

## ENERGY ISOLATION



### Lockout/Tagout/Tryout

What is Lockout/Tagout/Tryout? Lockout/Tagout/Tryout (LOTO) protects a worker by preventing others from turning on equipment or from a release of energy while working on or servicing equipment & machinery. LOTO controls hazardous energy.

### How it works

All power sources must be disconnected and locked in the off position. Each person involved locks out the power source with their own personal lock and key, so they have control of the energy source. They place a tag on the lock to warn others and to identify who is responsible. Before beginning work, each person tries the energy source to ensure it is locked out. No one worker can remove another worker's lock. Therefore, no one can accidentally turn on the equipment.

Although only designated employees are allowed to lockout power sources, it is encouraged that those designated employees take the LOTO opportunity to mentor and teach other employees who will one day become the designated employee. We the best way to foster common sense is through teaching and example.

### Injury Example

Singing Bob was cleaning cuttings from around a press pump in the shop. He decided to take the guard off the punch and flick the small particles away from the punch with his fingers. He reached into the press punch when somehow the punch was actuated, and his index finger was severed. Before starting the job, Singing Bob had seen a power cord coming from the punch and so he unplugged it before doing the work. Because Bob didn't Try the punch before placing his fingers into the danger zone, he didn't know that the punch was powered by air and not electricity. Bob had inadvertently unplugged the drill press. Had Bob locked, tagged, and tried the punch before placing his hands in the danger point, he would not have suffered the amputation injury.

### Identify all Power Sources

Identify all the energy sources of the equipment or machinery that needs to be shut down.

- Electrical, mechanical, gravitational, thermal, hydraulic, pneumatic, and chemical.
- Determine if there are any stored energy sources: Capacitors, springs; elevated components; rotating flywheels; hydraulic systems; air, gas, steam, water pressure; piles that can shift; etc.
- Properly shut down equipment and machines: Notify affected workers about the shutdown- those who work on the machines or equipment or work in area where LOTO will be done.
- Shut off the power sources.

### Lockout/Tagout

- Apply locks & tags to the power sources so the machine or equipment cannot be started.

### Try Out

- Test to see if the equipment is properly locked out by trying to start it.
- Make sure there is no stored energy such as air, fluid, electricity, etc.
- Perform the intended services.
- After the work is complete, remove all tools and return the equipment to service readiness.
- Notify all affected employees that the locks will be removed, and the equipment will be restarted.

### Remove Locks & Tags

When the work is complete, all tools are removed and accounted for, unguarded moving parts have been covered and protected from human access, and all affected workers have approved the restart of equipment, you can remove the locks and tags and place the equipment back into service.

- Only the person(s) who apply the locks and tags are authorized to remove the locks and tags.

### When do we need LOTO?

- Before any repairs, maintenance, or service on equipment.
- Before any work on equipment that requires a person to place any part of their body in or near the point of operation.
- To prevent workers from entering places where unknown or unseen energy hazards are present.