**Lockout/Tagout - Sample Program**



**How to use this program:**

* Part 1 – Contains a guide for general procedures
* Part 2 – Equipment inventory. **Each employer must fill this out with their inventory**
* Part 3 - Specific procedures. **Each employer must fill this out with their procedures**.
* Appendix – contains a guide for LO/TO tags, locks and training

**Purpose:** This sample program is designed to help employers implement their own Lockout Tagout program at their workplaces. It is the responsibility of employers to incorporate content specific to their facilities, equipment and energy sources, sufficient to ensure that their employees are protected from the hazards of unanticipated energizing or activation of equipment.

**LOCKOUT TAGOUT PROGRAM**

Name of Employer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Developed: \_\_\_\_\_\_\_\_\_

Locaiton: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Reviewed: \_\_\_\_\_\_\_\_\_\_

* PART 1 General Principles -

1. **Purpose**. This program is implemented so that employees are not injured by unexpected start-up, movement, or energization of equipment during maintenance or repair.
2. **Scope**: This program applies to all employees conducting work at the facility, including part-time, seasonal and temporary workers. Contractors must also be protected by lockout-tagout of equipment before their work is authorized.
3. **Basic Principles:**
   1. Employees do not work on live electrical.
   2. All equipment must be locked out to protected against unexpected start-up, energization or movement which could cause injury to personnel.
   3. All energy sources will be controlled, including: electric; hydraulic; pneumatic; gravity; etc.
   4. Locks are to be applied and removed by the authorized employee who is performing the servicing or maintenance.
   5. Each employee performing servicing or maintenance will have their own lock, which is identified with their name.
   6. Each lock will have a unique key for each separate employee, so that co-workers cannot remove another employee’s lock.
   7. An employee must be physically present to unlock their own lock. There is no master key.
   8. Affected employees in the work area will be notified that Lockout is being conducted.
   9. Employees shall not attempt to operate equipment that has been locked out.
   10. Disciplinary action will be applied if any employee violates Lockout procedures, regardless of whether physical harm or equipment damage occurred from that incident.
4. **Sequence of Lockout for Equipment.** Lockout procedures will follow this sequence.
   1. Notify all employees who operate the equipment, and all employees in the area that Lockout is going to be conducted, and the reason why.
   2. The authorized employee will follow the specific steps listed in Part 2 of this program to shut-down all energy sources for the equipment.
   3. If the machine or equipment is operating, shut it down by the normal stopping procedure.
   4. Operate the appropriate switch, valve, etc so the electrical, hydraulic, pneumatic, pipe flow, etc is shut off from the equipment.
   5. Lock the energy source in the OFF, or de-activated position, with a lock and identification tag.
   6. Release or restrain any stored energy such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.). Methods include grounding, repositioning, blocking, bleeding down, etc.
   7. Verify that energy isolation is complete by attempting to start the equipment in the normal manner.
   8. After testing, return all operation controls to “Neutral” or “OFF” positions.
   9. The machine or equipment is now locked out.
5. **Sequence to Restore Equipment to Service.** 
   1. Check the machine and the immediate area to ensure that no emloyees are exposed.
   2. Remove all tools and repair equipment.
   3. Ensure all guards have been replaced and safet interlocks re-activated.
   4. Verify that the controls are in “Neutral” or “OFF” position.
   5. Remove the lockout devices.

Each employee who installed a Lock must be physically present to remove their own lock. No master key is permitted. A supervisor or co-worker may not remove an employee’s lock on their behalf.

* 1. Re‑energize the machine or equipment.
  2. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

1. **Sequence of Lockout for Cord‑n‑plug Connected Equipment.** Equipment that is powered by a single cord-and-plug must also be de-energized during repair or maintenance. 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; orkeep the plug within arm's reach and in your line of sight at all times during equip­ment servicing.
2. **Sequence of Lockout for Vehicles**
3. **Sequence of Lockout for Servicing Electrical Wiring**. 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 and proper personal protective equipment per NFPA 70E 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.
4. **Requirements for Lockout Work Involving More than One Person.** Every employee performing repair or maintenance must be protected 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.

Each employee will have a lock with an individualized key. There are no master keys.

1. **Shift or Personnel Changes.** In the event of a shift or 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.
2. **Lock Removal.** An employee will never remove another person's lock without management approval and supervision. If an employee forgets to remove a lockout/tagout device and goes home, the company management will make every effort to contact the employee and request them to return to remove their lock. If the employee cannot be contacted, another authorized employee and the supervisor will check out the equipment and make sure the missing employee is not still working on the equipment, and that 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.
3. **Lockout Procedures for Outside Contractors.** Outside contractors are also required to be protected by Lockout procedures. When the contarctor personnel are working alone, that contractor should use the lockout procedure enforced by their own company. When both a contractor and host employees will be servicing equipment, the host employees should continue to follow the host employer procedures. A contractor may be issued a stop work order if Lockout procedures are not followed.
4. **Training.** Levels of training will depend upon each employees job duties. All training will be documented and kept on 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 all 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.

* 1. **"Affected"** employees are those who operate the equipment being locked out, but are not participating in the repair or maintenance of the equipment. They will not perform lockout procedures, nor service or repair any locked out equipment. Training for Affected employees will include the purpose, use and recognition of the energy control procedure.
  2. **"Other"** employees are those whose work may require them to be in areas where lockout is used. Training will include the procedure and the prohibition relating to attempts to restart or re‑­energize machines or equipment which are locked or tagged out.

1. **Periodic Inspection.** At least annually, the employer must verify the effectiveness of the Lockout Tagout Program.

The 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.

* **PART 2 Specific Procedures for Each Equipment** -

1. Make an inventory of each machine or process for the entire works­ite where servicing and maintenance are performed.
2. 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.
3. List the specific steps 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.
4. 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.

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| **MACHINE SPECIFIC ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT)** |

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| --- | --- | --- |
| **Machine/equipment:** | | |
| **Equipment Identification:** | | |
| **Operator Controls:** | | |
| **Energy Sources:**   **Electrical**   **Steam**  **Pneumatic**   **Other**   **Natural Gas**   **Hydraulic  Stored Energy Source** \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | |
|  |  |  |
| **Shutdown Procedures:** | | |
| **Lock Type & Procedure:** | | |
| **De‑energized & Verified (How):** | | |
| **Startup Procedure:** | | |

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| **SAMPLE MACHINE SPECIFIC ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT)** |

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| --- | --- | --- |
| **Machine/equipment** | Part Revolution Mechanical Power Press | |
| **Equipment Identification** | Minster straight‑side press #38  Minster OBI press #40 | |
| **Operator Controls** | Control panel | |
| **Energy Sources:**   **Electrical**   **Steam**  **Pneumatic**   **Other**   **Natural Gas**   **Hydraulic**   **Stored Energy Source** ‑ Kinetic | | |
| **Identify Energy Source/location**  Electrical  Hydraulic (lube system)  Pneumatic Overhead Air Supply | **Lockable**  Yes  No  Yes | **Type Device Required**  Padlock  De‑energized when power off  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 | |

**Employee Training and Qualification**

The following employees have been trained in the City/Town, Department’s Lockout Tagout Program, and are qualified as **authorized employees** to perform Lockout/Tagout procedures under the provisions of Massachusetts General Law Chapter 149, section 18C and 29 CFR 1910.147.

**Name Job Title Date of Instruction**

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The following employees have received training in the basic provisions of the Lockout/Tagout Program and are classified as **affected employees.** They are required to be notified when a lockout/tagout procedure is to be implemented.

**Name Job Title Date of Instruction**

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**Lockout/Tagout Evaluation Checklist**

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| **SECTION I: GENERAL INFORMATION** | |
| **Date:** | **Inspector(s):** |
| **Authorized Employee(s):** | |
| **Affected or Other Employee(s):** | |
| **Specify equipment & location where the LOTO procedure is being used:** | |

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| **SECTION II: LOCKOUT/TAGOUT PROCEDURE** | | |
| 1. Were all “affected” and “other” employees verbally notified of the lockout? | **Yes** | **No** |
| 1. Were operational controls turned to the “Off” position prior to lockout? | **Yes** | **No** |
| 1. Were all energy sources turned to the “Off” or “Safe” position? | **Yes** | **No** |
| 1. Were lockout devices and locks properly attached to each energy isolation device? | **Yes** | **No** |
| 1. Were warning tags indicating the authorized employee’s name and the date attached to each energy isolation device? | **Yes** | **No** |
| 1. Was all stored energy properly controlled?   (Pneumatic & hydraulic energy bled, suspended parts lowered, etc) | **Yes** | **No** |
| 1. Was an attempt made to restart the equipment or otherwise ensure the effectiveness of the lockout prior to beginning the service work? | **Yes** | **No** |
| 1. If a group lockout was required, did all authorized employees attach their own locks and tags to each energy isolation device? | **Yes** | **No** |
| **(10)** Were all locks and devices properly removed after servicing? | **Yes** | **No** |
| 1. Were all “affected” and “other” employees verbally notified when the lockout was complete? | **Yes** | **No** |

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| **SECTION III: INSPECTION RESULTS AND SIGNATURES** |
| **Please fully explain all “No” responses and note any other deficiencies that are not specifically covered by a checklist item:** |
| **Authorized Employee Name:**  **Signature: Date:** |
| **Inspector Name:**  **Signature: Date:** |