

# Lockout Tagout

## Lockout/Tagout Checklist

Before servicing, inspecting, adjusting or cleaning a machine or piece of equipment with movable parts, always do the following:

**DE-ENERGIZE** all sources of hazardous energy. **Examples:** disconnect or shut down engines and motors, de-energize electrical circuits, block fluid flow in hydraulic or pneumatic systems.

**BLOCK** or dissipate stored energy. **Examples:** discharge capacitors, release or block springs that are under tension or compression, vent fluids from pressure vessels, tanks or accumulators — be careful not to vent toxic, flammable or explosive substances into the air.

**LOCKOUT and TAGOUT** all hazardous energy. **Examples:** electrical breaker panels, control valves.

**DOUBLE-CHECK** that all energy sources are de-energized by testing or observing them yourself.

**INSPECT** repair and maintenance work before removing your lock and reactivating the equipment.

**ALERT** co-workers and make sure everyone is clear of danger before re-energizing the system.

**PARTICIPATE** in all lockout/tagout training and refresher programs offered by your employer. Learn safety procedures for any new piece of equipment.

## Lives Are on the Line



### Labeling Saves Lives

LABEL or TAG all sources of hazardous energy before beginning any installation, maintenance or repair task. Energy-isolating devices such as breaker panels and control valves should also be marked with brightly colored, durable labels.



### Do You Hold the Key?

Make sure only one key exists for your assigned locks and that you hold it — don't allow anyone else to use it. Use your individual locks to secure energy control devices such as breaker panels, control valves and manual override switches.

Every time you lock out an energy source, place a warning tag that alerts others to the fact that hazardous energy is being blocked. However, tags are not a substitute for locks. Remember, most workplaces require both lockout and tagout procedures.

The bottom line: Deaths and injuries from hazardous energy are preventable. Follow the correct safety procedures, and wear the right personal protective equipment every time you work on machinery or equipment. You will save lives.

Sources: Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH)

## Good Lockout/Tagout Procedures

- Secure energy control devices with your own individually assigned locks and keys. Don't allow anyone else to use your key.
- Clearly label or tag each lock used to secure an energy control device that identifies you as the worker assigned to the lock.
- At shift change, have your replacement apply his or her locks before removing yours.



## Hazardous Energy Facts

- Compliance with OSHA's lockout/tagout standard prevents an estimated 120 deaths and 50,000 injuries per year.
- Anyone who inspects, services, maintains or adjusts a machine or piece of equipment with moving parts is at risk for injury from hazardous energy.
- Workers injured by exposure to hazardous energy lose an average of 24 work days for recuperation.

## Recognizing Hazardous Energy Sources

Do you think you are safe from injury due to hazardous energy because you are not exposed to it? You might be surprised to learn that energy dangers come from many sources.

SOURCE OF ENERGY:	WHAT TO DO:
Engines and motors	Disconnect
Electrical circuits	De-energize
Movable machine parts	Insert block to prevent movement
Springs	Release tension or compression
Compressed air or fluid	Vent or release
Electrical storage devices	Discharge

## What Is Hazardous Energy?

There are four types of hazardous energy that you could encounter while equipment is installed, serviced, repaired, maintained or cleaned.

1. Kinetic energy in the moving parts
2. Potential energy stored in pressure vessels, gas tanks, hydraulic or pneumatic systems and springs
3. Electrical energy from batteries, capacitors, static sources and generated electrical power
4. Thermal energy from mechanical work, radiation, chemical reaction or electrical resistance