STANDARD OPERATING PROCEDURE

Lockout Tagout (LOTO) SOP

Document no.	SOP-MFG-002
Revision	1.0
Owner	Safety Manager
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Review cycle	Every 12 months

1. Purpose

To control hazardous energy on production equipment during service or maintenance, so no employee is exposed to an unexpected startup or release of stored energy.

2. Scope

Applies to servicing or maintenance of production machinery where unexpected startup or release of stored energy could injure an employee. Normal production operation with guards in place is not covered.

Definitions

Authorized employee	A trained employee permitted to apply and remove lockout/tagout devices to perform service or maintenance.
Affected employee	An employee who operates the equipment or works in the area but does not perform the lockout/tagout procedure themselves.
Stored energy	Energy remaining in a system after the main power is off, such as residual pressure, a raised load, or a charged capacitor.
Energy isolating device	A disconnect switch, valve or other device that physically blocks or isolates a source of energy from the equipment.

3. Responsibilities

Authorized Employee	Performs the lockout/tagout procedure, verifies zero energy, and removes locks when the work is complete.
Affected Employee	Stops using the equipment when notified, stays clear during the procedure, and does not attempt to remove another person's lock.
Maintenance Supervisor	Confirms the correct procedure is used for the equipment and coordinates multi-person lockouts.
Safety Coordinator	Maintains machine-specific lockout procedures and audits compliance periodically.

RACI matrix

Activity	Authorized Employee	Affected Employee	Maintenance Supervisor	Safety Coordinator
Notify affected employees before shutdown	R/A	I	I	-
Identify energy sources and	R/A	-	C	-

Activity	Authorized Employee	Affected Employee	Maintenance Supervisor	Safety Coordinator
isolate equipment				
Apply locks and tags and verify zero energy	R/A	-	C	-
Remove locks and restore energy	R/A	I	I	-
Audit lockout/tagout compliance	C	-	R	A

R = Responsible, A = Accountable, C = Consulted, I = Informed

4. Materials and PPE

Materials, tools and systems

- Machine-specific lockout/tagout procedure
- Personal locks and tags
- Lockout hasps and group lockbox for multi-person jobs
- Voltage tester or pressure gauge for verification
- Lockout/tagout audit checklist

Personal protective equipment

- Safety glasses
- Insulated gloves for electrical isolation points
- Arc-rated clothing where required
- Gloves appropriate to hydraulic or pneumatic isolation points

5. Procedure

Step	Task	Owner	Done
5.1	**Identify all energy sources** Authorized employee reviews the machine-specific lockout procedure to identify every energy source on the equipment, including electrical, hydraulic, pneumatic, and stored mechanical energy.	Authorized Employee	☐
5.2	**Notify affected employees** Authorized employee notifies affected employees in the area that the equipment is being shut down and locked out, and the reason for the work.	Authorized Employee	☐
5.3	**Shut down equipment using the normal stop** Authorized employee shuts the equipment down using its normal operating controls before going to the energy isolating devices.	Authorized Employee	☐
5.4	**Isolate energy sources at each device** Authorized employee operates each energy isolating device identified in the procedure, such as a disconnect switch or block valve, to isolate the equipment from all energy sources.	Authorized Employee	☐
5.5	**Apply lock and tag to each isolation point** Authorized employee applies their personal lock and tag to every isolation point, using a hasp and group lockbox if more than one person is working on the equipment. **Warning:** Every person working on the equipment applies their own lock; never work under someone else's lock alone.	Authorized Employee	☐

Step	Task	Owner	Done
5.6	**Relieve and verify zero stored energy** Authorized employee relieves stored energy such as residual pressure or a raised component, and confirms the equipment is at zero energy using a tester or gauge as applicable. **Checkpoint:** Stored energy is confirmed at zero using a tester or gauge before any work begins.	Authorized Employee	☐
5.7	**Attempt to start the equipment** Authorized employee attempts to start the equipment using the normal operating controls to verify the isolation is effective, then returns the controls to the off position.	Authorized Employee	☐
5.8	**Perform the service or maintenance work** Authorized employee performs the required service or maintenance task while the equipment remains locked and tagged out.	Authorized Employee	☐
5.9	**Inspect the work area before restart** Authorized employee inspects the area to confirm tools are removed, guards are reinstalled, and it is safe to restore energy. **Checkpoint:** All guards are reinstalled and tools removed from the equipment before energy is restored.	Authorized Employee	☐
5.10	**Remove locks and tags** Each authorized employee removes their own lock and tag in the correct sequence; a lock is never removed by someone other than the person who applied it except under an authorized exception procedure.	Authorized Employee	☐
5.11	**Notify affected employees before restoring energy** Authorized employee notifies affected employees that locks have been removed and the equipment is about to be re-energized.	Authorized Employee	☐
5.12	**Restore energy and verify normal operation** Authorized employee restores energy at each isolating device and confirms the equipment operates normally before releasing it back to production.	Authorized Employee	☐
5.13	**Conduct periodic lockout/tagout audits** Safety coordinator conducts a periodic audit of lockout/tagout practice on the floor and reviews machine-specific procedures for accuracy.	Safety Coordinator	☐

6. Quality checks

- Every energy isolation point on the machine-specific procedure has a lock and tag applied during service work.
- Zero energy is verified with a tester or gauge before work begins, not assumed.
- No lock is removed by anyone other than the employee who applied it, except under a documented exception process.
- Periodic audits confirm actual practice on the floor matches the written machine-specific procedure.

7. Records

- Machine-specific lockout/tagout procedures
- Lockout/tagout audit checklists and results
- Authorized employee training records
- Exception procedure log, if a lock must be removed by someone other than the applier

8. KPIs

- Lockout/tagout audit compliance rate

- Incidents related to unexpected equipment startup or stored energy
- Percentage of machines with a current, accurate machine-specific procedure
- Authorized employee training completion rate

9. Common mistakes

- Isolating power but skipping stored energy such as residual air pressure or a raised component.
- Working under a coworker's lock instead of applying your own.
- Skipping the attempt-to-start verification step because the machine looks off.
- Using an outdated machine-specific procedure that doesn't list every energy source.
- Restoring energy without checking that all guards are reinstalled and tools removed.

10. Revision history

Revision	Date	Description	Reviewed by
1.0	September 15, 2026	Initial release	Ilia Pirozhenko

Approval

Prepared by	Approved by	Date

This is a template. Adapt it to your organization, equipment and local regulations before use.