



Subject: Control of Hazardous Energy-Lockout and Tagout

Effective date:

Last Revision:

(Include list of last revisions in appendix.)

MINOR SERVICING LOCKOUT ALTERNATIVES STANDARD EXPECTATIONS

OSHA'S LOCKOUT AND TAGOUT STANDARD — (1910.147)

Allows for alternatives to the general lockout tagout provisions for:

1. "minor tool changes and adjustments"
2. "minor servicing activities which take place during normal production operations"
 - a. These activities must be *routine, repetitive* and *integral* to production process *and* there are alternative measures that provide effective protection.

Note: See appendix A for clarifications on 1 and 2.

Note: This is part of an exception to 1910.147 found in the exception note as part of 1910.147(a)(2)(ii)(B)

EXPECTATIONS

Before work using alternative controls may take place on a machine two things must be conducted

1. For each machine the tasks for which alternative controls will be used must be listed and verified as meeting the definitions of either number 1 or 2 above.
 - a. To verify tasks meet the definition they must meet the following criteria:
 - Task must take place when the machine is in operation for its intended purpose (Running during normal production operations; planned stops do not count)
 - Task does not put employee head/neck or upper torso in machine line of fire or inherently dangerous position
 - Task should be categorized as one of the selections or examples from the list below:
 - Clearing jams of packaging materials or product from packaging equipment
 - Spot cleaning electric eyes or sensors - if task must be done multiple times per shift and there is little chance of inadvertent injury by a trained person such as tripping falling into process.
 - Changing or adding packaging material to machine
 - Adjusting guides, rails, photo eyes, etc. during production runs by trained qualified personnel
 - Straightening product on conveyors where injury severity is minimal or there is an extremely likelihood of avoidance such as an extremely slow operation and no places for pinching
 - Lubricating parts as required during production runs
 - Jogging equipment after adjustments are made to check alignment



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2. The following reviews and controls must be established for alternative controls verification.

- a. **Review:** Standard work steps for each task is created for the equipment
- b. **Control:** Employees conducting minor servicing tasks have documented training:
 - Authorized lo/to training, including hands on annual assessment
 - Alternative task standard work steps
- c. **Control:** Two control points must be established at a minimum from the list below:
 - Interlocked guard(s)
 - E-Stop(s)/Key Switches*
 - Hand tool
 - Light curtains/presence sensing technologies*
 - Guarding by distance (i.e. spray nozzle or aerosol can to apply water to equipment)

***Note:** A machine's level of safety control is a complicated subject which spans beyond having particular category parts (such as Category 3 N954 interlocks). The whole machine guarding layout, wiring, and safety-related parts of the control system must be taken into consideration. The end goal is to have all machines with interlocks, e-stops, and presence sensing technologies to be fail safe (failure in a single safety component results in a safe state) and redundant in protection. The safety system may not protect for all hazards. It is important to understand what hazards are being protected by the system. This determination can only be made by the machine supplier, competent machine integrator, or internal engineering delegate. These persons can determine a machine's performance level according to (EN) ISO standards which correspond to the machine performance level expectations. It is highly advised that machines which contain interlock's, e-stops, or presence sensing technologies have an up to date (no major changes made to machine or wiring) machine performance level review on file.

TASKS REQUIRING FULL LOCKOUT/TAGOUT

The following tasks always require full lockout and tagout no matter the circumstances:

- Machine set-up (i.e., work done to adjust equipment for new SKU)
- Work performed as part of change-overs
- Autonomous Maintenance pit stops and cleaning activities
- Parts replacement
- Cleaning/Sanitation between production runs which do not have controls or modes to eliminate hazards and control access.
- Tasks that require the physical removal of guards (more than just opening the guard or access port)



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TEMPORARY REMOVAL OF LOCKOUT DEVICES:

The OSHA standard also recognizes that there are times when lockout devices must be temporarily removed. Example of these types of tasks would be to check the position of components after adjustments have been made, repositioning of components for cleaning, troubleshooting, etc.

In these cases, alternative controls must be documented.

Trouble shooting electrical controls: Electrical control troubleshooting is a task that must be performed by a qualified electrical maintenance employee or electrical contractor. This type of work must also take extra steps to ensure no employees (including the technician) are in the area when energizing or positioning take place. If access must be made to the machine to assist in trouble shooting, then the alternative controls process must be in place. Once the work falls out of scope of troubleshooting (i.e., transitioning from jogging a part to entering the machine to remove a part) then **lo/to** steps must take place.

Temporary removal or bypass of lockout devices for means of repositioning: Tasks which require removal or bypass of lockout/tagout for means of repositioning can be completed without alternative controls, given that no access to the machine is needed. Once access to the machine is needed the alternative controls process must be in place.



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APPENDIX A: CLARIFICATION OF LOCKOUT AND TAGOUT PROVISIONS 1 AND 2

BELOW IN THIS APPENDIX ARE SEVERAL COPIED OSHA TEXTS TO CLARIFY, SPECIFIC EXAMPLES ARE ITALICIZED:

The definition of normal production operations has been simplified to state that normal production operations are the utilization of a machine or equipment to perform its intended production function. Anything that is done to prepare a machine or equipment to perform its normal production operation, such as changing a machine part (e.g., changing the blade of a power saw), is not considered utilization of a machine or equipment and is classified as servicing or maintenance rather than normal production operations. OSHA believes that this definition complements the definition of "servicing or maintenance" in this Final Rule. Further, these two definitions together help to provide a dividing line between the requirements of this standard and the safeguards already required for normal production operations by the general machine guarding standards in subpart O of part 1910 (1910.212 and 1910.219). The definition of servicing or maintenance includes those activities which require an employee to remove or bypass guards or other safety devices which were not intended to be removed during normal production operations (i.e., resulting in exposure to the hazards addressed by this standard), or to otherwise expose himself/herself to hazardous machine elements.

In a printing shop, when a printing press is being used to produce printed materials, there is often the need to make minor adjustments such as to correct for paper misalignment while the press is running. This is a part of the production process, and is subject to the machine guarding requirements. The use of remote control devices will keep the employees from reaching beyond the machine guards. In addition, the use of inch [or jog] devices will permit machine speed control for test purposes. By contrast, however, printing presses may jam, requiring the employee to bypass the machine guards in order to reach the area of the jam and clear it. Although the need to unjam the machine comes about during normal production operations, it is a servicing activity which involves employee exposure to unexpected activation of the machine or release of energy, and as such, is covered by the Final Rule.

An employee is operating a machine which applies and seals a clear plastic sheet around a packaged product. There is a blade on the machine which cuts the plastic sheets, and this blade must be cleaned off periodically during the production process. Since the process must be stopped to clean off the blade, one could argue that this operation is more in the nature of servicing or maintenance than normal production; on the other hand, since it must be performed frequently during production, one might also argue that it was actually part of the production process. It may be important to understand how the knife operation is driven – will the knife go full cycle and amputate the employee during a failure or will it stay stopped and go nowhere. How reliable is the system controlling the possible actuation? Because of the dovetailing of the requirements of this standard and the machine guarding requirements of Subpart O, protection must be provided, regardless of whether the above operation is considered to be production or servicing. If it is production, the employee must be provided with guarding to protect him/her from the dangers of contacting the blade with part of his/her body; the cleaning would need to be done with special tools and procedures to provide the necessary protection. However, if it is servicing, and the employee is exposed to the point of operation which is otherwise required to be guarded, the lockout or tagout provisions of this standard would apply