



Lockout/ Tagout and You

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Failing to control potential energy sources before performing maintenance, repair, cleaning, clearing, etc. of equipment can lead to devastating consequences. According to the Bureau of Labor Statistics, failure to shut off power while servicing equipment is the primary cause of injuries. As a result many workers are seriously injured or even killed due to not following a lockout/tagout program.

What is Lockout/Tagout?

Lockout/Tagout (LOTO) programs are designed to ensure that all potential energy sources are disconnected from equipment prior to maintenance, repair, cleaning, clearing or any other action that places you or anyone else in a position where you could get hurt if the machine was accidentally turned on. The goal of Lockout/Tagout is to prevent you or your co-workers from being hurt by potential energy sources due to accidental startup or activation of equipment.

What Is a “Potential Energy Source?”

A “potential energy source” is any type of energy that is stored and can be accidentally released. Electrical energy is one that a lot of people identify with lockout/tagout programs, but there are lots of other types of potential energy sources:

- Hydraulic, vacuum or pneumatic pressure from energized fluid systems;
- Mechanical energy which is like a coiled spring ready to release;
- Thermal energy including steam and heated, pressurized systems;
- Chemical energy released during chemical reactions; this may include pressure releases and/or the release of chemicals that can cause harm;
- Kinetic energy, which is like big rock on top of a hill--it's not a problem until it starts to roll downhill.

A piece of equipment may have more than one type of energy associated with it. For example, it might have an electric moto (electrical), pressurized steam lines (pneumatic and thermal energy) and pistons (mechanical energy). It is important to identify all the sources of energy and control them by ensuring they are all de-energized and placed in a safe and secure position before beginning work on any equipment.

How Are Potential Energy Sources Identified?

It is important that someone who is knowledgeable about the piece of equipment and the area in which it is used identify all the potential energy sources. The manufacturer may provide information that will provide useful information as well. In order to ensure that everyone does a complete lockout/tagout, it is important to have written instructions or diagrams that show exactly how to lockout/tagout each piece of equipment.

How is Potential Energy Controlled?

Energy is typically controlled by one of two methods:

1. Utilizing a lock and key to make it impossible to accidentally restart the equipment. This is the best method because it provides positive control.
2. A tag is affixed to the equipment noting that it should not be used. This method is not the best; tags can be removed or ignored.

Whichever method is used, everyone on the team should know where to find the instructions for locking out each piece of equipment, where locks and keys (or tags) are located, and where the keys are to be placed once lockout is completed. Before a person begins working on a piece of equipment that is locked out, that person should go over the lockout personally to ensure that all the necessary steps were taken.

Who May Perform Lockout/Tagout?

Only authorized and specially trained individuals may perform lockout/tagout. They must know how to lockout all the energy sources, how to ensure that these energy sources stay locked out during the time anyone will be in a position to be hurt and how to clear the equipment --make sure all work is finished and everyone (and all their equipment) are out--before starting it back up.

Basic Steps for Lockout/Tagout

1. Develop a step-by-step plan for doing lockout-tagout. This will be your road-map to make sure you follow all the steps each and every time.
2. Identify all potential energy sources.
3. Determine how each source can be safely locked out.
4. Get all the supplies (locks, hasps, keys, etc.) you will need to do your lockout/tagout.
5. Train everyone who will be involved in the lockout/tagout of a piece of equipment: supervisors, maintenance, production and even housekeeping staff.
6. Isolate the energy sources: block moveable parts, drain or bleed lines, disconnect electricity, etc. Make sure you de-energize all the potential energy sources and the methods you use to isolate the energy sources work.
7. Test--Test--Test. Before allowing anyone to start working on a piece of equipment (and with everyone and everything safely out of the way!) try to start the machine to make sure it is completely shut down.

Restarting Equipment

The restart of a lockout/tagout piece of equipment is as important as the initial shutdown. For example, the order in which energy sources are re-energized may be important. First, make sure everyone and all their equipment is out of the way. Do a thorough check. Suddenly noticing a tool left in a piece of equipment and quickly reaching in to grab it is how a lot of serious injuries occur. If you can't see all of a piece of equipment when restarting it, sound an alarm (blow a whistle, make an announcement over the loudspeaker, etc.) before restarting. Once you have restarted the equipment, make sure all guards and other safety devices are properly reinstalled. Remove all tags indicating the equipment is locked/tagged out.