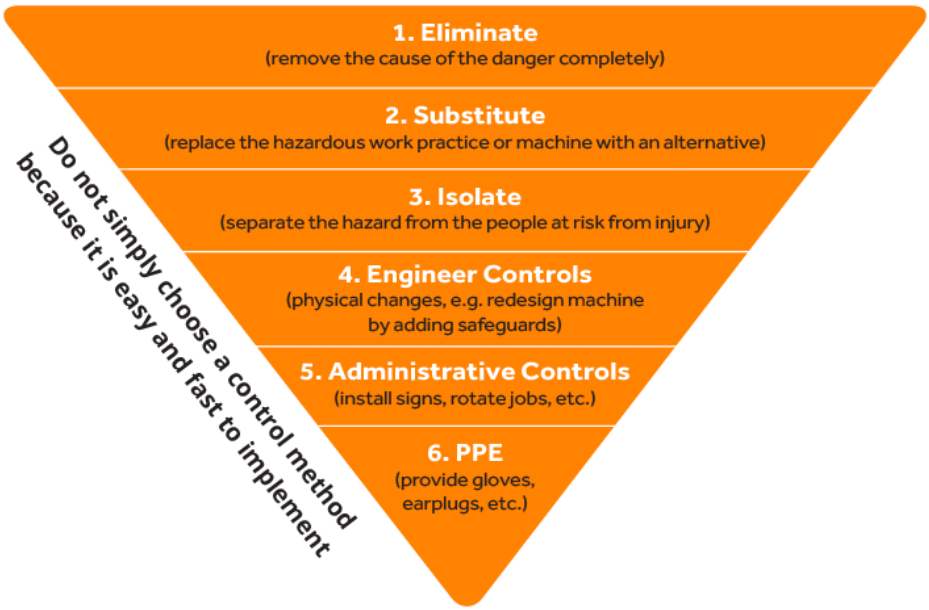
Hazard

Person hit by boom

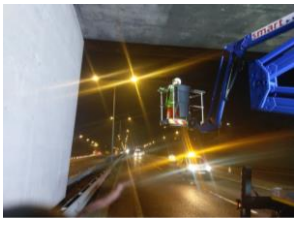
Control

- Exclusion zones
- Signs
- Barriers

Hierarchy of hazard control



Operating at night



When operating the EWP at night you must have ***adequate lighting over the whole work area to ensure safety.***

Consult

Consult with personnel about potential workplace hazards

- Health and safety representative
- Safety officer
- Supervisor
- Engineer
- Other personnel

Consulting about workplace hazards

Consulting with personnel about workplace hazards will help you to

- Identify any workplace specific hazards or ground conditions
- Ensure workplace policies and or procedures are followed
- Identify hazards and controls

Safe operations

Never raise or lower the boom over people, serious injury or death from falling objects or being struck by the boom or platform could occur

Operations over water

Control risks associated when operating an EWP over a body of water

- Emergency retrieval system
- Wearing a life jacket
- Rescue boat
- Rescue plan
- Spotter

Traffic management plan

Apply controls according to your traffic management plan, this will help to ensure pedestrian safety

- Warning signs
- Spotter
- Flashing hazard lights / reversing buzzer
- Barricades/Barriers

Communication methods & equipment

Identify your communication methods at *planning stage with relevant personnel.*

Check communication equipment is suitable for the task *prior to starting any work.*

Workplace communications

Communication types normally used between the platform operator and ground personnel

- Hand signals
- Verbal
- Two-way radio

Confirm work / task requirement

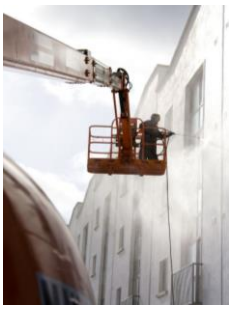
Always confirm your work or task requirements with your supervisor

- To ensure any requirements for the work area are met e.g., traffic control, isolation or signage requirements
- To ensure workplace procedures are understood and followed

Local authorities

You must check with local authorities before setting up an EWP in a busy street

- For any permits
- If any exclusion zones are necessary
- Traffic control necessary



Communications

Always maintain communications with workplace personnel

- To ensure all personnel understand the workplan
- To ensure work will be done according to site requirements
- To ensure work will be done according to safe work procedures

Risk control measures

The purpose of checking risk control measures before applying them

- To ensure they are not defective
- To ensure they are still the most appropriate
- To ensure they will comply with workplace procedures

Out of service, danger or safety tag

An out of service, danger or safety tag can be removed only *when the work platform is considered safe by the authorised person who placed the tag and when they remove it.*

Check safety equipment

Types of safety equipment that will need to be checked according to manufacturer requirements

- Emergency retrieval systems
- An energy absorber
- All anchor points
- Safety harness
- Lanyard

Inspect for defects

Inspect an energy absorber & lanyard for defects

- Damage
- Wear tears
- Correctly attached to the harness
- Rust or corrosion
- Mould

Anchor points

Once you are in the basket, only attach your lanyard to the *specific reinforced anchor points.*

Safety equipment

A ***safety harness & lanyard*** must be used when operating an EWP at heights.

Fitting your harness correctly

1. Put harness over your shoulders and adjust shoulder straps to remove slack
2. Insert legs and adjust straps allowing for your hand to only just slip between thigh and strap
3. Connect chest strap and adjust strap to remove slack

Refuel/Recharge

PPE is required to refuel and recharge an EWP

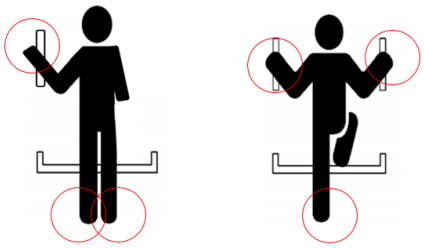
- Gloves and safety glasses due to sulfuric acid
- Gloves and safety glasses when dealing with fuel and or oil

Relevant procedures may include referring to

- Manufacturer's guidelines
- Operator manual
- Workplace procedure

3 points of contact

The safest method for entering the platform basket is to use 3 points of contact at all times and access according to manufacturer requirements and safe work procedures



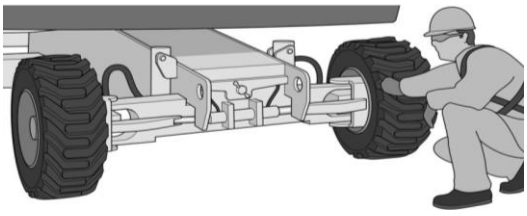
Visual inspection

Conduct a visual inspection for defect or damage on the EWP or boom.

- Cracks in boom
- Bends
- Twists
- Oil leaks
- Loose bolts
- Flaking paint

Pre-start inspection

It is the ***operator's responsibility*** to conduct pre-start inspections ***to ensure*** the EWP is ***safe to use.***



Pre-operational checks

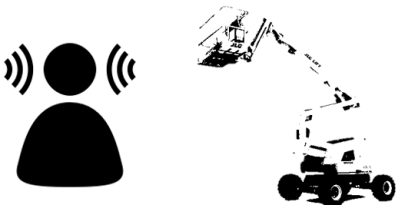
Pre-operational checks necessary on the EWP prior to use.

- Visually checking for any damage to the structure and load bearing parts
- Check for flaking paint as a sign of damage to welds or overloading of the boom
- Check under the EWP for leaks
- Check tyres for correct pressure and signs of damage or wear
- Check the hydraulic fluid gauge and engine oil level
- Check the water level in the radiator and battery
- Check the hydraulic hoses, rams and connections
- Check that the SWL is clearly marked

Abnormal noise

Abnormal noise is heard from the EWP

- Stop operations
- Safely lower the EWP to ground
- Tag the EWP 'Out of service'
- Report the noise to the appropriate person



Start-up

Follow the ***manufacturer start-up procedure*** when starting the EWP.

Considerations

Considerations when setting up an EWP close to buildings

- Checks for uncompacted ground, loose backfill or slope
- Boom set up to slew away from building if possible
- Access and egress to the EWP
- Safe working radius
- Exclusion zones
- Weather conditions

Level indicator

Use a spirit level or bubble level indicator to ensure the EWP is set up level.

Weight distribution

Devices used to distribute/stabilise the weight of an EWP with fitted outriggers:

- Steel plates
- Mats on timber pads
- Hardwood packing
- Suitable base plates

Stabilise

If the EWP does not have outriggers/stabilisers, chock both sides of one pair of its wheels by firmly placing suitable obstructions against each wheel.

Post-start operational checks

Post-start operational checks prior to starting any work

- Operate all ground controls and motions to full range of operation
- Operate all platform controls and motions to full range of operation
- Check warning lights, systems or devices
- Emergency lowering device
- Steering

Test

Test the EWP to the full extent of operations before using it *to ensure it is functioning correctly and is safe to use.*

Ground controls

Ground controls are fitted to the EWP

- For testing after repairs
- To lower platform in emergency

Pre-operational checks

You must conduct checks before raising the EWP platform

- Access and egress
- Safe working radius
- Obstructions and hazards
- Weight and size of loads
- Fall arrest secured to anchor point
- Terrain

Controls

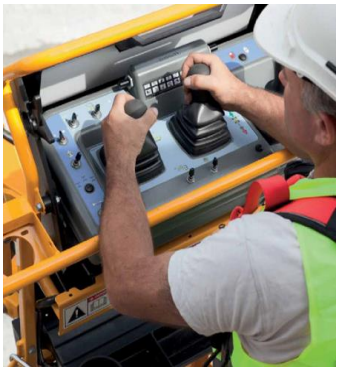
An EWP will commonly have ***two sets*** of controls, ***ground*** and ***basket***

Function of the Dead man control

- Safety interlock to activate controls
- To stop the unplanned operation of the machine

Operational checks on platform controls

Perform operational checks done on platform controls



- Operate all platform controls and motions to full range of operation
- Check warning lights, systems or devices
- Emergency lowering device
- Steering

Defects

If you find any defects or damage to the EWP during your inspection

- Tag out
- Report
- Record
- Do not use

EWP service logbook

Always check the EWP logbook to ensure

- EWP log book is the correct one for the EWP you are using
- Any defects that have not been fixed
- Pre-start completed

Wind, Live & Dead loads

Wind load is maximum wind speed allowable

Live load is the load of persons and or materials supported by the EWP

Dead load is the weight of the EWP.

Increase in wind speed

If wind speed exceeds the manufacturer requirements, ***stop work*** immediately and ***lower the platform,*** make the ***EWP safe and secure.***

Check hazard control measures

Hazard prevention control measures must be checked prior to set-up

- To ensure signs have the correct communications and are legible
- To ensure lights are in a safe working condition
- To ensure controls are applied according to safe work procedures

Moving an EWP

When moving an EWP to a work area

- Basket lowered
- Boom retracted

Monitor boom & platform movement

Monitor the boom and platform movement during operations to ***ensue operations are being conducted safely.***

Position correctly

After moving an EWP into position and prior to levelling and packing, make checks to ensure the platforms position is correct.

- Safe working radius
- Position of EWP to works being conducted
- Adequate clearances from obstructions or hazards

Pigstying/placing dunnage or packing

When pigstying, placing dunnage or packing, the second layer should be at ***90 degrees*** to the first layer

Monitor operations & stability

In the event the EWP is set up and one or more of the wheels or outriggers starts to sink

1. Stop operations
2. Return the EWP to the ground
3. Rectify the sinking if possible. If not possible, relocate the EWP to an area where stability can be obtained
4. Relocate the EWP to safer ground

Secure and stow

You must secure and stow all tools and equipment safely when operating the EWP

- Prevent objects falling from height
- Prevent trip hazard
- Prevent tools obstructing controls

Other factors that cause instability

- Poor load placement
- Overloading
- Irregular loads

Travelling

Take precautions when driving the EWP to the work area.

- Boom retracted and platform lowered to safe level
- Check that the way is clear
- Look out for other workers
- Check speed
- Look out for obstructions and equipment in the area
- Warning devices are working

Move an elevated platform

If you plan to move the platform in an elevated position, use an ***extremely slow creeping speed or as per manufacturer specifications.***

Across slope

To move an EWP across a slope or hill you must ***refer to manufacturer instructions.***

Limitation

An EWP cannot be used like a crane for lifting anything outside the basket.

Slings or attachments ***must not*** be attached to the hand or guard rail of an EWP.

Unplanned failure of controls

If you experience a failure of controls when working at maximum height

- Call to the ground support
- Use the emergency lowering device and tag and report

Contact with overhead powerlines

If your EWP comes into contact with overhead powerlines

S - Stop, warn others

T - Try and break contact

I - If safe, stay on machine, call for help

I - If unsafe get out safe as possible, shuffle 8m away with 2 feet together

R - Report to all parties

R - Recheck machine before reuse

Unplanned movement

If you feel the platform, drop or move a little when you are working at heights.

- Stop work immediately
- Notify persons nearby
- Check EWP for defects
- Report to supervisor
- Record in log book

Fail safe systems

Fail safe systems can be used to lower the platform from height in the event of failure

- Manual hydraulic bleed valves
- Pump down mechanism
- Battery operated controls from platform

Exclusion zone breach

If a pedestrian walks through an exclusion zone during operations

- Stop work
- Identify person in the exclusion zone
- Direct spotter to guide the pedestrian away from the work area
- Lower platform to ground
- Report and take corrective action
- Report according to workplace procedures

Unclear signal

If you fail to understand a radio communication or hand signal from the ground

- Stop all motions of the EWP
- Ask for clarification of last signal

Hand signals

	Stop	1 short
	Hoist up	2-short
	Boom up	3-short
	Boom down	4-short
	Hoist down	1 long

	Slew left	1 long 1 short
	Slew right	1 long 2-short
	Telescope out	1 long 3-short
	Telescope in	1 long 4-short

Enter or exit platform while elevated

What conditions permit entry or exit between the platform and fixed structure while in an elevated position

- Not under normal circumstances, an EWP is specifically designed to lift people to a position where they can work from the basket
- Not under normal circumstances, an EWP is not designed to transfer people from one level to another, or to exit a platform at height
- Yes, only where an exception is granted by an employer and where a thorough risk assessment has taken place. It must be clearly demonstrated as the safest way of accessing a particular location, it may be part of a formal emergency rescue plan

Park-up the EWP

Park-up the EWP before leaving the work area

- Park in a safe position or approved work area
- Lower platform fully & engage motion locks and brakes
- Switch off and isolate
- Follow manufacturer requirements

Shutdown & post-operational checks

Conduct post-operational checks as part of shut-down

- Position platform according to manufacturer requirements
- Post-op checks
- Record any faults in logbook
- Remove and store harness
- Isolate and remove keys
- Clean basket
- Refuel/recharge

Retract, lower, stow & secure boom

Correctly retract, lower, stow and secure the EWP boom ***according to manufacturer requirements and safe work procedures.***

Disconnect safety equipment

It is safe to remove your safety harness, *only once the basket has been fully lowered and you are ready to exit the basket.*

Motion locks and brades

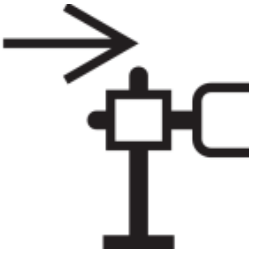
Motion locks and brakes are applied at ***shut down*** of EWP.

Plates and packing

Once you have finished using the EWP plates and packing, they should be ***placed on the carrier or in a designated storage area*** for future access, ***ensuring they are clean.***

Lock retracted outriggers

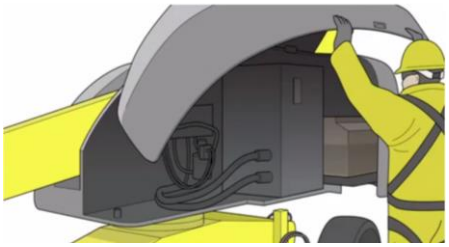
Lock retracted outriggers in place ***using the correct locking pins***.



Post-operational checks

Follow procedures or requirements to shut down

- Site procedures
- Manufacturer requirements
- Safe work procedures
- Relevant shutdown checks, logbook, recording and reporting



THE END