

## **4.7 Lockout / Tagout Program**

### **1. Purpose**

The purpose of this established lockout/tagout program is to provide maximum safety protection from hazardous energies to our employees whenever they must service or perform maintenance on machinery and equipment.

### **2. Scope**

These procedures shall be used by all employees authorized to service or maintain our equipment to ensure that machines or equipment are completely isolated from all potential hazardous energy sources. All employees affected in any way by servicing and maintenance activities shall also be knowledgeable of lockout/tagout procedures.

### **3. Application**

These procedures shall be followed whenever unexpected energizing, start-up, or release of stored energy could cause injury. These procedures do not apply when servicing or maintenance of equipment during normal operations unless:

- Guards, or other safety devices, must be removed or bypassed; or
- An employee places him/herself in an area where work on material, etc., is actually being performed; or
- An employee places him/herself in an area considered dangerous during the normal operation cycle.

### **4. Compliance**

All supervisors are responsible and accountable for the use of safe lockout/tagout procedures by all employees under their supervision. Compliance with lockout/tagout procedures is mandatory. Non-compliance with these procedures is considered a violation of an employee's condition of employment and can result in disciplinary action.

### **5. Authorization**

Employees who are properly trained and certified on equipment maintenance and lockout/tagout procedures, and approved by the facility manager, are authorized to implement lockout/tagout procedures as appropriate.

## **Lockout/Tagout Procedures**

### **Preparation for Lockout**

1. Review - Prior to lockout, the authorized employees(s) shall review the lockout/tagout information for the machine/piece of equipment that they are going to work on. As a minimum the following information will be reviewed:
  - a) Types and magnitudes of energy
  - b) Hazards posed by the energy
  - c) Methods to effectively control the energy.
  - d) Particularly close attention must be given to energies that can be stored or re-accumulated after shutdown
2. Notification - Prior to shutdown, all affected employees will be notified to clear their work area and/or any other area that might be hazardous.
3. Shutdown - Machinery and equipment will be shut down in an orderly manner using normal shutdown procedures or procedures on the associated lockout/tagout information sheet for that machinery or equipment if required.
4. Isolation - All energy isolation devices will be located and operated to completely de-energize and isolate the equipment. The authorized employee shall insure operation of each energy isolation device has been completed.
5. Lockout Devices –

- a) Lockout devices shall be used to secure energy isolating devices unless the machinery or equipment is not capable of being locked out.
  - b) Only authorized employees will affix lockout/tagout devices.
  - c) Lockout devices must be able to hold energy isolation devices in a “safe” or “off” position.
6. Tagout Devices -
- a) Tagout devices will be used only if machinery or equipment is not capable of being locked out.
  - b) Tags will clearly state that moving energy isolation devices from the “safe” or “off” position is strictly prohibited.
  - c) If a tag cannot be affixed to the energy-isolating device, it will be located as close as safely possible to the device so that the tag is obvious to anyone attempting to operate the device.
7. Fixed Observer -
- a) Authorized personnel thoroughly trained on the isolation device may be posted at the device to ensure non-operation of that device when a lockout/tagout is not practical, or under emergency conditions.
  - b) Only the “Authorized Employee” may lockout/tagout machinery or equipment!
8. Lockout/Tagout Materials and Hardware - Lockout/tagout devices are provided by your employer and meet the following:
- a) Each lockout/tagout device is uniquely identified as being used exclusively for lockout/tagout:
  - b) Lockout/tagout devices identify the user:
  - c) Lockout/tagout devices are not to be used for any other purpose than lockout/tagout:
  - d) Tagout devices must be substantial enough to prevent inadvertent or accidental removal. They are attachable by hand, self-locking, non-releasable with not less than 50 LB locking strength, and design/characteristics at least equivalent to a one-piece, all environment-tolerant nylon cable ties.
9. Stored Energy - Immediately after applying lockout or tagout devices, the authorized employee will ensure all potentially hazardous stored or residual energy is relieved, disconnected, restrained, and otherwise rendered safe.
- a) If stored energy can be re-accumulated, the authorized employee will verify that the energy is isolated until maintenance is complete or the energy no longer exists.
  - b) Verification of Isolation: Before starting work on a machine or equipment that is locked or tagged out, the authorized employee will verify that the machinery or equipment is actually isolated and de-energized, using appropriate test equipment as applicable.
  - c) Release from Lockout/tagout: The authorized employee will follow the procedures below prior to removing lockout/tagout devices and restoring energy:
  - d) Equipment: Make sure machinery or equipment is properly reassembled. Inspect machinery or equipment to make sure nonessential items have been removed.
  - e) Employees: Make sure all employees are safely positioned outside danger zones. Notify affected employees that lockout/tagout devices have been removed and that energy is going to be reapplied.
  - f) Removing lockout/tagout devices: Only the authorized employee who applied the lockout/tagout device may remove that device. Exception – When the authorized employee is not at the facility and all reasonable efforts have been taken to inform him/her that the lockout/tagout device has been removed:
  - g) The supervisor, or his delegate, is authorized to remove the device following procedures in the section.
  - h) Each supervisor, or his delegate, will be trained in proper lockout/tagout procedures.
  - i) The supervisor, or his delegate, will ensure the authorized employee has this knowledge before he/she resumes work.

### **Additional Requirements**

- 1. Testing/Positioning Machines or Equipment: Whenever lockout/tagout devices are removed to test or position machines and equipment, or their components, the authorized employee will complete the following procedures in the sequence presented.
  - a) Clear the machine or equipment of tools and materials;
  - b) Remove employees safely away from danger zone;
  - c) Remove lockout/tagout devices;

- d) Energize and proceed with testing or positioning; and
  - e) De-energize all systems and re-apply lockout/tagout devices using proper procedures, unless all work is complete, and the equipment is being returned to service.
2. Outside Personnel - Outside servicing personnel, contracted to perform maintenance or other services requiring lockout/tagout procedures, will not begin work until the supervisor is satisfied that their lockout/tagout procedures are at least equivalent to company procedures.
  3. The supervisor will also ensure company employees understand and comply with contracted personnel lockout/tagout procedures.
  4. Shift/Personnel Changes: When a shift change occurs during a lockout/tagout procedure, the following procedures will be followed:
    - a) Shift to Shift: The off-going authorized employee will not remove his/her lock until the oncoming authorized employee has arrived and placed their lock on the machine or equipment.
    - b) Skip one Shift: The off-going authorized employee will describe in detail the status of the machine or equipment in the maintenance log and sign the log for a "maintenance department" lock and place it on the machine or equipment in place of their personal lock. The oncoming authorized employee, upon seeing the "maintenance department" lock will go to the maintenance log read the status information and then sign for the key to the "maintenance lock". The oncoming authorized employee will then replace the "maintenance lock" with their own personal lock and return the "maintenance lock and key" to the lock storage area. They must then sign in the "maintenance lock and key".

### **Training**

1. Training in lockout/tagout will be provided to all employees who may be in an area where energy control procedures are used. This training is to ensure that the purpose and function of the energy control program are understood and that employees gain the needed knowledge and skills to safely apply, use, and remove energy controls.
2. Authorized employees must be able to recognize hazardous energy sources, types, and magnitudes of energy in the workplace, and methods and means necessary to isolate and control the energy.
3. Affected employees must be able to recognize the purpose and use of energy control procedures.
4. Other employees must be able to recognize procedures and prohibitions of the energy control program.
5. Training on Tagout Devices -
  - a) Tags are warning devices only and do not provide a physical restraint that lockout devices provide.
  - b) Tags must not be removed by anyone other than the authorized employee who used the tag.
  - c) Tags must be legible, and understandable by all employees.
  - d) Tags must be able to withstand environmental conditions in the workplace.
  - e) Tags may give employees a false sense of security.
  - f) Tags must be securely attached to prevent being accidentally detached during use.
6. Retraining - Employees will participate in retraining at the following times:
  - a) Change of job assignment;
  - b) Change in machinery or equipment, or
  - c) Change in operating procedures.
7. Inspections -
  - a) An authorized employee other than the one(s) using the control procedure being inspected will conduct annual inspection on lockout/tagout procedures. The Lockout/Tagout audit sheet shall be used for initial inspections until appropriate lockout/tagout procedures are fully implemented.
  - b) The purpose of the inspection is to correct any deviations or inadequacies in the procedures.
  - c) The inspector and authorized employee must review responsibilities under the energy control procedure.

# Form 1: Documenting specific energy-control procedures

*Note: This form is used for documenting specific energy control procedures for machines and equipment at your workplace.*

**Department:**

**Equipment:**

**Equipment manufacturer and serial number:**

**Contact person:**

**Authorized employee(s):**

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**Purpose:** This procedure establishes minimum requirements for the lockout of the suction blast cabinet whenever maintenance or service work is performed. The procedure is used to ensure that the machine is stopped, isolated from all potential hazardous energy sources, and locked out before employees perform any servicing or maintenance.

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**Notify all affected employees before this lockout procedure is used.**

Hazardous energy		Lockout steps	Verification steps	Return to service steps
Type	Magnitude			

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**Notify all affected employees that the maintenance is complete and the machine is available for use.**

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## Form 2: Lockout/tagout inspection form

*Note to employers: Use this form to document an inspection of a written lockout or tagout procedure.*

Department: \_\_\_\_\_ Equipment type and serial number: \_\_\_\_\_

Inspection conducted by: \_\_\_\_\_

Equipment location: \_\_\_\_\_

Inspection date: \_\_\_\_\_

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### List authorized employees using this procedure. Has the employee been trained in the procedure?

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Employee name: \_\_\_\_\_  Yes  No

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Do *authorized* employees know the location of the procedure?  Yes  No

Do *authorized* employees have access to the written procedure?  Yes  No

Are *affected* employees notified when the procedure is being used?  Yes  No

Have *affected* employees been trained to recognize when the procedure is being used and instructed not to remove lockout/tagout devices or start de-energized equipment?  Yes  No

Can energy-isolating devices be locked out?  Yes  No

*Note: When you replace, renovate, or modify machines and equipment, ensure that the energy-isolating devices will accept lockout devices. New equipment and equipment renovated or modified after January 2, 1990, must be capable of being locked out.*

Did each *authorized* employee lock out all energy sources?  Yes  No

Does this procedure involve group lockout/tagout?  Yes  No

Did the *authorized* employees verify that the equipment was de-energized?  Yes  No

Did the *authorized* employees follow this lockout/tagout procedure?  Yes  No

Does this lockout/tagout procedure adequately protect employees?  Yes  No

If not, list and describe the deficiencies requiring corrective action.

- 1.
- 2.
- 3.
- 4.
- 5.

**If this is a lockout procedure**, did the inspector review with all *authorized* employees their responsibilities under the procedure? **Note: A review can be accomplished by meeting with employees individually or in a group.**

Yes  No   
Not applicable

**If this is a tagout procedure**, did the inspector review with all *authorized* employees their responsibilities under the procedure? **Note: A review can be accomplished by meeting with employees individually or in a group.**

Yes  No   
Not applicable

## Lockout/Tagout

OAR 437  
Division 2/J

### The Control of Hazardous Energy (Lockout/Tagout)

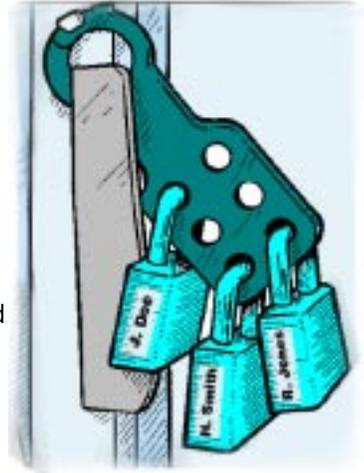
Web site:  
[www.orosha.org](http://www.orosha.org)

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350 Winter St. NE, Rm. 430  
Salem, OR 97301-3882

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### General-Industry Requirements

The OR-OSHA standard for **The Control of Hazardous Energy (Lockout and Tagout)**, 29 CFR 1910.147, requires that hazardous energy be controlled during service and maintenance activities. These activities include the installation, setup, adjustment, inspection, modification, and routine maintenance or servicing of machines or equipment. Hazardous energy sources include electrical, mechanical, hydraulic, pneumatic, chemical, gravity, and thermal. Machines or equipment must be isolated from their energy source and rendered inoperative to prevent injury or death from unanticipated, uncontrolled hazardous energy. (Control-circuit type devices are not energy-isolation devices.) Cord-and-plug-connected machines or equipment are not covered under the standard if they are unplugged, the plug is under the exclusive control of the operator, and electricity is the only form of hazardous energy.



Employers must implement and enforce an energy control program that consists of energy-control procedures, effective employee training, and periodic inspections. Requirements:

- Use lockout devices for equipment that **can** be locked out; the key must be unique to the device and under the control of each employee working on the equipment.
- Provide tagout devices instead of lockout devices only if the tagout program provides employee protection equivalent to that provided by a lockout program.
- Require additional safety measures such as the removal or isolation of an electrical circuit or blocking a control switch for a tagout program.
- Ensure new or existing equipment undergoing major repairs, renovations, or modifications is capable of being locked out.
- Provide durable, substantial, and standardized lockout and tagout devices and hardware. Lockout and tagout devices must identify who applied them and may not be used for other purposes.
- Establish written procedures that permit only the employee who applied a lockout or tagout device to remove it; must include provisions for device removal when the employee is not available.
- Inspect energy-control procedures at least annually.

### Lockout and Tagout Devices

Lockout devices hold energy-isolation devices in a "safe" or "off" position. They provide protection by preventing equipment from becoming energized because they are restraints that no one can remove without a key or by destroying the lockout device through extraordinary means such as a bolt cutter.

Tagout devices are prominent warning devices fastened to energy-isolation devices to warn employees not to reenergize equipment that is being serviced. Tagout devices are easier to remove and provide employees with less protection than lockout devices.

### Energy-Control Procedures

Employers must document procedures for the control of hazardous energy sources for use by authorized employees who lockout or tagout equipment to perform service and maintenance. The isolation or lockout procedures for equipment with one or more hazardous energy sources must include the following:

- The intended use of the procedure.
- Steps for shutting down, isolating, blocking, and securing equipment.
- Steps for the placement, removal, and transfer of lockout devices.
- Equipment-testing requirements to verify the effectiveness of the energy-control measures.



An employer need not document the required energy-control procedure when all of the following conditions exist and no accidents involving the unexpected activation or reenergization of equipment have occurred.

- A single source of energy can be readily identified and isolated; locking out the energy source completely de-energizes and deactivates equipment.
- The lockout device is under the exclusive control of the employee performing the service or maintenance.
- No potential for stored or residual energy or reaccumulation of stored energy exists that could harm employees after shutdown; the service or maintenance activity does not create hazards for other employees.

When reenergization is required as part of a service activity (power is needed to test or position machines, equipment, or components) the temporary removal of lockout or tagout devices is allowed. This temporary exemption applies in limited situations and only for the time required to perform the task. The procedure must be documented.

**What workers must do before they begin service or maintenance activities:**

1. Inform all affected employees of equipment shutdown.
2. Shut down equipment.
3. Isolate or block hazardous energy.
4. Remove any potential (stored) energy.
5. Lockout or tagout the energy source(s).
6. Verify the isolation and de-energization of equipment.

When multiple persons (crew, craft, department, etc.) are involved in the service or maintenance of equipment, group lockout is permitted under 1910.147(f)(3). The standard also allows for the transfer of lockout or tagout devices during shift changes when written procedures are in place.

**What workers must do before removing lockout or tagout devices and re-energizing equipment:**

1. Remove tools and replace machine or equipment components.
2. Inform coworkers about energy-control device removal.
3. Ensure all workers are clear of the work area.
4. Verify machine or equipment power controls are off or in a neutral position.
5. Remove the lockout or tagout device.
6. Re-energize equipment.

**Periodic Inspection**

At least annually, employers must inspect and certify **all** energy-control procedures. Authorized employees other than those using the procedures being inspected must perform the inspections. The inspection certification must identify the equipment, and include the date of the inspection, the person performing the inspection, and all employees included in the inspection. The authorized inspectors must review and verify that **all**:

- Lockout and tagout procedures are adequate.
- Authorized and affected employees know their procedure responsibilities.
- Procedures are being followed.

**Training**

The employer must provide training that is understandable to the employee and ensure that employees acquire the skills to safely apply, use, and remove lockout and tagout devices. Keep and maintain training records that includes each employee's name and training date(s).

Train authorized employees on the purpose and use of the energy-control procedures, how to recognize hazardous-energy sources (type and magnitude), and the methods necessary to control and isolate the energy source.

Employees who operate equipment being serviced under lockout or tagout procedures or who work in an area where the service activity occurs (affected employees) must be trained to recognize when an energy-control procedure is being used. They should understand the purpose of the procedure and the importance of not tampering with lockout and tagout devices and not starting or using locked or tagged-out equipment.

Retraining is necessary when there is a change in energy-control procedures, machines, equipment, or processes, or when an inspection reveals or an employer has reason to believe that shortcomings exist in an employee's knowledge about the energy-control procedure.

**Working by the Rules**

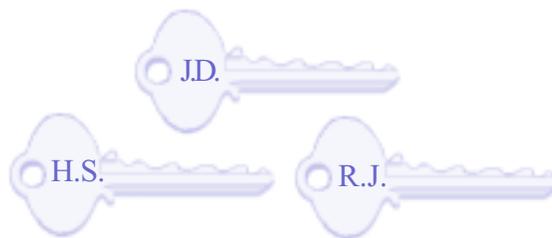
Lockout and tagout rules apply to all Oregon employers and include construction, agriculture, and maritime employment. Employers may need to meet requirements other than 1910.147. For example, electrical installations and utilization equipment are covered under Division 2/S, **Electrical**. See OR-OSHA's Guide to Controlling Hazardous Energy, [www.cbs.state.or.us/external/osha/pdf/pubs/3326.pdf](http://www.cbs.state.or.us/external/osha/pdf/pubs/3326.pdf), for an overview of rules that contain requirements for the control of hazardous energy.

**Resources**

For the full text of OR-OSHA rules for lockout and tagout, refer to ORAR 437, Division 2/J, The Control of Hazardous Energy. Industry-specific standards are also found at Oregon OSHA's Web site, [www.orosha.org](http://www.orosha.org). (Rules/Laws)

**Related resource links**

- [www.osha.gov/SLTC/controlhazardousenergy/index.html](http://www.osha.gov/SLTC/controlhazardousenergy/index.html)
- [www.cbs.state.or.us/external/osha/pdf/pds/pd-156.pdf](http://www.cbs.state.or.us/external/osha/pdf/pds/pd-156.pdf)



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