

Lockout/Tagout for Employees

Performing work on equipment and machinery such as set-up, un-jamming, repairs, cleaning, servicing and adjusting can be dangerous. When uncontrolled energy, such as electrical, mechanical, hydraulic, pneumatic, chemical, or thermal, causes unexpected startup or movement of the equipment or machinery, workers can get caught in the moving parts. They can be killed or suffer amputations, crushed body parts or electrical burns.

In California, on average, about 20 workers suffer amputations or die annually when doing this type of work.



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Why Do Injuries Happen?

Some common reasons include:

- Not all hazardous energy sources were de-energized and controlled.
- Equipment was not locked out or tagged out after powering off.
- Moveable parts were not mechanically blocked to prevent inadvertent movement or release of stored energy.
- Lockout/Tagout procedures were inadequate.
- Workers had inadequate or no training.
- Workers took shortcuts.

How to Work Safely

California Code of Regulations, title 8, section **3314** requires your employer to implement Hazardous Energy Control Procedures, also called a Lockout/Tagout (LOTO) program, to protect you from the unexpected startup of a machine or sudden release of hazardous energy.

When working on de-energized low-voltage electrical equipment, also follow the requirements in section **2320.4**.

If working in a group, follow your employer's procedures and attach personal lockout or tagout devices to the group lockout or tagout devices. If the work continues through a shift or personnel change, transfer the protections to oncoming workers.

What is Lockout/Tagout (LOTO)?

Lockout means placing a physical lockout device on machinery or equipment, so it cannot operate or move until the lockout device is removed. Once the machinery or equipment is locked, you can safely do your work.

Tagout means placing a visible tag on the machine or equipment, to communicate that restarting or operating the machine or equipment is prohibited.

Use both safety measures together.



What You Can Do

To work safely, make sure you **receive training and understand your employer's LOTO program. If you have any questions or doubts about how to work safely, ask your supervisor right away.** For each machine, piece of equipment or prime mover you have been assigned to work on or around, be sure to **follow your employer's program**, which must include:

- Knowing all hazardous energy sources for each machine. These include:
 - Main and secondary power supplies, and
 - Potential and stored energy (such as capacitors; springs; elevated machine members; rotating flywheels; hydraulic systems; and air, gas, steam, or water pressure).
- Controlling all hazardous energy sources by performing all the necessary actions to de-energize machinery or prevent the release of stored energy, which may include one or more of the following:
 - Shutting down equipment (e.g., depressing a button)
 - Closing valves, disconnecting switches, or unplugging machinery
 - Blocking movable parts
 - Inserting blank flanges
 - Bleeding or opening drain/vent valves
 - Relieving or restraining potential energy.
- Applying personal locks and tags (unless exceptions to section **2320.4** or **3314(c)** or (d) apply).
- Testing and checking that the hazardous energy has been controlled.
- Safely restoring equipment, machinery, and prime movers back to service.



Warnings

- Just turning off a switch is not the same as locking out the energy source, because there may still be energy in the switch. If there is a short at the switch, or the machine is accidentally turned on, the machine will become energized and start to run.
- Remember, there are many types of hazardous energy sources, such as electricity; springs; compressed air; and oil, steam, or water pressure. Any of these can cause sudden and unexpected movement of machines or release of stored energy, which can hurt or kill you.

To work safely, all hazardous energy sources must be controlled so that no machine or machine part can move and no stored energy can be released.

- Sometimes machines and equipment must be serviced with the power on. If so, your employer must minimize the hazards to you by providing extension tools (e.g., extended swabs, brushes, scrapers) or other methods to protect you from injury. Be sure you are trained on how to use these tools or methods, and always use them properly.



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This document is available with active links at www.dir.ca.gov/dosh/dosh_publications

For assistance regarding this subject matter, employers may contact

Cal/OSHA Consultation Services at 1-800-963-9424 or InfoCons@dir.ca.gov

www.dir.ca.gov/dosh/consultation.html

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