

## **POWERED EQUIPMENT AND HANDTOOLS**

As part of your job you will be using many different types of power tools, each with specific hazards and precautions that must be taken. Below are examples of equipment with which you will come into contact, and some of the safety precautions that you can take when you work with them.

### **General Safety Tips for All Equipment**

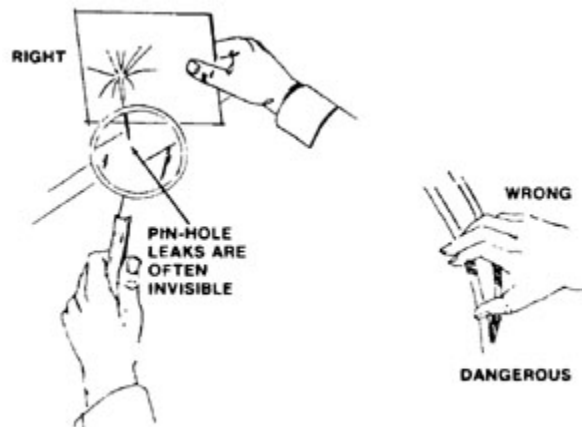
Acquire appropriate training before using any equipment and tools.

- Use the right equipment for the job.
- Read and follow manufacturer's operating manual.
- Choose equipment that fits your body size.
- Always keep your hands and feet away from blades and cutting heads until the rotations come to a complete stop.
- Use both hands on the equipment handles, using a firm grip.
- Be aware of how you carry your equipment so that no one is jabbed or poked by it.
- If attachments are required, use only the approved ones for particular equipment. Try to keep your wrists straight -- this will help to avoid injuring muscles and tendons.
- Use machinery that has *roll-over protection* and *safety belts*.
- Turn the power OFF if you need to clean or walk away from your equipment.
- Drive slowly and carefully, especially when you are on public roads.
- Always wear brightly colored vests so you are visible to other drivers.
- To protect your head from low tree branches or falling objects, wear a hard hat.
- To protect your eyes from debris propelled by equipment, wear approved safety glasses that fit you properly. Remember that regular prescription glasses and contact lenses are not adequate protection for your eyes.
- To protect your feet from blades and heavy equipment, wear approved safety boots.
- To protect your ears from noisy equipment, wear appropriate hearing protection.
- Confirm and clearly identify all overhead and underground utilities.
- Never work with your back to traffic when working outdoors.
- When using hand tools such as screwdrivers, utility knives, etc., force should be applied away from the body.
- If you are unfamiliar with a particular tool or equipment, ask your Supervisor for instructions.

- **Roll-over Protection Structure (ROPS)** cabs and frames are designed to minimize injury potential in the event of a rollover. It is critical for an operator to use the seatbelt in a ROPS-equipped tractor. It is the belt that holds you within the protected zone should a rollover occur.
  - However, in some areas on campus (e.g. under trees, gateways), the ROPS is disengaged. In these specific circumstances, it is recommended that you do NOT wear a seat belt. In the event of an overturn, the belt would prevent you from being thrown clear of danger.

**When checking for hydraulic fluid leaks**, be extra careful because the fluid is under pressure. Pinhole leaks are often invisible to the naked eye. Injuries have occurred when workers run a hand or finger along the line to find it. When the pinhole is reached, the fluid can be injected into the skin as if from a hypodermic syringe. This type of injury appears minor at first (tingling sensation) but may result in the loss of a finger or hand. If you do receive this type of injury, contact your supervisor and seek medical attention immediately.

To prevent this type of injury from occurring, run a piece of paper or cardboard along the line to check for leaks:



#### Grass Trimmers and Brush Cutters:

- Proper personal protective equipment, like safety glasses, should be worn to protect you from flying debris.
- Inspect safety shields and blades for cracks or other signs of defect.
- Make sure that safety shields and blades are securely attached.
- Metal blade trimmers should have metal blade shields.
- Never trim if you cannot see what your equipment is trimming!
- Always make sure there are no bystanders in the area where you work.



#### Chainsaws:

- Only certified staff can use a chainsaw on UofT property. The certification process includes completing a departmental 8-hour workshop and supervised training using UofT chainsaws.
- Do NOT operate chainsaws alone.
- Proper maintenance is essential to safe chainsaw operation. Refer to the owner's manual for routine maintenance recommendations. In general, remember that chainsaw maintenance includes such procedures as:
  - Air filter cleaning
  - Spark plug visual checks
  - Interior cleaning and visual checks
  - Chain sharpening
  - Chain tension adjustment
  - Inertia Brake tests



#### Power blowers or leaf blowers:

- Proper personal protective equipment, like face shields and safety glasses should be worn to protect you from the high-pressure blast of air.
- Hearing protection should always be worn.
- Do not point blowers towards bystanders or pedestrians.



#### Power Vacuums

- Proper personal protective equipment, like safety glasses, should be worn to protect you from debris.
- Hearing protection should always be worn.
- Do not point vacuum towards bystanders or pedestrians.



#### Power Shears:

- Proper personal protective equipment, like safety glasses and arm protectors, should be worn to protect you from flying debris.
- Do not drape electrical cords over a hedge or shrub that you are cutting. Damaged cords can cause electrical shocks!
- Always use a Ground Fault Circuit Interrupter (GFCI).
- Make sure to turn OFF the power and unplug the cord before you remove jammed material from the blades.



#### Hedge Trimmers:

- For gas powered hedge trimmers:
  - Ensure fuel cap is tight
  - Do not fuel a hot engine
- For electric hedge trimmers:
  - Pay attention to the location of the cord
  - Use GFCI grounded outlets
  - Do NOT operate in wet conditions
- Proper personal protective equipment, like



safety glasses and faceshields, should be worn to protect you from debris.

- Hearing protection should always be worn.
- Do NOT allow bystanders or pedestrians in the work area.

#### Riding Mowers:

- Avoid irregularities and obstructions in lawns. Clear the area of rocks, stones, wires, sticks, or other debris.
- Mow up and down a slope, not across it.
- Beware of driving too close to the edge of ditches.
- Never turn on a slope.
- Never mow on wet or slippery slopes or hills.
- Never allow passengers on your riding mower!
- Avoid backing up.
- Mark off work areas so that the public will know that you are working.
- Do not leave running mowers unattended! Make sure that the power is OFF, parking brakes have been applied and that the key is removed before you leave the mower for even a short period of time.
- Mount and dismount the mower with caution.



#### Push / Walking Mower:

- Avoid irregularities and obstructions in lawns. Clear the area of rocks, stones, wires, sticks, or other debris.
- Mow across a slope, not up and down it.
- Never mow on wet or slippery slopes or hills.
- Mow slowly.
- Never reach under the mower housing or guards unless the motor has been shut OFF and the spark plug wire has been disconnected.
- Do not leave running mowers unattended!
- Be aware of bystanders and pedestrians:
  - Point discharge chute way safely away from people
  - Turn off mower when near children.



### Tiller

- Always wear the necessary protective equipment:
  - Long work pants
  - Safety boots
  - Proper gloves
  - Hearing protection
  - Safety glasses
- Check that the tines are securely anchored and properly spaced before every use.
- Never operate a tiller at too high a speed even over loose soil – there could be unseen obstacles in your path that may cause you to lose control.



### Snow Thrower:

- Wear the necessary personal protective equipment!
  - Never wear loose clothing items
  - Wear moisture-resistant, snug winter clothing
  - Wear insulated non-slip safety boots
  - Wear hearing protection
  - Use non-slip insulated gloves
- Hold the handle firmly and walk at a slow steady pace.
- Keep the discharge chute aimed to avoid hitting the operator, bystanders, windows, or other objects.
- Never operate a snow thrower too close to a ditch or edge of a terrace.
- Never put your hand into the snow discharge chute even when the machine is not running. Use a stick or other device to unclog the chute if it becomes plugged.
- On steep slopes, operate from side to side to avoid having the thrower slide onto you.



### Backhoe/Power loader

- Read and fully understand the manufacturer's operating, maintenance and safety manuals.
- Never allow untrained or unauthorized personnel to be present in the work area.
- Perform a pre-operational "circle-check" before using the vehicle every day. Look for:

- Broken, missing or damaged parts,
- Fluid leaks (see note on Hydraulic Fluid Leaks),
- Clean windows, clear steps and hand holds,
- Secure guards, covers and attachments.
- When hoisting or transporting, keep the weight in line with the back of the machine and keep the bucket low to maximize stability and visibility.



#### Wood Chippers

- Read and fully understand the manufacturer's operating manuals and receive training before use.
- Wear slim-fitting clothing, a hardhat, proper eyewear, safety boots, and hearing protection.
- Place chipper in a work area that is free of slip and trip hazards.
- Never allow untrained or unauthorized personnel to be present in the work area.
- Do **not** put your limbs within the in-feed hopper.
- Inspect guards, covers, and intake before use.
- Feed the brush butt-end first and step away once the feed mechanism has grabbed it.
- Never work alone.



#### Outdoor Sweepers and Riding Vacuums

- Proper personal protective equipment, like safety glasses, should be worn to protect you from flying debris.
- Hearing protection should always be worn.
- Never reach under the motor housing or guards unless the motor has been shut off and the spark plug wire has been disconnected.
- Be aware of bystanders and pedestrians.



### Stump Cutter

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like face shields and safety glasses and gloves should be worn to protect you from flying debris.
- Hearing protection should always be worn.
- Position machine carefully so that flying debris is away from people, vehicles and windows.
- Be aware of bystanders and pedestrians. Never allow untrained or unauthorized personnel to be present within 25 ft of the work area.
- Never remove guards or shields and inspect them before use.
- Be aware of any underground utilities, rocks, concrete or other dangerous situations.
- Do not allow stump grinder wheels to drop into hole – fill with chips or change positions.
- Cut stump flush with ground first, then go back to cut to desired depth.
- Shut off the engine before moving the machine. Do NOT leave the [safe] operator's position when the engine is running.



### Skid Steer Loaders

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Do NOT exceed the rated operating capacity.
- Never remove guards or shields and inspect them before use.
- Always keep the bucket as low as possible when traveling or turning.
- Keep bucket level while the loader arm is being raised – this will reduce the risk of loose materials from falling into the cab.
- Try to avoid driving over rough services. Go around obstacles rather than through them.
- Check for overhead powerlines.
- Do NOT operate any of the steering levers or





controls while standing outside of the cab.

#### Tractors

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Avoid sharp, fast turns, hole, ditches and uneven ground that may cause the tractor to overturn.
- Never remove guards, shields and labels and inspect them before use.
- Know the safety precautions associated with different types of attachments.
- Serious injuries have occurred from clothes, hair, shoelaces, etc. becoming caught (entanglement) in the Power Take Off (PTO) – see Machine Guarding section



#### Air Compressors

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Use safety glasses when using compressed air.
- Hearing protection should always be worn when working next to an air compressor.
- Unit may get HOT during operation. Do NOT touch the discharge tubing, engine, motor or compressor pump.
- Gas engines should only be used in a well-ventilated space or outdoor area.
- Keep safety valve clean.
- Do not use compressed air to clean up any chemical contaminants.



### Aerator

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like safety glasses and hearing protection, should be worn.
- Be aware of tree roots or other objects which may cause the aerator to jump.



### Concrete Saw

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like safety glasses and hearing protection, should be worn.
- Sparks can be generated so be aware of bystanders.



### Vibrating Plates

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like safety glasses and hearing protection, should be worn.
- Use water to reduce dust generation.
- The equipment is very heavy and requires two persons to lift or lower.



### Power Washer

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like hearing protection, should be worn.
- Be aware of bystanders because the water is under high pressure.



### Sod cutters

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like safety glasses and hearing protection, should be worn.
- Be aware of tree roots or other objects which may cause the sod cutter to jump.



### Thatch Remover (Dethatcher)

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like safety glasses and hearing protection, should be worn.



### Riding Rollers

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like hearing protection, should be worn.
- Rollers should only be used on flat ground; do NOT use on slopes.



### Turf Topper (Top dresser)

- Read and fully understand the manufacturer's operating, manuals and receive training before use.
- Proper personal protective equipment, like hearing protection, should be worn.
- Watch out for pinch points when attaching to tractor.



### Landscapers

- Read and fully understand the manufacturer's operating manuals and receive training before use.
- Watch out for pinch points when attaching to tractor.



### Spreaders (for seed or salt)

- Read and fully understand the manufacturer's operating manuals and receive training before use.
- Proper personal protective equipment, like safety glasses, should be worn.



### **Basic Electrical Safety Tips**

The electrical current in our daily environments has enough power to cause death by electrocution. Injuries resulting from contact with electrical currents include electrocution, electric shock, burns, and falls.

- Check power cords and plugs daily. Do they need to be discarded because they are too worn or damaged? Do the cords feel uncomfortably warm?
- Never break off the third prong on a plug! Replace any broken 3-prong plugs and make sure the third prong is properly grounded.
- Never use extension cords as permanent wiring!
- Switch off all tools before connecting them to a power supply.
- Unplug electrical tools after you turn them off.
- Do not use electric tools in wet conditions or damp locations unless the tool is connected to a ground fault circuit interrupter (GFCI).
- Turn off and unplug all tools before you clean them.
- Do not use electrical equipment or tools in areas with explosive vapours or gases.

- Never touch a downed wire.
- Turn off and unplug the equipment before changing attachments.
- Keep power cords clear of equipment during operation.
- Do NOT plug several power cords into one outlet.

### **Repairs**

- Do NOT use damaged or defective equipment.
- Repairs should be made by a qualified repair person.
- Contact your supervisor immediately when equipment is damaged or not working properly.

## VEHICLE SAFETY



Adhering to standard vehicle safety requirements, operation and procedures will serve to prevent or reduce vehicle accidents on the job.

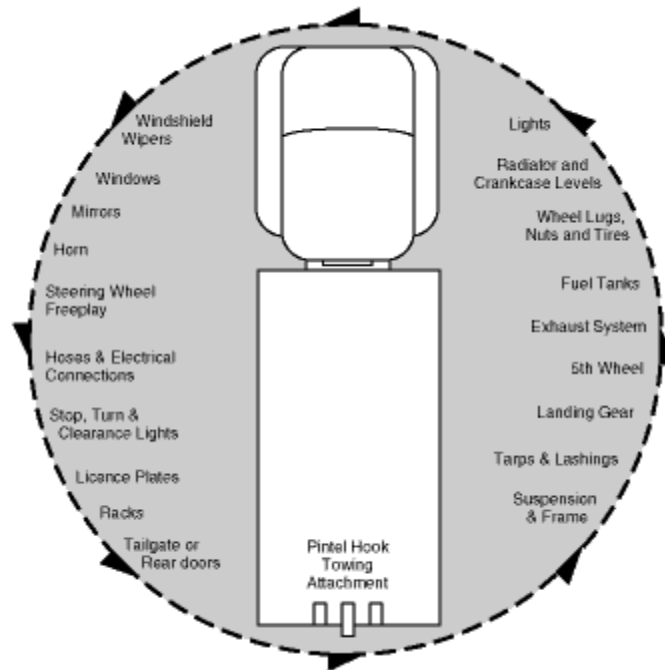
- Only employees with a valid Ontario driver's licence for the appropriate type of vehicle are permitted to operate University vehicles.

**Employees must immediately notify their supervisor if their driver's license becomes invalid for any reason.**

- Depending on the type of driving involved, employees may be provided with further information, instruction and training on driving safety. Employees involved in transporting of chemicals and other dangerous goods will receive Transport of Dangerous Goods training.
- Vehicles must be operated in accordance with all applicable Ontario traffic laws. All traffic signs, speed limits and other warning devices must be obeyed.
- Seat belts must always be worn while operating a vehicle, and if present, while riding in a vehicle. Ontario law requires that seat belts be used. Injuries sustained because of failure to comply may give rise to disciplinary action.
- No employee should operate any vehicle or any equipment of any kind while under the influence of alcohol or drugs that may impair judgment or alertness, or while in any other condition that would render the operation of such vehicle or equipment unsafe.
- Vehicles found to be unsafe should not be driven until repaired. Employees must promptly inform their supervisors of any mechanical or safety defects.
- Complete vehicle log book if applicable.
- Smoking is not allowed in UofT owned vehicles.

## Tips for Driving Safely

1. Before starting the car, do a walkabout to survey the condition of the vehicle. Follow a routine method of inspecting a vehicle such as "The Circle Check". See above diagram from CCOHS.



[http://www.ccohs.ca/images/L13\(1\).gif](http://www.ccohs.ca/images/L13(1).gif)

2. Once inside vehicle, check vehicle features to ensure they are working properly. Examples are:
  - Parking brake
  - Foot brake
  - Clutch and gearshift
  - Steering
  - Lights
  - Dash Control Panel
  - All Moving Parts -- any strange noises?
  - Horn
  - Turn signals
  - Mirrors

Any defects should be reported to your supervisor. Depending on the type of defect, it may be necessary to take the vehicle out of service until repairs can be made.

3. Make sure there are no loose objects in the vehicle – if you brake suddenly, flying objects may injury you or your passenger.
4. Drive smoothly and slowly.
5. Slow down for turns.
6. Expect the unexpected (construction, pedestrians, cyclists, other drivers, etc.). Leave yourself an “out” - do NOT tailgate and leave enough space between you and other vehicles
7. Schedule enough time to drive safely.
8. Know the route and alternative routes.
9. Minimize distractions inside the vehicle while driving (adjusting the radio, vehicle features, cellphones, other passengers etc.)
10. Where possible, back into a parking spot rather than drive in. It is safer to pull out from the parking spot than backing out of the spot.
11. Scan all directions continuously, not just a small distance in front of you.
12. Use rearview mirrors – always know what is happening behind you.
13. Check your blindspot.
14. When moving in reverse, the rearview mirror alone is not enough – turn and look behind you. The view you get is much wider than if you only use the mirror.
15. Do NOT assume - use eye contact, horn, headlights, etc. to communicate.
16. Drive according to the weather conditions
17. Be aware that conditions such as fatigue, illness or medications can affect you ability to drive. If you have any of these conditions, and report any problems to your supervisor.
18. And finally, be patient and stay calm.

### **Utility Vehicles**

The information in this section also applies to Utility Vehicles. In addition, the following precautions should also be taken:

1. Read and fully understand the manufacturer’s operating and manuals before use.
2. Turn ON headlights when operating between dusk and dawn.
3. Know the maximum load capacity and do NOT overload the vehicle.
4. Materials and cargo should be loaded so that they will not shift or fall out off. Secure tools and equipment if applicable.
5. Obey the “rules of the road” at all times.
6. Be aware of pedestrians and other drivers – they may not expect to encounter this type of vehicle.
7. Do NOT carry more passengers than recommended by manufacturer/than there are seat beats.



## GASOLINE STORAGE AND HANDLING



A large number of tools and equipment that you will be using require gasoline to work. Gasoline is a colorless liquid with a characteristic odor. It may be dyed yellow. Both gasoline liquid and vapors present a fire hazard. Gasoline liquid can accumulate a static charge by flow. The vapor is heavier than air and may spread long distances making distant ignition and flash back possible.

Overexposure to gasoline vapors may contribute to central nervous system depression, headache, nausea, dizziness, drowsiness, unconsciousness and death. Swallowing or vomiting of the liquid may result in aspiration into the lungs. Before you work with gasoline, make sure you follow these guidelines:

- Do not smoke or bring an open flame to gasoline storage areas, or near machines that contain gasoline.
- Use approved gasoline containers only and store these containers in the designated gasoline storage areas. Do not store or leave gasoline in an unsupervised area.
- Vehicle equipped with plastic or carpet bedliners do not dissipate potential electrostatic charge, therefore the static charge that builds up can create a static spark between gas container and the fuel nozzle. Always place the containers to the ground before refueling.
- Do not refuel indoors! The buildup of gasoline vapors may lead to conditions causing unconsciousness.
- Never refuel a machine when the engine is hot or running.
- When you refuel, do not fill the tank right to the brim. As temperatures rise, gasoline needs space to expand.
- If gasoline is spilled, place an absorbing compound over the spill. Any large spills should be reported immediately to your supervisor and call:

St. George: (416)-978-7000  
UTSC:(416)-287-7333  
UTM: (905)-569-4333

- Always refuel on level areas of the ground. Do not refuel on grass areas.
- If gasoline comes in contact with skin or clothing:
  - Refer to procedures outlined on the MSDS. This generally involves washing the skin with soap and water for approximately 15 minutes and removing contaminated clothing.
  - It is recommended that contaminated clothing be thrown away. If it is necessary to keep the contaminated clothing is kept, it should be washed separately from other clothing before wearing it again.
  - Gasoline can be absorbed by the skin. Safely turn OFF any equipment you are using and clean up immediately. Do not wait until the end of the shift or after the work is done.
  - Report the incident to your supervisor.