



# Farm Safety Association

Agriculture • Agribusiness • Horticulture • Landscaping

## AGRICULTURAL LOCKOUT

When most people think of uncontrolled hazardous energy, they immediately think of electricity, but there are other sources of energy that can be just as hazardous. These energy sources include thermal, chemical, pneumatic, hydraulic, mechanical, and gravitational.

It is important to remember that all sources of energy have the potential to unexpectedly start-up, energize, or release. Because of this, they must be identified and locked, blocked, or released before servicing or maintenance is performed on machinery or equipment.

### PRE-PLANNING FOR A LOCKOUT

- An initial survey should be made to determine which switches, valves, or other energy isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or others) may be involved.
- Any questionable identification of sources must be cleared by the employees with their supervisors.
- Energy lockout devices must be used only by trained individuals

All energy lockout devices must be adequately labeled or marked to indicate their function. The identification includes the following:

- Equipment supplied
- Energy type and magnitude
- Where system complexity requires it, a written sequence in checklist form should be prepared for equipment access, lockout/tagout, clearance, release, and start-up.

### LOCKOUT/TAGOUT PROCEDURES

#### Preparation

- Notify all affected employees that a lockout is required and the reason therefore.



### **Machine or equipment shut down.**

- If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).
- Disconnect switches should never be pulled while under load, because of the possibility of arcing or even explosion.
- Personnel with a knowledge of equipment operation should be involved with the shut down or re-start procedures.

### **Machine or equipment isolation**

- Operate the switch, valve, or other energy-isolating device so that the energy source(s), electrical, mechanical, hydraulic, etc., is/are disconnected or isolated from the equipment.
- Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc., must also be dissipated, disconnected, or restrained by methods such as grounding, repositioning, blocking, bleeding-down, etc.

- Pulling fuses is not a substitute for locking out. A yanked fuse is no guarantee the circuit is dead, and even if it was dead, there's nothing to stop someone from unthinkingly replacing the fuse.
- **Caution:** Intermittently operating equipment such as pumps, blowers, fans, and compressors may seem harmless when dormant. Don't assume that because equipment isn't functioning, it will stay that way.

### **Application of lockout/tagout**

- Lockout and tag the energy isolating device with an assigned individual lock, even though someone may have locked the control before you. You will not be protected unless you put your own padlock on it. .
- Both locks and tags must clearly indicate the identity of the employee who applied the device. This provides positive identification as to who is servicing the machinery and equipment. The identification will also indicate who may not have finished working in a multiple lockout/tagout situation.



- The locks and tags must be durable enough to withstand the environment in which they will be used. Information on the locks and tags must remain legible.
- Locks must be substantial enough to prevent removal without the use of excessive force. Tags must be substantial enough to prevent accidental or inadvertent removal.
- Both locks and tags are to be standardized by either color, shape, or size. Tags must have a standard print and format.
- For some equipment it may be necessary to construct attachments to which locks can be applied. An example is a common hasp to cover an operating button. Tags must be attached to the energy isolating device(s) and to the normal operating control and must be attached in such a manner as to preclude operation.

#### **Verification of Isolation.**

- After ensuring that no personnel can be exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.
- If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation must be continued until the

maintenance or repair is completed, or until the possibility of such accumulation no longer exists.

- **Caution:** Return operating controls to neutral position after the test. A check of system activation (e.g. use of voltmeter for electrical circuits) should be performed to assure isolation. The equipment is now locked out.

#### **Lockout/ tagout interruption**

- In situations where the energy isolating device is locked/tagged and there is a need for testing or positioning of the equipment/process, the following sequence applies:
  - Clear equipment/process of tools and materials.
  - Clear personnel.
  - Clear the control of locks/tags according to established procedure.
  - Proceed with test, etc.
  - De-energize all systems and re-lock/re-tag the controls to continue the work.

#### **Release from lockout/tagout**

- Before lockout or tagout devices are removed and energy is restored to the machine or equipment, inspect the work area to ensure that non-essential items have been removed and to ensure that machine or equipment components are operationally intact.



- Check work areas to ensure that all employees are in the clear.
- Notify affected employees that lockout/tagout devices have been removed.

Each lockout/tagout device must be removed from each energy-isolating device by the employee who applied the device. The energy isolating devices may be breakers, to restore energy to equipment.

### **Procedure involving more than one person**

In the preceding steps, if more than one individual is required to lock out equipment, each individual must place a personal lock and tag on the group lockout device when he/she begins work, and must remove those devices when he/she stops working on the machine or equipment.

## **GENERAL LOCKOUT RECOMMENDATIONS WHEN SERVICING MACHINES**

- Disengage the power and stop the machine before servicing.
- Do not clean, unplug, lubricate, adjust or repair any machine while it is running, unless it is specifically recommended in the service or owner's manual.
- Lock out the ignition and put a warning sign over the ignition that tells everyone that you are working on the machine.
- Engage safety locks if the hydraulic cylinders are so equipped.

## **LOCKOUT FOR HYDRAULIC SYSTEMS.**

- Always follow instructions in operator's manual for servicing hydraulic systems.
- Shut off the engine, which powers the hydraulic pump.
- Lower implement to the ground or onto a solid support
- Move the hydraulic lever back and forth several times to relieve pressure.
- Make sure pneumatic accumulators are properly charged with the proper inert gas

## **POWER TOOLS LOCKOUT**

- Before making adjustments or changing bits, disconnect the power cord or you could accidentally touch the switch and be injured when the tool starts.

## **COMBINE LOCKOUT**

- Block all parts before working under a header. You may need to raise the header to work on the cylinder and other parts. Do not rely on the hydraulic system.
- Be sure that the header lock or cylinder ram stop is fixed in place or that proper blocking is in place.

The information and recommendations contained in this publication are believed to be reliable and representative of contemporary expert opinion on the subject material. The Farm Safety Association Inc. does not guarantee absolute accuracy or sufficiency of subject material, nor can it accept responsibility for health and safety recommendations that may have been omitted due to particular and exceptional conditions and circumstances.

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