

Lockout/Tagout Fact Sheet

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Lockout/tagout is a safety procedure used in industry to make sure machines and equipment are properly shut off and not able to start during maintenance or repair work. The lockout/tagout process, outlined in [the Occupational Safety and Health Administration \(OSHA\) 29 Code of Federal Regulations \(CFR\) 1910.147](#), requires that **hazardous energy sources** that power machines are “isolated and rendered inoperative” (prevented from working) before service is started on the equipment.

Hazardous energy sources are any of the following types of power that can be dangerous to workers:

- electrical;
- mechanical;
- thermal;
- chemical;
- hydraulic;
- radiation;
- pneumatic; or
- gravitational.

Stored Energy

All equipment can store energy even after the power source is **isolated** (turned off with a circuit breaker, switch, valve, flange, or other energy-restraining or energy-releasing device). Lockout/tagout prevents unexpected releases of stored energy from injuring or killing an employee.



OSHA estimates that 120 deaths and 50,000 on-the-job injuries are prevented each year by proper lockout/tagout procedures.¹ However, the control of hazardous energy remains in OSHA's Top 10 list for the most-cited violations.²

Control of Hazardous Energy

All stored energy in machinery must be controlled by de-energizing, locking, or blocking the machine's moving parts to prevent movement *during cleaning, servicing, and adjusting the equipment*. Machines operating at 50 volts or more must also be locked *during maintenance, repairs, and set-up*. After the equipment is locked, a tag identifying the worker who put it there must be placed on the lock. This worker holds the key until after repair and maintenance are completed to ensure no one else can remove the lock and start the machine.

Lockout/Tagout Procedures

A designated **authorized employee** should perform the following six lockout/tagout procedures to prevent the unexpected release of energy during equipment maintenance, repair, and set-up:

- **Prepare.**
The *authorized employee* must investigate and identify all [forms of hazardous energy](#) and know how to control it.
- **Shutdown.**
Turn off the equipment using the manufacturer's or employer's procedures. Inform any *affected employee* – an employee who uses the machinery --about the shutdown, even if they are not involved in the service or maintenance.
- **Isolation.**
Isolate the equipment from any energy source. Isolation may mean many things, such as turning off the power at a breaker or shutting a valve. However, among other safety concerns, remember that:
 - o electrical equipment can store energy in capacitors;
 - o machines running on hydraulic or pneumatic energy can keep pressure in areas between the energy isolating device and the moving parts;
 - o equipment running on chemical energy can have fuel in the lines;
 - o springs and tension belts can contain stored mechanical energy; and
 - o pistons suspended in mid-motion can store energy from gravity.

- **Lock and Tag**
Apply a lockout device, such as a padlock, blank flanges, or bolted slip blinds to keep the equipment in a safe (energy-isolating) position. Then, place a tag on the device with the authorized employee's name who performed the lockout. *Pulling a fuse or flipping a circuit breaker is no substitute for locking out!*
- **Check for Stored Energy**
Even after the energy source has been disconnected and the machine has been locked out, hazardous energy may remain in the machine. It is critical to dissipate (use up the energy), restrain, or make non-hazardous in some way all stored energy before maintenance or service may begin. Ways to release stored energy may include grounding, repositioning, bleeding, venting, blocking, or depressurizing lines.
- **Verify Isolation**
Check again to make sure the equipment is isolated correctly and de-energized before repair or maintenance begins by:
 - o pressing all operating controls to ensure there is no power;
 - o returning power switches to the OFF position; and
 - o informing employees in the area that the work is about to begin.



Compliance

OSHA standard [29 CFR 1910.147](#) applies to the control of hazardous energy as outlined above. However, it does not apply to [electrical hazards](#) covered by [29 CFR Part 1910 Subpart S](#) or specific lockout and tagout steps for [electrical shock](#) and burn hazards covered by [29 CFR Part 1910.333](#). It also does not apply to the control of hazardous energy in power generation, transmission, and distribution plants, covered by [29 CFR 1910.269](#). Also, agriculture, construction, maritime, and oil-and-gas well drilling and servicing have separate standards for the control of hazardous energy specific to these industries.

Compliance with lockout/tagout procedures prevents injuries, saves lives, and helps companies create a more profitable bottom line. But, unfortunately, hundreds of employers – often in plastics manufacturing, machine shops, and sawmills -- continue to get cited for failure to use a hazardous energy control procedure either partially or



altogether. In 2020, a total of 2,065 fines were issued³ for failure to:

- provide adequate lockout/tagout employee training;
- conduct periodic lockout/tagout procedure evaluations; and
- use lockout/tagout devices or equipment.⁴

Fines for 2021 citations cost as much as \$13,260 per violation. In addition, failure to act on the citations can lead to more penalties, up to \$13,260 per violation per day past the deadline to fix the issue.⁵



A lockout device applied to a hoist brake.

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Compliance helps build a safe workplace and a financially secure business. Practice safety every day.

For more information on lockout/tagout procedures, see OSHA's [Control of Hazardous Energy Lockout/Tagout publication](#) or any of the other free [Lockout/Tagout Safety publications](#) from the Texas Department of Insurance, Division of Workers' Compensation-Workplace Safety.

References

- ¹ Occupational Safety and Health Administration, "OSHA Fact Sheet: Lockout/Tagout." Webpage. <https://www.osha.gov/sites/default/files/publications/factsheet-lockout-tagout.pdf>. Accessed September 21, 2021.
- ² Nick Schlitz, "Why Isn't Lockout/Tagout Taken More Seriously?" EHSToday, June 9, 2020. <https://www.ehstoday.com/safety/article/21133452/why-isnt-lockouttagout-taken-more-seriously>. Accessed September 21, 2021.
- ³ Occupational Safety and Health Administration, "Top 10 Most Frequently Cited Standards for Fiscal Year 2020." Website. <https://www.osha.gov/top10citedstandards>. Accessed September 21, 2021.
- ⁴ Nick Schlitz, "Why Isn't Lockout/Tagout Taken More Seriously?" EHSToday, June 9, 2020. <https://www.ehstoday.com/safety/article/21133452/why-isnt-lockouttagout-taken-more-seriously>. Accessed September 21, 2021.
- ⁵ Occupational Safety and Health Administration, "OSHA Penalties." Website. <https://www.osha.gov/penalties>. Accessed September 22, 2021.



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1-800-252-7031, Option 2

*The Texas Department of Insurance,
Division of Workers' Compensation (DWC)-Workplace Safety*

P.O. Box 12050
Austin, TX 78711-2050

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