



Lockout / Tagout

FAST FACTS

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TYPES OF HAZARDS

The most common type of hazardous energy is electrical energy, whether from generated power, storage devices (batteries and capacitors), or static. However, the LOTO program must also protect against injury from thermal energy (high or low temperature), kinetic energy (mechanical energy from moving parts), and potential energy (stored in pressurized vessels, hydraulic and pneumatic systems, gravity, and springs).

HAZARDOUS ENERGY CONTROL

The energy control program requires that an authorized person must disconnect the machinery or equipment from its energy sources and block it as necessary to prevent any unexpected movement before service or maintenance work is performed. Additionally, the program requires that authorized employees either lock or tag its energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify effective isolation of the energy. It is crucial that personnel developing the LOTO program identify every energy source and energy-isolating device for each piece of machinery or equipment included in the program. The steps to be followed to provide absolute control of each source and isolating device must be incorporated into the specific procedures developed for each piece of machinery or equipment.

LOCKOUT OR TAGOUT?

Lockout devices are items such as locks that are used to keep energy-isolating devices in safe positions. Their function is to secure energy-isolating devices in positions that prevent machines or equipment from becoming energized during servicing and similar activities. They include items like electrical switches, circuit breakers, disconnect switches, line

The Hazardous Energy Control Standard (Lockout/Tagout or LOTO) requires employers to establish and implement an energy control program whenever an employee services or maintains machinery, equipment, or systems that may have an unexpected energizing, start up, or release of energy, which could potentially cause injury.

LOTO KEY TERMS

Authorized Employee – A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment.

Energized – Connected to an energy source or containing residual or stored energy.

Lockout – The placement of a lockout device on an energy-isolating device ensuring that the device and machine cannot be operated until the lockout device is removed.

Lockout Device – A device that uses a positive means to hold an energy-isolating device in the safe position and prevent the energizing of a machine. Examples: electrical switches, circuit breakers, disconnect switches, line valves, slide gates, slip binds, and mechanical blocks.

Tagout – The placement of a tagout device on an energy isolating device, to indicate that the device and equipment may not be operated until the tagout device is removed.

Tagout Device – A prominent warning device, such as a tag, which can be fastened to an energy-isolating device to indicate that the device and equipment being controlled may not be operated until the tagout device is removed.

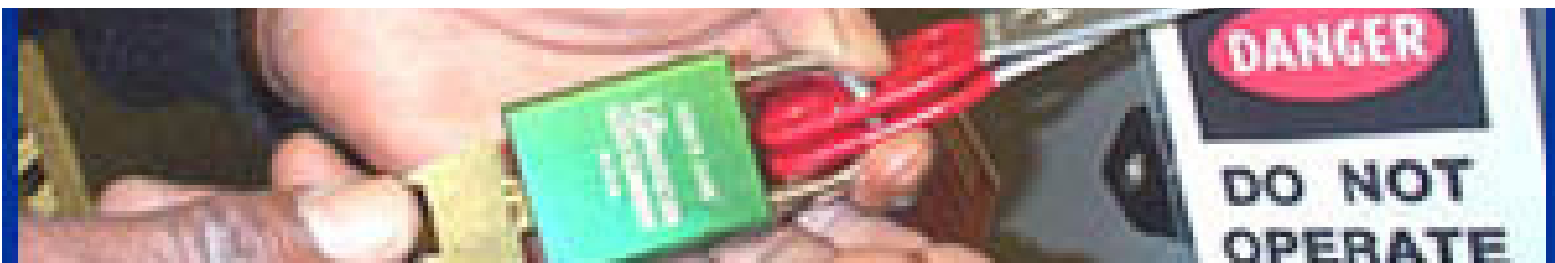


Photo credit: OSHA

WORKING TO KEEP EVERYONE SAFE

When multiple workers must simultaneously service a machine, each should be assigned a separate lock and key. If work is not completed before the end of a shift and new workers are to continue the work, the new arrivals should apply their locks before the departing ones remove theirs. Each worker must move away from the machine before it is re-energized.

Though a combination lock may be used in a LOTO program, it is possible for many people to know its combination. This enables multiple people to remove it prematurely, potentially injuring anyone still working on the machine. Instead, key-operated locks are more controllable lockout devices. By providing one copy of the key to the user and one to the program's coordinator for use only during unusual circumstances after confirming that the person assigned to the lock is safely away, the opportunity to remove the lock prematurely is much more limited.

Whenever an outside contractor or employees from other divisions or jurisdictions are involved with the work, all affected groups must inform each other of their LOTO procedures.

Additionally, if a program for entry of confined spaces is needed, the hazardous energy control program must be integrated with it.

ADDITIONAL INFORMATION

[osha.gov/Publications/osha3120.pdf](https://www.osha.gov/Publications/osha3120.pdf)
[osha.gov/SLTC/controlhazardousenergy/](https://www.osha.gov/SLTC/controlhazardousenergy/)

valves, slide gates, slip binds, and mechanical blocks and barriers.

Tagout is used alone when it is not possible to apply a lockout device. It involves attaching a danger tag on or as close as possible to an energy-isolating device. The tag must indicate that the machine or equipment being serviced cannot be operated until it is removed by the person who applied it. The tag must identify who applied it and indicate when the tag was applied. It may only be removed by the authorized person who applied it. Use of tagout alone creates a potential for premature activation of an energy-isolating device, and it does not provide the physical restraint to prevent inadvertent re-energization.

Locks and tags used in the LOTO program must be durable and unable to be removed without excessive force or unusual techniques. Nylon tie-wraps may be easily cut off, so they may not be used as lockout devices or a means to secure tagout devices when tags are used alone. Authorized personnel must verify that all energy sources are effectively controlled before servicing work begins. When the work is finished, each employee must remove their control devices. Lockout devices and tagout devices should be restricted to LOTO use only, and should not be used to indicate that a machine is out of service or for any other purpose.

OSHA requires the de-energization and disconnection of electrical equipment. This includes removal of isolating circuits and the opening of extra power disconnect devices. It also includes minimum safe distances for approach to high voltage. Steps to re-energize during maintenance and servicing and removal of LOTO devices by each employee are also addressed.

TRAINING

All authorized employees must be provided with training that allows them to understand the purpose and function of the hazardous energy control program. Their training must also allow them to develop the knowledge and skills needed for safe implementation of the program. Just distributing LOTO devices and procedures is not adequate.

Affected employees, who do not perform LOTO but whose jobs require them to operate or use a machine or equipment on which servicing or maintenance may be performed under lockout or tagout, or whose jobs require them to work in an area in which such servicing or maintenance may be performed, must be instructed in the purpose and use of the energy control procedure. Additionally, retraining must be provided for authorized or affected employees whenever there is a change in job assignments, machinery or processes that present a new hazard, or energy control procedures, or whenever there is reason to believe that shortcomings exist in an employee's knowledge or use of the energy control procedure.

An authorized employee other than the one using the individual energy control procedure must evaluate and certify it at least annually. Each evaluation must include a review by the inspector and each employee authorized to implement the program, and a review of the employee's responsibilities. Any identified deviations from the written procedure or inadequacies in it must be corrected.