

Safety Alert

Human-Machine Interface and Pinch Points

On August 13, 2018 at approximately 10:00 AM an incident with extremely high potential for significant injury occurred on the ROW involving a ground employee and a Caterpillar 336 excavator. A parts runner was tasked with transporting a spool of wire rope to the ROW and delivering to a mechanic. While on the ROW, the parts runner flagged down a nearby excavator and requested assistance in unloading the spool. The parts runner stood near the lowered tailgate to assist in rigging the spool. As the excavator bucket approached, the operator received a radio call. The operator reached for the radio located in his cup holder, and inadvertently struck the control lever, causing the bucket to strike the parts runner. The contact resulted in a shoulder injury.

Hydraulic Equipment Incidents

Incidents across all industries involving contact with ground personnel by hydraulic equipment have a high potential to occur. The likelihood is increased when operating hydraulic equipment in congested areas and during detailed activities. Below are examples from *OTHER companies/industries* involving hydraulic equipment:

- In 2017 a member of a road bore crew was assisting in the placement of bore pipe using an excavator. As the crew member was directing the placement of the pipe, inadvertent contact with the excavator control lever caused the crew member's leg to be pinned between the bore track and pipe. The incident resulted in significant injuries lasting greater than 9 months.
- In November 2017 a 62 year old was assisting as a ground member in the replacement of sewer lines by directing a back hoe bucket in to position. During the process, a piece of the operator's clothing became stuck on the controlling lever, pinning and fatally injuring the 62 year old.
- In 2016 a ground employee was assisting a back hoe in the transport of blocks for a retaining wall. While the ground employee was placing the blocks in the bucket, the operator inadvertently struck the ground employee with the bucket, resulting in fatal injuries.
- In 2008 a mechanic was assisting in rigging down a conveyor system. As the mechanic stood at a height of 15' to make the rigging connection between the conveyor and excavator, the operator of the excavator leaned forward for a better view. As the operator leaned forward, his rain jacket grabbed the control lever. The bucket of the excavator struck and fatally injured the mechanic.



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Path Forward

Heavy equipment has no feelings and is extremely unforgiving. When working in close proximity to heavy equipment, everyone involved must effectively communicate, identify hazards, and mitigate those hazards. Pinch points and inadvertent contact with control levers can result in fatal incidents... **IN AN INSTANT!!**

- Hydraulic controls should be locked out whenever not required for the activity.
- When an action is required, not related to the hydraulic activity, during a hydraulic activity, stop all movement and lock out the hydraulic controls before proceeding.
- Take 3! Take 3 seconds to evaluate your surroundings before any action. This is true on the ground and in the operating seat.
- Loose clothing should be avoided when operating machinery (including vests).
- Eliminate or reduce worker exposure to hazards by utilizing protective features such as quick connects or built in anchor points.
- Complete a hazard assessment prior to any activity.
- Use a dedicated signal person in complex lifts or when sight is limited.
- During lifting operations, individuals working near the point of operation should position themselves away from pinch points and potential swing areas.
- Utilize hands-free communication equipment whenever possible.
- Constantly communicate the hazards associated with rigging operations and heavy equipment; make it a point to show “green hands”.



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