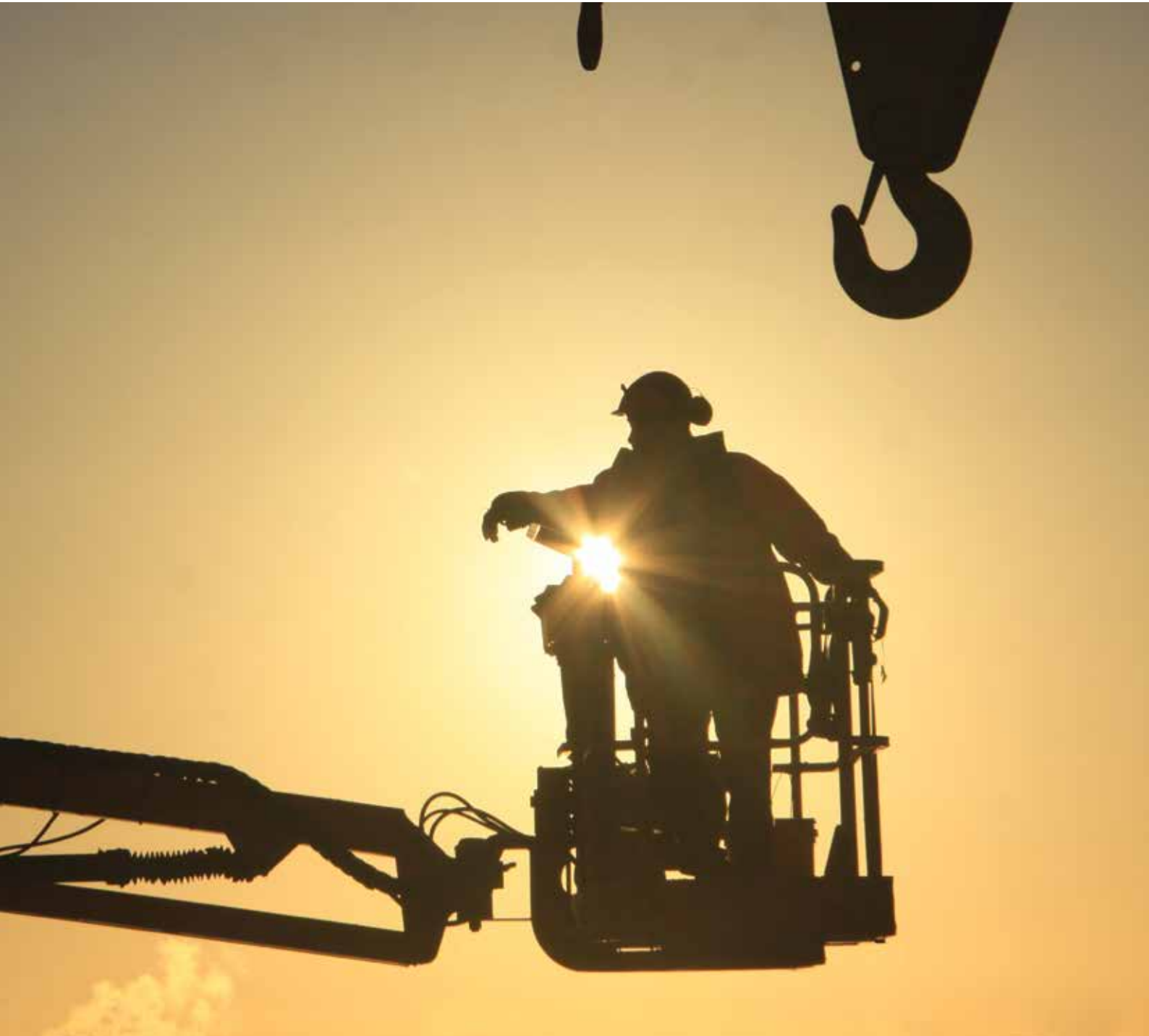


# Mobile Elevating Work Platforms

**AUGUST 2014**



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## ACKNOWLEDGEMENTS

WorkSafe NZ would like to thank the following for their input and involvement in the development of these guidelines:

- > Asplundh
- > Central Hire Services Ltd
- > Elevating Work Platform Association (EWPA)
- > EWP Technical Solutions Ltd
- > The Fletcher Construction Company Ltd
- > Franklin Tree Services Ltd
- > Hire Industry Association of New Zealand (Inc) (HIANZ)
- > Hirepool Ltd
- > Hydralada Company Limited
- > NZ Amalgamated Engineering, Printing & Manufacturing Union Inc. (EPMU)
- > Safety'n Action Ltd
- > Site Safe Ltd
- > Snorkel New Zealand Ltd
- > Transpower New Zealand Ltd.

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ISBN number online: 978-0-478-43325-8

ISBN number print: 978-0-478-43326-5



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## INTRODUCTION

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### IN THIS SECTION:

- 1.1 Scope and application
- 1.2 Definitions

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**Mobile elevating work platforms (MEWPs) are useful but complex pieces of equipment that are often used for access in hazardous areas. People have been seriously injured and killed in accidents involving MEWPs.**

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The causes of these accidents have included:

- > equipment failure
- > not following the manufacturer's recommendations
- > inadequate training and supervision
- > not fully assessing the hazards and risks of the job, site and the equipment.

The guidelines outline the safe work practices on how to use and maintain MEWPs safely and help duty holders meet their obligations under the Health and Safety in Employment Act 1992 (HSE Act), and the Health and Safety in Regulations 1995 (HSE Regulations). Duty holders include employers, employees, principals, designers and manufacturers, hirers and suppliers engaged in work associated with MEWPs.

This document is based on the current state of knowledge for the safe use of MEWPs. There may be other methods or processes that meet the requirements for providing a safe workplace under the HSE Act.

The Best Practice Guidelines for Mobile Elevating Work Platforms are non-industry specific. Some industries have guidelines that deal with specific problems faced in their working environments, such as the electricity sector or horticulture. When deciding how to do a job safely, make sure you check any industry specific guidance.

These guidelines may apply to the following activities and industries:

- > arboriculture
- > building and construction
- > bush and forest industries

- > electrical supply and distribution
- > film and television
- > plant and machinery hire
- > port operations
- > sign writing and advertising
- > stock picking
- > railways
- > telecommunications
- > warehousing.

## **1.1 SCOPE AND APPLICATION**

The advice in these guidelines represents the current state of knowledge (the best available at the time of publication) on the safe design, use and maintenance of MEWPs.

It includes the principles and requirements for using MEWPs that are common across a broad range of industries and applications.

This document refers to other guidance material about MEWP safety and hazard control measures. This includes industry standards, codes of practice, guidelines, manufacturers' instructions and other material. This document does not repeat the information from these sources but incorporates their key principles where possible.

These guidelines apply to work platforms where the height of the platform can be adjusted by powered scissor mechanisms, telescoping boom or tower, articulation or any combination of these. They can be vehicle-mounted, self-propelled, towed or moved by hand and used to access work above or below ground level. The guidelines also apply to work platforms temporarily or permanently attached to truck hoists.



These guidelines do not apply to the following:

- > Forklift trucks with working platforms  
(refer to WorkSafe NZ publication Forklifts – Approved Code of Practice for Training Operators and Instructors of Powered Industrial Lift Trucks).
- > Cages or platforms attached to crane hooks (refer to WorkSafe NZ publication Approved Code of Practice for Cranes – Includes the Design, Manufacture, Supply, Safe Operation, Maintenance and Inspection of Cranes (Cranes ACOP)).
- > Work platforms temporarily attached to a mobile crane (refer to the Cranes ACOP).
- > Suspended scaffolds (refer to Best Practice Guidelines for Scaffolding in New Zealand).
- > Lifts or elevators (refer to New Zealand Standard NZS 4332: Non-Domestic Passenger and Goods Lifts).
- > Telescopic handlers, except when configured as a MEWP.
- > Horticultural MEWP (See Best Practice Guideline: Safe Use of Elevating Work Platforms in the Horticultural Industry).
- > The New Zealand Fire Service.
- > Building maintenance units.

## 1.2 DEFINITIONS

HSE Act	The Health and Safety in Employment Act 1992.
HSE Regulations	The Health and Safety in Employment Regulations 1995.
All practicable steps	<p>Defined in the Health and Safety in Employment Act as being in relation to achieving any result in any circumstances, means all steps to achieve the result that it is reasonably practicable to take in the circumstances, having regard to —</p> <ul style="list-style-type: none"> <li>a. the nature and severity of the harm that may be suffered if the result is not achieved; and</li> <li>b. the current state of knowledge about the likelihood that harm of that nature and severity will be suffered if the result is not achieved; and</li> <li>c. the current state of knowledge about harm of that nature; and</li> <li>d. the current state of knowledge about the means available to achieve the result, and about the likely efficacy of each of those means; and</li> <li>e. the availability and cost of each of those means.</li> </ul> <p>To avoid doubt, a person required by this Act to take all practicable steps is required to take those steps only in respect of circumstances that the person knows or ought reasonably to know about.</p>
Anemometer	A device for measuring wind speed.
Beaufort wind scale	A method that relates wind speed to observed conditions.
Competent person	<p>A person who has acquired through training, qualification, experience or a combination of these, the knowledge and skill enabling that person to correctly perform the required task.</p> <p>Note: Different types of MEWPs require different competencies, including appropriate training and/or qualifications.</p>
Critical component	One whose failure could result in a risk to the health and safety of persons using the MEWP or in its vicinity.
Employee	As defined in the Health and Safety in Employment Act 1992, subject to Sections 3C to 3F of the Act, means any person of any age employed by an employer to do any work (other than residential work) for hire or reward under a contract of service and, in relation to any employer, means an employee of the employer.
Employer	<p>According to the Health and Safety in Employment Act 1992:</p> <ul style="list-style-type: none"> <li>a. means a person who employs any other person to do any work for hire or reward; and, in relation to any employee, means an employer of the employee; and</li> <li>b. includes, in relation to any person employed by the chief executive or other employee of a Crown organisation to do any work for the Crown organisation for hire or reward, that Crown organisation.</li> </ul>

Harness system	A safety harness with a lanyard incorporating a short energy absorber or fit-for-purpose self-retracting lifeline (SRL) attached to a certified anchor point. If using an adjustable lanyard arrangement the length will be adjusted to a length as short as practicable that will restrain the operator inside the platform.
Manual force	A side loading imposed on the machine by the operator pushing/pulling on an object outside the work platform.
Mobile elevating work platform (MEWP)	The complete machine including the platform, lifting mechanism, attachments, chassis or vehicle as applicable.
Operator	A person who controls the movements of the MEWP.
Personal energy absorber	A device that reduces the deceleration force imposed when a fall is suddenly arrested, and correspondingly reduces the loadings on the anchorage and the person's body. The energy absorber may either be a separate item or manufactured as part of the lanyard.
Principal	A person who, or organisation that, engages any person (other than as an employee) to do any work for gain or reward.
Rated capacity	The maximum load, expressed in kilograms, for which the MEWP has been designed for normal operation, and includes persons, tools, materials, acting vertically on the work platform.
Safety observer	A person who watches the MEWP to warn the operator if they are getting too close to overhead power lines or other hazards. An observer must not do any other job while they are watching the MEWP.
Shall or must	Indicates a legal requirement.
Should	Indicates recommended best practice.
Spreader plates	An item that may be constructed of a suitable material (steel, timber or other) to sit under outriggers that help distribute the weight of the MEWP on softer ground.
Work platform	The portion of equipment where people carry out their work.
Work platform supplier	Owner, hirer (supplying for hire) or supplier of a MEWP.

# 02/

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## **SAFE WORK PRACTICES WHEN USING MEWPS**

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### **IN THIS SECTION:**

- 2.1 Hazard management**
- 2.2 Identify hazards**
- 2.3 Assess the hazard**
- 2.4 Hazard controls**
- 2.5 Electrical hazards**
- 2.6 Weather conditions and wind**

## Identifying hazards and putting control measures in place makes using MEWPs in the workplace safer.

Duty holders must choose the best MEWP for the task, given the type of work and the work environment. The work needs to be properly planned and hazards managed at the worksite.

Operators must be trained and competent before using the MEWP and must follow the manufacturer's operating instructions. Operators must also use safe working practices and use the MEWP within its limits.

MEWPs can seriously injure people in the following ways:

Entrapment	An operator can get trapped between the work platform and a fixed structure, such as when moving in tight overhead areas of steelwork. Operators can be trapped against the platform controls and, if this happens, they may not be able to stop the MEWP.
Overturning	On an uneven surface, the MEWP can overturn throwing the operator from the work platform.
Falling	An operator can fall from the platform while working. They can even be catapulted out if, for example, the wheels go into a sink hole.
Collision	The MEWP may hit pedestrians, or nearby vehicles or touch overhead power lines.

### 2.1 HAZARD MANAGEMENT

Planning a safe way to do a job can help identify the hazards of any work using a MEWP. Planning safe work includes the hazard management process, which is:

- > Identify the hazards.
- > Assess the hazards – decide if the identified hazards are significant. Would they cause serious harm?
- > Control the hazards – eliminate, isolate or minimise the hazard. This includes selecting the right MEWP for the task and workplace.
- > Maintain the work plan or other safety documentation.
- > Monitor the hazards and keep the work plan or task analysis updated

### 2.2 IDENTIFY HAZARDS

Identify and assess all hazards for every job, site or task.

These are some ways to identify hazards while working with a MEWP:

- > Physical inspections – walk around the workplace using a checklist to identify and manage hazards.
- > Task analysis – look at each task and identify the hazards involved.
- > Process analysis – identify hazards at each stage of the project or piece of work.
- > Review accident and incident investigations – identify hazards and see what caused any accidents using investigations of accidents on similar equipment or work.

See appendices 9.7 and 9.8 for examples of hazard and site assessment checklists.

### 2.3 ASSESS THE HAZARD

Decide if the identified hazards are significant. How likely is it that someone could be harmed and, if they are harmed, how seriously could they be hurt? If someone could be seriously harmed, then it's a significant hazard. All significant hazards need to be controlled to stop anyone being seriously hurt. While significant hazards are a top priority, all hazards should have effective controls.

### 2.4 HAZARD CONTROLS

First try and eliminate the hazard but if that's not possible, then isolate it, and as a last resort try to reduce the harm that could be caused by a hazard, by minimising it. A combination of controls may need to be used.

Develop ways to control the hazards that use 'group controls' (such as edge protection) that protect more than one worker from a hazard. Group controls are better than 'individual controls', which protect only one person (such as a fall restraint).

In this section some of the main hazards of using MEWPs are covered along with recommended control measures. MEWPs that comply with AS/NZS 1418.10 will have the safety features listed below.

#### CONFINED OVERHEAD WORKING

Operators should:

- > be briefed on the risks of working in and around structures where they could be trapped or pinned between the platform and the structure
- > be aware of their working environment at all times
- > wear hardhats with a chin strap.

#### GROUND CONDITIONS

- > Use the MEWP on firm and level ground where possible. Make sure the MEWP is rated for any slopes it may face. Problems – like trenches, manholes and soft ground conditions, – can cause a MEWP to overturn.
- > Do not use a MEWP on a slope beyond the limits of the inclinometer or manufacturer's specifications.
- > Make sure any temporary covers used to block holes are strong enough to take the whole weight of the MEWP, including the maximum rated capacity – that is the weight of the MEWP fully loaded with people, tools and equipment.
- > Be careful when reaching out from the platform, going too far can affect stability, especially when working on slopes.

#### OUTRIGGERS

- > Set the outriggers correctly before using the MEWP.
- > Use the manufacturer's instructions to set the outriggers before raising the platform.
- > Use spreader plates when needed because of the ground conditions. They should be made of a material that gives good grip to both the spreader foot and ground.
- > When setting up a MEWP on-ramps using outriggers, extreme caution is required to prevent slipping down the ramp. Do not set up the outriggers' footplates on a slope.

#### PREVENTING FALLS

- > Make sure the work platform has effective guard rails and toe boards, if it is not fully enclosed.
- > Use an appropriate harness system if someone could fall from the MEWP. Secure the harness to a certified anchor point within the MEWP.

### FALLING OBJECTS

- > Isolate the area around the MEWP so that falling tools or objects do not strike people below.
- > Anyone working nearby should wear a hard hat.

### WEATHER

- > Poor weather can make affect a platform's stability and make it unsafe to use.
- > Only use a MEWP within the manufacturer's specified wind rating. The wind rating should be on the manufacturer's serial plate.
- > Bad weather and storms can also damage a MEWP. After severe weather, inspect the MEWP before using it again.
- > Do not park or store the MEWP with the platform elevated.

### HANDLING MATERIALS

- > If the MEWP is being used to install materials, check the weight, dimensions and distribution of the materials so it does not exceed the rated capacity of the MEWP.
- > Do not use handrails to support loads.
- > Make sure workers can handle any materials safely.
- > Use extra lifting equipment to move materials to the work position, if needed.

### WORKING NEAR OR OVER WATER

- > When working over or near water, assess the hazards and risks to decide what personal protective equipment should be worn and what control measures should be in place. Personal protective equipment includes life jackets and harness systems.
- > Have a rescue plan in place and take into account the extra hazards working near water can create.

### NEARBY HAZARDS

- > Check the area for nearby hazards, such as overhead power lines, traffic or dangerous machinery.

### TRAVELLING BETWEEN WORK AREAS

- > The operator must face the direction the MEWP is travelling in.
- > Lower the MEWP when travelling between work areas.
- > Lower any boom and point it in line with the direction of travel.

### WORKING NEAR OTHERS

- > Use barriers to keep pedestrians and traffic separated from where MEWPs are working.

## 2.5 ELECTRICAL HAZARDS

Any hazard assessment must identify:

- > all overhead power lines near the workplace
- > all trees, structures and work positions that are within 4 metres of the power lines.
- > trees can conduct electricity if they are too close to or touch live power lines. All safety plans must include these identified hazards and give details of how the hazards are controlled.
- > treat all overhead power lines as being live, unless the power company that owns the power lines formally advises that the lines are safe.

### NO-GO ZONE – STAY 4 METRES AWAY FROM OVERHEAD POWER LINES

- > Never work within 4 metres of any power line without first contacting the power company. Written consent is required from the power company before any work can be done within 4 metres of the power line. A copy of the consent must be on site at all times.

### **EXCLUSION ZONE – 4 TO 6.4 METRES FROM POWER LINES**

If any MEWP is likely to get closer than 6.4 metres to an overhead power line, make sure:

- > operators, the MEWP including loads, attachments, tools and equipment, and all work activity must stay at least 4 metres away from any overhead power lines. This is called the minimum approach distance (MAD)
- > hazard controls are in place to make sure no one and nothing can enter the 4 metre no-go zone (MAD)
- > the area between 6.4 and 4 metres from the overhead power line is separated from the workspace using cones or tape to show where the exclusion zone is
- > the safety plan explains how the MEWP will be used so the operator can always see the power lines
- > all operators of machines are briefed on limits to their movements and they must understand only specific operators can work in the exclusion zone (4–6.4 metres from a power line).

### **OPERATING WITHIN THE EXCLUSION ZONE**

Anyone working in the exclusion zone must be competent to operate the specific type of MEWP used, be thoroughly briefed and must understand the dangers of working near overhead power lines.

A competent safety observer must be present at all times to make sure everyone and everything (including the MEWP and tools) stay out of the 4 metre no-go zone (MAD).

The safety observer must be able to alert the MEWP operator immediately if they are about to enter the 4 metre no-go zone (MAD).

Operators working with MEWPs in the exclusion zone (4–6.4m) must obey any instructions given by the safety observer.

People working in the safety observer role must not do any other task at the same time.

Operators must not use mobile phones or electronic equipment of any kind to avoid being distracted.

Operators must not wear clothing that could block their vision or movement in any way while working in the exclusion zone.

Everyone must treat power lines as live until the power company can formally advise that any line is safe.

### **EMERGENCY PROCEDURES**

If a MEWP does touch overhead power lines, anyone in the MEWP should stay there and warn any others nearby to stay clear. If it is safe to do so, operate the controls to break contact.

If it is not safe to break contact:

- > call for help, warning everyone to keep well clear of the machine
- > stay put until the power company can de-energise the line and advise that it is safe to get off the MEWP.

If help is not immediately available, electrical contact cannot be broken and there is an urgent reason to get off the MEWP (such as fire):

- > switch off the motor and – where applicable – apply brakes
- > remove any loose clothing
- > climb to a point on the MEWP where you can safely jump to the ground about 1 metre above the ground
- > jump so that you are well clear of the platform before any part of you touches the ground
- > fall away from the MEWP and not towards it
- > do not touch the MEWP until the power company advises it is safe to do so.



## ELECTRICITY INDUSTRY SAFETY INFORMATION

Further information on how to use mobile plant safely around power lines is on the Electricity Engineers Association's (EEA) website at [www.eea.co.nz](http://www.eea.co.nz). *The EEA Guide for Non-Electricity Industry Employees Using Mobile Plant Near Power Lines and Electricity Cables* explains how to avoid electrical hazards when using MEWPs near power lines. It also has information to help people identify electrical hazards.

*The Guide for Electricity Supply Industry Employees Using Mobile Plant* gives the minimum accepted practices for competent electricity industry workers who are using MEWPs for electricity industry work.

Be aware that high buildings can funnel wind, which can cause high winds even when wind speed in open areas is low. This can even happen indoors in large warehouses, aircraft hangers and high rise buildings. Local wind speeds can be increased by things like aircraft slipstreams at airports and high-sided vehicles on motorways.

## 2.6 WEATHER CONDITIONS AND WIND

All MEWPs (except those for indoor use) can work in wind, up to a maximum rating. The maximum wind rating must be clearly marked clearly either on the machine or the manufacturer's serial plate. The MEWP must not be operated outside the maximum limits.

A traditional method of assessing wind speed is using the Beaufort wind scale. This scale relies on an operator looking at their environment to figure out wind speed. This can lead to the operator underestimating the wind speed and its hazards. Wind speed increases with height and may be 50% faster 20 metres above ground.

An accurate way of measuring wind speed is by using an anemometer. This is a common tool used to assess weather conditions.

Building cladding, sheet materials, panels and other such materials can act as sails and make a MEWP more likely to tip over, especially in gusty wind conditions. For the same reason, never attach signboards, banners and the like to the platform, even if it is for a short time.

# 03/

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## **PLANNING THE WORK**

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### **IN THIS SECTION:**

- 2.1 Stages of planning**
- 2.2 Transporting MEWPs**
- 2.3 Use of harness systems**

---

**Before starting the job, the first step is to plan how to do the work safely. The nature of the task and the hazards linked with it determine how much planning is needed.**

---

At a minimum the following steps should be taken.

### **3.1 STAGES OF PLANNING**

Follow the steps below when planning any job:

1. identify the tasks to be done
2. identify the hazards linked to each task
3. pick the right MEWP for the job
4. identify control measures
5. develop your plan
6. make a plan for what to do in an emergency
7. record the planning, including any rescue plan
8. involve people and talk to everyone working on the job about the plan
9. review the plan before the job starts and add any changes.

#### **IDENTIFY THE TASKS TO BE DONE**

- > First, identify exactly what work needs to be done, where and when.
- > Visit the location and check the conditions of the worksite. Take along site staff who can identify hazards in the area and any problems with the ground where the MEWP will need to work.
- > For simple tasks, planning could happen at the same time as the site visit. For more complicated jobs planning may need to be completed off site.

#### **IDENTIFY THE HAZARDS ASSOCIATED WITH THE TASK**

- > Identify the hazards of each task. These might be caused by the location of the work, the type of MEWP or the people and equipment being carried.

- > ISO 16368 Annex H identifies some potential hazards. These have been detailed in Appendix 9.7 of this document.

#### **PICK THE RIGHT MEWP FOR THE JOB**

- > MEWPs vary in rated capacity, working height and reach. The MEWP that best matches the particular work task should be chosen. The choice will be guided by the limits of the worksite, ground conditions, site access and how near the public or other workers will be.

#### **IDENTIFY CONTROL MEASURES**

- > Once the hazards and the risks are identified, control measures to eliminate, isolate or minimise the hazard need to be put in place.
- > Control measures will include any personal protective equipment to be used, such as hard hats and harness systems.

#### **DEVELOP THE PLAN**

- > Having identified the hazards, evaluated the risks and worked out the control measures needed to do the job safely, develop a safety plan.

#### **MAKE A PLAN FOR WHAT TO DO IN AN EMERGENCY**

- > The plan needs to include how you will rescue anyone stuck on the work platform if the platform can't be lowered for any reason, such as a machine fault or the work platform gets tangled.
- > The rescue plan should cover what to do in case someone is sick, injured or exposed to chemicals or fumes.

- > Any rescue plan must take into account the reason the platform was stranded at height and any need for urgent action.
- > Wherever possible, a trained person should do the rescue using the machine's ground controls or secondary lowering system. If this is not possible, use another MEWP to carry out the rescue.
- > All sites need an emergency plan in place. Before starting any rescue, do a hazard assessment. Have an emergency plan for the operator to complete their own rescue.
- > The plan needs to allow for any hazards, like the ones listed in Appendix 9.7 (based on ISO 16368, Annex H) and the following:
  - > the rescue machine needs to be placed so the people doing the rescue are not put at risk
  - > the work platforms of both machines need to be next to each other with as little gap as possible between them
  - > switch off the engines on both machines during the transfer
  - > where practicable, the person being rescued and the rescuer should wear full body harnesses with adjustable lanyards. Attach lanyards to certified anchor points on the rescue machine before starting the transfer
- > do not overload the rescue machine. More than one trip may be needed to make to complete the rescue.
- > Caution – make sure the floor can take the weight of all machines used during the rescue operation.
- > Call emergency services if:
  - > there is an injury, illness or risk of exposure to toxic substances
  - > someone has been hanging for any length of time – they might be suffering from suspension trauma
  - > the operators on the work platform cannot communicate with rescuers on the ground.

#### **RECORD THE PLAN, INCLUDING ANY RESCUE PLAN**

- > Record the plan and keep a copy onsite where it can be easily accessed. The length and detail of the plan will depend on the complexity of the task and the risks involved.
- > A simple, low-risk task – such as routine maintenance work in a factory – might only need a brief safety plan; while a more complex and high-risk job will need a more detailed task specific plan.

#### **INVOLVE PEOPLE AND TALK TO EVERYONE WORKING ON THE JOB ABOUT THE PLAN**

- > A critical part of successful planning is making sure everyone knows what is in the plan. Make sure the plan can be understood by people with low literacy or for who English is a second language.

#### **REVIEW THE PLAN BEFORE THE JOB STARTS**

- > Just before the job starts, check that nothing in the tasks or the working environment has changed. If it has, assess what effect that could have on the safety of the job.
- > Communicate any changes to the plan to everyone involved.

### **3.2 TRANSPORTING MEWPS**

- > Accidents and injuries can happen when getting MEWPs to and from sites. Any health and safety planning should cover the hazards of moving machinery to and from sites.
- > Transport operators must be competent if they need to drive the MEWP to load or unload it from a truck. Always read, understand and follow the manufacturer's instructions for loading and unloading the MEWP and the tie down and lifting procedures.
- > Refer to the New Zealand Transport Agency's *The Official New Zealand Road Code for Heavy Vehicle Users* for more information on loading transport vehicles.

### **GETTING READY TO TRANSPORT**

- > Complete a hazard assessment of the site and decide the best method for loading the MEWP.
- > Remove all loose items, tools and equipment from the platform, deck or tray.
- > Check and secure all engine and access covers, ensure battery box trays and doors are secure. Secure tool bin lids.
- > Ensure turntable lock pins are engaged (slew lock pin, if applicable).
- > Ensure boom lockdowns are in place (pins/straps/over centre buckles).
- > Secure the boom and basket of any self-propelled booms using the manufacturer's instructions.

### **METHOD OF LOADING MEWPS**

- > Park the truck safely and legally.
- > Before loading the MEWP, do a full hazard assessment to identify any soft or uneven ground, overhead power lines, sufficient lighting, traffic and public access.
- > Make sure the operator is wearing the right personal protective equipment, such as high visibility gear, gloves and a total restraint system.
- > Put hazard control measures in place where needed, such as flashing lights, marker cones and traffic management.
- > Check how steep an angle the MEWP can work at to decide how to load it.
- > Where more than one machine is loaded, consider loading methods, weight distribution and restraint methods.
- > Follow safe operating procedures for loading, such as placing the MEWP ready to load, drive on, winch and drive, or free wheel and winch.

- > Once the MEWP is on the truck, secure it with straps, chains and load restraints (using the right tie-down points) as outlined in *The Official New Zealand Road Code for Heavy Vehicle Drivers*.
- > When loading a slide bed, have chains in place, but pre-tensioning them is optional while lifting the tray.
- > Once the tray is packed up and or the ramps are lifted and secured with pretension chains with dogs, secure the boom basket with the ratchet strap.
- > Check the height and width of the load so the maximum rated capacity is not exceeded.
- > Do one final check of the loading area, truck, load, chains, dogs and straps before leaving the site.

### **METHOD OF UNLOADING MEWPS**

- > Park the truck safely and legally.
- > On arrival, check the drop-off area and conditions for hazards (such as wet or dry ground conditions, overhead power lines, sufficient lighting, traffic, people, uneven ground).
- > Make sure the operator is wearing the right PPE, such as high visibility gear, gloves and a total restraint system.
- > Put hazard control measures in place, such as flashing lights, marker cones and traffic control.
- > Release the basket ratchet strap, chains and twitches and remove rear chains. If driving the MEWP off the truck to unload, leave the front chain for safety. Only remove the chain once the tray is tilted. If using a winch, pre-tension the cable before tilting the tray.
- > Tilt or lower the tray or ramps safely.
- > Drive the MEWP to a safe place then park and secure it. Engage the free wheel hubs or brakes before releasing winch cable.

- > Once the truck is packed up and the ramps are lifted and secure, make a final check of the unloading area and truck before it leaves the site. Make sure chains, twitches, straps and truck outriggers have been packed and stowed away.

### **3.2 USE OF HARNESS SYSTEMS**

Operators must wear a harness with the following MEWPs:

- > truck-mounted boom lift
- > self-propelled boom lift
- > trailer-mounted boom lift (cherry pickers)
- > vertical masts, where manufacturer recommends a harness
- > any other boom-type lift, including spider lifts
- > that has a knuckle or pivot arrangement
- > any machine where a risk assessment shows it is necessary.
- > Operators must be harnessed inside the platform because the platforms of the above types of MEWP can tip suddenly when elevating (such as if it hits something or the levelling system fails) or the operator can be catapulted out when driving.
- > Operators in boom-style MEWPs must wear a safety harness with a lanyard – fitted with a short energy absorber or self-retracting lifeline (SRL). The harness must be attached to a certified anchor point. If using an adjustable lanyard, make it as short as practical to keep the operator inside the platform. Select a lanyard length based on the size of the platform of the MEWP being used.
- > Anchor points should be as close to the platform floor as possible.

### **HARNESS SYSTEMS IN SCISSOR LIFTS**

- > Before starting work, a hazard assessment should be completed to decide whether a harness system will be needed to complete the job safely.
- > Use the manufacturer's operating instructions to help decide whether a harness is required.
- > Attach any harness used on a scissor lift to a certified anchor point using a lanyard or adjustable lanyard – fitted with a short energy absorber or fit for purpose self-retracting lifeline (SRL).
- > When scissor lifts are used as edge protection (a group control measure) that isolates workers from a fall hazard, harness systems are not generally required.
- > People must work inside guardrails and not reach or climb over the rails. Workers need to keep both feet on the work platform.

### **HARNESS SYSTEMS IN GENERAL**

An anchored harness system stops someone falling or being thrown from a platform. Harness systems must be certified to meet the standard AS/NZS 1891.1: Industrial Fall-Arrest Systems and Devices – Harnesses and Ancillary Equipment.

In a boom-type MEWP, people should normally use a full body harness and lanyard with a personal energy absorber. If the boom-type MEWP has a larger platform, operators need a fall arrest harness with personal energy absorber.

The harness system should give the wearer maximum freedom of movement with immediate restraint if the platform hits something or the levelling system fails. Choose the right lanyard length based on the type of MEWP being used.

People using a harness must be competent in how to wear, use and secure it. They must also be competent to follow their company approved rescue plan. A recommended means of demonstrating competence for rescue and recovery when using harness systems is the *NZQA Unit Standard 23229 – Use a Safety Harness for Personal Fall Prevention When Working at Height*.

A combination of the following NZQA unit standards could also demonstrate competency:

- > *NZQA Unit Standard 17600 – Explain Safe Work Practices for Working at Heights*
- > *NZQA Unit Standards 25045 – Employ Height Safety Equipment in the Workplace.*

#### **GETTING ON AND OFF THE PLATFORM WHEN IT IS ELEVATED**

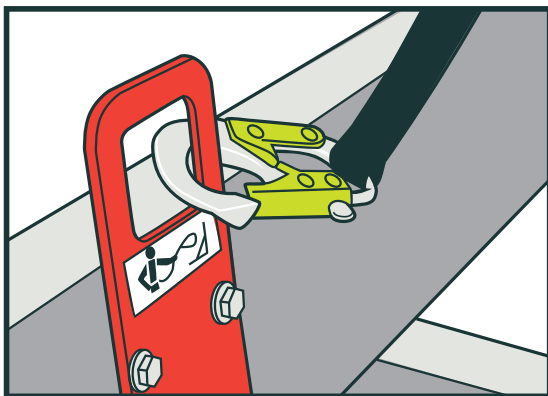
Scissor lifts and other elevating work platforms can be used to access work areas.

Where the MEWP's platform is next to the work area landing and the MEWP is used to access the work area, the landing and platform must be no more than 100mm apart.

If work needs to be done with the guardrails removed, a double lanyard system, fixed to a certified anchor point at all times should be used by workers. Workers should not reach outside the platform.

Put tags on the base controls to show that the equipment is in use and to stop interference. Where possible, lock out the base controls so they cannot be used.

Place the scissor lift end on when the work platform is next to a landing to stop the scissor lift from moving up and down.



**Figure 1:** Attach harnesses to a certified anchor point on the MEWP.



# 04/

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## DESIGN

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### IN THIS SECTION:

- 4.1 General requirements
- 4.2 Compliance and modification of work platforms
- 4.3 Machine controls
- 4.4 Safety features
- 4.5 Markings, documentation and records



All MEWPs must be designed using sound and accepted engineering practices, and must be manufactured using the best methods and practices.

#### 4.1 GENERAL REQUIREMENTS

The design, manufacture, testing and stability testing of new or used machines first entering service in New Zealand, must meet *AS/NZS 1418.10 Cranes, Hoists and Winches – Mobile Elevating Work Platforms*.

To meet AS/NZS 1418.10, the owner must register any used machines with the manufacturer (or their New Zealand representative), when selling or importing the machine. This ensures the new owner gets all service and safety bulletins.

MEWPs already in service in New Zealand must meet the requirements of one or more of the following Standards:

- > *AS/NZS 1418.10 Cranes, Hoists and Winches – Mobile Elevating Work Platforms*

- > *BS EN 280 Mobile Elevating Work Platforms. Design Calculations. Stability Criteria. Construction. Safety. Examinations and Tests*
- > *ANSI/SIA A92.2 Vehicle-Mounted Elevating and Rotating Aerial Devices*
- > *ISO 16368 Mobile Elevating Work Platforms – Design, Calculations, Safety Requirements and Test Methods.*

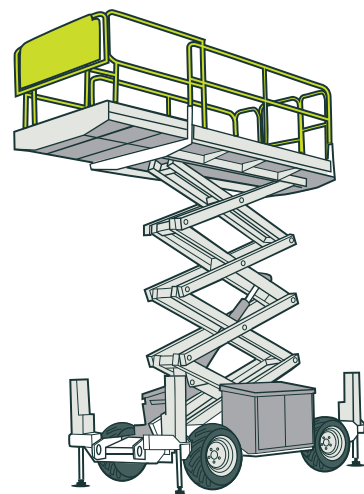
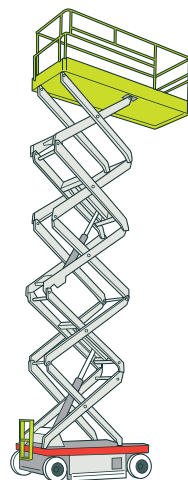
Complying with the above standards is evidence of taking all practicable steps to keep people safe. Make sure this is documented with the MEWP's records.

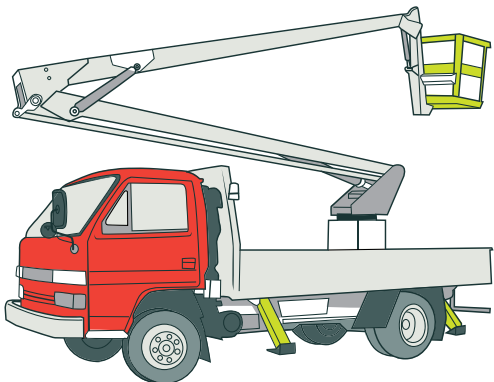
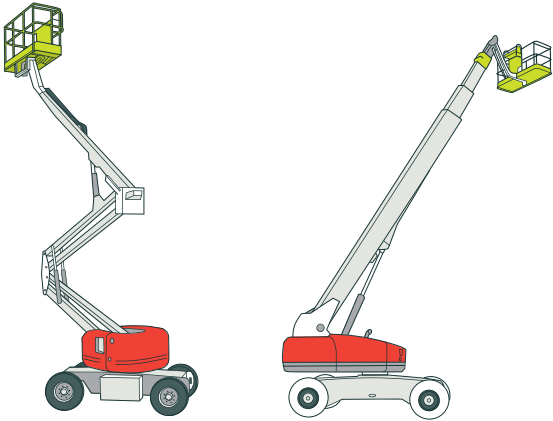
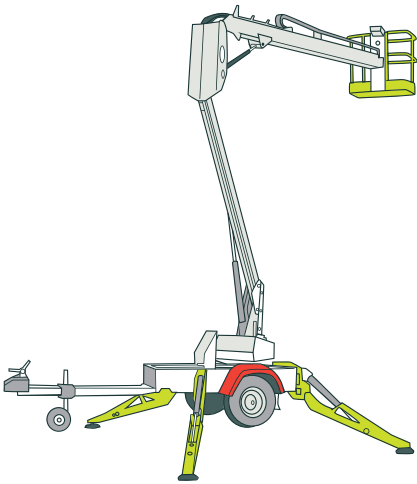
You can use materials, designs, methods of assembly, or procedures that are not covered in this guidance, if they achieve the same or better safety outcomes.

#### TYPES OF MOBILE ELEVATING WORK PLATFORMS

##### Scissor lift (SL)

For operating on flat, solid surfaces or rough terrain surfaces

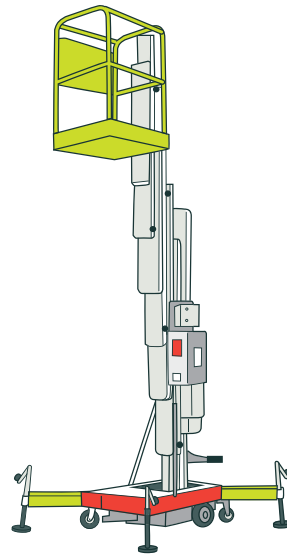


TYPES OF MOBILE ELEVATING WORK PLATFORMS	
<p><b>Truck mounted (TM)</b></p> <p>Mainly used in the electrical or arborist industries. Other common names: bucket truck, cherry picker.</p>	
<p><b>Self-propelled boom lift (BL)</b></p> <p>For driving on flat solid surfaces and rough terrain surfaces and hard to reach places. Other common names: knuckle boom, cherry picker.</p>	
<p><b>Trailer mounted (TL)</b></p> <p>For getting to hard to reach places. Commonly called a cherry picker.</p>	

## TYPES OF MOBILE ELEVATING WORK PLATFORMS

**Vertical mast lift (VL)**

Mainly used on flat solid surfaces. Manually operated or mobilised units.



## 4.2 COMPLIANCE AND MODIFICATION OF WORK PLATFORMS

### COMPLIANCE OF ALL MACHINES CURRENTLY IN NEW ZEALAND

To prove a MEWP is safe to use, it needs either:

- > a manufacturer's certificate of compliance to one of the Standards listed in Section 4.1 or, if the manufacturer no longer exists
- > a certificate of compliance from a competent person that the machine meets one of the Standards listed in Section 4.1.

It also needs:

- > a certificate of compliance from a competent person as required by this document (see section 5.1)
- > continuous working records and maintenance records as specified in Section 6.6 of *AS2550.10 Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms*

- > proof that the MEWP owner is registered with the manufacturer or their agent so the owner receives safety bulletins and notifications.

### COMPLIANCE OF IMPORTED SECOND-HAND MACHINES

The importer that is also a supplier must make sure any second-hand MEWP meets the requirements of AS/NZS 1418.10 and Section 4.2 of these guidelines.

The MEWP must have:

- > a manufacturer's certificate of compliance with Section 4.1 above. It must be current when the MEWP is put into service in New Zealand
- > operating and full workshop/maintenance manuals, in English. If the manuals are translated from another language, the manufacturer must certify that the translations are accurate
- > continuous maintenance records or re-certification by the manufacturer.

If an imported second-hand MEWP does not have evidence of a continuous service record, it must have a major inspection before use, as described in Section 5.9 of these guidelines.

### **MODIFICATION OF A MEWP**

If a MEWP is significantly altered or changed, the owner must get a certificate from the manufacturer or (if the manufacturer no longer exists) a report from a competent person to confirm that the MEWP still meets the requirements of these guidelines.

## **4.3 MACHINE CONTROLS**

Detailed requirements for control systems are found in *AS/NZS 1418.10: Cranes, Hoists and Winches – Part 10: Mobile Elevating Work Platforms*.

### **SWITCHING ON AND USING THE MEWP**

The operator must be able to see the direction of travel and the movement of the extending structure from the controls.

The MEWP must only move when the controls are activated. Controls must automatically return to 'off' or 'neutral' when released and be protected to prevent someone accidentally turning them on. The operator must be safe from moving parts when using the controls.

### **DIRECTION OF MOVEMENT**

All controls must have words or symbols that show the direction of the MEWP's movements. Protect the controls against faults that could cause the MEWP to move in a direction other than that selected by the operator.

Controls must be strong enough to stand up to normal use. *A guard must be in place to prevent accidental activation of hand controls.*

### **WORK PLATFORM CONTROLS: LOCATION, ACCESSIBILITY, PROTECTION**

Controls must be on the work platform and in reach of the operator.

Protect the controls against:

- > faults that could cause the MEWP to move in a direction other than the one selected by the operator
- > being accidentally turned on.
- > Clearly mark platform control boxes with which way up they go if they are not permanently attached.
- > Foot controls should have non-slip surfaces and be easy to clean.
- > Install guards at least 50mm above the highest point of the hand controls.

### **DUPLICATE CONTROLS**

Provide duplicate controls at ground level so the platform can be returned in an emergency. The ground level controls must override the work platform controls.

Have a locking mechanism so the MEWP can only be moved from one, preselected control station. The ground level controls must override all other controls, including the platform emergency-stop control.

### **EMERGENCY STOPS**

Every control position must have a red emergency-stop control, in line with *AS/NZS 1418.10*. This standard references *AS 4024.1604, Safety of Machinery – Design of Controls, Interlocks and Guarding – Emergency Stop – Principles for Design*.

### **OTHER REQUIREMENTS**

#### **Electrical systems**

MEWP controls should have:

- > electrical switches controlling specific safety functions
- > pilot and solenoid valves stopping any movement if the power fails
- > no movement on start up or return of power after a failure, unless through deliberate action by the operator
- > a safety device and 'hold to run' controls that override the emergency-stop control

- > an overriding emergency system in an easy to reach place that returns the platform to a safe position in an emergency, with features that stop misuse
- > a speed limiting device.

#### Hydraulic controls

Mechanically-actuated hydraulic control valves that control any movement of the MEWP must be full-flow with spring return to 'off' to manage the risks of unintended motion.

### 4.4 SAFETY FEATURES

This section covers the minimum requirements for safety features outlined in *AS/NZS 1418.10: Cranes, Hoists and Winches – Part 10: Mobile Elevating Work Platforms*.

#### GENERAL FEATURES

##### Warning systems

MEWPs must have:

- > out-of-level safety interlocks and/or alarms
- > warning devices (such as motion alarms), warning lights and alarms, flashing work lights and a horn.

##### Brakes and safety systems

- > Brakes on self-propelled platforms must have a fail-safe system.
- > All safety signage must be in English and readable.
- > The slewing mechanism must be fitted with a service brake or similar device, and have a fail-safe design.
- > The machine must have maintenance safety features, such as a safety bar, so maintenance can be done safely under or in machine.

##### Hydraulic systems

- > Hydraulic systems must be designed so the platform will not freefall if a hose or fitting fails. Do not use velocity valves.
- > All hydraulic systems must have fail-safes.

#### Guarding

MEWPs must have:

- > guards on all dangerous parts, especially sharp, hot or moving parts and trapping hazards.
- > interlocking outriggers, so the machine cannot lift the platform unless outriggers are in a safe position, and stop the outriggers being moved with the platform up
- > travel safety interlocks so the machine goes at a safe speed while driving with the platform up.

#### Emergency stop and isolating function controls

- > All controls must have a 'dead-man function' so they automatically stop or return to neutral when released, such as, a trigger with a joystick or foot switch on a boom-type machine.
- > An emergency-stop control must stop all movement or the engine when pressed. Each control station must have a clearly-marked, red emergency-stop control.
- > Ground level controls must override controls on the platform using a clearly marked switch.

#### Instructions

- > Labels must clearly list everything the controls do in clear English and show the direction of any movement. Decals (labels) on the chassis should show direction of travel or movement.
- > The operation manual must be in English and stored in a weather-proof container.
- > Emergency descent instructions must be in the operator manual and displayed next to the emergency controls.

#### Anchor points

- > If installing an anchor point to an existing MEWP, a chartered professional engineer (CPEng) should assess and certify the type of anchor to be used before and after it is installed.
- > They must also confirm that the anchor point has passed any testing needed after installation.

## PLATFORM AND GUARDRAILS

The platform must have a self-closing and self-latching entry gate. The gate must have kick-plates to stop debris falling under the gate. The gate must open inwards. A drop bar is enough as long as:

- > a kick plate is used
- > the drop bar stops in line with the mid-rail, and
- > the top rail is at the same height as the top hand rail.

The guardrail must be at least 950mm high.

The platform floor must be non-slip and self-draining.

A safe way to access the platform must be provided. If access is by steps or a fixed ladder, the gap between steps or rungs must be uniform and no more than 300mm.

The steps and rungs must be non-slip.

The platform should have side walls or guardrails with mid-rails and toe boards.

## FUEL AND EXHAUST SYSTEMS

- > Protect fuel lines for engines from engine and exhaust heat. Some industries also require safety measures like spark arrestors and external fuel cut-offs.
- > Exhaust systems must have mufflers and be set up to keep fumes away from operators, so they are not at risk of carbon monoxide poisoning.

## 4.5 MARKINGS, DOCUMENTATION AND RECORDS

The following are minimum requirements for markings, labels, signage, documentation and records of maintenance and inspection for MEWPs.

All MEWPs must have:

- a. safety inspection certification, including a six-monthly inspection certificate and

major inspection certificate (where needed) permanently attached and displayed prominently.

- b. a compliance plate with the following information in permanent lettering:
  - > make, model, serial number, and manufacturer's name and address
  - > date of manufacture and, if different, commissioning date
  - > design standard
  - > rated capacity in kilograms
  - > the maximum number of people, refer to Figure 3
  - > maximum platform height (not all plates state this)
  - > maximum wind speed and operating gradient
  - > for electrically insulated machines, the working voltage
  - > any special warnings, cautions or restrictions needed to use the MEWP safely; the rated capacity for each configuration must be shown, such as:
    - > where a work platform has different capacities at different heights or reaches
    - > outrigger settings
    - > wind ratings or side-loading
    - > the words: 'Read manual for operating and servicing details'.
- c. Manufacturers, importers that are suppliers or agents for imported MEWPs, (new or second-hand) must provide a comprehensive operating and maintenance manual, in English, to customers. The manual must include the following:
  - > full operating instructions
  - > lubrication schedule
  - > routine checks
  - > restrictions on the use of the machine
  - > advice on any matter that could affect the safe use of the machine.

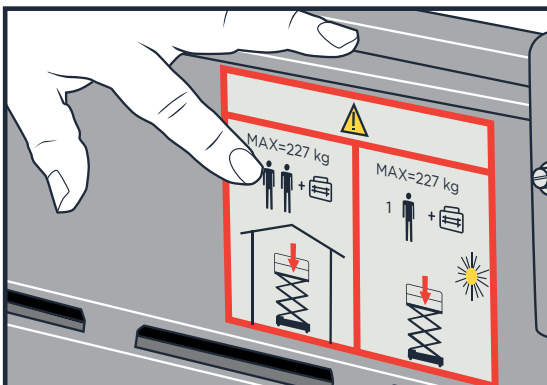
Note that if the MEWP was designed and manufactured to an international standard it should have a manual available in English, certified or produced by the manufacturer.

- d. Essential operating and maintenance instructions must be permanently displayed or stored in a obvious place on the MEWP.

Owners must keep continuous working records and maintenance records for the MEWP in line with Section 6.6 of *AS 2550.10 Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms*. This information should also be in the MEWP's logbook, refer to section 5 of this guideline.



**Figure 2:** Before starting work, operators should be familiar with the type of MEWP they are using.



**Figure 3:** Decals for rated capacity displayed on the MEWP.

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## **MAINTENANCE, INSPECTION AND REPAIR**

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### **IN THIS SECTION:**

- 4.1 Logbook and registers**
- 4.2 Maintenance**
- 4.3 Inspection**
- 4.4 Six-monthly inspection**
- 4.5 Electrical insulation testing**
- 4.6 PAT testing**
- 4.7 Acoustic emission testing  
of fibreglass booms**
- 4.8 Enhanced periodic  
inspections**
- 4.9 Major inspections**
- 4.10 Repairs**



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**People maintaining MEWPs and the competent person must have access to the current versions of the following standards, *AS 2550.10* and *AS/NZS 1418.10*.**

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### 5.1 LOGBOOK AND REGISTERS

The MEWP logbook and register is a record of pre-operation inspections and routine inspections. It must also record any maintenance. The logbook and register must be kept with the MEWP and be readily available for inspection.

#### RECORDS

The MEWP owner must keep all records in the way described in Section 6.6 of *AS 2550.10*. At a minimum, keep a summary of the following in the logbook:

- > daily pre-operation reports for at least the last 14 days of operation, or since the last routine inspection
- > a summary statement of the last routine inspection
- > a summary statement of the last major inspection
- > a summary statement of the last six-monthly inspection
- > action taken or repairs carried out to fix faults or damaged parts.

The owner must have available documentation stating the MEWP has been inspected by a competent person (including their identity and qualifications) and is safe to use. The owner must record all checks, adjustments, replacement of parts, repairs and inspections done and all irregularities or damage affecting the machine's safe use.

Records must be kept to show that the MEWP meets all maintenance requirements. *AS 2550.10* recommends that MEWPs without continuous working and maintenance records need a major inspection.

Any external service provider working on MEWPs should also keep records of work they have undertaken.

### 5.2 MAINTENANCE

Use the MEWP manufacturer's approved maintenance manual (or a certified translation) for all maintenance. A competent person must complete all elements of the manufacturer's prescribed maintenance schedule.

If there is no manual, follow the inspection and maintenance schedules outlined in *AS 2550.10: Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms*.

Establish a preventive maintenance programme, based on the working environment, how often the MEWP is used and the severity of conditions in which it is used.

When replacing parts use identical or equivalent parts for the specific type of MEWP.

If a fault with a MEWP develops, repair it with advice from the manufacturer. Correct any safety related faults before using the MEWP again.

### 5.3 INSPECTION

#### PRE-OPERATION INSPECTION

The operator must give the MEWP a visual inspection and functional test before using it. This is called a pre-operation operator safety

check. The checks should include the items listed in the operator's manual, the logbook and in the table below.

Figures 4 – 6 show the various safety features of specific types of MEWPs and components that should be checked before use.

COMPONENT	VISUAL INSPECTION	FUNCTIONAL TEST
Check six-monthly certificate current	✓	
Platform and base controls	✓	✓
Emergency controls and retrieval system		✓
Visual and audible alarms		✓
Personal protective equipment, including anchor points	✓	
Air, hydraulic and fuel system leaks	✓	
Cables and wiring harness for security and damage	✓	
Loose and missing parts	✓	
Brakes		✓
Tyres, wheels	✓	✓
Placards, labels, warnings, control markings and operating manuals are on the MEWP	✓	
Outriggers, stabilisers		✓
Guardrail system including gates with self-closing action		✓
Control descent devices where fitted	✓	
Slew brake system		✓
Safety switches and interlocks		✓
Structural defects or damage	✓	
Drive and speed functions work correctly, including speed-limiting devices		✓

**Table 1:** Table 6.4.2 of AS 2550.10: Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms.

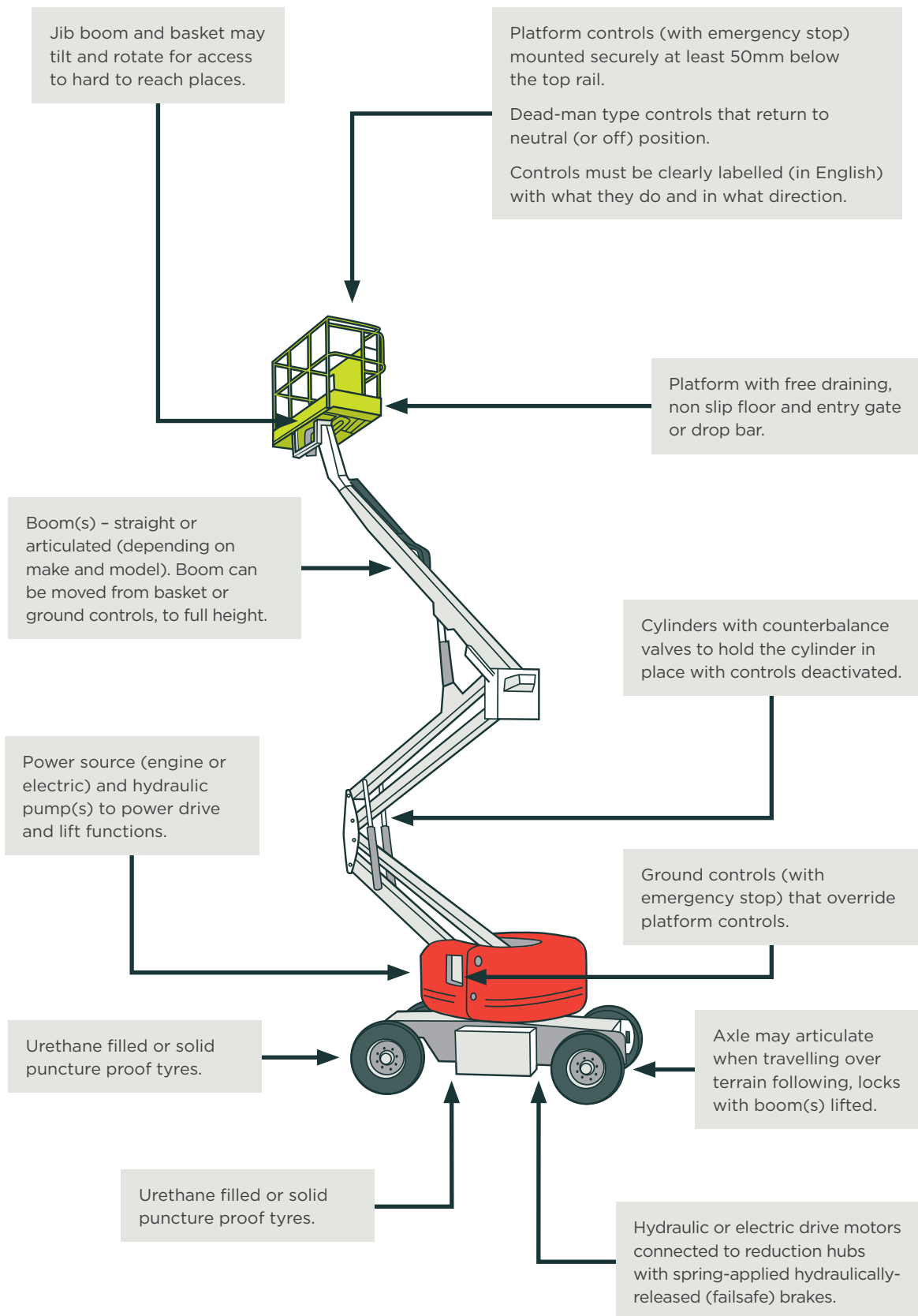


Figure 4: Typical features of self-propelled boom lifts.

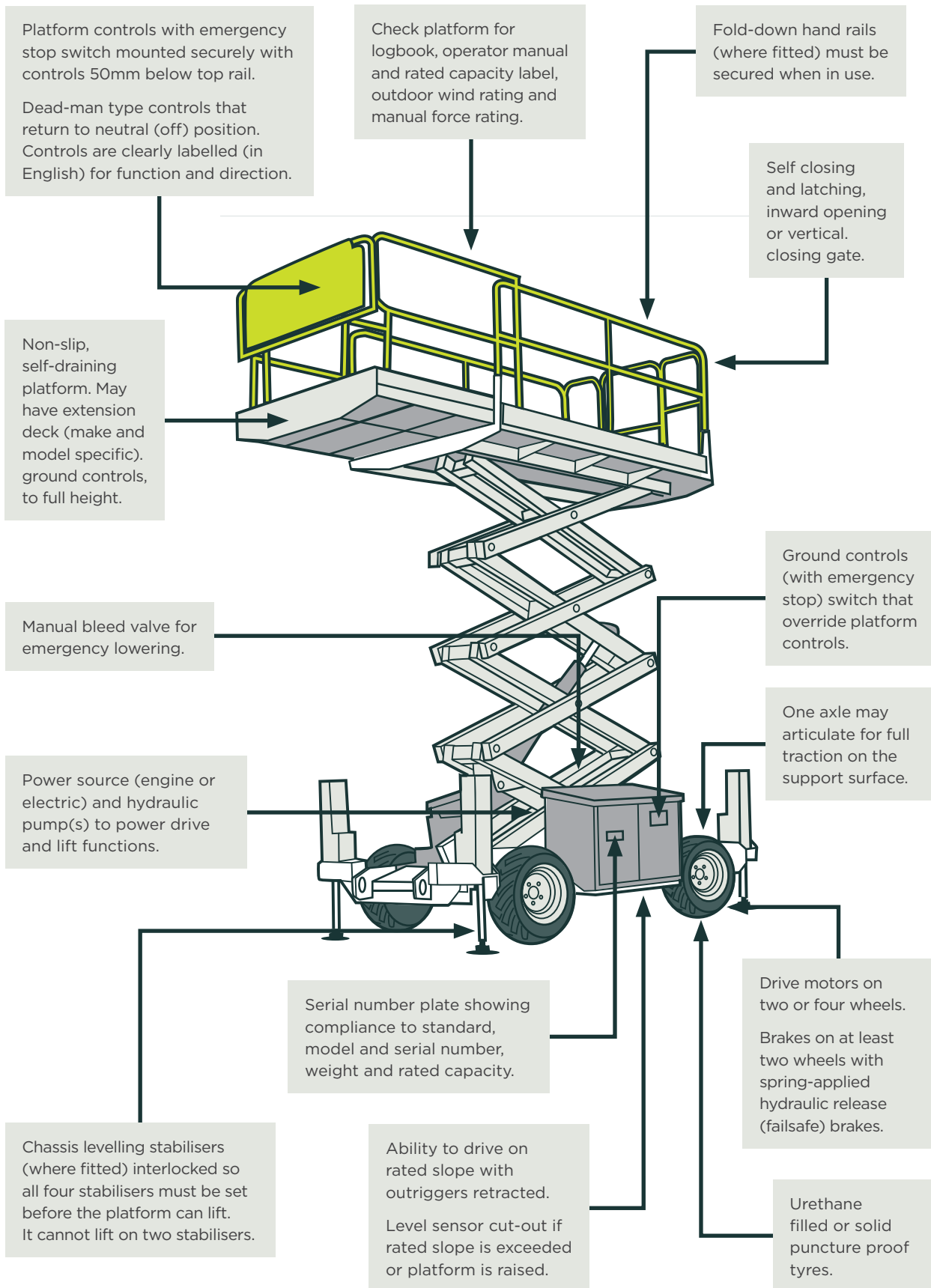


Figure 5: Typical features of scissor-lifts.

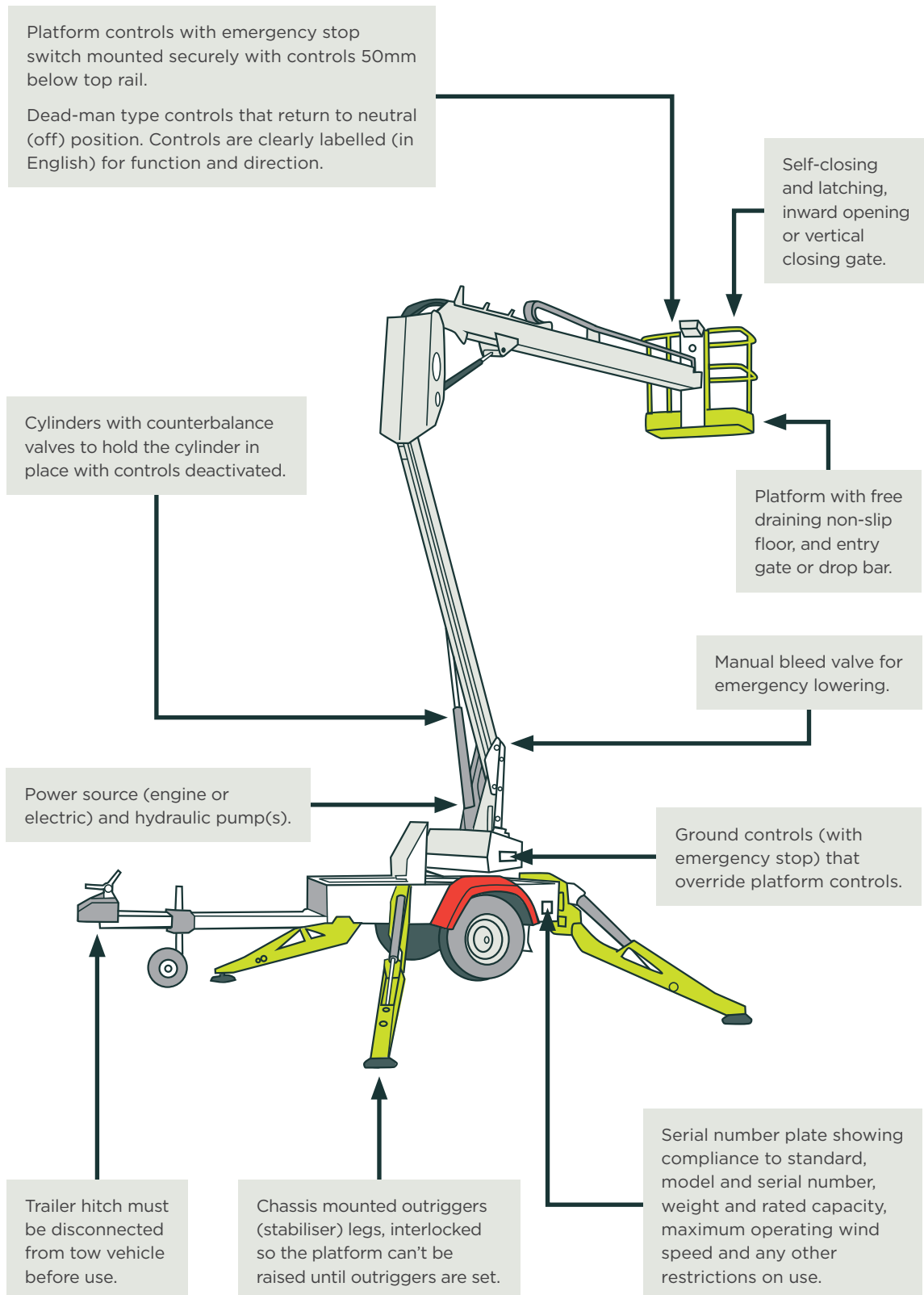
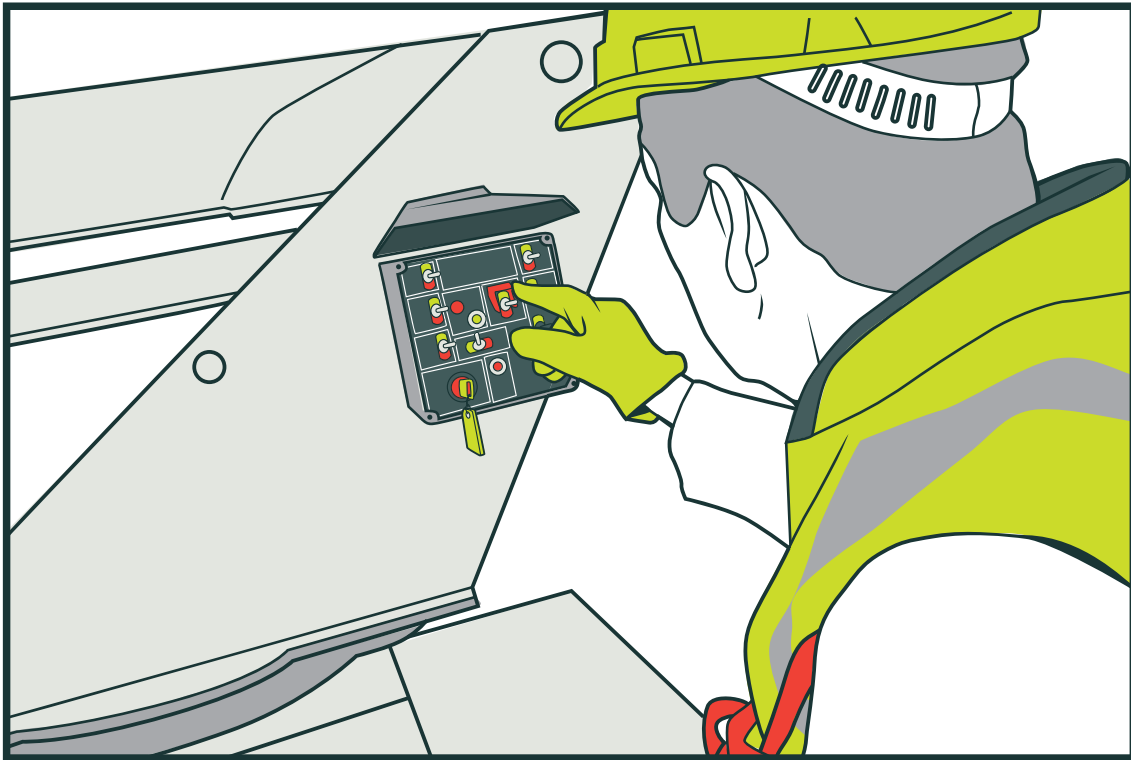


Figure 6: Typical features of trailer mounted boom-lift.



**Figure 7:** Decals for rated capacity displayed on the MEWP.

### ROUTINE INSPECTION

The owner, hirer and supplier must do routine inspections on all MEWPs at least every 3 months (as described in Section 6.4.3 of *AS 2550.10: Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms*). If the MEWP is for hire, then a routine inspection between hires should be completed.

A competent person must complete all routine inspection and maintenance, based on the severity of use of the MEWP, and as recommended by the manufacturer.

The inspection procedure should include a check that the current logbook and operator's manual must be up-to-date and kept with the MEWP in a weather proof container.

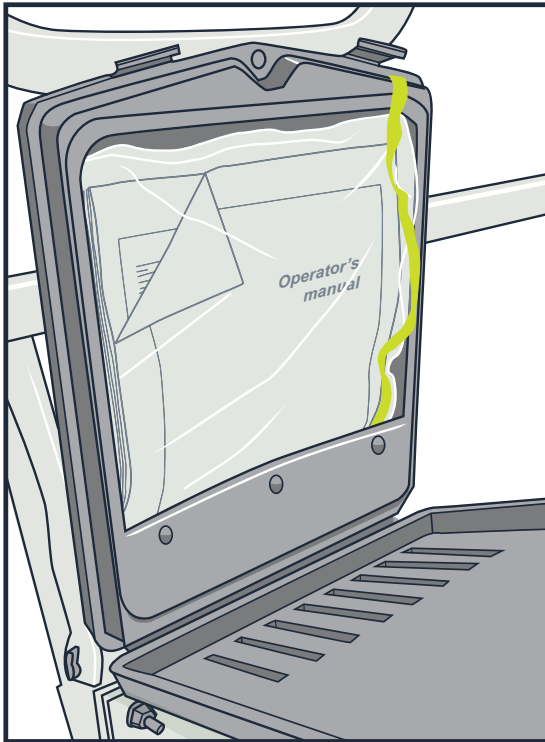
For full inspection requirements refer to the manufacturer's service manual.

Examples of items an inspection should cover are:

- > all functions and their controls for speed, smoothness of operation and limits of motion
- > all emergency and safety devices, including interlocks and emergency lowering devices
- > base or ground controls, including the provisions for overriding of upper platform controls
- > adjustment, wear and damage on all chain and cable mechanisms
- > lubrication of all moving parts, inspection of filter elements and fluid levels
- > visual inspection of structural members and welds
- > visual inspection (and measurements as necessary) of critical parts, such as brakes, gears, fasteners, pins, shafts, wire ropes, sheaves, locking devices, all guardrails and guarding, anchor points, all attachments and connections, electrical contactors and all other equipment

- > signage, including warning signs, decals and control markings
- > wear on tyres and damage to wheel rims
- > corrosion (rust).

A written report must be provided after the inspection. Do not use the MEWP until any safety-related faults are fixed.



**Figure 8:** The operator's manual must be kept with the MEWP in a weather proof container.

## 5.4 SIX-MONTHLY INSPECTION

### OPERATIONAL TEST AND CHECK

A competent person must thoroughly examine the MEWP after an accident, incident, or major repair or modification, or at least every 6 months. The competent person must have access to the manufacturer's approved maintenance manual for the type of MEWP being certified.

This inspection should include:

- > all elements of the periodic inspection described in Section 6.4.4.1 of AS 2550.10: *Cranes, Hoists and Winches – Safe Use –*

### Mobile Elevating Work Platforms

- > the routine inspection described in Section 5.3 of these guidelines
- > any inspection or maintenance recommended by the manufacturer.
- > Any faults must be fixed before the MEWP can be certified and used again.

### CERTIFICATION

A legible and durable certificate should be attached to the MEWP near the ground controls or the platform entrance. This certificate should include the CBIP Number of the competent person and/or the manufacturer's identifier. This certificate should include at least the details shown below in Figure 10.



**Figure 9:** The operator's manual must be kept with the MEWP in a weather proof container.

Six-Monthly Test Certificate	
I certify that this work platform has been thoroughly examined by me, it is in good working order and can be used through its full operating range with rated capacity of _____ kg.	
Make: _____	Model: _____
Serial Number: _____	Fleet Number: _____
Issue Date: _____	Expiry Date: _____
<b>Inspector</b>	
Name: _____	
CBIP No / Manufacturer's identifier: _____	
Signed: _____	
Details may be verified at:	<b>Quality EWP Certs Ltd</b> PO Box 967 632 160 Main St, Whangarua 1542 Ph 8 500 1525 Fax 8 500 1526 www.qeci.co.nz
No: QEC00001	

Figure 10: Example six-monthly test certificate.

#### COMPETENT PERSON FOR INSPECTION

Only a competent person can complete a six-monthly, enhanced or major inspection of a MEWP.

A means of demonstrating competency is a certificate of competence or proficiency from a certification board. In New Zealand this is the Certification Board for Inspection Personnel New Zealand (CBIP).

Manufacturer's employees who inspect, service and certify MEWPs do not need to be registered with CBIP but they should be able to demonstrate the same, or higher, levels of competency.

If a manufacturer contracts out servicing, inspection and certification, the contractor should be certified by CBIP for inspection or be able to display the same or a higher level of competence.

#### 5.5 ELECTRICAL INSULATION TESTING

Where a MEWP is electrically insulated, carry out electrical insulation tests at least every 6 months to validate the working voltage. The testing certificate should be clearly displayed.

Complete these tests as specified in AS 2550.10 *Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms*, AS/NZS 1418.10 *Cranes, Hoists and Winches – Part 10: Mobile*



*Elevating Work Platforms* and their referenced standards. Section 7.1 of *AS/NZS 1418.10* gives the testing standards used in New Zealand.

Keep a record of all test results and make them available for inspection.

### 5.6 PAT TESTING

Any MEWP with parts powered from 240v mains electricity (such as battery charger, AC motors, ground to platform AC power extension, and residual current device (RCD) devices) needs an inspection and a portable appliance test (PAT).

The MEWP must be tested and tagged in line with *AS/NZS 3760: In-Service Safety Inspection and Testing of Electrical Equipment*.

*AS/NZS 3012: Electrical Installations – Construction and Demolition Sites* outlines the testing and tagging needed for equipment used on construction sites.

Both the above Standards require a competent person or a suitably qualified and licensed electrical worker (such as an electrician) to carry out the testing and tagging. Clearly display all tags.

### 5.7 ACOUSTIC EMISSION TESTING OF FIBREGLASS BOOMS

In addition to the six-monthly inspection, a competent person or organisation must do an acoustic emission test on all MEWPs fitted with a fibreglass or FRP (fibreglass reinforced plastic) boom. The test must be done at least every 24 months, or sooner if a competent person recommends it is required.

The test must meet the standards in *AS 4748: Acoustic Emission Testing of Fiberglass Insulated Booms on Elevating Work Platforms*, or a similar procedure. Testing may only be carried out by a competent person or an organization deemed competent to carry out acoustic emission testing.

Display the certificate of compliance near the ground controls or the platform entrance. In addition, the owner of the machine must keep the test reports:

- > to allow inspection when the WorkSafe Health and Safety Inspector or user of the machine requests it
- > so that the history of the boom may be reviewed to find out how much it has deteriorated.

Re-test the boom if the machine has an accident or is misused, making the boom potentially unsafe, even if the certificate is current.

If the FRP boom fails the acoustic emission test, do not use the machine until the boom is replaced or repaired and it passes the test.

### 5.8 ENHANCED PERIODIC INSPECTIONS

Every 5 years the MEWP must have all critical parts inspected and tested, where appropriate, to meet *AS 2550.10: Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms*. These enhanced periodic inspections must be done in line with the manufacturer's inspection programme. Where possible the manufacturer must authorise all enhanced periodic inspections.

If a MEWP has been in service for 10 years, it must have had all inspections, including a major inspection, to stay in service.

This regime can be changed with instructions from the manufacturer that meet the criteria in Appendix C of *AS 2550.10*.

### 5.9 MAJOR INSPECTIONS

Major inspections and the related maintenance are described in Section 6.4.5 of *AS 2550.10*. The following MEWPs need a major inspection, unless they have already had an enhanced periodic inspection (as described in Section 6.4.4.2 of *AS 2550.10*):

- > a MEWP that has been in use for 10 years and hasn't had an enhanced periodic inspection
- > a MEWP that is being re-commissioned or imported, whatever age, that does not have continuous working and maintenance records, as required by Section 6.6 of AS 2550.10
- > a MEWP that has been in use for 5 years since its 10 year major inspection.

Seek guidance from the manufacturer before starting a major inspection and keep evidence of this request with the MEWP's records. This should include advice on any safety or engineering upgrades and safety bulletins.

AS 2550.10 states a major inspection involves examination of critical components as identified by the manufacturer or a competent person. Where necessary, strip down the MEWP and remove paint, grease and corrosion from critical components to allow a complete and thorough inspection.

A component is critical if its failure would risk the health and safety of people using or near the MEWP. A competent person should identify the critical components using the definition in AS2550.10.

*Where necessary* means if needed to make sure the critical component can be thoroughly inspected.

*A complete and thorough inspection* means looking at each part, and doing other non destructive tests as needed.

*Strip down* almost certainly requires complete disassembly.

## 5.10 REPAIRS

Carry out all repairs in a way that ensures the MEWP meets the current specifications for the particular model and meets the criteria in AS 2550.10: *Cranes, Hoists and Winches – Safe Use – General Requirements*.

Seek the manufacturer's advice for all critical repairs, including welding, on the correct repair procedure. Keep proof of this request with the MEWP's records. **Do all repairs in accordance with the manufacturer's instructions and the MEWP's operational manual.** Modern structural materials have specialised repair procedures. Some parts cannot be repaired and must be replaced instead.

Qualified welders must do all welding repairs on a MEWP and a qualified and competent person must inspect the welds.

Where the manufacturer's advice is not available, a competent person should sign off the repair work.

Manufacturer's spare parts should be used. The manufacturer must approve the use of any non manufacturer structural components unless the manufacturer no longer exists, in which case a competent person must approve the component. Keep the verification reports on record.



Figure 11: Inspect the MEWP before use.

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## **MEWP OPERATOR TRAINING REQUIREMENTS**

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- 6.1 General training
  - 6.2 Getting to know your MEWP
  - 6.3 Refresher training and assessment
  - 6.4 Working at height

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**An employer or principal, who tells someone to use a MEWP, must make sure that the operator is adequately trained by a competent person and can demonstrate their competency before using any equipment.**

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The operator must get training on the type of MEWP they will be using. The operator must be supervised during the training period until the person is considered competent to operate the MEWP.

### **6.1 GENERAL TRAINING**

The MEWP operator training should cover at least:

- > legal requirements
- > getting to know the operator's manual
- > hazard management – identifying, assessing and controlling hazards
- > equipment and safety features
- > prestart (pre-operational) inspection
- > control facilities and positions
- > limits of the machine – rated capacity, wind rating – and machine weight
- > moving and positioning a MEWP
- > transporting – including loading and unloading (where required)
- > working near overhead power lines
- > using a harness
- > refuelling tools and battery charging
- > reporting problems and incidents
- > emergency retrieval systems
- > emergency rescue plan.

For the purposes of operating a MEWP, a competent person is a person who has achieved and demonstrated competency in the safe use of a particular type of MEWP.

One means of demonstrating competency is through completing nationally recognized MEWPs NZQA unit standards or an equivalent or higher qualification. Any course must cover

the requirements of *AS2550.10: Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms* and course providers should be able to offer evidence of this. Competency should also be assessed through supervision during the use of the equipment.

The current recommended NZQA unit standards for MEWPs are:

- > *Unit Standard 23966v1: Describe Types of Elevating Work Platforms (EWPs) and Legislative Requirements For Their Use (Note: People need to do this unit standard before unit standards 23960 through 23964)*
- > *Unit Standard 23960v1: Assess the Worksite, Prepare and Operate a Scissor Lift Elevating Work Platform (EWP)*
- > *Unit Standard 23961v1: Assess the Worksite, Prepare and Operate a Truck Mounted Elevating Work Platform (EWP)*
- > *Unit Standard 23962v1: Assess the Worksite, Prepare and Operate a Self-Propelled Boom Lift Elevating Work Platform (EWP)*
- > *Unit Standard 23963v1: Assess the Worksite, Prepare and Operate a Trailer Mounted Elevating Work Platform (EWP)*
- > *Unit Standard 23964v1: Assess the Worksite, Prepare and Operate a Vertical Lift Elevating Work Platform (EWP)*
- > *Unit Standard 17259: Operate an Elevated Work Platform Vehicle for Arboriculture.*

A MEWP operator must also be able to demonstrate that they have the knowledge and skills needed to do effective hazard and risk assessment in their operating location.

MEWP TYPE	23960	23961	23962	23963	23964	23966
Scissor Lift (SL)						
Truck Mounted (TM)						
Self-Propelled Boom Lift (BM)						
Trailer Mounted (TL)						
Vertical Lift (VL)						

**Table 2:** Unit standard requirements by MEWP type.

Only a competent person can deliver any on-the-job training, operators must be supervised until they are judged to be competent.

### 6.2 GETTING TO KNOW YOUR MEWP

Employers or principals are also responsible for making sure operators are familiar with each type and model of the MEWP that they will use.

They need to check that the operator:

- > has made sure the correct manuals are kept on the MEWP
- > understands the manuals and refers to them as needed
- > knows the purpose of all controls and what they do
- > knows what safety devices are installed and the operating differences of that particular model of the MEWP
- > knows how to use the MEWP's emergency retrieval systems.

### 6.3 REFRESHER TRAINING AND ASSESSMENT

Operators need regular refresher training that covers the requirements in Sections 6.1 and 6.2 of these guidelines. The length between training sessions should not exceed three years.

### 6.4 WORKING AT HEIGHT

A recommended means of achieving competence for harness use is the *NZQA Unit Standard 23229 – Use a Safety Harness for Personal Fall Prevention When Working at Height*. An operator may also be able to demonstrate equivalent knowledge and skills or have an equivalent or a higher international qualification.

Where any person is working at height, a recommended means of achieving competence is the *NZQA Unit Standard 17600 – Explain Safe Work Practices for Working at Height*, or equivalent or a higher international qualification.

A combination of the following NZQA unit standards could also demonstrate competency:

- > *NZQA Unit Standard 17600 – Explain Safe Work Practices for Working at Heights*
- > *NZQA Unit Standards 25045 – Employ Height Safety Equipment in the Workplace.*

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## APPENDICES

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### IN THIS SECTION:

- 4.1 Legal framework
- 4.2 Duty holder responsibilities
- 4.3 Obligations for employers, owners, suppliers and principals using MEWPs
- 4.4 Inspection and certification requirements
- 4.5 Notification of hazardous works and serious harm
- 4.6 Hazards faced when using a MEWP
- 4.7 Example checklist to pick the right MEWP
- 4.8 Example MEWPs hazard assessment checklist
- 4.9 Example MEWP prestart inspection checklist
- 4.10 Publications and reference material



## The Health and Safety in Employment Act (1992) (HSE Act) is the overarching legislation governing health and safety at work.

### 7.1 LEGAL FRAMEWORK

The HSE Act is supported by Regulations including the Health and Safety in Employment Regulations (1995). Everyone must obey the HSE Act and its Regulations.

Most people in workplaces have duties under the HSE Act. A full copy of the Act and its Regulations can be downloaded (free) at [www.legislation.govt.nz](http://www.legislation.govt.nz).

See WorkSafe NZ publications for more information about your health and safety responsibilities:

- > *Keeping Safe at Work – A Guide for Employees – Employee Rights under the Health and Safety in Employment Act 1992.* [www.business.govt.nz/worksafe/information-guidance/all-guidance-items/keeping-safe-at-work-a-guide-for-employees/working-together.pdf](http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/keeping-safe-at-work-a-guide-for-employees/working-together.pdf)
- > *Managing Health and Safety: A Guide for Employers.* [www.business.govt.nz/worksafe/information-guidance/all-guidance-items/managing-health-and-safety-a-guide-for-employers](http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/managing-health-and-safety-a-guide-for-employers).

### 7.2 DUTY HOLDER RESPONSIBILITIES

The HSE Act creates a number of duties for most people connected with workplaces. This section outlines duty holders' responsibilities. There are a number of Regulations, codes of practice and industry best practice guidance documents that support the HSE Act.

The HSE Act and its Regulations are the law. Codes of practice, guidelines and other guidance material endorsed by WorkSafe NZ is considered current best practice for health and safety.

### EMPLOYER RESPONSIBILITIES

Employers have a responsibility to make the workplace safe for employees, and make sure that work done by employees does not harm others (such as other workers or visitors to the workplace). To achieve this employers are expected to:

- > systematically identify hazards
- > systematically manage those hazards by eliminating them, isolating them or minimizing them, in that order
- > put effective control measures in place where hazards are to be isolated or minimised
- > provide suitable protective clothing and equipment to staff and ensure they use it
- > give staff safety information
- > train or supervise staff so work is done safely
- > monitor the environment and employees' health to ensure their work is not harming them
- > provide opportunities for employees to participate in all of the above
- > record and investigate workplace accidents
- > report any serious harm suffered by employees to WorkSafe NZ.

### EMPLOYEE RESPONSIBILITIES

An employee is defined by the HSE Act as any person of any age who is employed by an employer to do any work (other than residential work) for hire or reward under an employment agreement, that is, anyone who is getting paid to do a job as an employee.

Employees must take all practicable steps to keep themselves safe in the workplace and ensure they do not harm others. This includes both what they do and what they don't do (such as not using safety gear). Employees have a responsibility to identify and report hazards, follow the safe work procedures that are put in place by their employer and wear any required personal protective equipment and clothing, and report any accidents or incidents.

Employers should make it clear to employees that they have to use safety equipment and to wear protective clothing when needed. An employee's responsibility will often increase with knowledge and seniority, but overall responsibility for a safe workplace remains with the employer.

Practicable steps the employee can take include reporting any hazards or incidents to the employer, so the employer can investigate and put safeguards in place.

## PRINCIPALS AND CONTRACTORS

A principal to a contract is responsible for the health and safety of contractors and subcontractors who are individuals, and employees of contractors and subcontractors. In some cases a principal might have multiple duties, such as also being an employer, and a person who controls a place of work.

Putting work out to contract doesn't remove any of the principal's health and safety obligations. Legal responsibilities cannot be transferred to another party.

Section 18 of the HSE Act requires all principals to a contract to take 'all practicable steps' to ensure contractors, subcontractors who are individuals, and employees of contractors and subcontractors are not harmed while working on the contracted tasks. All practicable steps include having a hazard management process and plan in place and managing hazards effectively.

To help keep contractors safe, the principal must:

- > **scope the work** for health and safety issues and identify the significant hazards
- > **assess the capability** of potential contractors
- > **select contractors** on the basis of their health and safety planning, performance and commitment
- > **award the contract** and outline agreed health and safety standards, systems and processes
- > **monitor** the contractor to make sure they are meeting the agreed health and safety standards
- > **review** whether there was a successful outcome at the end of the contract.

For more details see *A Principal's Guide to Contracting to Meet the Health and Safety in Employment Act 1992* plus its summary, *Health and Safety in Contracting Situations*.

## SELF-EMPLOYED

Someone is self-employed if they are working (other than as an employee) doing one or more of the following – providing services for gain or reward under contract for services, or selling goods. They may be carrying on a business as a sole trader or in a partnership.

A self-employed person is responsible for his/her own health and safety and must ensure that their actions or inaction do not harm other people. A self-employed person is responsible for doing relevant training and knowing how to do their work safely.

## PERSON WHO CONTROLS A PLACE OF WORK

A person who controls a place of work is:

- a. the owner, lessee, sub-lessee, occupier or person in possession of the place or any part of it or
- b. the owner, lessee, sub-lessee or bailee (person entrusted to look after goods) of any plant in the place.

This may include the person who leases the MEWP, a scaffold supplier or an installer who also owns the equipment.



### EMPLOYEE PARTICIPATION

The HSE Act requires employers to involve employees in health and safety. There are a number of ways to involve staff, such as:

- > discussing health and safety responsibilities
- > having employees involved in safety assessments
- > holding toolbox meetings
- > electing health and safety representatives.

Employers must give employees a chance to take part effectively in processes for health and safety improvement in the workplace. In any workplace with more than 30 employees (or where an employee or union representative asks), the employer must develop, set up and maintain a system for employees to take part in health and safety.

If people cannot agree on a system for how employees can take part in health and safety, the HSE Act sets out default requirements.

Elected employee health and safety representatives can take paid leave to go on approved training courses.

If a trained employee health and safety representative finds a hazard in the workplace, they should bring it to the employer's attention. If the employer does not resolve the issue, the representative can issue a hazard notice.

Employers and employees must deal with each other in good faith when seeking agreement on setting up and maintaining a system for employee participation in health and safety.

### 7.3 OBLIGATIONS FOR EMPLOYERS, OWNERS, SUPPLIERS AND PRINCIPALS USING MEWPS

The MEWP inspection and certification system is there to help duty holders meet their obligations under the HSE Act.

Where employees or contractors use MEWPs, their employers or principals must take all practicable steps to make sure that the MEWPs

are designed, built and maintained so they are safe to use (Section 6 and 18, HSE Act).

Anyone who sells, hires out or otherwise supplies MEWPs must also take all practicable steps to make sure the MEWP are designed, built and maintained so they are safe to use (Section 18A, HSE Act).

Having a current inspection certificate does not fulfil the obligations of employers, principals, and suppliers as the MEWP must be safe to use. These guidelines give advice on how duty holders can fulfil their duties.

### 7.4 INSPECTION AND CERTIFICATION REQUIREMENTS

Duty holders should meet the requirements of the HSE Act in terms of maintenance if the MEWP has had the major inspections, six-monthly inspections and pre-operational daily checks in line with these guidelines and they have fixed any faults found.

The obligation to ensure safety stays with the duty holder. If the MEWP has a certificate, but the certificate was not issued in line with these guidelines, then the duty holder may not be meeting the requirements of the HSE Act.

Duty holders may choose not to use these guidelines when having their MEWP inspected. However, they must take steps which are equal to or better than these guidelines in order to ensure that the MEWPs are safe to use.

Duty holders must recognise that simply getting an inspection certificate is not enough to comply with these guidelines. The major inspections have to be done to the standard outlined in this guideline and the associated standards listed in the publications section 7.10.

Duty holders must be satisfied that a competent person carried out the inspection.

If the MEWP is not inspected and maintained in line with these best practice guidelines, your insurance company may refuse to cover any insurance claims for property damage, public liability and breaches of the HSE Act.

## **7.5** NOTIFICATION OF HAZARDOUS WORKS AND SERIOUS HARM

### **NOTIFICATION OF PARTICULAR HAZARDOUS WORK**

Employers and the person in control of the workplace must give WorkSafe NZ at least 24 hours' notice before doing any hazardous work (as defined below).

These notices help WorkSafe NZ plan workplace visits to promote safety for everyone in or near a workplace.

Notify WorkSafe NZ by either:

- > filing a Notification of Particular Hazardous Work online <http://www.business.govt.nz/worksafe/notifications-forms/accident-serious-harm>, or
- > downloading the notification form and posting or faxing it to the WorkSafe NZ office nearest to the worksite.

### **WORK THAT NEEDS TO BE NOTIFIED TO WORKSAFE NZ**

This is defined by the Regulations as:

- a. Any restricted work, as defined in section 2 of the Health and Safety in Employment (Asbestos) Regulations 1998
- b. Any commercial logging or tree-felling
- c. Any construction work where:
  - > workers could fall 5 metres or more (excluding work on a two-storey house, a power or telephone line, or carried out from a ladder only, or minor or routine maintenance or repair work)

- > scaffolding from which someone could fall 5 metres or more while being put up or dismantled
- > people have to work in an excavation that is more than 1.5 metres deep and which is deeper than it is wide at the top.
- > workers need to work underground in any kind of tunnel or drive, no matter what sort of timbering or support there is
- > an excavation's excavated face is steeper than one horizontal to two vertical, and any face that is taller than 5 metres
- > explosives are used or being stored for use
- > workers need to breathe air that is or has been compressed or breathes a respiratory medium other than air
- > An appliance (other than a mobile crane, excavator or forklift) has to lift weights of more than half a tonne (500kg) or lift weights higher than 5 metres.

## 7.6 HAZARDS FACED WHEN USING A MEWP

These hazards need to be assessed in terms of the environment, the type of MEWP and work activity being undertaken.

This list does not cover all hazards of working with MEWPs. It is based on *ISO 16368 – Mobile Elevating Platforms – Design, Calculations, Safety Requirements and Test Methods – Annex H*.

HAZARD	
<b>Mechanical hazards</b>	<ul style="list-style-type: none"> <li>&gt; Crushing</li> <li>&gt; Entanglement</li> <li>&gt; Impact</li> <li>&gt; Friction or abrasion</li> <li>&gt; Cutting or severing</li> <li>&gt; Ejection of parts</li> <li>&gt; Loss of stability</li> <li>&gt; Slip, trip, fall hazards</li> <li>&gt; Failure of energy supply</li> </ul>
<b>Electrical hazards</b>	<ul style="list-style-type: none"> <li>&gt; Electrical contact</li> <li>&gt; Electrostatic</li> <li>&gt; Thermal radiation</li> <li>&gt; External influences on electrical equipment (e.g. power surge or lightning strike)</li> </ul>
<b>Environmental hazards</b>	<ul style="list-style-type: none"> <li>&gt; Noise</li> <li>&gt; Weather</li> <li>&gt; Heat or cold</li> <li>&gt; Fumes</li> <li>&gt; Wind</li> </ul>
<b>Ergonomic hazards</b>	<ul style="list-style-type: none"> <li>&gt; Constrained postures</li> <li>&gt; Poor lighting</li> <li>&gt; Mental overload</li> </ul>
<b>Operational hazards</b>	<ul style="list-style-type: none"> <li>&gt; Overloading caused by sail effect of objects on windy days</li> <li>&gt; Hazardous environment</li> <li>&gt; Manual force</li> <li>&gt; Poor visibility</li> <li>&gt; Starting/moving self-propelled machinery</li> <li>&gt; Movement from pedestrian-controlled machinery</li> <li>&gt; Uncontrolled movement</li> <li>&gt; Rolling over</li> <li>&gt; Poor access</li> <li>&gt; Loading/overloading</li> <li>&gt; Lifting materials or people</li> <li>&gt; Falls from working at height</li> <li>&gt; Falling objects</li> </ul>

## 7.7 EXAMPLE CHECKLIST TO PICK THE RIGHT MEWP

The information in this section will help you pick the best MEWP for each job, site, operator competence/training requirements and hazard assessment.

The person responsible for using MEWPs safely in the workplace should do the assessment **before** any MEWP is chosen.

SITE AND/OR LOCATION DETAILS		
Company:		
Site name and location:		
Assessment conducted by (name):		Date:
Position/title:		Phone:
<b>How will the MEWP be used (site conditions)</b>  This section asks you to consider where you are using the MEWP and what type of work you are doing, such as surface conditions, indoor or outdoor use, suspended surfaces etc.		
HAZARD OR CONSIDERATION	TICK	CONSIDER THE FOLLOWING
MEWP size (height, reach etc)		> How high does the MEWP need to reach? > Can people get in and out at height safely, if they need to?
Rated capacity		> Can the MEWP support the required number of personnel (including an operator), tools equipment, and materials.
Load dimensions		> Can the entire load fit inside the platform? > If not, are there approved load carrying attachments, such as pipe racks?
Indoor use (fully enclosed flat surface)		> Usually an electric slab terrain MEWP is most suitable. > If the MEWP has an engine, are fumes exhausted?
Outdoor use		> Is the MEWP rated for outdoor use? > How much wind will it face (min wind rating is 12.5 m/s)? > Determine maximum slope the MEWP will face.
Hard, level surface eg concrete, asphalt (minimal slope)		> Is a slab or rough terrain MEWP suitable?
Soft surface, rough terrain or sloping surface		> What rough terrain gradeability/slope needed?

Suspended surfaces		<ul style="list-style-type: none"> <li>&gt; Ask the supplier for the MEWP's static wheel load.</li> <li>&gt; Ask the responsible engineer what the maximum floor loadings are.</li> </ul>
Hot work		<ul style="list-style-type: none"> <li>&gt; Is the MEWP platform suitable for hot work, such as welding? (Do not carry gas cylinders in fully enclosed baskets).</li> </ul>
Use harness systems		<ul style="list-style-type: none"> <li>&gt; Harness systems must be used on a boom-type MEWP.</li> <li>&gt; All harness systems must be:               <ul style="list-style-type: none"> <li>&gt; Manufactured and tested in accordance with AS/NZS 1891.1 2007: Industrial Fall Arrest Systems &amp; Devices: Harnesses and Ancillary Equipment</li> <li>&gt; tested to the standard</li> <li>&gt; maintained to the standard in AS/NZS 1891.4 2009: Industrial Fall Arrest Systems &amp; Devices: Selection, Use and Maintenance.</li> </ul> </li> </ul>
<b>Training/competence</b>  This section details the competence levels needed to use different types of MEWPs and the training options available.		
<b>MEWP TYPES &amp; SPECIFIC PROCEDURES</b>	<b>TICK</b>	<b>COMMENTS</b>
<b>All MEWPs</b> – Operators must be trained and competent to use the particular MEWP on site.		
<b>Emergency procedures</b> – Suitable qualified staff (who can retrieve the platform using the controls at ground level) or the emergency retrieval system must be available in an emergency (eg loss of normal power, operator injured).		
<b>THE CHOSEN MEWP THAT MEETS THE ABOVE CRITERIA</b>		
Name of supplier		
The MEWP type (tick one)		
Vertical lift	Scissor lift	Boom lift
Make:		Model:
Plant number:		Serial number:
Date of manufacture:		Commissioned date:
Date of last service:		

## 7.8 EXAMPLE MEWPS HAZARD ASSESSMENT CHECKLIST

Information in this section will help identify and control the hazards of working with MEWPs, including site conditions, operator competence/training. The person or people responsible for the safe use of MEWPs in their workplace should do the assessment before a MEWP is chosen.

SITE AND/OR LOCATION DETAILS			
Company:			
Site name and location:			
Assessment conducted by (name):			Date:
Ergonomic hazards			Phone:
<b>How will the MEWP be used (site conditions)</b> This section asks you to consider where you are using the MEWP and what type of work you are doing, such as surface conditions, indoor or outdoor use, suspended surfaces etc.			
HAZARD OR CONSIDERATION	TICK	CONTROL MEASURES IN PLACE	TICK
The MEWP size (height, reach etc)			
Rated capacity			
Load dimensions			
Indoor use (fully enclosed flat surface)			
Outdoor use (wind rating 12.5m/s minimum/determine slope)			
Hard, level surface eg concrete, asphalt (minimal slope)			
Soft surface, rough terrain or sloping surface			
Suspended surfaces			
Hot work			
Harness systems			
<b>Training/competence</b> This section details the competence levels needed to use different types of MEWPs and the training options available.			
OPERATOR TRAINING	TICK	WHAT'S IN PLACE	
Operators trained and competent to operate the particular MEWP used on site.		Evidence of competence (eg NZQA or other training)?	
Emergency procedures – suitable qualified staff and/or emergency retrieval system			

SITE HAZARD ASSESSMENT		
Information in this section helps operators assess the typical hazards of using MEWPs and gives examples of suitable control measures.		
HAZARDS	TICK	POSSIBLE CONTROL MEASURES
Machine controls and operation		<ul style="list-style-type: none"> <li>&gt; Operators should always make sure they know the 'ramp time' of each control function.</li> <li>&gt; Ramp time is a built-in feature that creates a few seconds' delay before the relevant function stops.</li> <li>&gt; The MEWP slows down to a stop rather than jerking to a halt, to keep the platform stable and stop the operator losing their balance.</li> <li>&gt; The control features let operators control the speed of the boom to suit the task, ground conditions and when working near structures, such as proportional controls, high/low drive speed and function speed select switches, engine high/low rev switches.</li> <li>&gt; See the manufacturer's operating manual, supplied with the boom, for how these controls work.</li> </ul>
Nearby hazards eg structures, drop-offs, other plant, traffic (mobile and pedestrian)		<ul style="list-style-type: none"> <li>&gt; Set up traffic management plans.</li> <li>&gt; Set up exclusion zones.</li> <li>&gt; Ensure that there is enough stopping distance between the MEWP and fixed structures.</li> </ul>
Electrical hazards eg overhead powerlines, electric shock		<ul style="list-style-type: none"> <li>&gt; Do not use a MEWP where an electrical hazard exists. Keep at least 4m away from live power lines.</li> <li>&gt; Always use a residual current device (RCD) protected power supply when charging batteries or using work tools in the platform.</li> </ul>
Surface conditions eg sloping surfaces or soft, uneven ground		<ul style="list-style-type: none"> <li>&gt; Inspect the entire worksite and identify soft, uneven ground and other surface hazards.</li> <li>&gt; Do not use on a slope greater than the manufacturer's rated gradeability (see the operators manual).</li> <li>&gt; Do not lift the platform on ground that is steeper than the maximum rated slope of the MEWP.</li> <li>&gt; Do not drive or use on soft ground when the platform is up.</li> </ul>
Excavations, embankments and underground hazards eg backfilled ground, underground cavities		<ul style="list-style-type: none"> <li>&gt; Check with the responsible person (eg engineer, site manager) where any backfilled ground or underground cavities are.</li> <li>&gt; Inspect the entire workplace before using the MEWP.</li> <li>&gt; Do not drive or use a MEWP near an unsupported excavation, embankment or other unsupported underground hazard.</li> </ul>

Suspended surfaces eg concrete slabs, bridge decks, wharfs, jetties		<ul style="list-style-type: none"> <li>&gt; Get the static wheel loads from the MEWP supplier and maximum floor loading from engineer.</li> <li>&gt; Make sure the suspended surface can take the weight of the MEWP, before you start work.</li> </ul>
Wind		<ul style="list-style-type: none"> <li>&gt; Never use an indoor / no wind MEWP outdoors.</li> <li>&gt; Never use a MEWP in winds stronger than the manufacturer's recommendations.</li> </ul>
Confined spaces or lack of ventilation		<ul style="list-style-type: none"> <li>&gt; Use an electric MEWP or make sure there's good ventilation if using an engine-powered machine.</li> </ul>
Explosive/hazardous atmospheres		<ul style="list-style-type: none"> <li>&gt; Do not use a MEWP in a hazardous environment unless it is rated to handle it.</li> <li>&gt; Do not carry explosive or flammable materials in the platform.</li> </ul>
Electromagnetic interference eg working near mobile phone transmitters		<ul style="list-style-type: none"> <li>&gt; If working near sources of electromagnetic interference only use MEWPs that have been tested/approved for electromagnetic compatibility – check the operators manual or contact the supplier/manufacturer.</li> </ul>
Hot work		<ul style="list-style-type: none"> <li>&gt; Carry a fire extinguisher on the platform when doing 'hot work'.</li> </ul>
Working at heights		<ul style="list-style-type: none"> <li>&gt; Always stay inside the MEWP platform and never sit, stand or climb on the handrails or use ladders for extra height or reach.</li> <li>&gt; Always use a harness (attached to a certified anchor point) when using a boom-type MEWP.</li> <li>&gt; Only get on or off the platform at height if it is safe to do so (after a hazard assessment).</li> <li>&gt; Make sure ground staff are trained to use the emergency retrieval system.</li> <li>&gt; Have a well-rehearsed emergency procedure in case the emergency retrieval system can't be used.</li> </ul>



Crushing hazards		<ul style="list-style-type: none"> <li>&gt; Have a traffic management plan and set up exclusion zones.</li> <li>&gt; Keep all staff away when raising, lowering or slewing the MEWP.</li> <li>&gt; Make sure there is enough overhead clearance when using the MEWP. Consider how high any boom lifts go when driving over drop offs, kerbs, gutters etc?</li> <li>&gt; Operators must never put themselves under, through or between boom sections or scissor arms.</li> </ul>
Tip over hazards		<ul style="list-style-type: none"> <li>&gt; Do not use a MEWP on a slope steeper than the manufacturer's rated gradeability (see operators' manual).</li> <li>&gt; Do not carry more than the manufacturer's rated capacity (SWL) or apply more than the maximum side force on the platform.</li> <li>&gt; Do not attach signs or banners to the platform.</li> <li>&gt; Do not carry material with a large surface area (eg roof sheets, plasterboard) in windy conditions.</li> <li>&gt; Do not attach ('tie off') a MEWP to a fixed structure or other plant.</li> </ul>
Other hazards:		

### 7.9 EXAMPLE MEWP PRESTART INSPECTION CHECKLIST

Use the following checklist if you need a separate record of the Logbook Pre-operation inspection (safety checks) done by the operator (or other site workers) before using a MEWP.

SITE AND/OR LOCATION DETAILS		
Company:		
Site name and location:		
Inspection conducted by (name):		Date:
Position/title:		Phone:
Plant supplier details:		
MEWP type (tick one)		
Vertical lift	Scissor lift	Boom lift
Make:		Model:
Plant number:		Serial number:
Date of manufacture:		Commissioned date:
BEFORE CHECKING AND USING THE MACHINE	TICK	COMMENTS
1. Disconnect 240v power (battery charger/ extension cords etc).		
2. Read the manufacturer's operating instructions (or equivalent) before using the machine.		
PRE-START CHECKS	TICK	COMMENTS
3. Check chain and cable mechanisms for slackness and damage.		
4. Check chassis, scissor, boom sections, outrigger/ stabiliser legs for cracks, damage, security (incl. keeper plates, keeper pins, bolts, nyloc nuts etc). Check level bubble(s) not damaged (as fitted).		
5. Check tyres for correct inflation, steering linkages, tyres, wheels, wheel nuts, castors for damage and security. Note: Most self-propelled MEWPs have solid or foam-filled tyres.		
6. Check hydraulic hoses and fuel system for leaks and damage (look for puddles on ground).		

7. Check all fluid levels (engine oil to main/aux engines, radiator, fuel and hydraulic tank etc).		
8. Check cables, wiring, visible limit switches, battery charger (as fitted) for damage. Conduct earth leakage circuit breaker (ELCB) 'Push Button' Test (as fitted). Test tag in date.		
9. Are all warning, operation, safety and SWL signs legible, including electrical hazard, controls, wind rating?		
10. Check the condition of personal protection equipment (PPE) (eg, harnesses, lanyards, personal energy absorbers). Ensure attachment points are secure, and there are no cracks or damage.		
11. Platform and handrails – ensure <ul style="list-style-type: none"> <li>a. there is no damage</li> <li>b. handrails are 100% secure</li> <li>c. self closing action of doors is working</li> <li>d. there is no grease or debris on floor</li> <li>e. slide out deck(s) (as fitted) work smoothly</li> <li>f. latches are ok.</li> </ul>		
12. Check controls are not damaged and return to neutral or central position when released. Emergency stops, dead-man, upper and lower controls.		
13. Do any other pre-start checks given by the manufacturer.		
14. Visually check all fibreglass components for cracks especially where bonded to boom.		
<b>OPERATIONAL CHECKS – MACHINE STARTED</b>	<b>TICK</b>	<b>COMMENTS</b>
15. Check operation of following: Beware! Allow for 'overrun' (time delay) when testing controls and brakes (check manufacturer operator instructions)		
> Emergency stops and dead-mans as fitted at both upper and lower controls (machine should stop when dead-man button or foot control is released).		
> Controls at ground (raise/lower/slew etc).		
> Controls at platform (forward/reverse/raise/lower/slew etc).		

> Safety features and lockouts including outriggers, drive/elevation cut out, high/low speed change over, pothole protection system, etc.		
> Brakes, check no excessive run on (incl. slew brake as fitted). Beware! Some machines have a time delay before brakes apply.		
16. Check platform emergency descent and/or operator retrieval system (as fitted) work. Ensure valves/control returned to 'normal operating' position (as per manufacturer's manual).		
17. Check flashing lights and alarms work.		
18. Do any other operational checks recommended by the manufacturer.		
<b>FAULTY EQUIPMENT PROCEDURE</b>		
If the MEWP was found to have any faults, follow the steps below.		
1. Tag the equipment with a 'DO NOT USE' tag to warn others that the equipment is faulty.		
2. Advise your supervisor of the faults with the equipment.		
3. Advise the owner of the equipment that it is faulty and needs attention.		
4. Record details of fault in the logbook provided with the MEWP.		

## 7.10 PUBLICATIONS AND REFERENCE MATERIAL

LEGISLATION	
Electricity Act 1992	
The Health and Safety in Employment Act 1992	
Electricity (Safety) Regulations 2010	
The Health and Safety in Employment Regulations 1995	
STANDARD NUMBER	STANDARD NUMBER
<i>Cranes, Hoists and Winches – Safe Use – Mobile Elevating Work Platforms</i>	AS2550.10
<i>Cranes, Hoists and Winches – Safe Use – General Requirements</i>	AS 2550.1
<i>Non-domestic Passenger and Goods Lifts</i>	NZS 4332
<i>Safety of Machinery – Design of Controls, Interlocks and Guarding – Emergency Stop – Principles for Design</i>	AS 4024:1604
<i>Cranes, Hoists and Winches – Part 10: Mobile Elevating Work Platforms</i>	AS/NZS 1418.10
<i>Electrical Installations – Construction and Demolition Sites</i>	AS/NZS 3012
<i>In-Service Safety Inspection and Testing of Electrical Equipment</i>	AS/NZS 3760
<i>Acoustic Emission Testing of Fiberglass Insulated Booms on Elevating Work Platforms</i>	AS 4748
CODES OF PRACTICE	
<i>Approved Code of Practice for Cranes – Includes the Design, Manufacture, Supply, Safe Operation, Maintenance and Inspection of Cranes (Cranes ACOP)</i>	
<i>Approved Code of Practice for Safety and Health in Arboriculture</i>	
<i>Forklifts – Approved Code of Practice for Training Operators and Instructors of Powered Industrial Lift Trucks</i>	
<i>Approved Code of Practice for the Management of Noise in the Workplace</i>	
BEST PRACTICE GUIDELINES	
<i>Best Practice Guidelines for the Safe Use of Elevating Work Platforms in the Horticultural Industry</i>	
<i>Best Practice Guidelines for Scaffolding in New Zealand</i>	
<i>Best Practice Guidelines for Working at Height in New Zealand</i>	
<i>Best Practice Guidelines for Working on Roofs in New Zealand</i>	

GUIDES
<p><i>Keeping Safe at Work – A Guide for Employees – Employee Rights under the Health and Safety in Employment Act 1992 <a href="http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/keeping-safe-at-work-a-guide-for-employees/working-together">www.business.govt.nz/worksafe/information-guidance/all-guidance-items/keeping-safe-at-work-a-guide-for-employees/working-together</a></i></p>
<p><i>Managing Health and Safety: A Guide for Employers – Department of Labour – New Zealand <a href="http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/managing-health-and-safety-a-guide-for-employers">www.business.govt.nz/worksafe/information-guidance/all-guidance-items/managing-health-and-safety-a-guide-for-employers</a></i></p>
<p><i>A Principal's Guide to Contracting to meet the Health and Safety in Employment Act 1992 plus its summary, Health and Safety in Contracting Situations.</i></p>
OVERSEAS STANDARDS
<p><i>BS EN 280 Mobile Elevating Work Platforms. Design Calculations. Stability Criteria. Construction. Safety. Examinations and Tests</i></p>
<p><i>ANSI/SIA A92.2 Vehicle-Mounted Elevating and Rotating Aerial Devices</i></p>
<p><i>ISO 16368 Mobile Elevating Work Platforms – Design, Calculations, Safety Requirements and Test Methods.</i></p>



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ISBN: 978-0-478-43326-5 (print)

ISBN: 978-0-478-43325-8 (online)