



## Backhoe and Loader Operational Safety

Backhoes and loaders are useful tools on farms and ranches. Accidents involving backhoes and loaders occur and are often tragic. While accidents may be similar to those that happen to tractors the additional of an attached backhoe and/or loader increases the likelihood of an accident due to increased height and length of the machine. Common accidents with these machines are overturns, falls, runovers and contact with other people and other objects. Because of the size of these machines and added features, increased diligence is needed to prevent accidents.

### Causes of Injuries with Backhoes and Loaders

- **Overturns caused by turning uphill on a steep slope. Turning too fast on a downhill slope may also cause an overturn.**

- **Loaders may overturn if the bucket is raised too high when loaded especially on uneven ground and in turns. The higher the bucket is raised, the more unstable that the tractor is.**



- **Poor maintenance and work around machines. Hazards include leaving shields off or wearing loosely secured clothing while working around turning PTO shafts.**

- **Hitting an object such as a ditch, stump, or hole while moving can cause an overturn or cause the operator or an extra rider to fall off and be runover.**



- **Starting the tractor in gear. If a person is either behind or in front of the tractor wheels they could be run over before they can get out of the way should the tractor move after started.**

- **Falls caused by slipping on the platform or steps while mounting or dismounting or by falling out of the bucket as it is being used to transport or lift a another worker.**

- **A common accident when using industrial equipment occurs when the loader falls on another person or when a load falls due to inadequate ropes, chains, or cables to lift objects, or inattentive operators.**



- **Excavating unstable soil, undercutting a bank with a backhoe, or operating too close to a steep bank or excavation can result in an overturn.**

- **Improper equipment transport. Among the hazards are failure to properly tie down backhoes and loaders to trucks or trailers and failure to have proper lights and slow-moving-vehicle signs. Not observing traffic rules when on public roadways also can cause accidents.**



## Preventing Injuries from Backhoes and Loaders

1. Slow down when conditions dictate to do so. Some examples are traveling on rough ground, going up or down a slope when towing or carrying heavy loads, when entering public roadways, and when turning with a load in the bucket.
2. Know the machine that you are operating. Read and review the operator's manual. Get familiar with the controls before working with the backhoe or loader.
3. Know the area where you are operating. Locate ditches, stumps, debris, and undercut banks and avoid these hazards by keeping a safe distance away.
4. When front-end loaders carry high loads, be aware of overhead obstacles such as power lines.
5. Keep the bucket as low as possible to ensure stability and increase your visibility and to become aware of bystanders. Raise the loader only when necessary to dump.
6. When excavating with a backhoe, never undercut the area beneath the backhoe stabilizers. If you suspect the soil is unstable, use a platform under the rear wheels and stabilizers to prevent cave-ins.
7. Do not allow extra riders **PERIOD**.
8. Make sure that the machine is not in gear before starting. Always start from the driver's seat. Make sure no one is in front of the wheels when starting the machine. Do not bypass safety systems that prevent the newer tractors from starting when in gear.



9. Add ballast or rear weight when a heavy load makes this precaution necessary.
10. When excavating with the backhoe on a hill, swing the backhoe uphill to dump the load in order to maintain stability. Dumping downhill may cause the machine to tip.
11. Always shut off the engine, lower the bucket and backhoe, and apply the parking brake before dismounting the machine.
12. Use extreme caution when back filling. The weight of the fill material added to the weight of the loader could cause the edge of a new excavation site to collapse. Before starting to back fill, walk over the area and test the soil for stability.
13. Keep steps and platforms clean and uncluttered of parts, tools and debris. Do not mount or dismount when the machine is moving. Wear proper footwear with good gripping soles.
14. Never use a front end loader as a man lift as the hydraulic system may fail or someone can accidentally touch the controls causing the worker to fall. Use proper lift equipment for the job.





15. Use machines equipped with roll over protective structure (ROPS) and seat belts. Seat belts will prevent the operator from being thrown out and crushed in a rollover.

16. Be sure the area is safe and clear of bystanders before you start excavating or moving the backhoe. Keep rear-view mirrors clean and in good condition. Use back up alarms when in reverse gear.



17. Know your equipment and its capacity. Train all workers in proper, safe operation of the equipment. When lifting objects, use cables and chains in good condition and strong enough for the job. Do not allow a person to walk or work under a raised load.

18. Operate the backhoe or loader only from the operator's seat.

19. When transporting equipment, be alert to potential hazards, caused by poor visibility, adverse ground conditions, excessive speed, unstable loads, or other vehicles in the area. Use slow-moving-vehicle signs on the tractor and have the proper lights:

flashing yellow and solid red for the rear and flashing yellow lights for the front as well as headlights. Turn headlights on when transporting on public roadways. **Slow down**. Travel only as fast as conditions allow.

20. Be aware of the environment around you at all times. This includes low hanging power lines, tree limbs, bridges, or other obstacles. Know where gas, power, and phone lines are buried before you start to dig.



21. Be careful when lifting round objects such as bales, poles, etc., in the bucket. Raising the bucket too high or tipping the bucket too far back could result in these objects rolling rearward down the loader arms onto the operator.

22. Visually check for hydraulic leaks or malfunctioning parts.

23. Make sure hydraulic lines are connected properly after repairs, otherwise an accident is likely to occur when a control operates in a direction other than it should.



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This series is supported, in part, by funds provided by the Pacific Northwest Agricultural Safety and Health Center (PNASH), Department of Environmental Health, Box 357234, University of Washington, Seattle, Washington 98195-7234 (phone: 800/330-0827, email: pnash@u.washington.edu). PNASH is funded by CDC/NIOSH Award #U07/CCU012926-02.

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Published December 1998

Backhoe and Loader Safety

Farm Safety Series PNW 512

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