

# MEWP CATAPULT EFFECT

The catapult effect on a mobile elevating work platform (MEWP) occurs when stored energy or an impact to the MEWP's superstructure causes a whiplash effect, which travels through the boom to the platform.

## How it affects MEWPs

- When the platform is caught or snagged, it can feel to the operator that no boom movement is happening, but it may be the case that one or more wheels or outriggers are lifting clear off the ground. As and when the platform is released, wheels or outriggers return to the ground, and the stored energy or inertia creates a whiplash effect.
- Even a small movement at ground level could create a whiplash effect which is sufficient to eject platform occupants, tools or other materials.

## How it affects occupants

- The further the platform is extended the greater the whiplash effect felt at the platform. This can cause severe injuries to platform occupants, even if they are not ejected from the platform.
- Platform occupants and materials can be ejected from the platform, especially if they are not using the correct fall restraint device(s).
- Any person or object falling from the platform can injure people below.
- An occupant being ejected from the platform is at severe risk of death or serious injury, even if the MEWP is in the lowered position.
- An occupant being ejected from the MEWP is also at risk of death or serious injury if catapulted upwards into an overhead obstruction.



**Remember:** The catapult effect can also occur when driving in the stowed position, so make sure occupants wear personal fall protection equipment (PFPE) connected to the designated anchor point at all times. Occupants must always use a full body harness and an adjustable restraint lanyard, adjusted as short as possible, when using boom-type MEWPs.



## How to minimise risk

The catapult effect can be prevented if work at height is properly planned and has adequate risk-control measures in place. These can be broken down into three categories:

### Planning the job

- A thorough site risk assessment and a rescue plan must be in place, to be read and fully understood by all those involved in the task before work begins.
- Always carry out pre-start checks on the MEWP – if there is anything unsafe, isolate, tag, and report it to the relevant person.
- Ensure operators are trained and familiarised with the MEWP to be used.
- Occupants of boom-type MEWPs must wear the correct personal protective equipment (PPE) and personal fall protection equipment (PFPE). IPAF recommends a full body harness with an adjustable restraint lanyard which will keep the occupants within the platform if the catapult effect occurs.
- Attach the lanyard to the anchorage point as designated by the MEWP manufacturer.

### Work environment

- Plan and walk the route, look out for obstructions, hidden hazards, edges and voids.
- Make sure the ground is firm and sufficient to take the weight of the MEWP and its load.
- Observe ground conditions during operation, as these can change.
- Ensure the MEWP is adequately segregated from other work areas, traffic and pedestrians.

## Operating the MEWP

- Maintain continual observation around the MEWP at all times.
- When driving the MEWP use a banksman or spotter to identify oncoming hazards.
- Take care when driving over uneven ground, always select a slower drive speed and use proportional drive controls smoothly and progressively.
- Occupants should never unclip from the anchor point until exiting the platform at ground level.
- Heavy objects that fall from the platform or strike the MEWP can also cause a catapult effect.

