



## LOCKOUT/TAGOUT/TRYOUT

### INTRODUCTION

Sometimes welding or its allied processes must be performed on equipment, pipelines, and machinery. These can contain moving parts, pressurized gases or liquids, electrical energy, or other potential hazards. These can cause an injury or death. Employers must train employees to take steps, such as lockout/tagout, to isolate harmful energy sources before starting work. Lockout/tagout/tryout is sometimes abbreviated as LOTOTO.

### DEFINITIONS

1. “Lockout” means to install a lockable device that keeps the switch, valve, or other mechanism from being turned on or energized.
2. “Tagout” means to put a tag on the locking device. The tag indicates DANGER or WARNING, and a brief alert message. It also has a place to put information, like the date and responsible person’s name; that way the person can be easily found or notified.
3. “Tryout” means to physically attempt to turn on all power switches and devices once the equipment has been locked out. This is your final check and assurance that the equipment has been isolated from all power sources.

*Note: If more than one person performs work on the equipment, it is recommended that they each have their own locks and tags on the lockout devices and/or use a lock-box device.*

### NATURE OF THE HAZARD

- The sudden release of energy results in numerous fatalities and injuries annually in the U.S. These could be prevented by following proper lockout/tagout/tryout procedures, according to the Occupational Safety & Health Administration (OSHA).
- The types of energy most often found are: electrical, pneumatic (pressurized air), laser, hydraulic, gases and liquids, as well as mechanical energy and moving parts.
- Working with or around energy sources without isolating them from the work activity can result in serious injury or death.

### HOW TO AVOID THE HAZARD

- Employers must develop a written lockout/tagout/tryout program and procedure.

- Employees must be trained in these procedures, as well as the purpose and methods of lockout/tagout/tryout.

The basic steps to lockout/tagout/tryout usually involve:

- Inform affected supervisors and employees how to lockout, tagout and tryout the equipment.
- Shut down the equipment involved in the work. Then place locks, tags or other isolation devices according to the written procedure.
- Before lockout/tagout/tryout work begins, try to start the equipment or open the valves.
- If the equipment operates, do not begin work. All work employees must verify where the locks should be placed. If needed, place additional locks to ensure that equipment or valves are not operable. Recheck the equipment or valves for operation.
- Complete assigned work.
- Remove all tools and equipment.
- Ensure all employees are clear of the hazard
- Remove locks and tags according to the written procedure and verify that all employees are clear.
- Test the equipment for normal, safe start-up. Notify other employees when it is safe to operate the equipment.

*Note: If more than one person performs work on the equipment, it is recommended that they each have their own locks and tags on the lockout devices and/or use a lock-box device.*

- If the shift ends before the work is completed, the general practice is for the workers on the initial shift to remove their locks and to ensure that the next shift's employees install their locks and tags before continuing the work. This shall be done before the previous shift's employee's locks and tags are removed.
- For specific information on recommended lockout procedures for equipment, machinery, and valves, consult the employer's written program and procedures. In some cases, it may also be advisable to contact the equipment manufacturer.

## INFORMATION SOURCES

MSHA, *Title 30 Mineral Resources, Parts 1 to 199*, Mine Safety and Health Administration, Code of Federal Regulations (CFR), <[www.msha.gov](http://www.msha.gov)>.

OSHA, *Title 29 Labor, Part 1910.147*, Occupational Safety and Health Administration, Code of Federal Regulations (CFR), <[www.osha.gov](http://www.osha.gov)>.

NFPA 70E, *Standard for Electrical Safety in the Workplace* National Fire Protection Association, <[www.nfpa.org](http://www.nfpa.org)>.