

# Safe use of quick hitches on excavators

This alert reminds users of excavators to secure the excavator's bucket to the dipper arm of the excavator. Where a quick hitch device requiring a safety pin is fitted, then the safety pin must be inserted. For quick hitches that have an automatic safety system, check that it has fully engaged.

## Background

In a recent incident, a worker was struck by the bucket of a 20-tonne excavator that appears to have become detached from the dipper arm, during the loading of demolition debris and soil into a truck trailer. The worker died as a consequence of head and chest injuries.

## Contributing factors

Preliminary findings indicate that the safety pin that holds the attachment in place against the quick hitch and ensures against inadvertent release was not inserted.

A quick hitch is a device that is fitted to an excavator arm or a backhoe arm for the purpose of rapidly mounting/ dismounting attachments. These devices depend on positive hydraulic pressure and a securing mechanism to hold onto buckets and other attachments.

A quick hitch system may still function for some time without the safety pin in place and then suddenly swing open and release the bucket or attachment.



Photo 1: The deceased was positioned next to the truck trailer when struck by the bucket.

## Action required

Those in control of work should ensure that the following are in place:

- Excavator operators should be trained and instructed on the safe use of excavators.
- Excavator operators should be competent to use the specific quick hitch on the excavator they use, whether it is automatically secured or by manually inserting a pin. Competence should be verified through assessment and regular reinforcement.
- Quick hitches should be maintained and in proper working order. They should be marked with the model and serial number, manufacturer's name, quick hitch weight and maximum rated capacity, as well as the capacity of each lifting point.
- Where safety pins or other shaped securing devices are used, then they must meet the quick hitch manufacturer's specifications and be retained on the excavator or the quick hitch when not in use. Substitutes such as structural bolts or a reinforcing bar must not be used.
- Excavator operators should check that the pin is in place or the automatic system has correctly engaged on the hitch, before starting work and every time a different attachment is fitted. They should be instructed not to use the machine unless they are satisfied that the quick hitch is secured.
- Excavator operators should intentionally disengage the quick hitch when attachments are to be disconnected.
- The area around safety pin insertion holes can be painted to make it clear to operators and site supervisors on where the pin should be inserted. Similarly, pins can be painted to make them more visible.
- All attachments must have correct pin centres and pin diameters.
- Safe systems of work should be implemented to ensure that people are not exposed to risks by working below or in the vicinity of the bucket – eg establishing an exclusion zone when the excavator is in use.

## Further information

The *Work Health and Safety Act 2011* (WHS Act) requires a person conducting a business or undertaking to ensure, so far as is reasonably practicable, that safe systems of work are provided and maintained and that all workers are provided with the necessary information, training, instruction or supervision:

- AS 4772: 2008 *Earth-moving Machinery – Quick Hitches for Excavators and Backhoe Loaders*.
- Construction Plant-hire Association: *Safe use of quick hitches on excavators – strategic forum for construction best practice guide*. Reference No. CPA 1001. See link: <http://www.cpa.uk.net/data/uploads/publications/SFPSG-Guidance%20on%20the%20Safe%20Use%20of%20Quickhitches-Rev1-100205.pdf>. The figures on the next page are from this guide.

## Manual quick hitches

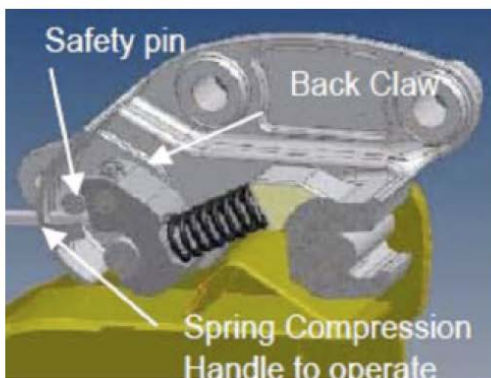


Figure 1 – Spring latch mechanism

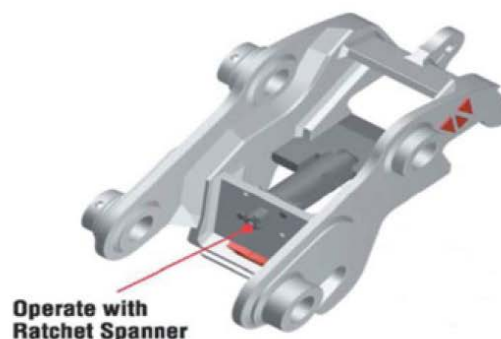


Figure 2 – Ratchet operated mechanism

## Semi automatic quick hitches

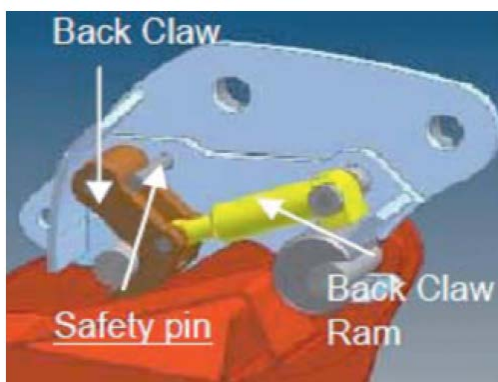


Figure 3 – Semi-automatic quick hitch

## Fully automatic quick hitches

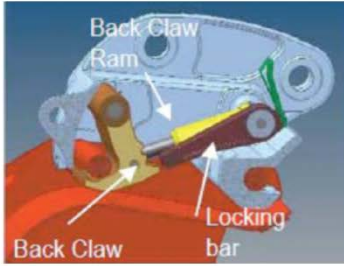


Figure 4 – Single claw lock type

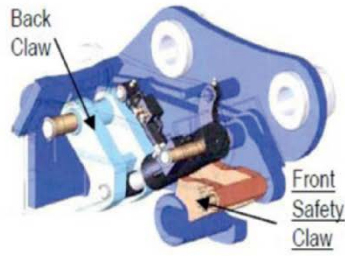


Figure 5 – Double claw lock type

It is essential that operators get out of the cab to physically ensure that all quick hitches are securely locked before starting work with a newly attached attachment.