



## Agricultural Machinery Maintenance: Preventing Shop Accidents

Equipment maintenance and repair is necessary to avoid down time and to minimize major repairs. However, maintaining and repairing machines can lead to serious injury. Workers should be trained in shop safety and have the proper equipment to minimize or even eliminate the impact of shop accidents.

### Causes of Injuries When Repairing Machines

- **Improper Lifting** —

By lifting incorrectly or lifting items that are too heavy or awkward causes back injury that results in lost work time or even permanent disability.



- **Poorly Maintained Tools** —Using tools, such as chisels with mushroomed heads, could result in a piece of metal flinging off and hitting a bystander or the worker. The ragged edge of the tool also can cut workers.

- **Improper Hydraulic System Maintenance** —Hydraulic systems can produce pressures of over 2,000 pounds per square inch. Pinhole leaks in a hydraulic system under this pressure can easily penetrate skin. Always use a piece of paper or cardboard to locate leaks along hydraulic lines.

- **Using the Wrong Tool for the Job** —Sometimes we are tempted to use a wrench as a hammer, but the wrench can glance off the object and cause serious injury.

- **Unsafe Repair in Field** —Many accidents occur when repairing machines in the field without stabilizing them so that the machine will not roll or fall and crush the worker.

- **Dropping Heavy or Sharp Objects**—Heavy or sharp objects that are dropped on hands, feet, head, or other parts of the body can cut, smash, or crush.



The worker who fails to wear gloves, hard hats, steel-toed shoes, or other protective gear often suffers the worst injuries.

- **No Safety Shields** —Shop equipment and tools should have the proper shielding in place, such as grinding wheels with the protective aids. Fragments of the wheel or tool being ground can fly off and injure someone.
- **Bad Wiring**—Substandard or obsolete wiring in the shop can cause severe electrical shock and even death. The old two-wire outlet and older power tools do not provide a ground, thus exposing the worker to the potential of an electrical shock.
- **Unsafe Work Areas and Habits** —Examples of unsafe conditions are such things as incorrect use of a ladder, not blocking hydraulically-supported machinery when working on it, working in an elevated position without proper footing, not using the right supports or safety equipment, and cluttered work areas.



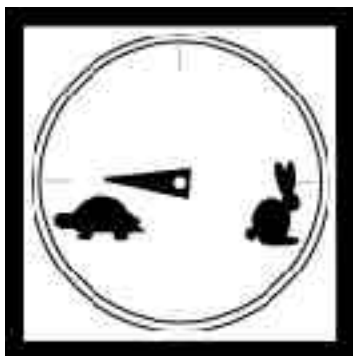
- **Personal Protective Equipment**— Not wearing the necessary protective equipment and clothing for the job results in many injuries each year. Protection may be needed for eyes, ears, head, feet, hands, and the body for certain jobs. Loose, dangling clothing can become entangled in machinery causing severe injury and even death.



- **Repairing Machinery While Running**—Trying to unclog a machine while it is running, tightening a bolt, or doing other repairs is an accident waiting to happen. Serious or even fatal injuries may result in you being crushed, cut, or pulled into machinery at shear points, crush points, pinch points, wrap points, and pull-in points of the machine. Servicing springs is also dangerous because of the stored energy in springs.
- **Poorly Maintained Work Area**—Leaving oil or other fluids or debris on the floors and work benches can cause falls.

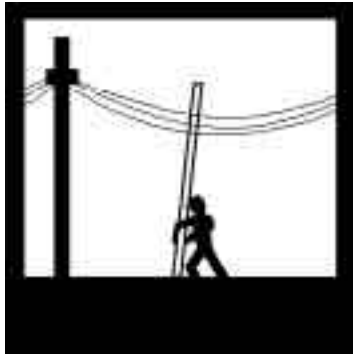
## Prevention of Injuries When Repairing Machines

1. Develop safe work areas, good habits, and establish good housekeeping practices.
2. Train workers and family members and encourage safe work habits.
3. Maintain machinery properly and promptly when repairs are needed. This eliminates down time and worker exposure to hazards of repairing machines. Read operating and repair manuals and keep them handy. Study manuals to know how to perform the task at hand, and train your workers to study them also.
4. Slow down and take time to think. Visualize what steps need to be taken. Do not rush a job! Accidents happen when the workers hurry to get a machine back into production and they do not take the time to be safe.
5. Turn off the machine when working on it. Prevent others from accidentally starting the machine by removing the keys or the battery cable. Lock the brakes and stabilize the machine as best you can by using blocks in conjunction with the machine's own safety devices. Do not use a jack alone to stabilize a raised machine! If the work can't be done without the proper support, do not work on the machine until you can properly support it.
6. Keep shields and guards in place. Replace them when they are damaged or missing. Remember to put back guards and shields that were removed for repairs.
7. Wear proper clothing and protective gear. Do not wear loose, dangling clothes that can become entangled in moving parts. Wear protection appropriate to the job such as gloves, eye protection, ear protection, hard hats, and steel-toed shoes. Wear welding masks and goggles, gloves, and leather aprons when welding. If working with chemicals, wear the protective equipment specified by the label.





8. Use ladders properly. Firmly place the ladder on the ground with a distance away from the wall no more than 1 foot for every 4 feet of height. Do



not use metal ladders near power lines or other areas that may cause electrical shock.

9. Lift objects correctly. An injured back means lost work, pain, and/or disability. Lifting subjects the back to its greatest stress. Train your workers to lift properly. Keep the back straight while using the legs to lift the object. If heavy objects are to be lifted, provide back supports for workers. Better yet—use mechanical lifting devices.

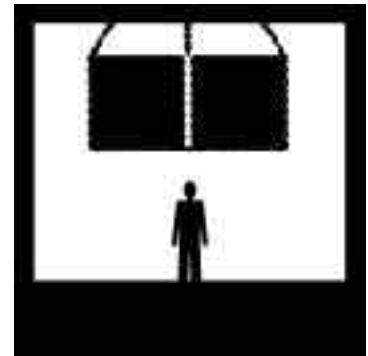


10. Have a hazard-free shop. A well-lit, clean work bench and work area, along with a regular cleaning schedule of the shop area, will go a long way in eliminating hazards. If your shop doesn't have proper wiring, install an up-to-date electrical system in the shop including a grounded 120 volt three-wire outlet system with a ground fault circuit interrupter available for outdoor use or in areas that may be wet.

11. When working on electrically powered equipment, lock out the control box to prevent someone from accidentally turning on the equipment while someone is working on it.

12. Isolate hazardous work areas. Have a proper storage area for paints, pesticides and oily rags. A separate area is needed for welding with a fan to vent gases from welding. Keep compressed gas welding cylinders in a safe area and secured so that no one can accidentally knock cylinders over and accidentally break off the valves, which could cause an explosion. Keep protective clothing and gear on hand for all operations. Know where it is and how much you have!

12. Be aware of common safety hazards. Look around and spot potential accidents and eliminate the hazards as much as possible. Take the



time to look where you are going: not only ahead, but behind, to the side and above. Remove a potential hazard. It is much cheaper to take a few extra minutes and remove a hazard than to pay for the hospital bills or worker's compensation if a worker is hurt on the job.

**REMEMBER:  
IF SAFETY IS NOT PRACTICED  
IT WON'T BE USED.  
SAFETY DOES NOT COST; IT PAYS!**



Written by Tom Karsky, University of Idaho, and A. K. Jaussi, former graduate assistant, Washington State University. For more information about farm safety, please contact:

Tom Karsky, Extension Farm Safety Specialist, Department of Biological and Agricultural Engineering, University of Idaho, Moscow, ID 83844-0904, phone 208/885-7627, fax 208/885-7908, email (tkarsky@uidaho.edu).

Myron Shenk, Integrated Plant Protection Center, Oregon State University, 2040 Cordley Hall, Corvallis, OR 97331-2915, phone 541/737-6274, fax 541/737-3080, email (shenkm@bcc.orst.edu).

Bill Symons, Extension Safety Specialist, Biological Systems Engineering Department, Washington State University, 204 L. J. Smith Hall, Pullman, WA 99164-6120, phone 509/335-2902, fax 509/335-2722, email (symons@mail.wsu.edu).

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