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THE PRINCIPLES OF MEWP RECOVERY AND RESCUE

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THE PRINCIPLES OF MEWP RECOVERY AND RESCUE

The purpose of this document is to provide guidance for those planning and undertaking recovery and rescue from a Mobile Elevating Work Platform (MEWP). The document provides information on the more complex task of rescue using the platform-to-platform method while using a secondary MEWP, ensuring safe recovery and rescue operations for all involved.

Who should read this guidance

- Users (those in control of MEWP operations)
- Managers and supervisors
- Health and safety practitioners
- MEWP operators
- Nominated ground rescue personnel
- First aid personnel
- Emergency services

STATEMENT BY IPAF

There are many different manufacturers and models of MEWPs, which vary significantly in shape, size, weight, and complexity.

Recovery and rescue scenarios can range from simple rescue procedures to far more complex situations requiring suitable and sufficient risk assessments, specific planning, and advanced levels of competency from rescue personnel.

It is not possible for this document to cover every potential scenario for recovery or rescue, involving every group, type, make and model of MEWP, as situations are likely to be different depending on the environment, task being undertaken, and personnel involved.

The aim of this guidance document is to provide sufficient information for developing a safe system of work and reducing the risk of major injuries and fatalities when emergency recovery and rescue procedures are performed. The document offers theoretical-based guidance only and does not offer a practical training solution. Duty holders seeking practical training solutions should contact specific training course providers.

NOTE: While every care has been taken to ensure the accuracy of the material contained within this guidance, no liability is accepted by the authors in respect of the information given.

Compliance with this guidance does not give automatic assurance of compliance with legislative requirements. It is the duty holder's responsibility to ensure they comply with the legal requirements relevant to safe work equipment.

INTRODUCTION

To comply with international and regional safety standards MEWPs are fitted with platform and ground controls as well as emergency/auxiliary lowering systems.

Employers and users must develop a documented recovery and rescue plan that is specific to the task, the MEWP being used and the site. The plan should outline the procedures for executing emergency operations required to recover and rescue personnel either from within the platform of the MEWP involved in the incident, or from a suspended position following a fall arrest.

When MEWPs are selected to perform temporary work at height there remains a potential risk of persons in the MEWP platform becoming stranded or requiring recovery or rescue due to operator error, equipment malfunction, entrapment, entanglement, ejection, breakdown, or a medical emergency.

SCOPE

This document is intended to provide information on:

1. MEWP categories
2. The hierarchy of platform recovery and rescue
3. Hazards and risks associated with recovery and rescue
4. Situations that would require platform-to-platform rescue
5. Training of personnel who have allocated roles and responsibilities to undertake recovery and platform-to-platform rescue
6. The type of personal fall protection systems required
7. First aid, and first aid equipment requirements

1 TERMS AND DEFINITIONS

APU	Auxiliary Power Unit
ERT	Emergency Response Team (referred to in the document as the "response team")
ESA	Energy Supply Authority
IP	Injured Person
MEWP	Mobile Elevating Work Platform
NGRP	Nominated Ground Rescue Person (referred to in the document as "ground rescue person")
OEM	Original Equipment Manufacturer
PEP	Personnel Emergency Pack
PFPE	Personal Fall Protection Equipment
PPE	Personal Protective Equipment
Recovery	The retrieval/lowering of a platform from the elevated position to the transport/stowed position, or a place of safety with or without personnel in the platform
Rescue	A MEWP platform which is unable to be lowered, and the platform occupants require rescuing
SSoW	Safe System of Work (refer to Appendix 1)
SWL	Safe Working Load
Users*	Those in control of MEWP operations. The contractor/employer, often referred to as the User, is any person or organisation that controls the planning, management and use of the MEWP for a specific task and is responsible for ensuring the MEWP is kept in a safe working condition.

**Note: The User is not necessarily the operator.*

2 GROUPS AND TYPES OF MEWPS

MEWP categories are assigned for ease of reference worldwide and to enable correct training selection. Pre-determined MEWP characteristics and features are used to allocate machine categories. For MEWPs, the category combines a machine Group (A or B) and a machine Type (1, 2 or 3), so for example, a 3A (mobile vertical) is a MEWP category.

IPAF CATEGORIES:

MOBILE VERTICAL — 3A

MOBILE BOOM — 3B

STATIC VERTICAL — 1A

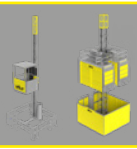
STATIC BOOM — 1B
Trailer mounted, tracked type, vehicle-mounted platforms

PUSH AROUND VERTICAL — PAV

SPECIAL — SPECIAL
Specialist machines, e.g., (2A, 2B) aircraft maintenance MEWPs

MAST CLIMBING WORK PLATFORM — MCWP

CONSTRUCTION HOIST — CH



INSULATED AERIAL DEVICE — IAD

MEWPs differ in shape, size, length, and complexity. If a platform-to-platform rescue is necessary, then the MEWP used for rescue must be capable of reaching the platform of the other MEWP safely. MEWPs which cannot extend to a safe distance for the rescue of platform occupants should not be used for the task as this increases the risk of falls from the platform, or overturn.

The rescue MEWP should be capable of safely retrieving a platform occupant(s). Factors to consider include:

- Platform height and outreach of the rescue MEWP, i.e., can the rescue MEWP safely reach the stranded platform occupant(s).
- SWL – will the rescue MEWP be overloaded when the occupant(s) enter the platform (some overload sensing systems will disable the platform controls if the SWL is exceeded). This also applies if the rescuer needs to step into the stranded MEWP.
- Physical size – is the rescue MEWP too big or heavy for the ground/floor/surface to be set up on.
- Additional rescue personnel to assist in recovery for more complex MEWPs, e.g., 1B (vehicle) or 1B (tracked) machines with complex lowering systems which include activating hydraulic valves/spools and then lowering the platform with the aid of a hand pump.
- The orientation/position of the platform may affect the access/egress points.

→ IPAF Categories | IPAF
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3 ROLES AND RESPONSIBILITIES

The planning stage should identify those involved with the work at height task. Examples of these roles include:

- The User
- The MEWP operator
- Ground rescue personnel
- The response team

It is the responsibility of everyone listed above to ensure they understand the procedures to follow in the rescue plan in case of an emergency.

Note: The MEWP operator should not commence work until there is a suitable rescue plan in place and a ground rescue person.

No matter the duration of work, it is important to ensure that there are clear lines of responsibility set out when planning and performing work at height tasks when using a MEWP.

The table below identifies the responsibilities and principal duties of the four key stakeholders.

Table 1- Key duty holders, their responsibilities and principal duties.

Duty holder	Responsibility	Principal duties
USER (CONTRACTOR/ EMPLOYER)	Organise and manage the task to ensure it is performed safely	• Determine the work at height task and means of access • Manage and supervise the work at height task • MEWP selection • Trained in the safe use of MEWPs • Ensure MEWP operators are trained and familiarised • Develop suitable and sufficient risk assessments and recovery/ rescue plans to develop a SSoW* • Be able to safely lower a MEWP platform in the event of an emergency • Ensure correct PPE and PFPE is worn by site personnel • Provide clear instructions
OPERATOR	Complete the task in a safe manner	• Understand the risks of the task to be performed • Understand and follow preventative measures in place i.e. SSoW • Use the correct PPE and PFPE as instructed
	Training	• Be trained and familiarised with the specific MEWP they are required to operate • Complete pre-use inspections
	Communication	• Ensure there is a communication method with the ground rescue person • Have the authority not to commence work unless there is a rescue plan and a ground rescue person in place • Understand the rescue plan and rehearse it on regular occasions specified by the employer/User • Undertake a dynamic hazard assessment and verify or amend the SSoW as necessary • Have a constant awareness of surroundings • Be aware of and adapt to potential changes in circumstances

Duty holder	Responsibility	Principal duties
GROUND RESCUE PERSONNEL	Conduct rescue from the ground controls or emergency lowering/auxiliary system in a safe manner	• Supervise the MEWP operator while working at height
	Training	• It is preferable that the ground rescue person has undergone some form of formal training relevant to the task. However, all ground rescue persons should, as a minimum, be familiarised with the MEWP being used and the rescue procedures in place, so they are competent to lower the MEWP platform using the ground/emergency controls in the work situations to which they are exposed • Have sufficient competency to safely lower the platform in the event of an emergency
	Communication	• Have means of communication and raising the alarm with the MEWP operator and the response team *Note: Some MEWPs with more complex emergency lowering systems may require two people to safely lower the platform*
RESPONSE TEAM	Be available to conduct recovery and rescue when the MEWP's ground controls and emergency lowering controls are inoperative or when there is a medical emergency with the MEWP operator	• Be able to act to an emergency situation in a timely manner • The response team are required to be trained MEWP operators as there may be a need to use another MEWP to perform a platform-to-platform rescue
	Communication	• Have a suitable communication method such as a two-way radio

4 RECOVERY AND RESCUE – WHAT IS THE DIFFERENCE?

Recovery can be defined as the retrieval/lowering of a platform from the elevated position to the transport/ stowed position, or a place of safety with or without personnel in the platform. The lowering of the platform is done using the ground controls, or if they are inoperative, the emergency/auxiliary lowering system. Examples of when recovery is required:

- Medical incident or emergency
- MEWP malfunction
- Load sensing system has activated meaning the platform controls are inoperative
- Entrapment of an operator
- A platform occupant is suspended in a safety harness
- Operator error

Rescue is when a MEWP platform is unable to be lowered, and the platform occupants require rescuing. This can be due to:

- Inoperative ground and platform primary controls
- Inoperative emergency lowering controls
- Entanglement
- MEWP becoming unstable and is at risk of overturn
- A technical fault with a platform levelling system

5 PLANNING FOR SAFE OPERATIONS

MEWPs are designed to provide safe access for conducting temporary work at height. They are one of the safest options when the work is planned and managed appropriately.

The Work at Height Regulations 2005 specifically state that all work at height should be:

1. **Properly planned**
2. **Appropriately supervised**
3. **Carried out in a safe manner, and**
4. **Include the selection of the most appropriate work equipment**

It is the User's (employer's) responsibility to ensure that all work at height is properly planned. Planning includes the correct machine selection, suitable and sufficient risk assessments, rescue plans and the development of a SSoW, as well as considerations for additional equipment to enhance MEWP operator safety such as secondary guarding devices.

Ensuring the safety of MEWP operators and platform occupants is essential while they are working at height. The level of supervision required will depend on the specific situation. For example, two small MEWPs working in the same area may be adequately monitored by one ground rescue person. However, if the same two MEWPs are working in an area where one cannot be safely observed, it will mean an increased level of monitoring or additional ground rescue persons. Users (those in control of MEWP operations) must remember that when entrapment incidents occur, the time taken for persons to become aware of and react to the entrapment situation is critical – a rapid response can be the difference between life and death, and every second counts.

MEWP operators should carry out their pre-use inspections and record evidence either digitally, or by paper copy (IPAF recommends the ePAL app). Thorough checks of the MEWP before use can identify potential faults occurring; an example would be a leaking hydraulic hose or a near empty fuel tank. Additionally, MEWP operators should always carry out any work at height task safely. Never take short cuts or become complacent, as that's when incidents can happen.

Selecting the correct MEWP is critically important for safety – the MEWP should be suitable for the work at height task. MEWPs that are too large, small, or complex can result in increased operator error related breakdowns. Additionally, MEWPs that have not been correctly selected, e.g., are too small, may result in an operator leaning out or overreaching, which can lead to a fall from the platform.

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6 PLANNING FOR RECOVERY AND RESCUE

A WHAT IS A MEWP RESCUE PLAN?

Global MEWP safety standards and laws specify the requirement for rescue/emergency plans. Failure to implement a suitable rescue plan can lead to confusion and delays by operators and ground rescue persons in the correct procedures to follow in an emergency situation.

Failing to act in a timely manner in emergency situations can lead to significant time delays and increases the risk of injury to the platform occupants, and, ultimately, could mean the difference between life and death.

A rescue plan is a specific procedure designed to ensure the safe rescue of platform occupants from the MEWP platform in an elevated or horizontally extended position. IPAF recommends recovery/rescue plans to be documented, distributed, and practiced by all involved in the work at height task.

There may be other extenuating circumstances following a suitable and sufficient risk assessment where it is deemed unsafe to perform recovery or rescue. If a recovery/rescue situation is identified as unsafe and could endanger the lives of the platform occupants and/or the response team, the rescue should not be carried out.

Refer to Appendix 1 for an example of a rescue plan.

The rescue plan provides procedures to follow in the event of an emergency. However, consideration should also be given to the safety equipment that a rescuer and an operator may require. Examples include:

- PEP's (personnel emergency packs) containing items such as:
  - Blankets, food and water
  - Warm, waterproof clothing
  - Sunscreen
  - Communication devices
  - First aid kits
- PFPE
- PPE

B PRACTICING RECOVERY AND RESCUE DRILLS

IPAF recommends that recovery and rescue drills are practiced on a regular basis in accordance with the risk factors of the task and worksite.

The User/duty holder should decide on the frequency of the drills subject to a risk assessment by a suitably competent person. Practicing recovery and rescue drills is extremely important to maintain skills, knowledge, and preparedness.

It also promotes a continuous improvement of the recovery and rescue process and is an opportunity to verify the recovery and rescue drills work.

Examples will include, but are not limited to, when determining the above:

- New buildings or structures
- Ground/floor/surface conditions
- Changes in site conditions
- Changes in tasks
- Change of personnel, i.e., new personnel and persons returning to work
- Different types of MEWPs being used
- Different equipment on site

IPAF recommends that recovery and rescue drills should be carried out on irregular days and times. Consider scheduling these drills at times when people are least aware, such as mealtimes, the end of the shift or poor weather.

Anyone involved in the rescue plan should be:

- Trained and familiarised, if operating the MEWP from the platform controls
- Familiarised, if operating from the ground controls or the emergency lowering controls. This includes its operational controls, functionality, and operating limits
- Able to understand the MEWP's operator's manual (the operator's manual will normally be in the MEWP platform, so gaining access to it will be difficult in a real-life situation).
- Able to understand and follow the rescue plan
- Able to identify and avoid foreseeable hazards and determine the most appropriate action to recover the platform and its occupants

C RESCUE OF PERSONNEL

Platform and ground controls as well as auxiliary control systems built into a MEWP are designed to allow the ground rescue person to safely lower the platform to the transport/stowed position, or a place of safety. It is extremely unlikely to be unable to lower the platform using these controls, or for all these systems to fail.

Not all MEWPs are the same, so the design and position of the ground controls and emergency/auxiliary lowering controls will differ by machine make and model. IPAF recommends that ground controls and emergency/auxiliary controls must always be accessible and not blocked to enable the safe lowering of the platform in an emergency.

Remember: When recovery or rescue is deemed unsafe and could endanger the lives of others, it should not be performed, and you should call the emergency services immediately.

i. medical emergencies

A medical incident can quickly develop into a medical emergency if prompt and correct action is not applied. If the MEWP operator has suffered a medical emergency, there is a likelihood that they will not be able to operate the platform controls, which means the platform will need to be lowered from the ground control position by the ground rescue person or the response team.

As there is a medical emergency, the emergency services should be called immediately to attend site. Advice must be sought from the emergency services on whether it will be safe to move the IP from the platform either in the elevated or stowed/transport position, as moving an IP can sometimes cause more harm. If it is not possible to move the IP, then the response team should wait until the emergency services arrive on site.

ii. non-medical emergencies

If platform occupants are stranded at height, they will need to be lowered to the stowed/transport position. However, as there is no medical emergency, additional time can be taken to assess the safest way to lower the platform. Under no circumstances should platform occupants attempt to climb down or out of the main structure of the MEWP.

A suitable rescue MEWP can be used to take supplies to the platform occupant(s) such as food, water, hot or cold weather gear and means of communication such as a mobile phone or two-way radio.

Recovery of personnel in the elevated position

There are various ways of recovering personnel in an elevated position. Examples include:

- Operating the ground control primary power
- Operating the emergency/auxiliary lowering system
- Using another MEWP to perform a platform-to-platform rescue
- Using a crane with a personnel basket
- Calling the emergency services (last resort)

The type of recovery/rescue procedure will depend on the situation; however, the principles of rescue remain the same.

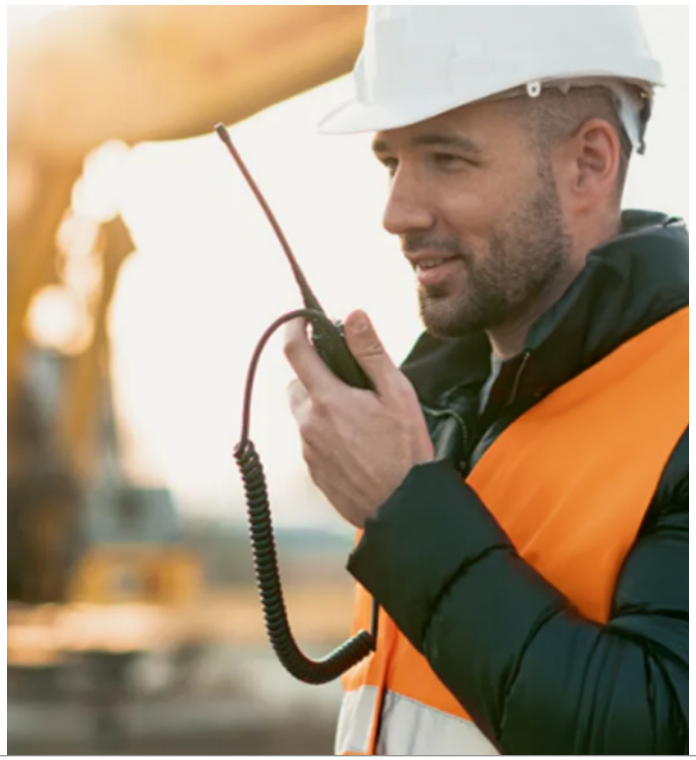
There may be other non-medical emergencies to consider in your rescue plan, such as:

- Recovery of occupants from a submerged platform
- Recovery of occupants from a platform which is out of level, and is likely to go even further out of level as the platform is lowered from the ground
- Fire at the base of the MEWP
- A trapped platform which is unreachable

Situations like the ones listed above may not be safely handled by the ground rescue person or the response team. In situations like these, emergency services and the service engineer/technician should always be called.

Considerations should include:

- The ground rescue person should be able to assess the situation and determine what action is required. Whatever action is identified, it must not endanger or cause further harm to the platform occupants.
- The ground rescue person should be able to safely lower the platform if safe to do so.
- Obstructions in the vicinity could prevent the safe recovery of the platform occupant(s). An example would be an extension deck in the extended position being obstructed by steelwork or a building.
- The safe removal of an incapacitated platform occupant once the platform has been fully lowered.
- Means of raising the alarm and communication with the response team.



Lowering a platform from the ground control position may sound simple, but in reality, it can be hazardous. An example would be lowering a MEWP when the platform is in between the steelwork of a building.

Not all platform-to-platform rescues are the same. There are many varied situations to consider, such as:

- Will you place yourself in danger as a result of conducting the rescue?
- Is the person at risk from other potential hazards?
- Can the person remain in the MEWP platform without further risk?
- What is the height and outreach required to reach the stranded platform?
- Has the operator suffered a medical emergency?
- Is there a suitable MEWP to perform platform-to-platform rescue?
- Are there any overhead hazards?
- Is there other equipment in the area?
- Are ground/surface conditions suitable and adequate?

7 COMMUNICATION METHODS

Communication is one of the most important elements of a rescue plan. Unless there is a medical emergency, the operator should be able to communicate with the ground rescue person and the response team.

Example methods of communication:

- Two-way radios
- Mobile phones
- Hand signals (agreed to before commencing work)
- Verbal

Whatever the communication device may be, it must be able to function correctly as there are many situations that can affect the performance of these communication devices such as:

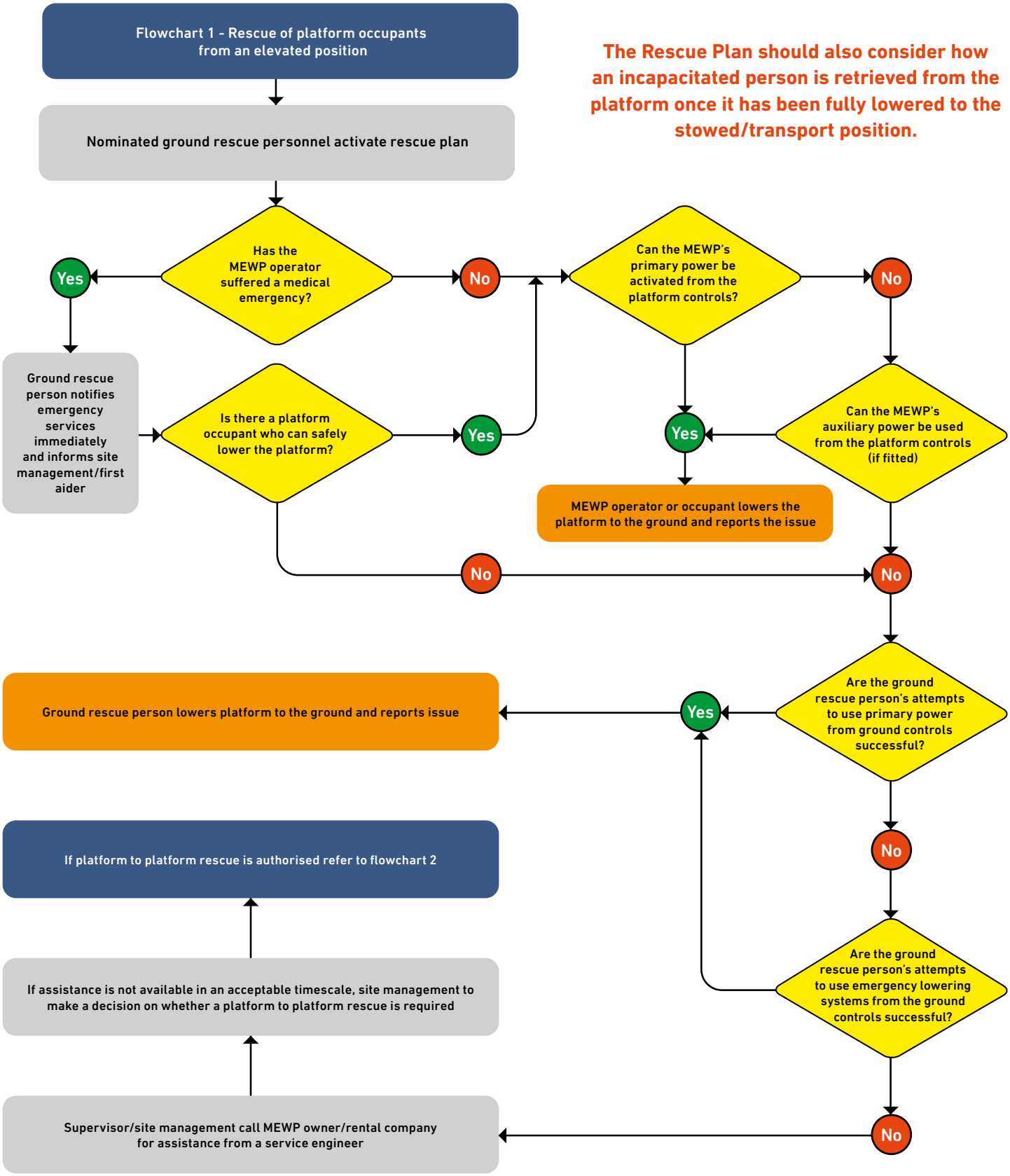
- Noise from other equipment
- Height of the platform (obscured from view)
- Interference from other electrical equipment
- Weather conditions (cloud, mist, heavy rain)
- Battery power

The selection of the most appropriate communication should be identified by your risk assessment and recovery and rescue plan. When using handheld devices, you should consider the use of a tether/lanyard to prevent objects falling from the platform.

8 HIERARCHY OF CONTROL FOR RECOVERY AND RESCUE

The hierarchy of control for recovery and rescue is a process that can be followed to determine the actions required if a MEWP is inoperative at the platform controls due to mechanical breakdown or operator illness.

The flowchart below suggests the steps to take for recovery/rescue from the ground control's emergency/ auxiliary lowering system:



The Rescue Plan should also consider how an incapacitated person is retrieved from the platform once it has been fully lowered to the stowed/transport position.

A SELF-RESCUE

Self-rescue may be required when there is a loss of the main primary power (e.g., engine) at the platform controls. The MEWP operator can lower the platform using the emergency lowering system (if fitted), e.g., the auxiliary power unit (APU).

If the APU has also failed, or if there is no emergency lowering function at the platform controls, the MEWP operator will need to alert the nominated ground rescue person of the situation.

There are other forms of self-rescue to consider, one example being a controlled descender device (CDD). This is used for the purpose of performing self-rescue from an elevated MEWP.

User training and the correct CDD selection is critical for safety; you should always seek guidance on the use of these products from the CDD provider and the MEWP OEM. Note: some MEWP anchorage points and structures may not be able to withstand the dynamic forces enacted on it.

B GROUND CONTROL OPERATION

It is important to remember that MEWP ground controls do not normally have proportional controls like a joystick which is in the platform. This means that once a ground control switch is activated, there is only one speed, and when activated the function is instant. As soon as the ground rescue person notices an issue, they can perform the lowering procedure from the ground controls. They should attempt to lower the platform using the primary power first, e.g., engine power. If that fails, they should then use the emergency lowering system. Examples of these emergency lowering systems include APUs, lowering cables, bleed down systems, and hand pumps.

If the ground controls and the emergency lowering controls at the base of the MEWP have both failed, considerations should be given to contacting an authorised service engineer/technician (this contact information should be included in the rescue plan).

Resource: The Risks of Operating MEWPs from the Ground Controls Toolbox Talk | IPAF

Click here to view the resource

C SERVICE ENGINEER /TECHNICIAN ASSISTANCE

It is important to consider the location of the service engineer/technician to assist in the recovery of the platform, especially if there is a medical emergency, so you should consider the time it will take for the service engineer/technician to arrive on site.

If, after inspection by the service engineer/technician, it is not possible to perform a timely repair, senior site management should be contacted for permission to conduct a platform-to-platform rescue.

Or

Where the service engineer/technician is not readily available and an immediate risk exists to the health and safety of any of the occupants from remaining in the platform until a service engineer/technician can attend, senior site management should be contacted for permission to conduct a platform-to-platform rescue.

D CONSIDERATIONS FOR PLATFORM-TO-PLATFORM RESCUE

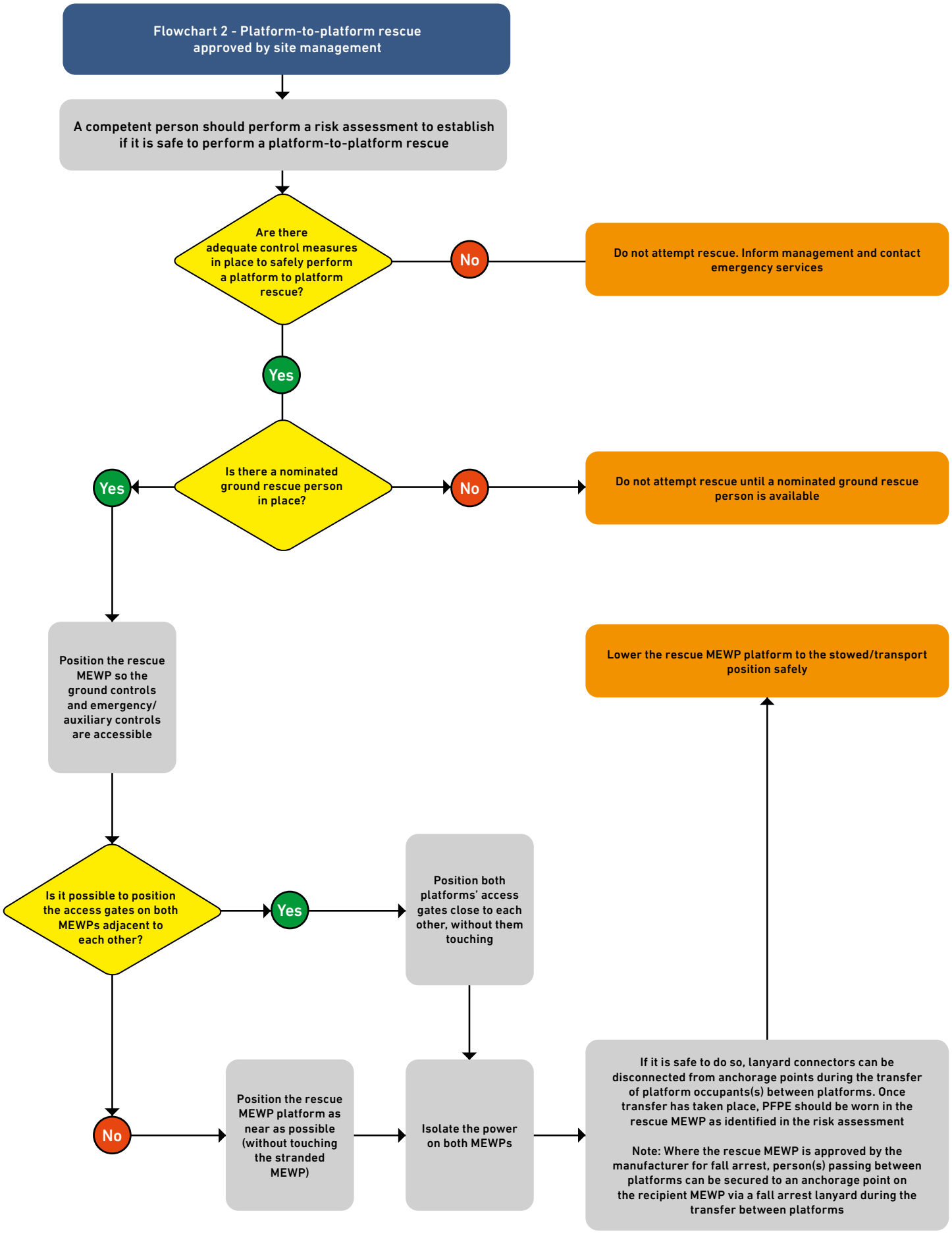
A platform-to-platform rescue should only be considered in exceptional circumstances and only after:

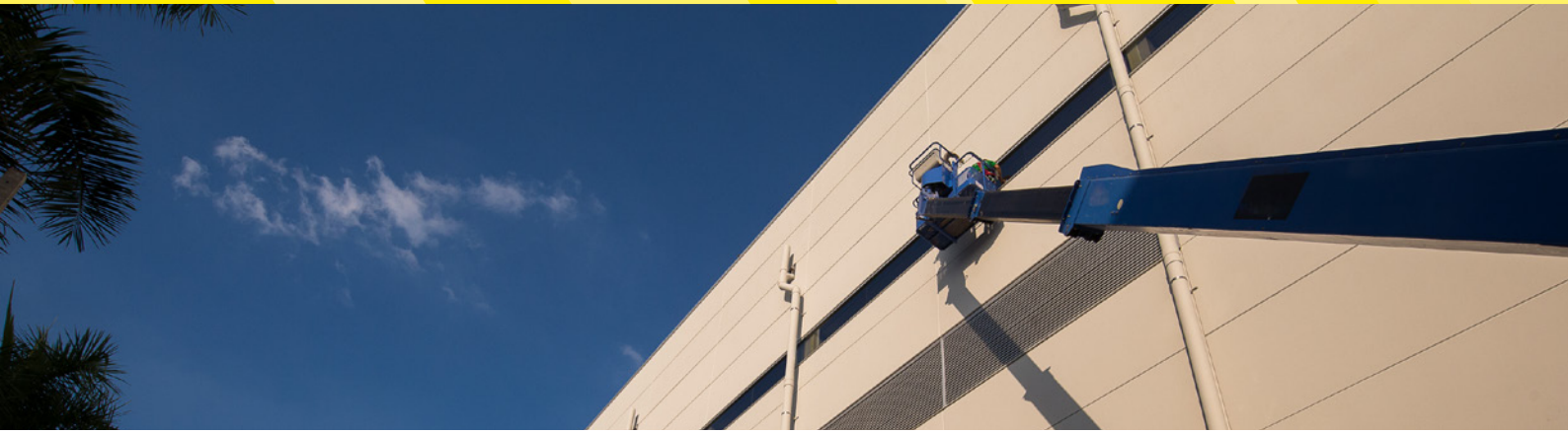
- All normal and auxiliary lowering procedures have been attempted, and these are unable to lower the platform to a place of safety.
- Site management have contacted the competent person and the service engineer/technician listed in the rescue plan, to report failure of normal and auxiliary lowering systems and request engineering assistance.

Or

- Where the competent engineering assistance is not readily available and an immediate risk exists to the health and safety of any of the occupants from remaining in the elevated basket until a service engineer/technician can attend, senior site management should be contacted for permission to carry out platform-to-platform rescue.

The flowchart below suggests the steps to take if a platform-to-platform rescue is required:





The transfer of platform occupants during a platform-to-platform rescue

If it is safe to do so, lanyard connectors can be disconnected from anchorage points during the transfer of platform occupants(s) between platforms. This reduces the risk of entanglement and/or trip hazards and allows a swift transfer of platform occupant(s) to take place.

Note: Where the recipient MEWP is approved by the manufacturer for fall arrest, person(s) passing between platforms can be secured to an anchorage point on the recipient MEWP via a fall arrest lanyard connector during the transfer between platforms.

Anchorage points

There are two main types of anchorage points:

- Fall arrest
- Fall restraint

Fall arrest anchorage points have a higher rating compared to a fall restraint anchorage point, as they are designed and tested to withstand the forces produced as a person's fall is arrested.

Restraint anchorage points are not designed for a fall arrest situation and may not cope with the shock loading of a fall. Restraint anchorage points do not require the fall arrest overturning test performed by MEWP manufacturers.

The specific ratings for the anchorage points will depend on the design standard the MEWP is built to; this will vary depending on the region you are in.

Information on the type of anchorage point (restraint or fall arrest) for your MEWP should be available on decals near the anchorage point or the operator's manual. If no information is available, you should contact the MEWP manufacturer.

When transferring an occupant from one platform to another, it is recommended that:

- The competent person is required to perform a dynamic risk assessment or a decision to effect rescue, i.e., is it safe to transfer the platform occupant(s)
- The MEWP's primary power is isolated
- Only one person is transferred at a time

9 RECOVERY AND RESCUE OF A PLATFORM TO A PLACE OF SAFETY

If a MEWP loses power at the platform controls, it can normally be lowered by:

- The MEWP's ground controls
- Emergency/auxiliary lowering controls or manual bleed down systems

However, when a MEWP platform is elevated, it may not be possible to fully lower it to the stowed/ transport position. This can sometimes be affected by:

- Entanglement of the work platform
- Entrapment of an operator, i.e., any movement could result in a fall occurring, or cause life-threatening injuries to the operator
- Overloaded platform
- Partial overturn (MEWP at an unsafe angle) preventing safe lowering
- Platform out of level
- An extension deck obstructing the lowering path
- MEWP chassis not level
- Catastrophic damage caused by impact to the upper structure or the base of the MEWP
- Failure of both the primary power and emergency lowering controls
- An operator or platform occupant suspended in a harness

In this situation, the ground rescue person or the response team may need to consider escalating the issue to the supervisor and site management on whether a platform-to-platform rescue should be authorised.

If the ground controls/emergency auxiliary controls are operational, great care should be taken when lowering the platform, especially if a platform is at a significant height or in between buildings or a steel structure. Distances can be deceiving for a person positioned on the ground in relation to the platform position.

Remember: If a rescue situation is deemed unsafe and could endanger the lives of the platform occupants and the response team, the recovery/rescue should not be conducted. You must contact the emergency services immediately.

In this situation, the platform occupants may need to be rescued either by a platform-to-platform rescue or by other equipment, e.g., a crane man platform, forklift platform.

In some situations, it may not be possible to perform rescue. For example, this may be due to:

- Operational envelope restrictions
- Ground conditions (machine sinking to an unsafe angle)
- Not having enough reach or height on the rescue MEWP
- Snagged platform

A MEWP's envelope control system is designed to limit the platform height and outreach in certain positions. Information on the operational envelope is normally shown in a range diagram (see figure 1) which can be found in the operator's manual and sometimes on the MEWP itself. If the platform of a MEWP goes outside the operational envelope, there is a high risk of overturn.

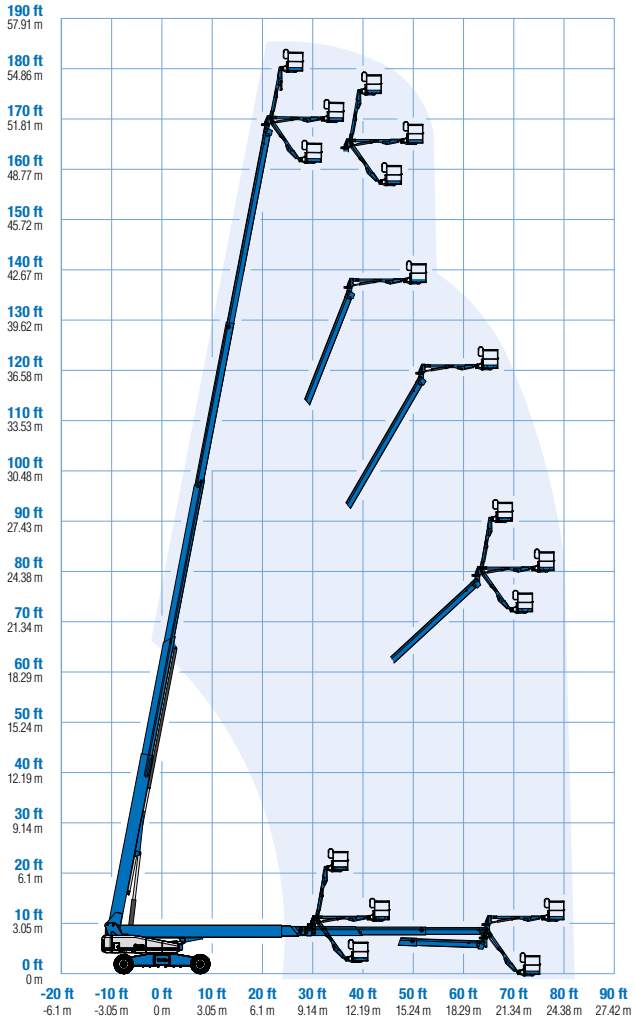


Figure 1: Credit Genie Lift

During an emergency lowering, it is critical for the MEWP's stability to remain inside the operational envelope and platform capacity.

Some MEWP manufacturers provide lowering sequences for booms to prevent overturn if they are positioned on sloping ground; see Figure 2 below:

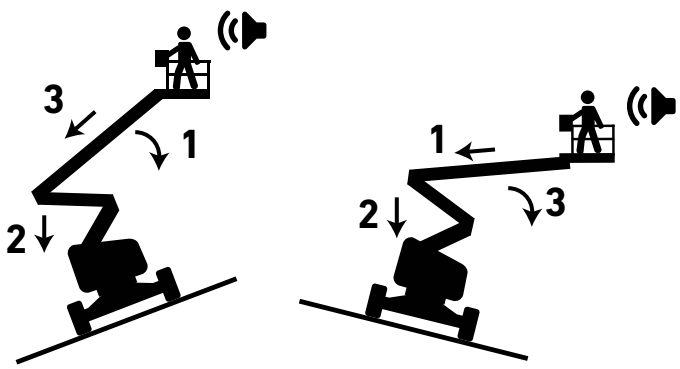
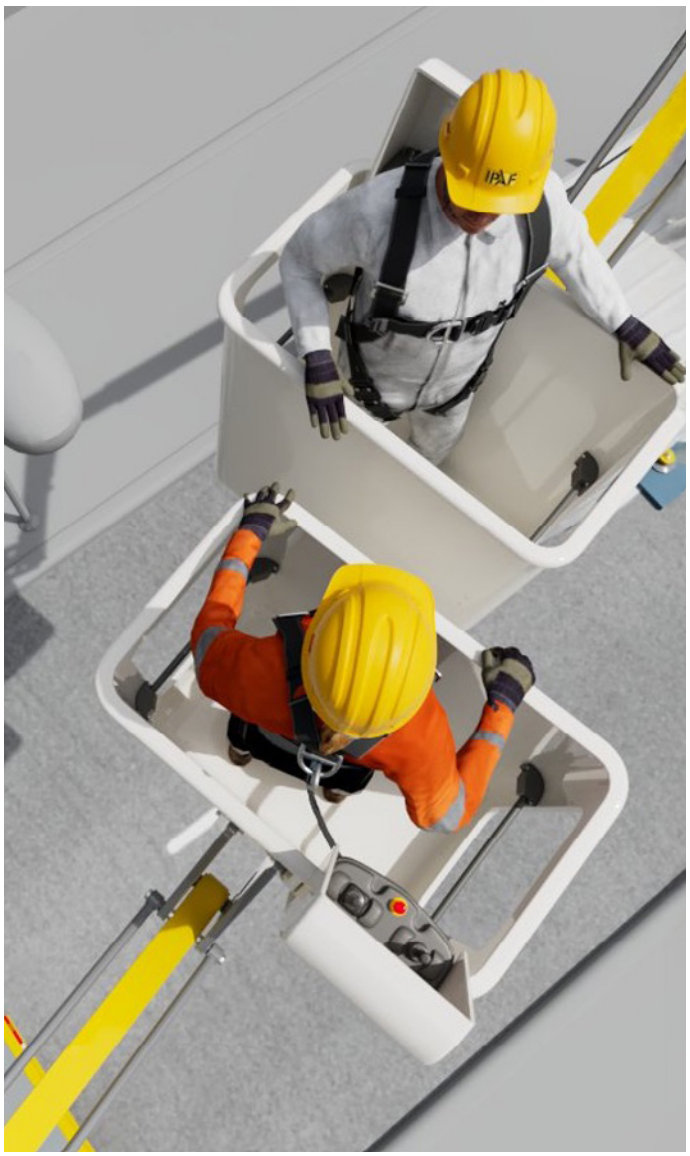


Figure 2

Failure to lower a platform using a correct sequence, i.e., the platform going outside the operational envelope can, and has, led to overturn.



10 POSITIONING MEWPS FOR RESCUE

The safe positioning of a MEWP to perform platform-to-platform rescue is critical for the safety of the stranded MEWP as well as the rescue MEWP.

One of the key conditions for MEWP stability is the ability of the ground/floor/surface to safely support the weight of the MEWP at its point of contact with the ground in all configurations. Failure to consider the load-bearing capacity of the ground/floor/surface could potentially cause the MEWP to go out of level, become unstable, and overturn.

→ The Assessment of Ground Conditions and Supporting Structures for the Safe Use of MEWPs | IPAF

Click here to view the resource

Before carrying out a platform-to-platform rescue, it is essential to assess more than just the suitability of the ground, floor, or surface. The following factors must also be carefully considered:

- **Accessibility of controls** – Ensure that both ground and emergency/auxiliary lowering controls are accessible.
- **Supervision** – A competent person must provide adequate supervision throughout the rescue.
- **Reach capability** – The rescue MEWP must be able to reach beyond the height or outreach of the stranded MEWP.
- **Platform capacity** – The rescue MEWP must have sufficient platform capacity to accommodate the intended load. Note: multiple trips may be required to complete the rescue safely.
- **Entry/exit design** – Consider the type and function of platform entry/exit points, such as drop bars or swing gates.
- **Platform proximity** – Minimise the gap between platforms during transfer to reduce the risk to occupants.
- **Attachments and obstructions** – Account for any attachments fitted to either MEWP, including pipe carriers, board holders, cradles, or EN280-2 compliant accessories, which may affect access or movement during the rescue.

When performing a platform-to-platform transfer of people using two **mobile booms**, it is advisable and ideal to position the platforms so that the entry gates are directly opposite each other with the most minimal gap possible. Where this is not possible, the platform occupant should enter the rescue MEWP between the top guardrail and mid-rail. If this is not possible, they should enter the platform over the top guardrail.

When performing a platform-to-platform transfer of people using two **mobile verticals**, it is advisable to position the scissors so the access/egress gates are adjacent to each other with the most minimal gap possible. If this is not possible, position the platforms so the platform guardrails are adjacent to each other with the most minimal gap possible. The platform occupant(s) should enter the rescue MEWP either via the access/egress gate or between the top guardrail and mid-rail. If this is not possible, they should enter the platform over the top guardrail.

When performing a platform-to-platform transfer of people using **two different types** of MEWPs e.g., a mobile boom and a mobile vertical (3B and 3A), the same principles apply. Position the rescue MEWP as close to the stranded MEWP as possible. The platform occupant should enter the rescue MEWP between the top guardrail and mid-rail. If this is not possible, they should enter the platform over the top guardrail.

11 OPERATING MEWPS FROM THE PLATFORM CONTROL POSITION DURING RECOVERY/RESCUE PROCEDURES

MEWP platform controls are made up of a series of function switches and proportional controls such as drive, lift/lower and slew. Having proportional controls means the MEWP operator will normally have much finer control and more accuracy with the movements of the MEWP compared to the ground controls where the functions are instant. Extra care should be taken when approaching the stranded MEWP platform.

Some MEWPs are fitted with boom speed control devices at the platform controls, which can be used to minimise the boom speed functions, such as telescope in and out, jib up and down, etc.

In certain circumstances, e.g., a medical emergency, time is of the essence if a platform-to-platform rescue is required. Although this is an emergency situation, it is important not to endanger yourself or others in the area by operating the controls erratically. Check for the presence of power lines or other hazards such as overhead cranes/loads, etc.

12 SUSPENDED PERSONNEL IN A SAFETY HARNESS

When identified by risk assessment, PFPE should be worn when operating or working from a MEWP. Where possible, PFPE should be used that physically restrains the user within the platform of the MEWP.

Examples of how personnel can become suspended in a safety harness:

- Leaning out or overreaching leading to a fall from the platform
- The catapult effect
- Failure of a load-bearing component
- Impact from other equipment or falling objects causing catastrophic damage

Any person suspended in a safety harness must be recovered as quickly and as safely as practically possible. A person suspended unconsciously in a safety harness is a medical emergency and requires speedy recovery to a safe location where they can be placed into the recovery position and help can be provided by the emergency services.

If an IP is suspended from the MEWP by their PFPE, you should immediately call the emergency services and provide details of the situation. The IP will need to be rescued – this can either be carried out by lowering the platform from the ground controls or by using another suitable MEWP. When using a MEWP to recover the IP, the platform should (where possible) be placed directly underneath the IP so there is no risk of the IP falling from height when released from their personal fall protection system.

→ Fall Protection in MEWPs (H1) | IPAF

Click here to view the resource

→ More Guidance here: Evidence-based review of the current guidance on first aid measures for suspension trauma

13 RESCUE OF INJURED PERSONNEL (IP) IN THE STOWED/TRANSPORT POSITION OR PLACE OF SAFETY

IPAF Statement

It is not possible for this document to provide a definitive procedure for the safe rescue of an IP when the MEWP is in the stowed/transport position, or a platform which has been lowered to a temporary place of safety. Rescue situations can be complex depending on the MEWPs being used, the environment, the task being undertaken, and personnel involved. The information shown below is guidance only and does not apply to all situations.

If a platform occupant has suffered a medical emergency, the emergency services should always be contacted as part of your first response. If the site/location has its own emergency response team, they should also be notified immediately of the situation.

Before removing an IP from the stowed/transport position (or a temporary place of safety), it is recommended to consult with the emergency services/response team to ensure it is safe to proceed.

If it is not safe, then the IP should not be removed until the emergency services/response team have arrived on site and have provided information on how rescue is to be performed. Once a procedure has been established, a risk assessment should also be undertaken by competent personnel (see Appendix 2).

Removal of an IP may be a complex task as there are many factors to consider (the list below is not exhaustive):

Rescue personnel

- The size/weight/position of the IP
- The physical strength and manual handling requirements of the personnel assisting in the rescue to safely move and lower the IP to the ground
- If the IP is conscious or unconscious
- Injuries already sustained to the IP
- Manual handling injuries that could be sustained by rescue personnel
- If moving the IP may cause further injury, e.g., a spinal or neck injury

THE MEWP

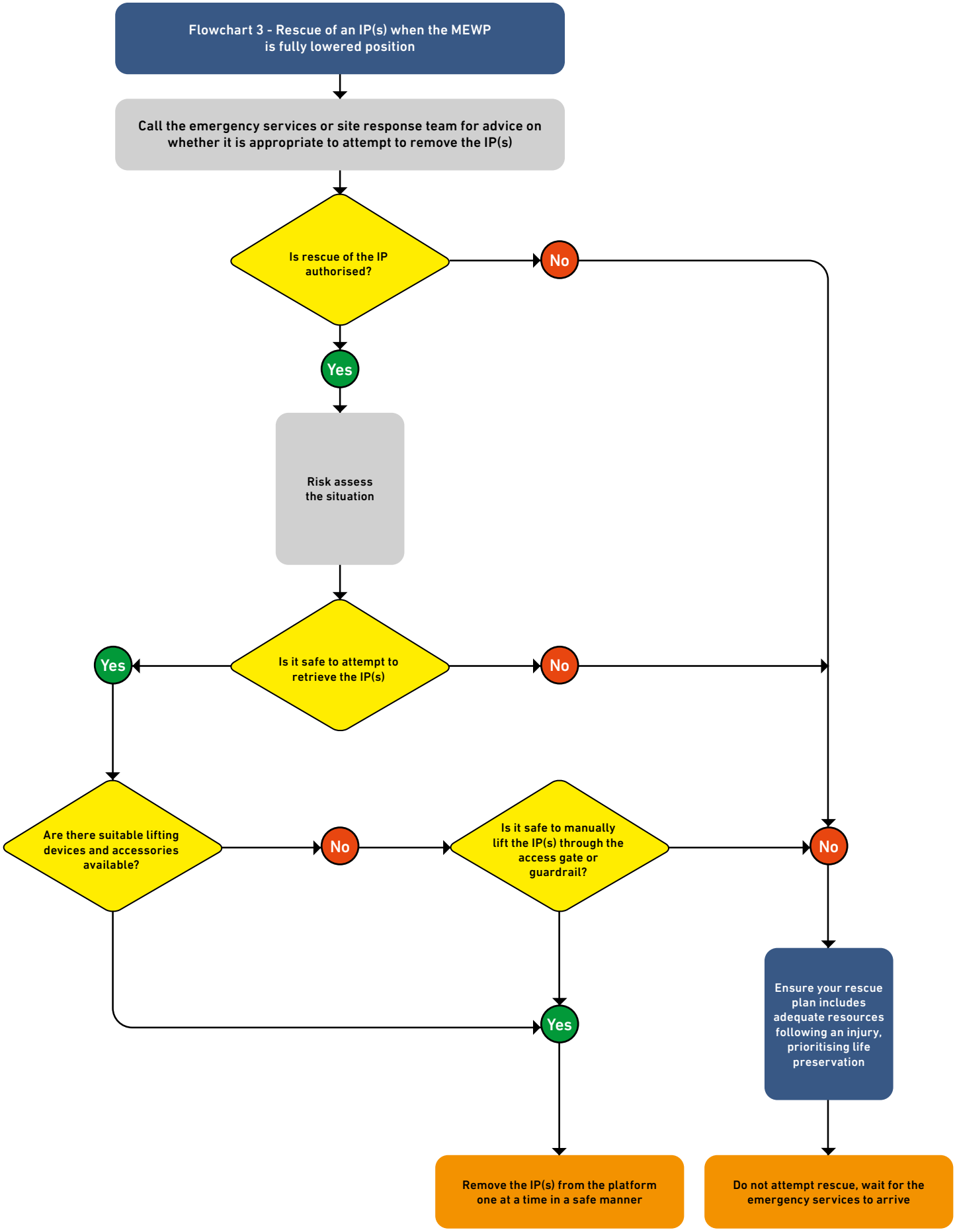
- The distance from the floor/ground to the platform of the MEWP when it is in the lowered position (some MEWP platforms are approximately two metres from the ground and are only accessible via the steps and a gate)
- If the MEWP is fitted with collapsible/fold down or removable platform guardrails
- If the MEWP has suffered damage to the platform and/or platform entry points making entry/exit difficult

Environmental factors

- Confined spaces/space restrictions
- Hazardous environments, e.g., heat/cold/inclement weather
- Restricted access, e.g., narrow corridors, low ceilings

Removal of an IP once in the lowered/stowed position or a temporary place of safety may not be possible or could be complex without additional suitable lifting equipment. Considerations of this scenario should be included in your risk assessment and rescue plan. Additionally, if any lifting appliance is used the operator should be adequately trained in its safe use.

The flowchart below suggests the steps to take to rescue IP(s) from the fully lowered position:



14 RESCUE OF PERSONNEL WHEN A MEWP HAS CONTACTED AN ELECTRICAL HAZARD

Examples of electrical hazards are:

- Overhead power lines
- Underground power lines/cables
- Crane buzz bars
- Electrical conductors

Most MEWPs are not insulated. If a non-insulated MEWP contacts a power line (above, or below ground) there is a risk that the MEWP will conduct/transfer the electrical energy to earth. In this situation platform occupants may or may not be electrocuted, or they can receive an electric shock.

If a MEWP has contacted a power line, it may be energised and if anyone approaches or touches it at the base, they too can receive an electric shock or be electrocuted. This is known as touch potential (see Figure 3). The course of action you must take is to immediately call the emergency services to have the power turned off. Only when the Energy Supply Authority (ESA) has confirmed the power is isolated can a rescue or recovery take place.

Contact with a live power line could mean the area around the base of the MEWP also becomes live. The voltage will be at its highest at the source but will reduce in voltage the further from the source it gets.

If you are on the ground and in close proximity to the MEWP that has touched a live power line, you must move away by jumping or shuffling with your feet together. Move away until you are at least 10 metres away from the MEWP. This effect is called step potential (see Figure 4).

If a MEWP contacts a power line, you should follow these steps:

- Call the emergency services and explain the situation; provide as much detail as possible.
- Do not approach or touch a MEWP that has contacted live power lines. The MEWP should be deemed live until confirmed safe by the ESA. IF YOU TOUCH THE MEWP, YOU CAN BE ELECTROCUTED! Electrical power cannot be seen, so you will not know whether the power line has been isolated.
- Never touch a person who appears to be having an electric shock, as you could also receive a shock.
- If someone has received an electric shock from a power line but is no longer in contact with the electrical source, you should immediately call the emergency services and, if necessary, administer first aid once it has been confirmed the power source has been isolated.

Figure 3 (Touch potential)

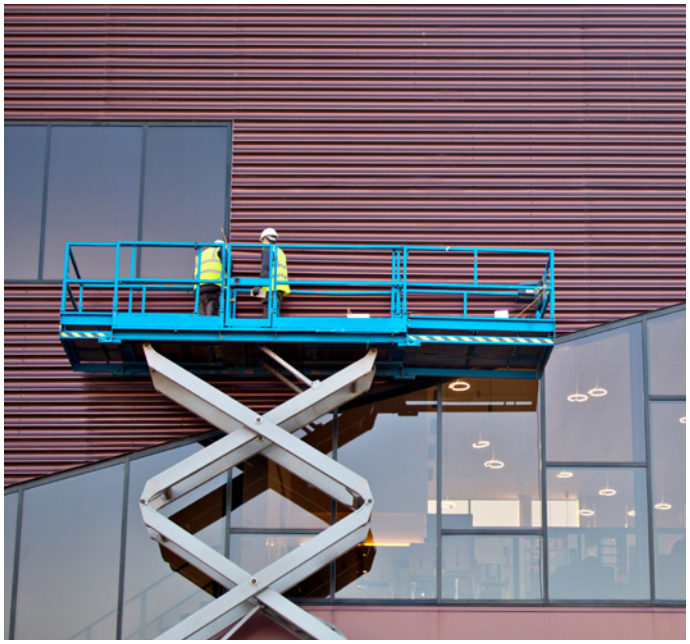
Figure 4 (Step potential)

What should the operator do?

If it is possible, the operator should move the platform away from the power line to a safe distance where the electricity cannot jump/arc. If this is not possible, the operator should:

→ The Safe Use of MEWPs in The Vicinity of Power Lines | IPAF

Click here to view the resource



15 TRAINING AND FAMILIARISATION

Anyone who performs work at height needs to be adequately trained. The type and depth of training will depend upon the person, and their individual responsibilities.

Training for managers, supervisors and safety professionals

The IPAF MEWPs for Managers (MM) training course is aimed at those who plan, supervise or manage work at height with MEWPs.

Companies that use MEWPs need to know what their management and legal responsibilities are and how to ensure the most effective use of MEWPs. This course covers what managers/supervisors need to know for safe and effective use of MEWPs on site, including planning the job, conducting a risk assessment, selecting the right equipment for optimum cost-efficiency and mitigating all possible risks.

Training for MEWP operators

The IPAF MEWP Operator training course is for anyone who needs to safely and effectively operate a MEWP in any machine category.

Also, anyone who may be required to supervise or rescue an operator would benefit from completing the course. This is an entry-level course; candidates do not need any prior experience of operating a MEWP.

The qualification, represented by the iconic IPAF Powered Access Licence (PAL) Card, is recognised worldwide as a sign of high-quality operator training.

The course consists of a theory section and test, followed by practical training and a test at an IPAF Approved Training Centre. The theory section can be taken either as eLearning, in-person, or virtually.

Training for ground rescue personnel

It is preferable that the ground rescue person has undergone some form of formal training relevant to the task. However, all ground rescue persons should, as a minimum, be familiarised with the MEWP being used and the rescue procedures in place. This is to ensure they are competent to lower the MEWP platform using the ground/emergency controls in the work situations to which they are exposed.

→ IPAF Training | IPAF

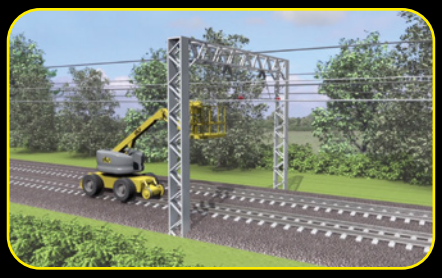
Click here to view the resource

16 PERSONAL FALL PROTECTION EQUIPMENT (PFPE)

IPAF's Harness Statement (H1) was agreed by industry and gives recommendations when PFPE is to be used in powered access equipment.

There are also "special" MEWPs. These are any type 2 MEWPs and certain type 3 MEWPs that operate in a different way to the standard operations, e.g., rail-mounted MEWPs. Depending on the configuration, these can either be controlled from the base or the platform. They require specific operator training due to their unique and often bespoke construction.

IPAF recommends PFPE is worn on any "boom type" special MEWP.



RESOURCES

Fall Protection in MEWPs (H1) | IPAF

Click here to view the resource

APPENDIX 1

MEWP recovery and rescue plan

The following is an example of a recovery/rescue plan for people who work at height using a MEWP:

MEWP RECOVERY AND RESCUE PLAN		
MEWP		
Manufacturer	Model	ID or Fleet number
Nominated Ground Rescue Person(s)		
Name	Phone Number	
Communication Method		
i.e., two-way radio, mobile phone, hand signals, etc.		
MEWP Owner/Rental Company		
Name	Phone Number	Contact Information
Site details		
Address/Location		
Date (from)	**Date (to)**	
Name	**Signature**	

Situation	Proposed Action
Failure of platform primary controls in the elevated position	Where the normal primary power has failed at the platform controls, the MEWP operator will use the platform auxiliary controls (if fitted) to lower the platform to ground, or a place of safety
Failure of the operator to be able to operate the MEWP while elevated due to one of the following reasons: A. Operator incapacitated B. Auxiliary functions fail to operate from the platform controls	Where the operator is incapable of lowering the raised platform using the platform controls, the ground rescue person who has been familiarised with the ground controls and auxiliary/emergency lowering procedures will lower the platform safely using the primary power at the ground controls
Failure of primary power at the ground controls	Where the ground control primary power has failed, the ground rescue person will use the auxiliary/emergency lowering system at the base of the MEWP to lower the platform
Failure of ALL normal and auxiliary lowering functions	Where all primary power and auxiliary/emergency lowering systems have failed, the ground rescue person should report the issue immediately to their supervisor
Supervisor duties	The supervisor should contact the owner/rental company for assistance of a service engineer/technician to attend site. If assistance is not available in an acceptable timescale, they should report the issue to the site management
Site management duties	Site management to decide on whether a platform-to-platform rescue is required for the platform occupant(s)

This recovery and rescue plan should be brought to the notice of those exposed to the risk of working at height and those supervising and managing the same work at height.

APPENDIX 2

- Risk Assessment and Safe Systems of Work (SSoW)

Risk Assessment

A risk assessment is a careful examination to identify potential hazards in your workplace that could cause harm to people, so you can decide whether you have taken enough precautions or should do more to prevent harm.

Only competent persons should conduct risk assessments. They must be able to demonstrate an understanding of the process, the hazard and risks, and the activity that forms the risk.

Safe System of Work (SSoW)

A SSoW is a thorough process that methodically studies the requirements of a work task. Based on the findings, a system should be established to ensure the task is being conducted in a manner that is safe and involves no, or at least, as little risk to personnel as possible.

While a SSoW can take many forms, it is best if it is documented and briefed to required personnel as this will ensure that the user is complying with its obligations to review and consult with workers.

Users should ensure that employees are aware of their workplace health and safety obligations and be continuously reminded and updated about risks in the workplace.

APPENDIX 3

Applicable Standards (not exhaustive)

- ISO 18893:2024 - Mobile elevating work platforms — Safety principles, inspection, maintenance and operation
- ISO 18878:2025 Mobile Elevating Work Platforms — Operator (Driver) Training
- BS8460:2025 – Code of Practice for the Safe Use of MEWPs
- AS2550.10: 2025 – Cranes, hoists and winches - Safe use Part 10
- ANSI A92.22 – 2021
- CAN/CSA-B354

Note: IPAF members get free access to various MEWP-related resources via our website.

Membership Benefits | IPAF
Click here to view the resource

APPENDIX 4

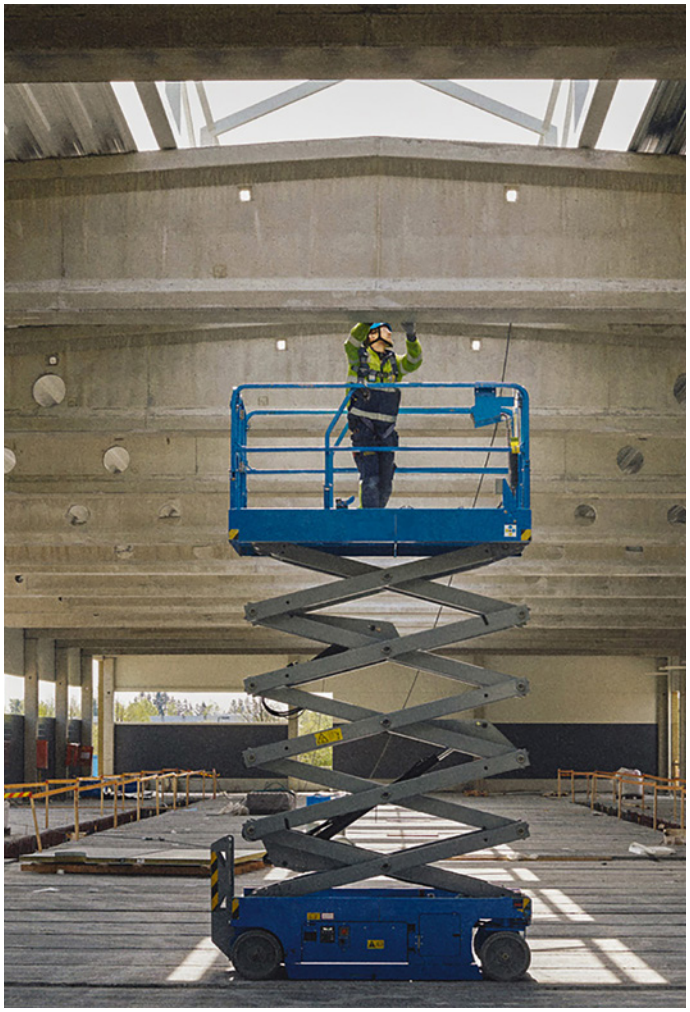
Recommended Training Courses

Find details of all IPAF training courses available at: www.ipaf.org/ipaf-mewp-training-courses

These include:

- MEWP Operator – 1A, 1B, 3A, 3B and specials
- Advanced MEWP Operator Training IPAF PAL+
- Demonstrator
- Harness range of courses
- MEWPs for Managers
- MEWP Supervisor (North America)
- Pre-Delivery Inspection
- Competent Assessed Person
- Site Assessment for MEWP Selection

IPAF Training Courses | IPAF
Click here to view the resource



HOW TO REPORT

www.ipafaccidentreporting.org

IPAF and its members analyse anonymised data on incidents involving powered access to identify areas of risk and common trends, which informs guidance, training and safety campaigns. We aim to increase our understanding of working practices and reduce incidents in every country. Reporting is not restricted to IPAF members; any person or organisation can report an incident. In 2021, IPAF launched ePAL, a mobile app for operators and supervisors, which enables quick on-the-spot reporting direct to the IPAF portal of all incidents – including near misses.

How to report

All accidents, incidents and near-misses can be reported quickly and easily at **www.ipafaccidentreporting.org** via desktop or laptop PCs, most web-enabled mobile devices, or through the IPAF ePAL app (**www.ipaf.org/ePAL**) for operators and supervisors. Please register first to report accidents on the database. Reports can also be made anonymously via the portal. Companies wishing to have multiple persons reporting accidents should appoint a nominated person (a senior person who will manage reporting). This nominated person should register first in the company name. Once registered, the nominated person will be able to give others access to report accidents and be able to track their accidents and manage their incident records. Information entered into the database will be kept confidential and will be used strictly for the purposes of analysis and improving safety.

What is reported

All reported incidents involving powered access are collated by IPAF. This includes incidents that result in death, injury or a person requiring first aid. It also includes near-miss incidents that didn't result in injury or damage to machines or structures, yet still represented a potentially dangerous situation for machine occupants or bystanders.

The machines

The report analyses incidents that occurred when using, delivering and maintaining MEWPs. IPAF also collates incidents involving other machinery including Mast Climbing Work Platforms (MCWPs), and all types of construction hoists.

Who can report?

Anyone involved in working at height can report an incident to the IPAF portal. The data presented in this report is based on information collected either directly reported via the IPAF portal; obtained by IPAF staff worldwide; using data from regulatory bodies; and through information collated from media reports. IPAF now offers a special customisable dashboard for all members reporting, which enables them to benchmark their company's performance against regional, national and global data.

Confidentiality of data

The information provided to IPAF is confidential and private. Information that can identify a person or company involved in a reported incident is removed prior to analysis by IPAF and its committees, and thereafter remains redacted. IPAF has a privacy policy that can help you understand what information we collect, why we collect it, and how you can update, manage, export and delete your information. The full IPAF privacy policy can be found at **www.ipaf.org/privacy**

→ IPAF Accident Reporting Portal | IPAF

Click here to view the resource

ABOUT IPAF

The International Powered Access Federation (IPAF) promotes and enables the safe and effective use of powered access equipment worldwide in the widest sense – through providing technical advice and information; by influencing and interpreting legislation and standards; and via its safety initiatives and training programmes.

IPAF is a not-for-profit organisation owned by its members, which include manufacturers, rental companies, distributors, contractors and users of powered access. IPAF has members in more than 80 countries, who operate the majority of the MEWP rental fleet worldwide and manufacture about 85% of platforms on the market.

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Become an IPAF member

By joining IPAF you are joining a global movement to ensure a safer and more productive powered access industry. Membership also brings a host of special services and benefits including access to the members' safety analysis dashboard. IPAF brings multiple benefits including the following:

- Global harmonisation with regional focus on standards development
- Resources for technical experts
- A wide range of products and technical guidance to assist MEWP users, supervisors and user meet their responsibilities
- Opportunities to network and promote your company
- A consensus voice for all industry stakeholders, large and small
- Certified training programme to ensure complete, consistent and compliant training

For more information about becoming a member of IPAF visit www.ipaf.org/join

IPAF would like to thank the members of the working group who helped in the development of this document.

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IPAF – Training Department

In conjunction with

This guidance document was developed in conjunction with the IPAF International Safety Committee.

IPAF.org

Promote and enable the safe, effective use of powered access worldwide

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