***BY ORDER OF THE COMMANDER***
***482D FIGHTER WING***

***482 FIGHTER WING INSTRUCTION***
***91-203***

***16 SEPTEMBER 2020***

***Wing Safety***

***LOCKOUT/TAGOUT, SIGNS AND TAGS***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements Air Force Instruction (AFI) 91-203, *Air Force Consolidated Occupational Safety Standard*, EM385-1-1, *Safety and Health requirement Manual*, and 29 CFR 1910.147, *Occupational Safety and Health Administration (OSHA) Standard for General Industry*. This instruction provides a base program designed to further enhance Air Force the LOTO at Homestead Air Reserve Base (HARB). It applies to all machines, equipment, Air Force workers and contractors who may be exposed to hazardous energy during servicing, maintenance or modification activity. Refer recommended changes to and questions about this instruction to the Office of Primary Responsibility (OPR) using AF Form 847, *Recommendation for Change of Publication*; route AF Form 847 from the field through the appropriate functional' s chain of command. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) AFI 33-322, *Records Management Information and Governance Program* and disposed of IAW AFI 33-364, *Records Disposition Procedures and Responsibilities* and Records Disposition Schedule; **http://www.my.af.mil/afrims/afrims/afrims/rims.cfm**

***SUMMARY OF CHANGES***

This publication has been revised with the changes involving Lockout/Tagout (LOTO) duties and responsibilities of Unit Commanders, Supervisors and authorized workers as reflected in **Paragraph 5.1**, **5.2** and **5.3** and the Nine Step Process of LOTO as reflected in **Paragraph 12**

**1. General:** This local instruction establishes requirements for procedures, training and periodic inspection for an energy control LOTO Program to prevent unexpected start-up. This instruction will be reviewed annually and require on-site reviews every 36 months, as appropriate, by tasked organizations. The minimum requirements for the LOTO of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before personnel perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

**2. LOTO Program Requires:**

2.1. Energy isolating devices and procedures to LOTO all machines and equipment.

2.2. Retrofit machines and equipment, as needed, to accept a lockout device. A JSA (Job Safety Analysis) shall be conducted to ensure all hazards are identified and steps put in place prior to performing maintenance until the machine or equipment can be replaced or modified.

2.3. Identification of hazardous energy sources, such as: electrical; pressure/vacuum (hydraulic, pneumatic); chemical; ionizing and non-ionizing radiation sources; thermal, kinetic or mechanical (rotational, gravity) energy; energy stored in capacitors, springs or gravity equipment; machinery or system components that are suspended, blocked or chocked; hydraulic or compressed air accumulators, etc.

2.4. Procedural development and documentation for safe and proper use of locks and tags on energy isolating devices.

2.5. LOTO procedures be strictly followed when working on equipment that may generate, hold or release any form of hazardous energy while the equipment is shut down.

2.6. A training plan for initial and recurring LOTO training.

2.7. All LOTO devices provide a positive means to isolate and prevent uncontrolled release of hazardous energy. LOTO is required whenever service, maintenance or modification will be performed on equipment or machinery where unexpected energizing, start-up or release of stored energy could injure personnel or damage equipment.

2.8. Lockout of all energy sources prior to inspection, maintenance or servicing actions (including but not limited to**:** installation, set up, adjustments, lubrication, cleaning or tool changes) requiring removal of guards. Energy sources shall remain locked out until all actions are complete.

**3. LOTO Procedures:** Only authorized workers shall perform LOTO procedures. **(T-0)** Personnel directly affected by the operation or shutdown of the equipment or machine shall be notified of LOTO devices. **(T-0)** Notification shall be given before controls are applied and after they are removed. **(T-0)** Refer to **paragraph 21.7** for sample procedures. Procedures for applying locks or tags shall include and be performed in the following order. **(T-0) Note 1:** If not specifically called for by governing directives for the task being performed, it is recommended that workers be assigned in teams (minimum of two [2] people), one serving as a safety observer.

**4. Specifications for LOTO:**

4.1. LOTO devices and tags are not required when:

4.1.1. Working on cord and plug connected electrical equipment if:

4.1.1.1. There is a single energy source which can be easily identified and isolated.

4.1.1.2. All hazardous energy is controlled by unplugging the equipment and there is no potential for stored, residual or accumulated hazardous energy.

4.1.1.3. The plug remains under continuous positive control of the worker performing servicing, maintenance or modification. **Note:** A plug LOTO device is recommended.

4.1.2. Operations on energized equipment (e.g. measuring, troubleshooting, calibration), when continuity of service is essential to safety or shutdown cannot be reasonably accomplished. **Note:** Supervisor approval is required for such operations and documented safety procedures that provide an equivalent level of safety shall be established and followed.

4.1.3. Minor tool changes, adjustments and servicing during normal operations provided:

4.1.3.1. Such activities are routine, repetitive and integral to use of the equipment,

4.1.3.2. Work is done using alternative measures that provide effective worker protection.

**5. Responsibilities:** Responsibilities for implementing, monitoring, and enforcing the LOTO procedures program are assigned as follows:

5.1. **Unit Commanders will.**

5.1.1. Ensure this program is implemented fully within the unit.

5.1.2. Ensure the establishment of instructions and training pertaining to LOTO procedures.

5.1.3. Provide equipment such as locks, tags, hasps, and adapters required under this instruction.

5.1.4. Ensure supervisors enforce all LOTO procedures.

5.1.5. Ensure annual program evaluations to assure its continuing functioning and effectiveness.

5.1.6. Ensure supervisors perform training and self-inspections required by this instruction.

5.2. **Supervisors will.**

5.2.1. Be completely knowledgeable of this procedure.

5.2.2. Evaluate facility work areas to determine machines and equipment requiring LOTO during maintenance.

5.2.3. Maintain current program materials, including roster of authorized LOTO users and machine specific LOTO procedures.

5.2.4. Prohibit workers from working on equipment requiring LOTO until trained and authorized to perform LOTO.

5.2.5. Ensure annual training and certification of authorized LOTO users as required by this instruction.

5.2.6. Perform annual self-assessment of the program and ensure inspection are conducted and documented in accordance with requirements.

5.2.7. Develop Written Machine Specific LOTO Guidelines and Energy Isolation Information Placards (**Attachment 3**) for each affected machine or equipment.

5.2.8. Post Machine Specific Guidelines and Information Placards on or near each affected machine or piece of equipment.

5.2.9. Advise all outside contractors working within the facility of the unit LOTO program. Ensure contractors understand and comply with local requirements.

5.2.10. Enforce proper LOTO procedure.

5.3. **Authorized Worker, LOTO Users:**

5.3.1. A person who lock or tag out machines or equipment in order to perform servicing or Maintenance on that machine or equipment.

5.3.2. Have a thorough understanding of the LOTO procedure.

5.3.3. Comply with all provisions of the procedure.

5.3.4. Advise supervisor immediately of any problems encountered when implementing this procedure.

5.3.5. Ensure all LOTO processes are documented accordingly.

5.4. **Wing Safety Staff will:**

5.4.1. Perform annual LOTO inspections and reviews as required by this instruction.

5.4.2. Assist unit commander, facility managers, and supervisors in facilitating implementation of this instruction.

**6. All Affected Personnel:**

6.1. Upon observing a machine or piece of equipment, which is locked out to perform servicing or maintenance, shall not attempt to start, energize, or use that machine or equipment.

6.2. Duties may require him/her to work in the vicinity of or operate a machine or equipment being serviced or maintained under guidelines of this standard.

**7. Prior to Start:** Prior to starting any procedure, authorized worker(s) shall physically locate and identify all isolating devices to ensure that switches, valves or other energy isolating devices are locked and tagged out and manual or freely moving components are blocked or chocked to prevent movement. Authorized worker(s) shall resolve questions on identification of electrical or other energy sources with their supervisor before proceeding. If following equipment-specific written procedures would compromise safety, the authorized worker, with supervisor approval, may modify the sequence of steps, but all steps shall be performed.

**8. Sequence of LOTO:**

8.1. Prior to initiating LOTO, the authorized user will notify all affected employees and supervisors. If the machine or equipment is operating, shut it down using normal operating controls.

8.1.1. The authorized user must survey, using the machine-specific guidelines for that machine or equipment, to locate and identify all isolating devices to be certain which switch(es), valve(s), or other isolating devices apply to the equipment to be locked or tagged out.

8.1.2. The authorized user must review the machine-specific guidelines for that machine or equipment. The authorized user must be knowledgeable of the types and magnitude of the energy, the hazard of the energy to be controlled, and the method or means by which it will be controlled.

8.1.3. Before an authorized user turns off a machine or piece of equipment, the following steps must be taken:

8.1.4. Operate the switch, valve, or other energy isolating device(s) so that the equipment or machine is isolated from its energy source(s). **NOTE*:*** Stored energy such as that in springs, elevated machinery parts, rotating fly wheels, hydraulic systems and air, gas, steam, or water pressure must be relieved or restrained by methods such as repositioning, blocking, bleeding down, or other acceptable methods.

8.1.5. Lockout and tag the energy isolating device(s) with individual lock(s), tag(s), or other energy isolating tools (blocks, chains, etc.)

8.1.6. After ensuring that no personnel are exposed, operate the normal operating controls to ensure the equipment or machine will not operate. **CAUTION:** Return operating controls to the neutral or "OFF" position after completion of this test. Failure to do so may result in unexpected machine operation following restoration of energy after service is complete.

**9. Removing LOTO and Restoring Machine or Equipment to Service:**

9.1. Ensure that all servicing or maintenance is complete.

9.2. Ensure that all tools, parts, mechanical locks (chocks, etc.), and any like items are removed from the machine or equipment.

9.3. Ensure that all guards, shrouds, and safety devices are properly installed and operational.

9.4. Notify other personnel in the shop to safely withdraw from the machine area. Inspect to ensure the area is clear around the machine.

9.5. Remove LOTO devices. This step must be accomplished by the authorized user who applied the LOTO devices.

9.6. Operate energy isolating devices to restore energy to the machine or equipment.

9.7. Perform final inspection to ensure that machine or equipment is operational and safe for normal operation.

9.8. Inform supervisor and affected personnel that the machine or equipment has been restored to normal operational status.

**10. LOTO Program Training:**

10.1. Each authorized LOTO user shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

10.2. All affected personnel shall be instructed in the purpose and use of the energy control procedure.

10.3. All other personnel whose work or operations are or may be in an area where energy control procedures may be utilized shall be instructed about the procedure, and be instructed that they are prohibited from restarting orreenergizing machines or equipment which are locked or tagged out.

10.4. Retraining shall be provided for all authorized and affected personnel whenever there is a change in job assignments, a change in machines, equipment or processes that present a new hazard, when there is a change in the energy control procedures, when periodic inspection of the program or procedure indicates deviation from this procedure, or when unit commander, facility manager, supervisor, or safety office determine there are inadequacies in personnel knowledge or use of the energy control procedure.

10.5. All training conducted under this instruction will be documented on the AF Form 55, and elsewhere as needed to ensure compliance with this instruction.

**11. Lockout:** Lockout is the preferred method of energy isolation and control and provides the highest level of personnel protection. Tagouts may evoke a false sense of security and their meaning needs to be understood as part of the overall energy control program. If a tagout must be used as required by a particular situation, the following must be noted and included in authorized user and affected worker training.

11.1. Tags are warning devices and do not provide physical restraint as locks do.

11.2. When tags are attached to a machine or piece of equipment, the tag is not to be removed, bypassed, or ignored by personnel.

11.3. Tags must be legible and understandable.

11.4. Tags must be capable of withstanding the environment in which they are placed.

11.5. Tags must be securely attached to the energy isolating devices so that they do not become inadvertently or accidentally detached during use.

**12. The Nine Step LOTO Process. The Authorized Worker shall:**

12.1. **Step One–Preparation.** Determine if equipment-specific written energy control procedures are applicable to the task. If so, the worker shall review control procedures and ensure they are followed correctly.

12.1.1. Prior to shutting down equipment or machines, the supervisor, authorized worker or operator must have knowledge of and assess the type (e.g. electrical, mechanical, hydraulic), magnitude (e.g. 120 volts, 60 psi, etc.) and hazards of the energy to be

controlled, including hidden energy sources such as springs, capacitors, elevated parts, etc. **Note:** Equipment or machinery may contain more than one type of energy.

12.1.2. Determine, IAW written procedures, appropriate methods for controlling the hazardous energy. Methods for energy-isolation may include, but are not limited to, circuit breakers, disconnect switches or valves.

12.2. **Step Two – Notification.** Notify all affected workers of the impending shutdown and that they shall not disturb lockout devices or attempt to re-start the equipment until informed it is safe to resume normal operations.

12.3. **Step Three – Shutdown.** Verify it is safe to shut down the equipment or machine.

12.3.1. The equipment or machine shall be turned off or shut down using normal stopping and shutdown procedures (depress stop button, open toggle switch, close shut off valve, etc.).

12.3.2. When equipment or machines use a simple wall plug as the single energy source and all hazardous energy, including stored, residual or accumulated hazardous energy is controlled by unplugging of the equipment, it shall be unplugged and the plug controlled by the supervisor or authorized worker.

12.4. **Step Four – Isolation and Verification.** Isolate all energy sources by operating (switch off, valve off, etc.) energy-isolating device(s).

12.4.1. Verify the correct energy-isolating device has been operated and that steps taken to ensure energy isolation (LOTO applied to disconnect, valve, etc.) correctly correspond to the equipment that requires LOTO.

12.4.2. Ensure all energy isolating devices needed to control the energy to or contained within the equipment or machine are used.

12.5. **Step Five – LOTO Device Application.** Affix LOTO devices (typically locks) to hold energy-isolating devices in an “off” or “safe” position that physically prohibits normal operation of the energy-isolating device. Both tags and locks shall be installed. Tags are warning devices attached to energy isolating devices and cannot provide the physical restraint or security of a lock.

12.5.1. Tags shall indicate date, time, reason and name of the worker installing the device.

12.5.2. To prevent inadvertent or accidental detachment, tags shall be securely attached with a self-locking and non-releasable attachment (i.e., a nylon or plastic cable tie-off strap) with a minimum unlocking strength of 50 pounds.

12.5.3. Tags may cause a false sense of security. Workers shall understand the use and limitations of tags as part of the overall energy control program. Refer to **Paragraph 11** for more detailed information on tagout procedures.

12.5.4. Initial LOTO devices shall be attached to each energy-isolating device by the first authorized worker. Additional authorized workers who perform service, maintenance or modification on the equipment or machine shall apply their own locks during their maintenance activities. Refer to **Paragraph 14** for additional information on multiple lockouts.

12.6. **Step Six – Additional Measures.** Once the system is locked and tagged out, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained or otherwise rendered safe.

12.6.1. Insert physical restraints (blocks, chocks) for moving or raised parts, blind flanges for pressurized piping, disconnect springs (if safe to do so), etc., to ensure moving parts are physically restrained or disconnected.

12.6.2. The authorized worker shall completely release or otherwise control any stored energy and block any unexpected motion. Equipment or machines shall be in a zero energy state.

12.6.3. For stored mechanical energy, vent valves, spring releases, blocking devices or equipment repositioning, as appropriate, shall be used.

12.6.4. For stored electrical energy, approved grounding wands or discharge devices shall be used. If re-accumulation of stored energy to a hazardous level is possible, verification of isolation, such as leaving the ground wand in place, shall be continued until servicing, maintenance or modification is complete.

12.6.5. The authorized worker shall demonstrate the equipment or machine is de-energized or isolated before starting work on LOTO equipment or machinery.

12.7. **Step Seven – Isolation Confirmation.** Physically attempt to operate energy-isolating devices and attempt to restart the equipment or machine using normal controls. **Caution:** Return operating controls to “safe” or “off” position after the test.

12.7.1. When the equipment to be worked on does not have normal controls, e.g., on/off switch, etc., use the following procedure for isolation confirmation. Test potential energy sources using appropriately rated and calibrated instruments or testers. Instruments used to test voltage, pressure or temperature shall be checked for proper operation both before and after use. **(T-0)** If the authorized worker is not qualified to test the energy being isolated, he or she shall ensure the energy is tested by a qualified person. **(T-1)**

12.8. **Step Eight – Keep LOTO Devices in Place.** A lock and tag shall remain in place until work on the equipment or machine is complete.

12.8.1. In rare circumstances, it may be necessary to temporarily remove LOTO devices before work is complete, such as for adjustment or repositioning equipment.

12.8.2. Use the following sequence of actions when LOTO devices must be temporarily removed from the energy-isolating device:

12.8.3. Notify all affected workers and supervisors.

12.8.4. Clear equipment or machine of tools and materials.

12.8.5. Remove all workers from equipment or machine area and ensure required tools are safely and properly positioned.

12.8.6. Remove all repositioning and blocking devices and return all vents and valves to normal operating positions.

12.8.7. Remove all grounding/shorting conductors, hooks or wands.

12.8.8. Put on any required PPE.

12.8.9. Energize and proceed with testing or positioning.

12.8.10. De-energize all systems; reapply lockout/tagout measures; notify all affected workers and supervisors; and continue servicing, maintenance or modification of equipment or machine.

12.9. **Step Nine – Before restoring machines and equipment to service, the supervisor or authorized employee will. (T-1)**

12.9.1. Ensure all personnel, tools and maintenance or servicing equipment have been removed and guards reinstalled. **(T-1)**

12.9.2. Notify personnel the locks or tags have been removed and equipment is in service.

12.9.3. Remove all locks or tags and restore the energy isolating device to the 'ON' position.

**13. Tag-Out Only:** A "tag-out only" procedure may be used in the rare case a device cannot be locked out. Use extra caution with Tag-Out Only procedures as tags are warning devices and do not provide the physical restraint and security of a lock. Tags may evoke a false sense of security by the worker. A Tag-Out Only procedure may be used if:

13.1. A justifiable and verifiable need is identified.

13.2. Approval is obtained from the supervisor

13.3. Authorized workers follow LOTO procedures, with the following changes:

13.3.1. Omit placement of the lock.

13.3.1.1. In place of the lock, a secondary means of isolation shall be used. Removing an isolating circuit element, blocking a controlling switch, opening an extra disconnect device or removing a valve handle are examples of secondary measures. The secondary means of isolation shall be identified on the tag affixed IAW equipment-specific written LOTO procedures.

13.3.1.2. The tag is secured with a self-locking and non-releasable attachment (i.e., a nylon or plastic cable tie-off strap) with a minimum unlocking strength of 50 pounds. A tag used without a lock shall be supplemented with at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. These devices shall be attached so they interfere with the operation of energy isolating devices (worker has to undo or remove the tag to operate isolating device).

13.3.1.3. If tag placement would compromise safety by obscuring indicator lights or controls or where a tag cannot be attached directly to the energy-isolating device due to design, the tag shall be located as close as safely possible to the device, in a position immediately obvious to anyone trying to operate the device. **Note:** Energy-isolating devices for such equipment or machinery shall be modified or designed to accept a lockout device whenever new equipment or machinery is installed or major replacement, repair, renovation or modification is performed.

**14. Multiple Lockout:** If more than one worker needs to LOTO equipment or machinery:

14.1. Each authorized worker shall place his/her own lock on the lockout device and install their own tagout device.

14.2. A multiple lockout device (hasp) shall be used when an energy-isolating device cannot accept multiple locks.

14.3. Each worker shall remove his/her own LOTO devices when work is complete

**15. Group LOTO Procedure:** When more than one worker will be required to perform servicing or maintenance on a machine or equipment that must be locked out; each person performing work must have a personal lock applied to the energy isolating devices.

15.1. When a switch, valve, or other energy-isolating device cannot accept multiple locks or tags, one of the following must be observed:

15.2. **(Option I)** A multiple LOTO hasp must be used, or

15.3. **(Option II)** A single lock can be used to secure each energy isolating device when the key to that lock is stored in a lockbox or cabinet secured by a lock applied by each authorized user.

15.4. In the event of a shift or personnel change when maintenance will continue by an authorized user other than the one who applied the LOTO, the original authorized user is responsible for the orderly transfer of LOTO devices. This transfer must be orderly and minimize exposure to other personnel. There should *never* be *any* period of time when there is no LOTO device applied to energy isolating devices due to shift or personnel changes.

**16. Irregular LOTO Removal:** Unless mission-essential circumstances warrant; only the authorized user who applied the lockout/tag device is authorized to remove it.

16.1. This section outlines the steps, which must be taken when, for whatever reason, it is impossible to contact the authorized user who applied the device(s), or due to an emergency situation, it is necessary to remove the device(s). Convenience is not a valid reason for invoking the provisions of irregular LOTO removal.

16.2. The only personnel authorized to remove LOTO devices under circumstances outlined in the previous paragraph are the unit commander, facility manager, or supervisor of the authorized user originally applying the LOTO devices.

16.3. LOTO devices may be removed after every effort has been made to contact the original authorized user by following the steps outlined in section 3.3, Removing LOTO and Restoring Machine or Equipment to Service.

16.4. Inform original authorized user prior to his/her next duty shift of the action taken and that the machine or equipment is no longer protected by LOTO.

16.5. Forward completed checklist (**Attachment 3**) to the Safety Office within 24 hours.

**17. LOTO Device Requirements and Control:** The lock used for lockout must have only one key, and that key must be in the possession of the authorized user applying the lockout device. The 482d Fighter Wing Commander must approve any and all exceptions to this provision.

17.1. LOTO devices shall be singularly identified, shall be the only devices used for controlling energy, and shall not be used for any other purposes.

17.2. LOTO devices used for energy control as outlined in this instruction shall be standardized within each facility by color, shape, or size.

17.3. Tags and tagout devices used for energy control as outlined in this instruction should be standardized in print and format.

17.4. LOTO devices used for energy control as outlined in this instruction must indicate the identity of the employee applying the device(s).

17.5. Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal.

17.6. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self- locking, and non-releasable with a minimum unlocking strength of at least 50 pounds.

**18. Exception to LOTO:** This procedure does not apply to work on cord and plug connected equipment where the hazard of unexpected energization or start-up of the equipment is controlled by unplugging the equipment from the energy source and the plug then remains under the exclusive control of the person performing the servicing or maintenance. In this case, an AF Form 982, *Do Not Start Tag* will be attached to the plug while the machine or equipment is being serviced.

18.1. This procedure does not apply to maintenance of equipment permanently attached, affixed, or contained in aircraft or ground vehicles.

**19. Self-Inspection of LOTO Program:** The Safety Office will conduct regular inspections of LOTO procedures. This will be performed to ensure that authorized LOTO personnel follow the procedures outlined in this program.

19.1. Within each facility, an authorized LOTO user will conduct a semi-annual audit of another authorized LOTO user, as required by this instruction.

19.2. The facility manager will choose a different auditor each time to expose all authorized users to the process.

19.3. The audit will be conducted while a typical LOTO procedure is actually performed by another authorized LOTO user.

19.4. The designated evaluator will observe the LOTO procedure from initial shut-down of the machinery or equipment until all safeguards are removed and the machinery or equipment is restored to service.

19.5. The LOTO Procedure Checklist (**Attachment 2**) will be completed by the evaluator. Any discrepancies or violations of the LOTO program should be noted on the form. The facility manager will ensure that any problem areas are addressed and actions taken to prevent re- occurrence.

19.6. The completed form will be maintained by the facility manager for a period of two years.

19.7. Each facility manager will conduct an annual review of the LOTO procedures program in that facility. The annual review will include a review of the entire written LOTO program to ensure the program is being adhered to. Changes, where deemed necessary by the unit commander, facility manager, and affected supervisor may be made. However, any proposed

changes must comply with current AFOSH and OSHA regulations in effect at the time of the review, and must be approved in writing by the 482d Fighter Wing Safety Office.

19.8. Each work center supervisors having requirements for a LOTO program must conduct an annual self-inspection of the LOTO program. Self-Inspection must be documented accordingly using the Self-Inspection Checklist (**Attachment 5**).

**20. Service/Administrative Locks:** The shop supervisor is responsible for applying and controlling service/administrative locks. Any lock can be used for a purpose other than LOTO and must be clearly distinguishable from LOTO authorized locks from locks and tags used for LOTO (i.e., if red banded locks are used for LOTO they shall not be used as service/administrative locks).

20.1. Once maintenance operations start, service/administrative locks and tags shall be replaced with LOTO devices IAW **paragraph 12.4** after verification of the energy state.

20.2. Service/Administrative Locks may be used for safety functions other than LOTO, equipment or machinery out of service for an extended period with no maintenance, a configuration control function or other purposes.

20.3. Service/Administrative locks and tags are not transferred during shift changes; they shall stay in place until the equipment or machinery is repaired or moved. **NOTE:** AF Form 983 shall not be used as a service/administrative tag.

20.4. Service/Administrative locks can be used on equipment or machinery is locked out for several shifts, with no maintenance planned, or equipment that is locked out in a long term-status. The tagout shall explain the purpose for the lockout.

20.5. AF Form 979**,** *Danger Tag*, or AF Form 982, *Do Not Start Tag*, shall be used in conjunction with service/administrative locks. **(T-1)** These tagout devices immediately alert workers to existing and/or potential hazards from servicing, maintenance or modifications to equipment or machinery.

**21. Multiple Lockout:** If more than one worker needs to LOTO equipment or machinery:

21.1. Each authorized worker shall place his/her own lock on the lockout device and install their own tagout device.

21.2. A multiple lockout device (hasp) shall be used when an energy-isolating device cannot accept multiple locks.

21.3. Each worker shall remove his/her own LOTO devices when work is complete.

**22. Emergency Removal of LOTO Devices:** In some instances, a lock and/or tag may have to be removed by someone other than the person who applied the lockout device. For example, contractors may complete their work and leave without removing their issued locks, or a worker may be absent due to illness or other reasons. Under such circumstances, the supervisor may need to remove the lock, but the supervisor assumes responsibility for the safety of the equipment and those who work with it. If the authorized worker who applied a LOTO device is not available to remove it, the supervisor may remove the device, if it is safe to do so, provided:

22.1. Specific training and procedures are developed, documented and incorporated into the shop energy control program which demonstrate safety equivalent to removal of the device by the authorized worker who applied it.

22.2. The supervisor verifies the authorized worker who applied the device is not at the facility.

22.3. The supervisor makes every reasonable effort to contact the authorized worker who applied the device via e-mail, voicemail, etc.

22.4. If the authorized worker is contacted, the supervisor informs the worker their LOTO device must be removed and the reason for the removal.

**23. Three Step Release from LOTO Process:**

23.1. **Step One – Preparation and Notification.** Notify all affected workers the system is ready for return to service.

23.1.1. Inspect the work area and ensure all tools, debris and non-essential personnel are removed to a safe distance. Replace safety guards**,** inspect equipment or machinery and ensure guards are operational.

23.2. **Step Two – Removal of Additional Devices.** The authorized worker shall remove any additional devices applied IAW LOTO Application Step Six.

23.2.1. Remove all safety grounding devices and verify the work for which LOTO was applied is complete and it is safe to reenergize the equipment or machinery.

23.3. **Step Three – Removal of all Locks and Tags.** Each LOTO device shall be removed only by the authorized worker who applied it. If authorized worker who applied a LOTO device is not available, his or her supervisor may remove the device using emergency removal procedures in **Paragraph 22**

23.3.1. Authorized workers shall remove all LOTO devices and restore the energy isolating device to the 'ON' position.

23.3.2. Notify all workers the lockout condition has been cleared (locks and tags removed) and equipment or machinery is ready for service.

23.3.3. Energize the equipment or machinery and restore to normal operating condition and annotate LOTO log with clearance information.

**24. Contractors:** Supervisors shall be aware of each contractor's responsibilities, how they apply to their workplace and requirements of this chapter. Refer to EM385-1-1, *Safety and Health requirement Manual*, and AFI 91-203 Paragraph 21.8 for further information on contracts and responsibilities. Supervisors will contact the installation Contracting Office in the event contractors are not in compliance with Air Force and/or OSHA requirements. **Note:** This paragraph and accompanying subparagraphs cover contractor operations in buildings/facilities still Air Force-owned, Air Force-controlled and occupied by Air Force personnel. Confined space procedures performed by contractors will be specified in the contractor's contract (e.g., contractor follow OSHA standards or AF guidance).

24.1. When contractor personnel are engaged in activities covered by this instruction, the on-site supervisor and contractor shall inform each other of their respective LOTO procedures. The on-site supervisor shall ensure his/her personnel understand and comply with the contractor's energy control procedures. Air Force and contractor personnel conducting joint LOTO operations shall use requirements in this standard.

24.2. The unit supervisor and the authorized worker most familiar with the equipment or machinery being serviced by the contractor shall review the contractor's LOTO program, in detail, to ensure workers will not be injured by allowing use of the contractor's LOTO program and procedures at the facility. All affected workers shall be trained in LOTO and familiarize themselves with the contractor's LOTO procedures. Authorized LOTO devices shall be used IAW **Paragraphs 24.3** The installation contracting office shall inform the unit (per line item entry in the written contract) to supply the contractor with an ample supply of Air Force tags, i.e., AF Form 983**,** *Danger – Equipment Lockout Tag*, and any other required tags.

24.3. To protect workers, contractor work areas shall be isolated and access by Air Force personnel restricted, unless working in conjunction with the contractor. If this is impractical or cannot be accomplished, the on-site supervisor shall assure the contractor's compliance with proper work procedures, energy isolation procedures and contractor employee compliance.

24.4. The responsibility for LOTO training of contractor employees lies with their employer.

24.5. If there are any discrepancies, the contractor supervisor shall ensure his/her workers understand and comply with any restrictions and prohibitions of the contractor's LOTO program.

24.6. Contractors not following OSHA Hazardous Energy Control requirements shall be notified by the installation contracting office to suspend or terminate their work until their LOTO program is in compliance.

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Commander, 482d Fighter Wing

**Attachment 1**

**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION**

***References***

AF Form 55, *Employee Safety and Health Record,* 10 July 2013

AF Form 623, *Individual Training Record Folder,* 1 October 1996

AF Form 979, *Danger Tag,* 1 July 1990

AF Form 980, *Caution Tag,* 1 July 1990

AF Form 982, *Danger Tag: Do Not Start,* 1 July 1990

AF Form 983, *Danger – Equipment Lockout,* 04 September 2012

AFMAN 91-203, *Air Force Consolidated Occupational, Fire and Health Standards, 3 Sep 2020*

EM385-1-1, *Safety and Health Requirement Manual,* 5 July 2011

***Abbreviations and Acronyms***

**AFOSH**—Air Force Occupational Safety and Health

**AFI**—Air Force Instruction

**HARB**—Homestead Air Reserve Base

**IAW**—In Accordance With

**LOTO**—Lockout/Tagout

**OPR**—Office of Primary Responsibility

**OSHA**—Occupational Safety and Health Administration

**PPE**—Personal Protective Equipment

**USAF**—United States Air Force

***Terms***

**Affected Worker**—A worker whose duties require him/her to work in the vicinity of or operate a machine or equipment being serviced or maintained under guidelines of this standard.

**Authorized Lockout/Tagout User**—Personnel who actually employ lockout/tagout procedures to perform servicing or maintenance on machines or equipment.

**Service/Administrative Lock**—Any lock used for a purpose other than lockout/tagout and is distinguishable from lockout/tagout authorized locks. The lock may be used for safety functions other than lockout/tagout, equipment or machinery out of service for an extended period with no maintenance, a configuration control function or other purposes.

## Attachment 2

## LOCKOUT/TAGOUT PROCEDURE CHECKLIST

| LOCKOUT/TAGOUT PROCEDURE CHECKLIST | |
|---|---|
| **PREPARATION** | |
| 1. Notify all affected supervisors | ☐ |
| 2. Notify all affected employees | ☐ |
| 3. Ensure that you know and understand: | |
| (a) Type of magnitude of energy to be locked out | ☐ |
| (b) Location and type of isolating devices involved | ☐ |
| (c) The method of lock out being employed | ☐ |
| **SEQUENCE OF LOCK OUT/TAG OUT** | |
| 1. All preparation steps completed | ☐ |
| 2. Take equipment or machinery out of operation by means of normal shut down procedure | ☐ |
| 3. Operate the energy isolating device(s) | ☐ |
| 4. Ensure that there is no stored energy | ☐ |
| 5. Lock or tag out isolating device(s) and relive or restrain any stored energy | ☐ |
| 6. List all energy isolating device(s) locked or tagged out or stored energy sources that are relieved or restrained: | ☐ |
| 7. Operate normal operating controls to ensure that the machine or equipment will not operate | ☐ |
| 8. Ensure that all operating controls are returned to the neutral position | ☐ |
| **RESTORING TO NORMAL PRODUCTION STATUS** | |
| 1. Ensure that all machine servicing and/or maintenance is complete | ☐ |
| 2. Ensure that all tools, parts, mechanical locks and any like items are removed from machinery or equipment | ☐ |
| 3. Ensure that all guards, shrouds and safety devices are properly installed and operational | ☐ |
| 4. Notify other personnel in the area and ensure that all personnel are clear of any potential hazard | ☐ |
| 5. Remove lock out/tag out device(s) and mechanical restraint(s) | ☐ |
| 6. Operate energy isolating devices to restore power to machinery or equipment | ☐ |
| 7. Inspect area to ensure that machinery or equipment is operational and safe for normal production | ☐ |
| 8. Inform affected Supervisor(s) that machine is returned to normal production status | ☐ |
| 9. Inform affected employee(s) that machine is returned to normal production status | ☐ |
| **LOCK OUT/TAG OUT INSTALLED BY:** _____ | |
| Print Name<br><br>Date _____Signature_____<br><br>Comments: | |

| |
|---|
| **LOCK OUT/TAG OUT REMOVED INSTALLED BY:** |
| |
| Date _____Signature_____<br><br>Comments: |
| |

**Attachment 3**

## IRREGULAR REMOVAL OF LOCKOUT/TAGOUT PROCEDURE CHECKLIST PREPARATION

| **IRREGULAR REMOVAL OF LOCKOUT/TAGOUT PROCEDURE CHECKLIST PREPARATION** | |
|---|---|
| 1. Notify all affected supervisors | ☐ |
| | |
| 2. Notify all affected employees | ☐ |
| | |
| 3. Ensure that you know and understand: | |
| (a) Type of magnitude of energy to be locked out | ☐ |
| (b) Location and type of isolating devices involved | ☐ |
| (c) The method of lock out being employed | ☐ |
| | |
| **REMOVAL OF LOCK OUT/TAG OUT DEVICE(S)** | |
| 1. Ensure that all machine servicing and/or maintenance is complete. If not complete, ensure that a tag out is placed on the machine on the machine or equipment to prevent starting. | ☐ |
| 2. Ensure that all tools, parts, mechanical locks and any like items are removed from machinery or equipment. | ☐ |
| 3. Ensure that all guards, shrouds and safety devices are properly installed and operational. | ☐ |
| 4. Notify other personnel in the area and ensure that all personnel are clear of any potential hazard. | ☐ |
| 5. Remove lock out/tag out device(s) and mechanical restraint(s) | ☐ |
| 6. Inspect area to ensure that machinery or equipment is operational or that area is safe for employees after removal of energy isolating device(s) | ☐ |
| 7. Operate energy isolating devices to restore power to machinery or equipment | ☐ |
| 8. Inform affected Supervisor(s) that machine is returned to normal production status | ☐ |
| 9. Inform affected employee(s) that machine is no longer tagged out | ☐ |
| **LOCK OUT/TAG OUT REMOVED BY: _____** | |
| Print Name<br><br>Date Signature_____<br><br>Notes:__ | |
| **A copy of this form must be completed each time a lock or tag is removed by other than the employee who initiated the lockout or tagout.** | |

## Attachment 4

## MACHINE DESCRIPTION

| Shop | Machine Description | Machine Identification | Contact For Assistance |
|---|---|---|---|
| | | | |

## ENERGY ISOLATION INFORMATION PLACARD

| Energy Sources | | Isolating Devices | | | Control Devices | | | |
|---|---|---|---|---|---|---|---|---|
| Type | Amount | Type | Location | ID | Lock | Tag | Both | Note |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| **Machine Specific Lockout/Tagout Procedure** | **YES** | **NO** |
|---|---|---|
| 1. Are all affected employees and supervisors notified of intent to apply lockout/tagout? | | |
| 2. Are Energy Isolation Information Placard reviewed prior to the application of lockout/tagout devices? | | |
| 3. Are machine surveyed using this procedure to locate and identify all isolating devices? | | |
| 4. Are machines shut down using normal operating controls? | | |
| 5. Are energy isolating devices tested/operated to cut off energy to the machine? | | |
| 6. Are lockout and tagout devices applied as outlined in Energy Isolation Information Placard? | | |
| 7. Are personnel exposed to machine or equipment test? | | |

| | | |
|---|---|---|
| 8. Are normal operating controls activated to ensure equipment will not operate? | | |

## Attachment 5

## LOCKOUT/TAGOUT SELF-INSPECTION CHECKLIST

**Figure A5.1. Lockout/Tagout Self-Inspection Checklist.**

| **Date of inspection_____. Individual performing inspection_____** | | |
|---|---|---|
| **INSPECTION ITEM** | **YES** | **NO** |
| **1. Equipment, Machinery, and Personnel:** | | |
| a. Has a list of equipment and machines for the lockout/tagout procedure been developed? | | |
| b. Does the list identify cord and plug connected equipment? | | |
| c. Does the list identify energy sources for the equipment? | | |
| d. Has a determination been made that equipment is capable of being locked out? | | |
| e. Have previous injuries occurred involving the unexpected activation or reenergization of equipment? | | |
| f. Has a Hazardous Energy Control Procedure been completed for each piece of equipment falling under the lockout\tagout program? | | |
| g. Has a list of personnel who work around this equipment been developed? (Affected Personnel) | | |
| h. Has a list of personnel authorized to apply lockout\tagout, devices been developed? (Authorized Personnel) | | |
| **2. Energy Control Program:** | | |
| a. Has a written energy control program been developed? | | |

| | | |
|---|---|---|
| b. Does the program state methods to comply with: | | |
| I. Statement of intended use of the procedures? | | |
| 2. Steps for shutting down, isolating, blocking, and securing hazardous energy? | | |
| 3. Steps for placement, removal, and transfer of lockout/tagout devices? | | |
| 4. Requirements for testing to verify the effectiveness of the lockout/tagout devices? | | |
| | **YES** | **NO** |
| c. Does the program outline employee training requirements for the following? | | |
| I. Authorized personnel? | ____ | ____ |
| 2. Affected personnel? | ____ | ____ |
| 3. Shift Change? | ____ | ____ |
| 4. Proper use of devices? | ____ | ____ |
| 5. Use of Hazardous Energy Control Procedures? | ____ | ____ |
| 6. Performing inspections? | ____ | ____ |
| 7. Responsibilities? | ____ | ____ |
| 8. Restoring operations? | ____ | ____ |

| | | |
|---|---|---|
| 9. Regulations? | ___ | ___ |
| d. Is training documented on the Employee's Safety and Health | ___ | ___ |
| Record, AF Form 55?<br><br>e. Is training for authorized personnel perfom1ed annually? | ___ | ___ |
| f. Is the program self-inspected semi-annually? | ___ | ___ |
| g. Does ground safety inspect your program at least annually? | ___ | ___ |
| h. Are all lockout devices serviceable and adequate? | ___ | ___ |
| **3. Application of the Program:** | | |
| a. Are only authorized personnel allowed to implement the procedures? | ___ | ___ |
| b. Are affected personnel notified when the procedure is implemented? | ___ | ___ |
| c. Are authorized personnel required to verify the isolation of the hazardous energy? | ___ | ___ |

This checklist is a quick reference to requirements set by regulations. You should still consult applicable regulations to insure your program is in compliance with the most current AFI's and OSHA Standards.