

Lockout / Tagout (LOTO) Procedure

The application of this procedure is mandatory. Its purpose is to protect you, your colleagues, and those working on or around the affected equipment from injury or death.

Unless the equipment being serviced/repared meets ALL of the following requirements, you are required to follow the numbered steps outlined in pages 2 and 3 in this procedure:

- the equipment has no potential for stored or residual energy or re-accumulation of stored energy after shutdown which could endanger employees;
- the equipment has a single energy source which can be readily identified and isolated;
- the isolation and locking out of that energy source will completely deenergize and deactivate the equipment;
- the equipment is isolated from that energy source and locked out during servicing/maintenance;
- a single lockout device will achieve a locked-out condition;
- the lockout device is under the exclusive control of the authorized employee performing the servicing/maintenance;
- the servicing/maintenance does not create hazards for other employees; and
- in the past, there have been no accidents involving the unexpected activation or reenergization of the equipment during servicing/maintenance.

The original copy of the Lockout/Tagout notification (this document) will be kept with the equipment it pertains to until such time as the work is completed and the equipment returned to service. A copy of this procedure will be kept on file in the affected division's work office for the duration of the service/repair.

(please print)

Name of E&O staff initiating Lockout/Tagout (please print)

Date Lockout/Tagout procedure initiated

Equipment Asset Number

Equipment Description

Equipment Location (building, floor, room, etc.)

Sign here after completion of procedure

Signature of person completing the repair/service

Date of completion

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- 1. Energy Source Type(s) to be Isolated** – List the type(s) of energy sources that must be isolated during the repair/servicing of the equipment. See attached Appendix A for a listing of energy sources.

- 2. Notifications** – Notify supervisor and affected employees (list all below).

- 3. Equipment Isolation Devices** – Determine all sources of energy feeding into the equipment and the location of the device(s) needed to isolate the equipment from the energy source(s). List the identification and location of all energy sources and the sequence in which they need to be isolated. **Note:** The equipment Job Hazard Analysis or Standard Operating Procedures should list the isolation devices by name and location.

- 4. Shutdown Procedure** – Detail the appropriate procedure to shut down the equipment.

- 5. LOTO Device Application** – List the location of all Lockout devices. If a Lockout device cannot be applied, list the location of the Tagout device and any additional precautions taken to ensure the level of safety is equal to that of a Lockout device.

- 6. Release Stored Energy** – List all associated devices that may contain stored energy and the process to be employed to safely release or contain this energy. Examples include, but are not limited to, capacitors, springs, hydraulic/pneumatic cylinders, and pressurized piping.

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- 7. Verification of Isolation** – To ensure that all energy sources have been isolated; 1) ensure that no personnel can be exposed to operating equipment and, 2) operate all controls to ensure the equipment will not operate. List all controls that need to be tested and all indicators that should be observed to ensure the equipment has been isolated for all energy sources. **CAUTION:** Ensure all controls have been returned to the Off or neutral position upon completion of verification.

- 8. Jogging or Cycling** – If, during repair/maintenance activities the equipment is required to be jogged or cycled, list the location(s) of LOTO device(s) removed to accomplish this. Remove only the LOTO device(s) absolutely necessary to accomplish the jogging/cycling. After the equipment has been jogged/cycled, the LOTO device(s) shall be reapplied and steps 3 – 7 repeated prior to commencing work. List the LOTO device(s) necessary to be removed and reapplied.

- 9. Release from LOTO and Restoring to Service** – Before LOTO devices are removed and energy is restored to the equipment, inspect the area to ensure nonessential items have been removed and that the equipment is operationally intact.
- Check the work area to ensure all employees are clear of the machine.
 - Verify all controls are in their neutral or Off position.
 - Ensure each LOTO device has been removed from each energy isolation device (preferably by the person that applied the device).
 - Re-energize the equipment in the appropriate sequence.
 - Notify your supervisor and affected employees (see **2. Notifications**) that the LOTO device(s) have been removed and the equipment is safe and returned to service.

After the successful completion of these steps, sign and date the last line on the first page of this document indicating your compliance to this procedure and the date of completion.

Duke University Medical Center

Engineering and Operations

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Appendix A: Energy Sources That Must Be Isolated

(The following Energy Source Type list of should not be considered all inclusive; as additional Energy Source Types are identified, contact your supervisor to request this list be updated.)

Energy Source Type	Application Examples
Electrical – AC	Motors Pumps Compressors
Electrical – DC	Motors
Hydraulic	Elevators Escalators
Moving Parts	Compressors Elevators Escalators
Piped systems (gases/vacuum)	Environmental chambers
Pneumatic	PLTTS
Radiation	UV lights in air handlers
Steam	Autoclaves Boilers
Waste systems (hazardous/chemical/acid)	Backflow preventers

This form is available in the E&O PDF Forms area on the E&O web site (<http://eo.duhs.duke.edu/>). Check to ensure you are using the current version of this form (the version is noted in the page footer; e.g., Version 20080424). If you need assistance verifying or obtaining this form, ask your supervisor or division maintenance office secretary.

This document is maintained by Matt Matthews. Submit requests for corrections/additions through your supervisor.