

ENERGY CONTROL PROCEDURE (LOCKOUT/TAGOUT)

This is a sample written Energy Control Procedure provided only as a guide to assist in complying with 29 CFR 1910.147, OSHA's Energy Control standard. It is not intended to supersede the requirements detailed in the standards but only as an aid in developing your procedures so they meet the requirements of this standard. You need to review the standard for particular requirements which are applicable to your specific situation. This program must be tailored to fit your facility. When the energy isolating devices are not lockable, tagout may be used, provided you comply with the provisions of the standard which require additional training and more rigorous periodic inspection. For complex systems, more comprehensive procedures may need to be developed, documented and utilized.

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LOCKOUT/TAGOUT PROCEDURE

- A. Purpose.** This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.
- B. Hardware.** Every employee authorized to perform lockout procedures will be assigned the lock(s) needed to safely lockout and repair company equipment. Each lock used for lockout will identify the person using it. The company will purchase all lockout hardware and employees are responsible for using it properly. Lockout hardware will be used ONLY for lockout. It will not be used on toolboxes, lockers or for any other reason.
- C. Compliance with this Program.** All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance will not attempt to start, energize, or use that machine or equipment.
- D. Cord-n-plug Connected Equipment.** Potentially hazardous energy in cord and plug connected equipment must be controlled by the employee. Employees can protect themselves by preventing the equipment from becoming re-energized during the servicing operation. Follow either of these two procedures.
1. Unplug the equipment from its electrical socket. Place a lockable cover over the plug. Place your lock on the plug cover.
 2. Unplug equipment from its electrical socket. Keep the plug in your possession at all times during equipment servicing; **OR** keep the plug within arm's reach and in your line of sight at all times during equipment servicing.
- E. Sequence of Lockout.** Lockout procedures, other than cord-n-plug, will follow this sequence.
1. Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
 2. The authorized employee will refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, will understand the hazards of the energy, and know the methods to control the energy.

3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
4. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).
5. Lock out the energy isolating device(s) with assigned individual lock(s).
6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

8. The machine or equipment is now locked out.

F. Testing or Positioning of Machines. In situations where the lockout/tagout device must be temporarily removed and the machine or equipment is to be energized in order to test or position the machine, the following will apply:

1. Clear the machine/equipment of all tools and materials;
2. Remove employees from the machine/equipment area;
3. Remove the lockout/tagout device;
4. Energize and perform the testing or positioning of the machine/equipment;
5. De-energize machine/equipment and reapply the lockout/tagout device.

G. Restoring Equipment to Service. When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps will be taken.

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all employees have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout devices.
5. Re-energize the machine or equipment.

Note: The removal of some forms of blocking may require re-energization of the machine before safe removal.

6. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

H. Electrical Lockout. Authorized employees who perform electrical maintenance where the electrical circuit has been locked out, will follow these procedures. No work is to be done on live parts.

1. A tag used without a lock will be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.
2. A qualified person will use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and will verify that the circuit elements and equipment parts are de-energized. The test will also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even through specific parts of the circuit have been de-energized and presumed to be safe. If the circuit to be tested is over 500 volts, nominal, the test equipment will be checked for proper operation immediately after this test.

Note: If your employees work on de-energized electrical parts, you need to comply with the requirements for a written program under 1910.331-335 Safe Work Practices standard. Including these two paragraphs in your lockout program will enable you to use a single lockout/tagout program to cover all hazards addressed by both the electrical standard and the energy control standard.

I. Procedure Involving More than One Person. Every employee servicing a piece of equipment that must be locked out is required to be protected from accidental machine movement or startup with his or her own personal lock.

In the preceding steps, if more than one individual is required to lockout/tagout equipment, each will place his/her own personal lockout device or tagout device on the energy isolating devices. When an energy isolating device cannot accept multiple locks/tags, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure it. Each employee will then use his/her own lock to secure the box or cabinet. As each person no longer needs to maintain his/her lockout protection, that person will remove his/her lock from the box or cabinet.

J. Shift or Personnel Changes. In the event of a shift/personnel change, the on-coming authorized person will check out the machine/equipment and ensure proper lockout procedures have been followed and will apply their personal lock when the procedures have been verified.

OR (select the one that fits your operation best)

In the event of a shift/personnel change, a special supervisory lock will be applied by the leaving authorized person and will remain until the new authorized person begins work and will apply their own personal lock.

K. Lock Removal. An employee will never remove another person's lockout without management approval and/or supervision. If an employee forgets to remove a lockout/tagout device and goes home, the company management will make every effort to get in touch with the authorized employee. If the employee cannot be contacted, another authorized employee and the supervisor will check out the equipment and make sure there is no danger in removing the lock. A supervisor will remove the device. The absent authorized employee will be notified that his lock was removed before he returns to work.

L. Lockout/tagout Procedures for Outside Contractors. Outside contractors will use the lockout/tagout procedure enforced by their own company. If the outside contractor does not have procedures regarding control of hazardous energy, they may use our procedures. The outside contractor will provide us a copy or description of their procedure so that we can ensure that our employees understand and comply with the restrictions and prohibitions of the outside contractors lockout procedures.

M. Training. All employees will be trained in our lockout/tagout procedures. Levels of training will depend upon each employees involvement with our procedures. All training will be documented and placed in the employees personnel file.

1. "Authorized" employees are those who perform machine maintenance and servicing that requires lockout. They are the only individuals who will lockout equipment and will be

expected to know our lockout procedures. Training for authorized employees will include the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

2. "Affected" employees are those who work in areas where lockout may take place. They will not perform lockout procedures, nor service or repair any locked out equipment. Training for affected employees will include the purpose and use of the energy control procedure.
3. "Other" employees are those whose work may require them to be in areas where lockout is used. Training for other employees will include the procedure and the prohibition relating to attempts to restart or re-energize machines or equipment which are locked or tagged out.

N. Periodic Inspection. At least annually, there will be an inspection conducted by an authorized employee not involved with the specific lockout/tagout procedures to ensure that requirements of our procedures are being followed.

The annual inspection is to be conducted by an authorized employee (other than the ones using the lockout/tagout procedure) and is intended to assure that the energy control procedures continue to be implemented properly and that employees involved are familiar with their responsibilities. It is also intended to identify and correct any deviations or inadequacies observed. The inspector must be able to determine : whether the steps in the energy control procedure are being followed; whether the employees involved know their responsibilities under the procedures; and whether the procedure is adequate to provide the necessary protection and what changes, if any, are needed.

This inspection will be documented and will include the following:

1. Identity of the machine or equipment on which the energy control procedure was being utilized;
2. Date of the inspection;
3. Employees included in the inspection; and
4. Name of person performing the inspection.

O. Equipment Replacement, Repair and Modification. To meet all OSHA requirements and provide equipment capable of being locked out effectively and safely, controls that can accept

locks and lockout devices will be installed whenever new equipment is purchased, or old equipment undergoes major repair or modification. This policy applies to production machinery, auxiliary equipment, and any other devices or machines that must be locked out during servicing or repair to prevent accidental machine movement or startup that could injure employees.

SPECIFIC ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT)

To assure that before any employee performs servicing or maintenance on a machine or equipment, the machine or equipment was isolated and rendered inoperative, you need to develop and document specific procedures for each machine or group of machines. To assure compliance you should:

- a. Make an inventory of each machine or process for the entire worksite where servicing and maintenance are performed.
- b. Group the machines/processes by similar characteristics (i.e. cord-n-plug; single energy course; types of energy - hydraulic, pneumatic, kinetic, thermal, chemical) which can cause unexpected energization or start up of the machines/processes or release of stored energy which could cause injury to employees.
- c. Develop specific procedures to indicate the proper method to lockout and tagout machines and equipment while servicing or maintenance is being performed. Note that this should be done for each machine/process group identified in (a) above.
- d. Use the worksheet attached to help you develop specific procedures. Definitions are as follows:

Operator Controls - The type of controls available to the operator need to be determined. This should help identify energy sources and lockout capacity.

Energy Sources - Can the machine be locked out at the main power source? Some machine installations involve complex wiring schemes. A qualified electrical should evaluate machines were necessary to determine if all electrical circuits can be locked out. Check and/or list energy sources present on this equipment.

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

Startup Procedure - List in order the steps necessary to re-activate (energize) the equipment. Ensure during each step that personnel are clear during any testing or activation.

MACHINE SPECIFIC ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT)

Machine/equipment:

Equipment Identification:

Operator Controls:

Energy Sources:

- Electrical Steam Pneumatic Other
 Natural Gas Hydraulic Stored Energy Source _____

Identify Energy Source/location

**Lockable
(Yes)(No)**

Type Device Required

Shutdown Procedures:

Lock Type & Procedure:

De-energized & Verified (How):

Startup Procedure:

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SAMPLE MACHINE SPECIFIC ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT)		
Machine/equipment	Part Revolution Mechanical Power Press	
Equipment Identification	Minster straight-side press #38 Minster OBI press #40	
Operator Controls	Control panel	
Energy Sources: <input checked="" type="checkbox"/> Electrical <input type="checkbox"/> Steam <input checked="" type="checkbox"/> Pneumatic <input type="checkbox"/> Other <input type="checkbox"/> Natural Gas <input type="checkbox"/> Hydraulic <input checked="" type="checkbox"/> Stored Energy Source - Kinetic		
Identify Energy Source/location	Lockable	Type Device Required
Electrical	Yes	Padlock
Hydraulic (lube system)	No	De-energized when power off
Pneumatic Overhead Air Supply	Yes	Padlock
Shutdown Procedures:		
1. Notify all affected employees of lockout 2. Position slide to desired position 3. Turn off all motors 4. Place tag on controls indicating lockout 5. Check to assure the flywheel is stopped 6. Turn press controls "off" and remove key 7. Install die block	8. Turn off main electrical supply 9. Turn off pneumatic supply and bleed system 10. Turn all pressure regulators to zero 11. Bleed residual air counterbalance and die cushions 12. Turn hydraulic pumps off bleed and check gauges, read "zero" pressure	
Lock Type & Procedure: _ Electrical - disconnect at bus duct, plug open door, remove fuses, close door. Secure with padlock (if needed, use multiple lock device) _ Pneumatic - locate main shutoff valve at overhead air supply line. Close valve and lock (use multiple locking device when needed). All valves are self bleeding type. _ Check and bleed down counterbalance and verify all gauges read "zero".		
De-energized & Verified (How): _ Electrical - Use voltmeter to verify power has been de-energized. Attempt to start press by activating start button. _ Pneumatic - Verify all pressure gauges read "zero". _ Hydraulic - Verify all pressure gauges read "zero".		
Startup Procedure		

1. Remove all tools and materials from area.
2. Replace all covers and guarding devices
3. Remove die block
4. Check that all personnel are in a safe area out from any hazards

5. Restore energy sources
6. Adjust pressures to air and hydraulics
7. Restart equipment and verify operation
8. Notify all affected employees