

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



## **1910.147**

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

**The following lockout/tagout program is provided only as a guide to assist employers and employees in complying with the requirements of 29 CFR 1910.147, as well as to provide other helpful information. It is not intended to supersede the requirements of the standard. An employer should review the standard for particular requirements which are applicable to their individual situation and make adjustments to this program that are specific to their company. An employer will need to add information relevant to their particular facility in order to develop an effective, comprehensive program.**



**1910.147**  
**The Control of Hazardous Energy (Lockout/Tagout) Procedure**  
**Table of Contents**

- I. Objective
- II. Assignment of Responsibility
- III. Procedures
  - A. Preparation for Lockout or Tagout
  - B. Electrical
  - C. Hydraulic/Pneumatic
  - D. Fluids and Gases
  - E. Mechanical Energy
  - F. Release from Lockout/Tagout
  - G. Service or Maintenance Involving More than One Person
  - H. Removal of an Authorized Employee's Lockout/Tagout by the Company
  - I. Shift or Personnel Changes
  - J. Procedures for Outside Personnel/Contractors
  - K. Training and Communication
  - L. Periodic Inspection
- IV. Attachments
  - A. List of Authorized Personnel for Lockout/Tagout Procedures Form
  - B. Certification of Training of Authorized Personnel Form
  - C. Certification of Training of Affected Personnel Form
  - D. Lockout/Tagout Inspection Certification Form
  - E. Outside Personnel/Contractor Certification Form
  - F. Equipment Specific Procedure Form



# Company Name

## Lockout/Tagout Procedure

### I. OBJECTIVE

The objective of this procedure is to establish a means of positive control to prevent the accidental starting or activating of machinery or systems while they are being repaired, cleaned and/or serviced. This program serves to:

- A. Establish a safe and positive means of shutting down machinery, equipment and systems.
- B. Prohibit unauthorized personnel or remote control systems from starting machinery or equipment while it is being serviced.
- C. Provide a secondary control system (tagout) when it is impossible to positively lockout the machinery or equipment.
- D. Establish responsibility for implementing and controlling lockout/tagout procedures.
- E. Ensure that only approved locks, standardized tags and fastening devices provided by the company will be utilized in the lockout/tagout procedures.

### II. ASSIGNMENT OF RESPONSIBILITY

- A. Responsible Person will be responsible for implementing the lockout/tagout program.
- B. Responsible Persons are responsible for enforcing the program and insuring compliance with the procedures in their departments.
- C. Responsible Person is responsible for monitoring the compliance of this procedure and will conduct the annual inspection and certification of the authorized employees.
- D. Authorized employees (those listed in Attachment A) are responsible for following established lockout/tagout procedures. An authorized employee is defined as a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under 1910.147, The Control of Hazardous Energy (lockout/tagout).
- E. Affected employees (all other employees in the facility) are responsible for insuring they do not attempt to restart or re-energize machines or equipment that are locked out or tagged out. An affected employee is defined as a person whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

### III. PROCEDURES



The ensuing items are to be followed to ensure both compliance with the OSHA Control of Hazardous Energy Standard and the safety of our employees.

### **A. Preparation for Lockout or Tagout**

Employees who are required to utilize the lockout/tagout procedure (see Attachment A) must be knowledgeable of the different energy sources and the proper sequence of shutting off or disconnecting energy means. The four types of energy sources are:

1. electrical (most common form);
2. hydraulic or pneumatic;
3. fluids and gases; and
4. mechanical (including gravity).

More than one energy source may be utilized on some equipment and the proper procedure must be followed in order to identify energy sources and lockout/tagout accordingly. See Attachment F for specific procedure format.

### **B. Electrical**

1. Shut off power at machine and disconnect.
2. Disconnecting means must be locked or tagged.
3. Press start button to see that correct systems are locked out.
4. All controls must be returned to their safest position.
5. Points to remember:
  - a. If a machine or piece of equipment contains capacitors, they must be drained of stored energy.
  - b. Possible disconnecting means include the power cord, power panels (look for primary and secondary voltage), breakers, the operator's station, motor circuit, relays, limit switches, and electrical interlocks.
  - c. Some equipment may have a motor isolating shut-off and a control isolating shut-off.
  - d. If the electrical energy is disconnected by simply unplugging the power cord, the cord must be kept under the control of the authorized employee or the plug end of the cord must be locked out or tagged out.

### **C. Hydraulic/Pneumatic**

1. Shut off all energy sources (pumps and compressors). If the pumps and compressors supply energy to more than one piece of equipment, lockout or tagout the valve supplying energy to the piece of equipment being serviced.
2. Stored pressure from hydraulic/pneumatic lines shall be drained/bled when release of stored energy could cause injury to employees.
3. Make sure controls are returned to their safest position (off, stop, standby, inch, jog, etc.).

### **D. Fluids and Gases**



1. Identify the type of fluid or gas and the necessary personal protective equipment.
2. Close valves to prevent flow, and lockout/tagout.
3. Determine the isolating device, then close and lockout/tagout.
4. Drain and bleed lines to zero energy state.
5. Some systems may have electrically controlled valves. If so, they must be shut off and locked/tagged out.
6. Check for zero energy state at the equipment.

### **E. Mechanical Energy**

Mechanical energy includes gravity activation, energy stored in springs, etc.

1. Block out or use die ram safety chain.
2. Lockout or tagout safety device.
3. Shut off, lockout or tagout electrical system.
4. Check for zero energy state.
5. Return controls to safest position.

### **F. Release from Lockout/Tagout**

1. Inspection: Make certain the work is completed and inventory the tools and equipment that were used.
2. Clean-up: Remove all towels, rags, work-aids, etc.
3. Replace guards: Replace all guards possible. Sometimes a particular guard may have to be left off until the start sequence is over due to possible adjustments. However, all other guards should be put back into place.
4. Check controls: All controls should be in their safest position.
5. The work area shall be checked to ensure that all employees have been safely positioned or removed and notified that the lockout/tagout devices are being removed.
6. Remove locks/tags. Remove only your lock or tag.

### **G. Service or Maintenance Involving More than One Person**

When servicing and/or maintenance is performed by more than one person, each authorized employee shall place his own lock or tag on the energy isolating source. This shall be done by utilizing a multiple lock scissors clamp if the equipment is capable of being locked out. If the equipment cannot be locked out, then each authorized employee must place his tag on the equipment.

### **H. Removal of an Authorized Employee's Lockout/Tagout by the Company**

Each location must develop written emergency procedures that comply with 1910.147(e)(3) to be utilized at that location. Emergency procedures for removing lockout/tagout should include the following:



1. Verification by employer that the authorized employee who applied the device is not in the facility.
2. Make reasonable efforts to advise the employee that his/her device has been removed. (This can be done when he/she returns to the facility).
3. Ensure that the authorized employee has this knowledge before he/she resumes work at the facility.

#### **I. Shift or Personnel Changes**

Each facility must develop written procedures based on specific needs and capabilities. Each procedure must specify how the continuity of lockout or tagout protection will be ensured at all times. See 1910.147(f)(4).

#### **J. Procedures for Outside Personnel/Contractors**

Outside personnel/contractors shall be advised that the company has and enforces the use of lockout/tagout procedures. They will be informed of the use of locks and tags and notified about the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

The company will obtain information from the outside personnel/contractor about their lockout/tagout procedures and advise affected employees of this information.

The outside personnel/contractor will be required to sign a certification form (see Attachment E). If outside personnel/contractor has previously signed a certification that is on file, additional signed certification is not necessary.

#### **K. Training and Communication**

Each authorized employee who will be utilizing the lockout/tagout procedure will be trained in the recognition of applicable hazardous energy sources, type and magnitude of energy available in the work place, and the methods and means necessary for energy isolation and control.

Each affected employee (all employees other than authorized employees utilizing the lockout/tagout procedure) shall be instructed in the purpose and use of the lockout/tagout procedure, and the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

Training will be certified using Attachment B (Authorized Personnel) or Attachment C (Affected Personnel). The certifications will be retained in the employee personnel files.

#### **L. Periodic Inspection**

A periodic inspection (at least annually) will be conducted of each authorized employee under the lockout/tagout procedure. This inspection shall be performed by the *Responsible*



person. If (Responsible person) is also using the energy control procedure being inspected, then the inspection shall be performed by another party.

The inspection will include a review between the inspector and each authorized employee of that employee's responsibilities under the energy control (lockout/tagout) procedure. The inspection will also consist of a physical inspection of the authorized employee while performing work under the procedures.

The (Responsible person) shall certify in writing that the inspection has been performed. The written certification (Attachment D) shall be retained in the individual's personnel file.





ATTACHMENT A

**List of Authorized Personnel  
for  
Lockout/Tagout Procedures**

NAME

JOB TITLE

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---



ATTACHMENT B

**Certification of Training  
(Authorized Personnel)**

I certify that I received training as an authorized employer under *Company Name* Lockout/Tagout program. I further certify that I understand the procedures and will abide by those procedures.

---

AUTHORIZED EMPLOYEE SIGNATURE

---

DATE



ATTACHMENT C

**Certification of Training  
(Affected Personnel)**

I certify that I received training as an Affected Employee under *Company Name* Lockout/Tagout Program. I further certify and understand that I am prohibited from attempting to restart or re-energize machines or equipment that are locked out or tagged out.

---

AUTHORIZED EMPLOYEE SIGNATURE

---

DATE



ATTACHMENT D

**Lockout/Tagout Inspection Certification**

I certify that     *Equipment*     was inspected on this date utilizing  
lockout/tagout procedures. The inspection was performed while working on  
    *Equipment*     .

\_\_\_\_\_  
AUTHORIZED EMPLOYEE SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
INSPECTOR SIGNATURE

\_\_\_\_\_  
DATE



ATTACHMENT E

**Outside Personnel/Contractor Certification**

I certify that \_\_\_\_\_ and  
(outside personnel/contractor) have informed each other of our respective  
lockout/tagout procedures.

\_\_\_\_\_  
AUTHORIZED EMPLOYEE SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
INSPECTOR SIGNATURE

\_\_\_\_\_  
DATE



ATTACHMENT F

**Equipment Specific Procedure  
for  
Company Name**

(Date)

**Machine Identification**

General Description: \_\_\_\_\_  
\_\_\_\_\_  
Manufacturer: \_\_\_\_\_  
\_\_\_\_\_  
Model Number: \_\_\_\_\_  
Serial Number:\* \_\_\_\_\_  
\_\_\_\_\_

*\* If more than one piece of same equipment, list all serial numbers.*

Location of equipment: \_\_\_\_\_  
\_\_\_\_\_

**Operator Controls**

The types of controls available to the operator need to be determined. This should help identify energy sources and lockout capacity for the equipment.

List types of operator controls: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Energy Sources**

The energy sources, such as electrical, steam, hydraulic, pneumatic, natural gas, stored energy, etc.) present on this equipment are:

ENERGY SOURCE	LOCATION	Lockable		Type lock or block needed
		Yes	No	

**Shutdown Procedures**

List the steps in order necessary to shut down and de-energize the equipment. Be specific. For stored energy, be specific about how the energy will be dissipated or restrained.

Procedure: \_\_\_\_\_  
 \_\_\_\_\_

Lock Type & Location: \_\_\_\_\_  
 \_\_\_\_\_

How Will De-energized State Be Verified? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

***NOTIFY ALL AFFECTED EMPLOYEES WHEN THIS PROCEDURE IS IN APPLICATION.***



**Start Up Procedures**

List the steps in order necessary to reactivate (energize) the equipment. Be specific.

Procedure: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Energy Source Activated: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***NOTIFY ALL AFFECTED EMPLOYEES WHEN THIS PROCEDURE IS IN APPLICATION.***

**Procedures For Operations and Service/Maintenance**

List those operations where the procedures above do not apply [See 29 CFR 1910.147 (a)(2)]. Alternate measures which provide effective protection must be developed for these operations. Job Safety Analysis is one method of determining appropriate measures.

Operation Name: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





**Affected and Authorized Employees**

List each person affected by this procedure and those authorized to use this procedure.

<b>AFFECTED EMPLOYEES</b>	
<b>Name</b>	<b>Job Title</b>

<b>AUTHORIZED EMPLOYEES</b>	
<b>Name</b>	<b>Job Title</b>

---

Approved by \_\_\_\_\_ Date \_\_\_\_\_

---

Approved by \_\_\_\_\_ Date \_\_\_\_\_

