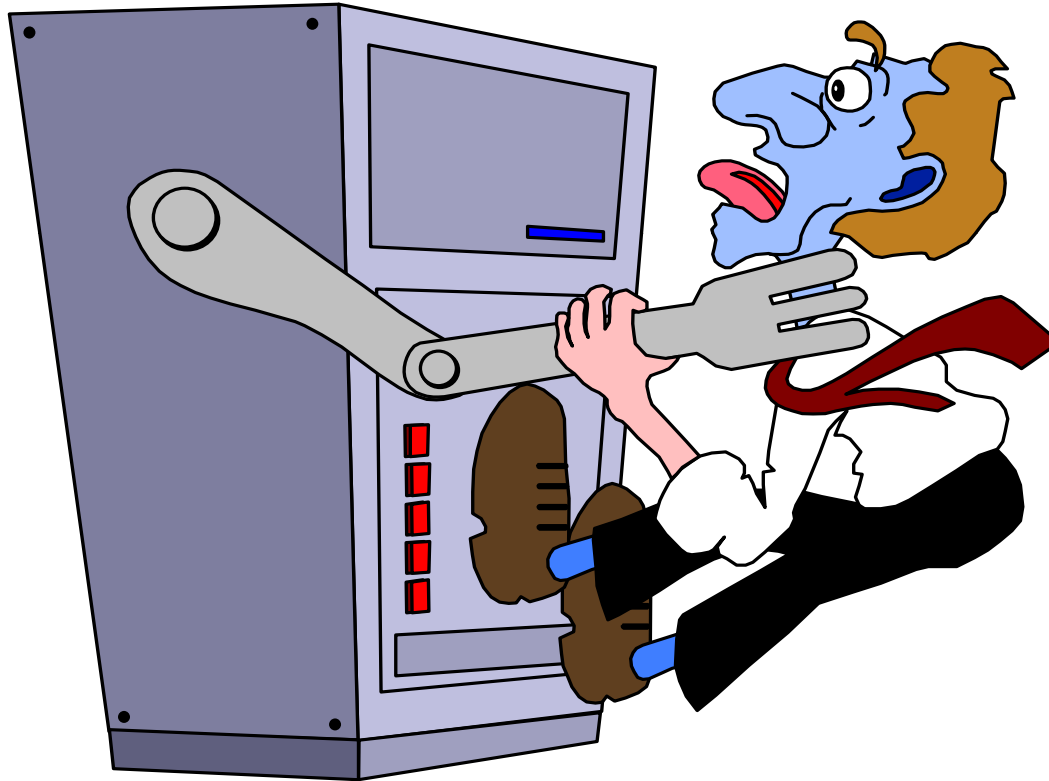


The Control of Hazardous Energy

"Lockout/Tagout"



The Control of Hazardous Energy

"Lockout/Tagout"

◆ TRAINING OBJECTIVES

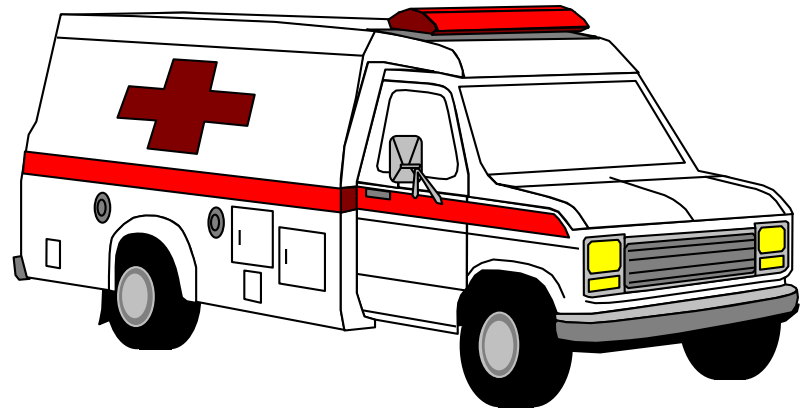
- ☐ Establish a common understanding and basic application for the Control of Hazardous Energy (Lockout/Tagout) by employees.
- ☐ Ensure employees have appropriate equipment to perform LOTO.
- ☐ Verify understanding using a comprehension quiz.
- ☐ Ultimately, to assure a safe work environment for employees.

The Control of Hazardous Energy

"Lockout/Tagout"

◆ PURPOSE

- ☒ To establish and utilize systematic procedures for isolating machines or equipment from hazardous energy where the unexpected start up or release of stored energy could cause injury.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ SCOPE

- ☒ Control of energy during servicing and/or maintenance of machines and equipment.
- ☒ Servicing and/or maintenance which takes place during normal production operations is also covered when:
 - ◆ Employee removes or bypasses a guard or other safety device; or
 - ◆ Employee is required to place any part of body into danger zone.

The Control of Hazardous Energy

"Lockout/Tagout"

◆ WHY?

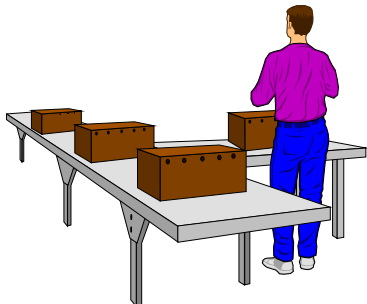
- ☐ It is a system made to compensate for communication flaws.
- ☐ LOTO makes it improbable for anyone to inadvertently start a potential energy source.
- ☐ Your life and physical well-being may depend on it.

The Control of Hazardous Energy

"Lockout/Tagout"

◆ DEFINITIONS

- ☒ "Authorized Employee." An employee who locks or tags machines or equipment in order to perform servicing or maintenance.
- ☒ "Affected Employee." An employee who is required to use machines or equipment on which servicing is performed under the Lockout/Tagout standard or who performs other job responsibilities in an area where such servicing is performed.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ DEFINITIONS

- ☐ "Energy Isolating Device." A mechanical device that physically prevents the transmission or release of energy. Push buttons, selector switches and other "control circuit" type devices are not energy isolating devices.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ DEFINITIONS

- ☐ "Energy Source." Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, radiation, laser, or other energy.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ DEFINITIONS

☐ "Lockout." The placement of a lockout device on an energy isolating device that ensures that the equipment being controlled cannot be operated until the lockout device is removed.

☐ "Lockout Device."
A device that utilizes a positive means such as a lock to hold an energy isolating device in the safe position.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ DEFINITIONS

- ☐ "Tagout." The placement of a tag on an energy isolating device to indicate the energy isolating device is being controlled and may not be operated until the tag is removed.
- ☐ **Tagout without lockout**
ONLY permitted when
energy isolating device
will not accept a lock or
lockout device & lock.



The Control of Hazardous Energy "Lockout/Tagout"

◆ LOCKS

- ☐ Standardized
- ☐ Substantial
- ☐ Identifiable



The Control of Hazardous Energy

"Lockout/Tagout"

◆ TAGS

- ☑ Warning Devices
- ☑ Legible
- ☑ Durable

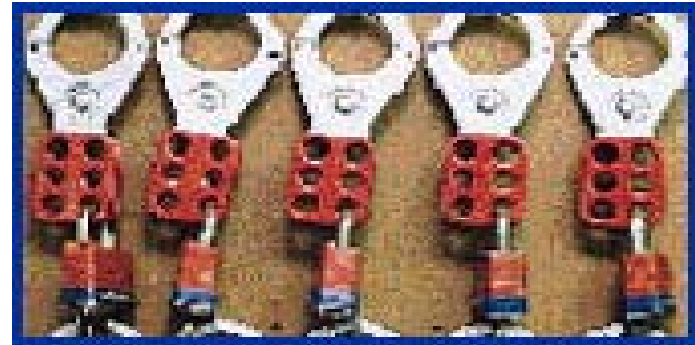


The Control of Hazardous Energy

"Lockout/Tagout"

◆ Recommended LOTO equipment:

- (1 pack) Danger - Do not operate tags.
- (1) Multiple lockout hasp.
- (3) Lockout locks - keyed alike.
- Note: Other lockout devices can be obtained through various vendors if needed. (i.e. valve handle & circuit breaker lockouts).

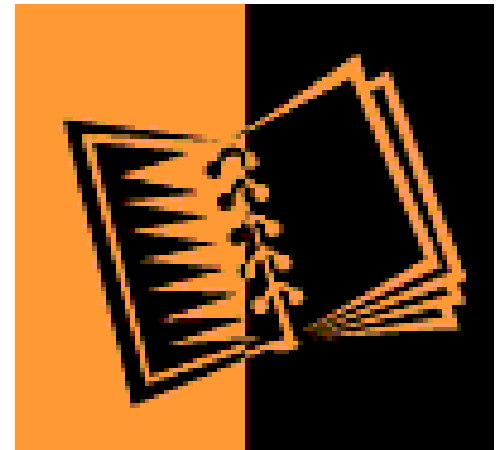


The Control of Hazardous Energy "Lockout/Tagout"

◆ ENERGY CONTROL PROGRAM

☒ Written Procedures

- ◆ SAFTEY Manual
 - General written procedure for the application of LOTO.
- ◆ Equipment Specific Procedures
 - Consult with supervisors and engineers.
- ◆ Prior to executing LOTO, contractors and a facility representative exchange information on their respective procedures.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ LOTO PROCEDURE

- ☰ **Step 1:** "Preparation for Shutdown."
- ☰ **Step 2:** "Machine or Equipment Shutdown."
- ☰ **Step 3:** "Machine or Equipment Isolation."
- ☰ **Step 4:** "Lockout or Tagout Device Application."
- ☰ **Step 5:** "Release Stored Energy."
- ☰ **Step 6:** "Verification of Isolation."
- ☰ **Step 7:** "Release from Lockout or Tagout."



The Control of Hazardous Energy

"Lockout/Tagout"



Step 1: "Preparation for Shutdown."

- ☐ Coordinate shutdown with supervisors and engineers.
- ☐ Locate all hazardous energy sources and their isolation devices.
- ☐ Notify affected personnel (i.e. operators, supervisors, area associates).



The Control of Hazardous Energy

"Lockout/Tagout"



Step 2: "Machine or Equipment Shutdown."


- ☐ Ensure the shutdown of equipment using normal stopping procedure.



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"Lockout/Tagout"

Step 3: "Machine or Equipment Isolation."

-  Confirm all energy isolating devices have been turned off.

The Control of Hazardous Energy

"Lockout/Tagout"



Step 4: "Lockout or Tagout Device Application"

- Apply lockout device, lock, and tag to each energy isolating device.
- Attach one tag to the equipment's START or ON control.
- NOTE:** Tagout without lockout is **ONLY** permitted when an energy isolating device will not accept a lock or lockout device & lock.



The Control of Hazardous Energy

"Lockout/Tagout"



Step 4: "Lockout or Tagout Device Application."


- ☐ Each individual performing work on a machine or piece of equipment requiring LOTO must place their own lock & tag on the affected energy isolating devices.
- ☐ Lockout hasps are available for this.
 - ☐ LOTO keys cannot be transferred.
 - ☐ Should remain in the sole possession of person applying lock.



The Control of Hazardous Energy

"Lockout/Tagout"


Step 5: "Release Stored Energy."


-  Confirm that the equipment has dissipated or restrained stored energy - i.e. bleed down stored pressure in hoses, discharge electrical capacitors, etc.

The Control of Hazardous Energy

"Lockout/Tagout"

Step 6: "Verification of Isolation."

-  Verify equipment will not operate!
 - Assure all personnel are clear.
 - Operate START or ON controls, then return to the OFF position.

-  Observe and test electrical components by a qualified mechanic/electrician to ensure they are free of electrical energy.

The Control of Hazardous Energy

"Lockout/Tagout"





Step 7: "Release from Lockout or Tagout."

- ☐ Inspect equipment to assure that
 - All tools have been removed.
 - All components are operationally intact.
 - All guards have been replaced.
- ☐ Inspect work area to assure all personnel are clear.
- ☐ Notify personnel that locks, lockout devices & tags will be removed.

The Control of Hazardous Energy

"Lockout/Tagout"

Step 7: "Release from Lockout or Tagout."

-  Remove locks, lockout devices & tags from each energy isolating device and return to it's normal ON position.
-  Only individual who applied lock/tag permitted to remove it.

The Control of Hazardous Energy

"Lockout/Tagout"

◆ **Special Considerations**

- ☐ Emergency Lock Removal
- ☐ Group Lockouts
- ☐ Cord & Plug Connected Equipment
- ☐ Hose & Coupling Connected Equipment

The Control of Hazardous Energy

"Lockout/Tagout"

◆ **Emergency Lock Removal**

- ☒ Use the following where the employee who applied the locks, lockout devices, or tags not available to remove them.
- ☒ Obtain appropriate approval.
 - Verify individual who applied lockout devices/tags not on site.
 - Verify that removal of lockout devices/tags does not pose risk of injury.
 - Reasonable effort must be made to notify individual. Employee must be notified before start of their next work shift.
 - Document circumstances and precautions taken.
 - **Contractor's employees shall not direct the removal of host employee's LOTO equipment.**

The Control of Hazardous Energy "Lockout/Tagout"

◆ Group Lockouts

- ☐ If the company utilizes a group lockout approach to securing equipment...
- ☐ Employees and contractors shall affix personal locks to lockbox after confirming that appropriate LOTO steps have been taken by host facility.



The Control of Hazardous Energy

"Lockout/Tagout"

◆ Cord & Plug Connected Equipment

☐ Lockout/tagout is not required if:

- The only source of hazardous energy is electricity;
- Unplugging the cord eliminates all electrical power;
- The plug is under the exclusive control of the person performing the work;
- The START control is operated-after the plug is removed from the energy source to ensure the equipment will not operate;
- **Note: Always operate the STOP control after operating the START control to assure the equipment will not start when plugging the plug back into the energy source.**



The Control of Hazardous Energy

"Lockout/Tagout"

◆ **Hose & Coupling Connected Equipment**

- ☒ Lockout/tagout is not required for hose and coupling equipment if:
 - The hazardous energy is supplied via hose & coupling. (i.e. compressed air, hydraulic fluid, paint & other coating material);
 - Disconnecting the hose/coupling eliminates all hazardous energy to the equipment;
 - The equipment is shutdown using the normal stopping procedure;
 - Residual energy is dissipated before before the hose/coupling is disconnected (i.e. bleeder valve, cycling equipment);
 - The START control is operated - after the hose/coupling has been removed from the energy source - to assure equipment will not start.

