

# MEWP CATAPULT EFFECT

**The catapult effect on a mobile elevating work platform (MEWP) occurs when stored energy or an impact to the MEWP's structure 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 movement or function is happening, but it may be the case that one or more wheels or outriggers are lifting 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 can create a whiplash effect which is sufficient to eject platform occupants, tools or other materials.
- The whiplash effect can also be caused if the MEWP is struck by another vehicle, machine or falling object(s).

## **How it affects people, materials and tools in the platform**

- 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 the occupants are not using the correct personal fall restraint equipment (PFPE).
- Materials and tools can be thrown out of the platform if not correctly secured or tethered.
- Any person or object falling from the platform can injure people or damage property 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 catapulted can be seriously injured or killed if thrown upwards or outwards into an obstruction, or can become trapped between the platform and another structure.
- The catapult effect can occur if MEWPs are impacted by other equipment/vehicles.



**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 minimize the 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.
- Select the correct machine for the job, as indicated by the site assessment. Ensure it has the correct features to complete the task and safely traverse the terrain.
- 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 familiarized with the MEWP to be used.
- In boom-type (group b) MEWPs, IPAF recommends a full body harness with an adjustable restraint lanyard adjusted to be as short as possible. This will minimise the risk of being ejected from the platform.
- 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, uneven ground 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.
- If identified during the risk assessment, use a ground person or spotter to identify hazards when driving the MEWP.
- 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 the lanyard from the anchor point until exiting the platform at ground level.
- Objects that fall from the platform, another machine or structure to strike the MEWP can cause the catapult effect.

