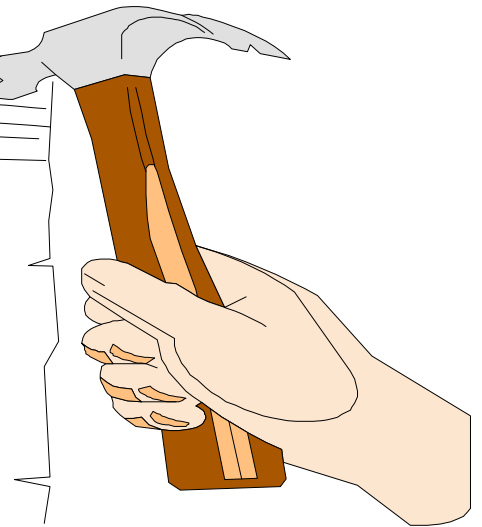


# T E A C H T O O L S

September 1999



## *#23 - Lockout/Tagout*

*provided by:*

Kansas Municipal Insurance Trust

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# Don't Just Turn It Off



# Lock It Out

**A**ny powered equipment is potentially dangerous—even if it is supposed to be shut down! Many needless accidents occur when somebody turns on a machine that other employees are repairing. “I didn’t know anyone was working on it” is the usual alibi in accident investigations.

Accidents occurring under these circumstances are not only needless but serious. They do not result in small cuts or scratches, but most often cause amputations, serious fractures, and even death. Any energy source—electrical, mechanical, pneumatic, hydraulic, or gas—can be deadly if not controlled.

There is one sure way to prevent such accidents from happening to you and that is to make certain that power cannot possibly reach machinery while you are adjusting or repairing it. How is this accomplished? By locking out and tagging power at its source. These procedures are so important that there are federal safety regulations covering them.

Locking out means placing a lock on a device that prevents the release of energy, such as an electric circuit breaker, a disconnect switch, a line valve, a block, and others.

Remember, electricity is not the only form of energy that runs a machine. It is extremely important that all energy sources are controlled before you begin working on a piece of machinery. The following sources of energy should be monitored.

Electrical: currents that flow through conductors such as wires or cables.

Hydraulic: water or other liquid that moves through pipes or hoses.

Pneumatic: pressurized steam, or gases, or compressed air.

Mechanical: stored or built-up energy in springs.

Tagout means attaching a tag on a switch or other shutoff device that warns others not to start up the equipment. Tagout may only be used together with lockout, unless locking out the equipment is impossible.

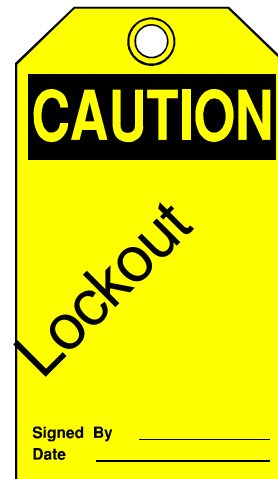
Sounds easy? It is, if procedures are followed correctly. Here is a general lockout procedure that can be adapted to your job.

- Turn off the equipment at the control panel.
- Turn off or pull the main disconnect.
- Attach your safety lock at the main switch.

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- Try to restart the equipment at the control panel.
  - Check the machine for possible residual pressures, particularly for hydraulic systems.
  - Complete your servicing work.
  - Replace all guards on the machinery.
  - Remove your safety lock and adapter.
  - Let others know that the equipment is back in service.

The type of tag that is used for lockout/tagout procedures can be just as important as the procedure itself. Tags should be:

- Used only for lockout/tagout procedures.
- Durable enough to withstand working conditions and the time they are being used.
- Strong enough that they can only be removed with heavy force or tools (nylon cable ties work well).
- Clearly identify the name of the employee authorized to remove the tag.
- Easy to read.
- Standardized – all departments should use the same tags for easy/quick identification.



No lockout system will be effective if it is undertaken in a hit-or-miss fashion. Here are some common mistakes in lockouts. See how many you have been guilty of:

Mistake 1: “This job will only take a few minutes. I don’t need to use a lock—I’ll just shut it down.”

Mistake 2: Your co-worker pulls the switch and correctly locks it out. Then you place your lock through his lock. When he finishes up first, he removes his lock and leaves yours lying on the ground near the switch. Now you have no protection. Always use a multiple lockout when more than one person is servicing the equipment.

Mistake 3: You are afraid you are going to lose the key, so you leave it in the lock. Again, this does not protect you and can be dangerous.

Mistake 4: “Joe, could you take my lock and shut off the machinery and lock it out while I get my tools together?” Do not depend on the other guy! Do the shutoff and lockout yourself.

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Mistake 5: You locked out the control circuit and thought that was good enough. Wrong! The main disconnect or switch must be locked out too. Even one drop of water or a few particles of dust can cause a machine to operate without anyone pressing any start buttons.

Mistake 6: Everything is correctly locked out and you are ready to go to work. You have only got one hour to finish the job. Stop! Before you do anything, take a few moments to test the controls to make sure they are definitely inoperative.

As you can see, it is up to you, the employee, to perform a proper lockout. Ask to review your city's written lockout procedures for the equipment for which you are responsible.

Make sure you have received training and understand exactly what to do. Your life may depend on it!

## Test Your Lockout/Tagout Knowledge

1. Lockout/tagout prevents unexpected release of \_\_\_\_\_.
2. Energy can be electrical, \_\_\_\_\_, hydraulic, and \_\_\_\_\_.
3. Sometimes equipment stores energy, which must be \_\_\_\_\_ or blocked before service or maintenance.
4. Employer lockout/tagout procedures are documented in an \_\_\_\_\_ program.
5. Only \_\_\_\_\_ employees perform lockout/tagout.
6. During service or maintenance, authorized employees must notify all affected employees, turn off the equipment, and \_\_\_\_\_ the energy.
7. \_\_\_\_\_ should be used by itself only when lockout is not possible.
8. When a group performs lockout/tagout \_\_\_\_\_ is responsible for coordination.
9. Never try to \_\_\_\_\_ machinery or equipment that is locked or tagged out.

1. energy 2. pneumatic; mechanical 3. drained 4. energy control 5. authorized; affected 6. authorized 7. isolate 8. Tagout 9. one member 10. start

Answers