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WSH LESSONS

Worker caught between loader chassis and bucket arm

A loader operator was carrying out housekeeping tasks using a skid-steer loader along a perimeter road within a worksite. A supervisor, upon noticing that the loader was stationary, went to check and found the operator motionless in the loader's cabin. The operator died at the scene.

Investigations revealed that the operator was trying to exit the cabin with the engine running and the bucket in a raised position (refer to Figure 1). The loader was equipped with a safety interlock that allowed it to be operable only when the seat bar was fully lowered. However, when the operator lifted the seat bar to exit the cabin, the seat bar broke (refer to Figure 2) and this made the safety interlock ineffective. Investigations showed that the seat bar had been broken previously but was repaired. Further, the operator had stepped on the foot pedal controlling the bucket arms as he tried to exit, causing the arms to lower and him getting caught between the loader chassis and the bucket arm.

Figure 1: The skid-steer loader and the bucket movement at the time of the accident.

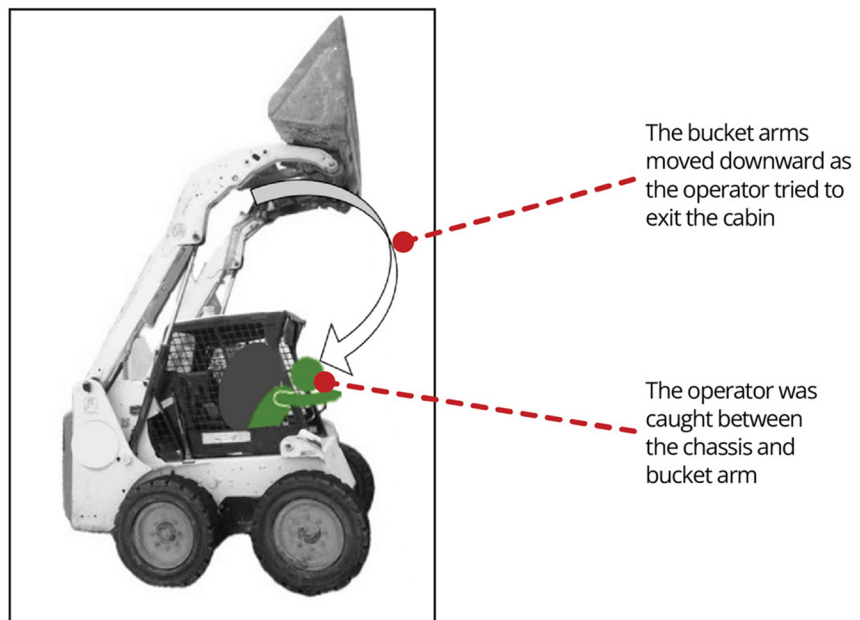


Figure 2: The skid-steer loader's seat bar broke at a location which made the safety interlock ineffective.



The primary factors contributing to the accident were the failure to adhere to established safety procedures when exiting the skid-steer loader, and the inadequate monitoring and tracking of the repaired seat bar's condition.

Skid-steer loaders are common construction machinery. This accident highlights the risks faced by operators during entry and exit of the loader. The WSH Council calls on all companies deploying similar loaders to review their work activities and put in place risk controls to ensure safe loader operations.

What companies should do

Companies should assess and ensure that their WSH management system includes the following measures or checks:

- **Competent operator:** Deploy only loader operators who have received training by a competent person (e.g. a qualified trainer sent by the equipment manufacturer) on safe loader driving, tight-space manoeuvring, and loading/unloading operations.
- **Safe work procedures (SWP):** Conduct a machine-specific risk assessment and develop SWP for skid-steer loader operations including the checks and procedures necessary for safe loader entry and exit. When developing the SWP, companies must adhere to the manufacturer's safety precautions and consult the manufacturer when in doubt.

In general, for safe exit from the loader, operators should carry out the following before leaving the operator's seat:

- Activate the parking brake;
- Lower attachments fully and release pressure from hydraulic lines;
- Lift the seat bar; and
- Switch off the engine and remove the ignition key.

To prevent falls, remind operators to maintain three points of contact with the loader when entering and exiting the loader.

- **Daily inspection:** Insert into the SWP the requirement for loader operators to conduct a daily visual inspection at the start of each workday to identify abnormalities such as cracks, corrosion, or damaged parts. Encourage workers to stop using the loader and report any abnormalities found and/or WSH concerns to their supervisors.

Owners or suppliers of skid-steer loaders must ensure that the following are carried out according to the manufacturer's recommendations:

- **Safety function check:** Inspect and test safety system components (e.g. the safety bar and the safety interlock system) regularly. This is to ensure safety systems are functioning or will function as designed. Workers should never operate equipment if the safety systems are found to be not working properly.
- **Preventive maintenance:** Place loaders on a regular equipment maintenance programme to ensure each loader remains safe for use. Check with the manufacturer for the list of equipment components and their recommended maintenance intervals.
- **Verify repairs:** Any part replacement or repairs must be carried out by a competent person using only parts approved by the manufacturer. Inspect and test repaired equipment to verify that the repair work was properly carried out and functions normally. Track the condition of repaired components (e.g. through visual inspections) to ensure no signs of deterioration after the repair.

For more information, please refer to the WSH Council's [Code of Practice on WSH Risk Management](#) and [WSH Guidelines on Safe Use of Machinery](#).

Other relevant resources pertaining to skid loaders include: ISO 20474-3:2017 Earth-moving machinery — Safety — Part 3: Requirements for loaders, US National Institute for Occupational Safety and Health's "[NIOSH Alert: Preventing Injuries and Deaths from Skid Steer Loaders](#)", and US Occupational Safety and Health Administration's "[Hazards Associated with Operating Skid-Steer Loaders with Bypassed and/or Improperly Maintained Safety Devices](#)".

Under the WSH Act, first-time corporate offenders may be sentenced to the maximum fine of \$500,000 whilst individuals can either be sentenced to the maximum fine of \$200,000 and/or an imprisonment not exceeding 2 years. Read more on the [WSH Act penalties](#).

Please note that the recommendations provided here are not exhaustive and are meant to enhance workplace safety and health so that a recurrence may be prevented. The information and recommendations provided are not to be construed as implying liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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