

Underground and earthmoving equipment safety



Following are examples of accidents that have occurred with underground or earthmoving equipment.

- A construction worker was too close to an operating trencher when he kicked a dirt clod toward its blade. His pants leg got caught in the chain and his leg was amputated. He was wearing athletic pants that were unzipped at the bottom.
- The throttle was sticking on a two-man posthole auger, causing it to throw both workers to the ground.
- The bit from a core drilling rig got stuck. As the operator was trying to remove the bit, a locking nut failed and part of the drill struck him in the mouth, breaking his jaw and several teeth.
- An experienced heavy equipment operator agreed to rent an excavator even though its throttle cable was broken. A bungee cord was used to keep the throttle on high. The equipment jerked, overturned and fell on the operator's leg.
- A renter was using a backhoe between a building and a steep bank. He removed part of the roll over protection structure (ROPS) to get closer to the building, but the machine rolled down the bank and overturned several times.
- A loader operator left the motor running and the bucket raised and was going to exit the machine by walking out over the bucket. As one foot slipped between the bucket and frame, the other struck the pedal to lower the bucket. His foot and ankle were crushed.
- When a trencher cut an underground natural gas line, the ensuing fire burned up the trencher, injured the operator and damaged a building on the site.

Recommendations for rental stores:

- ✓ Ask how customers intend to use equipment and recommend the most appropriate machine for the job.
- ✓ Only rent equipment that is in good working order — all functions are operable, all safety devices are in place and all warning labels are clearly visible.
- ✓ Inspect and maintain equipment regularly according to the manufacturers' guidelines.
- ✓ For long rentals, perform weekly preventative maintenance checks.
- ✓ Keep documentation of inspections and maintenance for at least five years.
- ✓ Provide the equipment operator's manual with each rental and tell the customer where to find it.
- ✓ If available, provide the customer with a safety video.
- ✓ Show customers how to turn the equipment on and off and how to operate each feature.
- ✓ Identify the safety features, point out decals and explain symbols.
- ✓ Remind and encourage customers to call the rental store with questions or problems.

Safety tips for renters

Earthmoving equipment:

- ✓ Call 811 to have underground utilities marked before beginning work (www.call811.com).
- ✓ Keep machines away from both underground and overhead utilities.
- ✓ Wear appropriate personal protective equipment (PPE), such as hard hat, steel-toed boots, ear plugs and safety glasses.
- ✓ Do not wear jewelry or loose clothing that can get caught in moving machine parts. Tie back long hair.
- ✓ Do not smoke or use open flames around equipment.
- ✓ Do not alter equipment, disable safety switches or remove guards.
- ✓ Conduct walk-around inspections of equipment after each use — look for leaks, cuts, cracks, rubbing, debris or excessive wear.
- ✓ Properly enter and exit equipment — face the machine, use the access system provided by the manufacturer, ensure contact areas are clear of mud, debris and grease, and maintain three points of contact.
- ✓ Wear the seat belt on riding equipment.
- ✓ Before starting equipment, ensure no one is near it.
- ✓ Look around before backing up or swinging attachments.
- ✓ Non-equipment operators should stay clear of the area of operation of any piece of equipment.
- ✓ Never ride equipment attachments.
- ✓ When operating in sloped areas, keep the heavy end of the machine uphill.
- ✓ Prior to leaving a machine, lower attachments to the ground or place them in their transport locked positions, engage the parking brake, stop the engine, cycle the hydraulic controls and remove the key.
- ✓ Use caution when fueling — never refuel with the engine running, use the correct type and grade of fuel, and clean up spilled fuel immediately.

Special considerations for trenches:

- ✓ Be aware of the possible causes of trench collapse, e.g., loads on trench face walls, vibration from equipment or vehicle traffic, ground water seepage, etc.
- ✓ Protect edges of trenches from falling tools and materials; provide toe boards if necessary.
- ✓ Place excavated material at least 2 ft. from the edge to prevent additional load on the trench face wall.
- ✓ For trenches 4 or more ft. deep, provide ladders for access at 25-ft. intervals. Ladders must extend 3 ft. beyond the top of the trench and be set at a 4-to-1 ratio: 1 ft. away from the wall for every 4 ft. of height.
- ✓ Support all trenches 5 or more ft. deep by sloping, shoring, stepping, sheeting, bracing, boxing, etc.
- ✓ Never enter an unprotected trench.
- ✓ For trenches 6 or more ft. deep, provide barriers along the top edge to prevent falls.
- ✓ Have a competent person inspect trenches and their protective systems daily.

These "Safety Corner" examples and checklists were provided by Maura Paternoster, risk manager at ARA Insurance Services, Kansas City, Mo., a subsidiary of the American Rental Association. She can be reached at 800-821-6580.

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