

## **Module 2:**

Machine Orientation

Lock Out / Tag Out

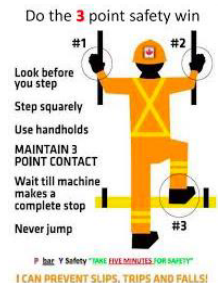
This Page Blank

# Machine Orientation

Machine Orientation Definition: Understand how your piece equipment is setup.



1. When you are outside of the machine
  - a. Keep thinking...
    - i. Think about:
      1. What job you are doing.
      2. Sometimes it is as basic as walking to the pickup to get a tool, but at that moment walking is the important job you are doing and need to pay attention to. (How many loggers have been sidelined because they fell on their way to doing a job?)
    - ii. Watch:
      1. Where you are walking.
      2. Is the ground?
        - a) Slippery
        - b) Uneven
        - c) Obstructions
    - iii. Look at:
      1. Hand holds before you put your weight on them.
      2. Where you are putting your feet before you step.
    - iv. Use:
      1. 3 pt. Contact (i.e., Moving one hand or one foot at a time).
      2. Smart Moving (i.e., Pay attention to how your body works & move in a way that is easy for your body.)
  - b. Parking the machine:
    - i. Level ground (When you can).
    - ii. All implements grounded (i.e., Blades, Saw Heads, Grapples, Booms).
    - iii. In park, the parking brake applied and/or Hydraulics off
    - iv. In a position that all doors are accessible.
    - v. Where you can work on it if it does not start.
  - c. Know your surroundings:
    - i. Look for people around you.
    - ii. Watch the ground while walking the machine.
    - iii. Communicate with other equipment.
    - iv. Make plan & make everybody in your work area aware of the plan.
  - d. Operating equipment
    - i. Only by designated trained employees.
    - ii. Used only to its rated capacity that the equipment manufacturers have recommended.
    - iii. Used only on the grade that the equipment manufacturers have recommended.
    - iv. Operating instructions are to be in the machine and employees will only operate and maintain the equipment to the manufacturer recommendations.
  - e. Mounting Guards, Handholds & Steps:
    - i. Add them when they make sense.
    - ii. Make them strong.
    - iii. Don't put them in the way (i.e., Put them in the way of 2<sup>nd</sup> egress door / window).



- iv. Test in all configurations (i.e., Move the machine around to see if the new step or hand hold works before investing a lot of time.)

## 2. Slips / Trips / Falls

- a. This is the number one injury class, so you can never be too vigilant.

## 3. Visual or audible contact communications

- a. There needs to be a plan!

- i. Talk to or see every employee on a regular basis.

- 1. 2-hour intervals work well.

- a) When you start work

- b) Every two hours

- c) When you are done for the day. (This is an OSHA requirement that you, or your designee, account for every employee at the end of the day)

- 2. It can be either Audible or Visual.

- a) Audible means that you can talk to them, not just hear them working. (The OSHA standard says explicitly that a skidder or chainsaw noise does not qualify for audio contact).

- b) It does not need to be a long conversation.

- 1. Example Don: "Don to Ted Just Checking in"

- 2. Ted: "I am good"

- 3. Don: "Ten-4 me too"

- c) But there needs to be a response from both sides.

- d) We would also, check in & out of the machines and give a time that you will be out.

- 1. Don: "Stepping out of the machine to check on a leak, I will be out for 20 minutes.

- 2. Ted: "Ten-4"

- 3. Don needs to check back in no more than 20 minutes or Ted will start looking for him.

- It is OK to add time... "Ted I am going to need 30 minutes more".

- 4. Don: "Ted I am back in the machine"

- 5. Ted: "Ten-4"

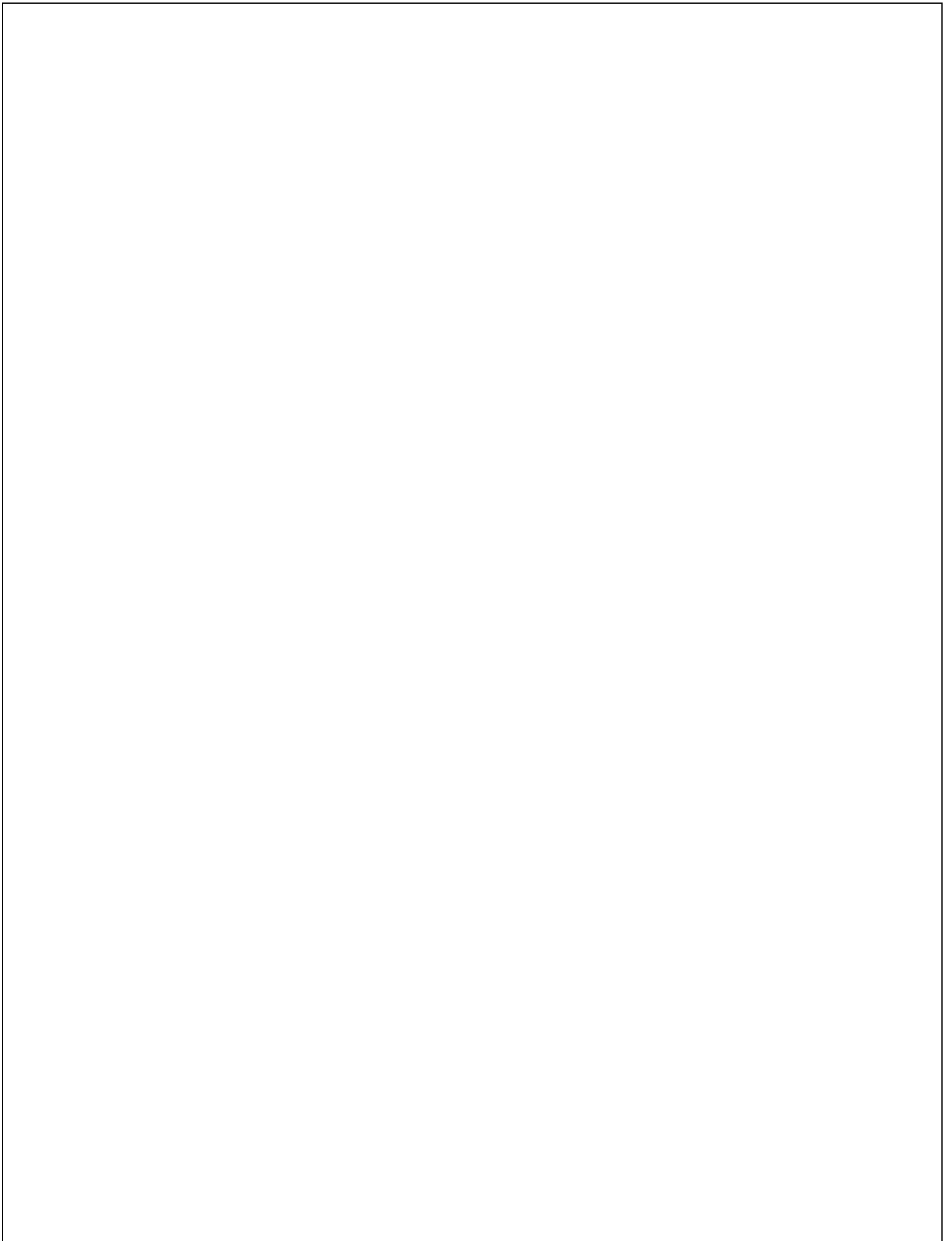
- 6. Remember it only counts as contact when someone acknowledges.

- e) Visual means that you can see the employee not just being able to see the results of the employee working (seeing trees falling does not count as visual contact).



# Group Activity

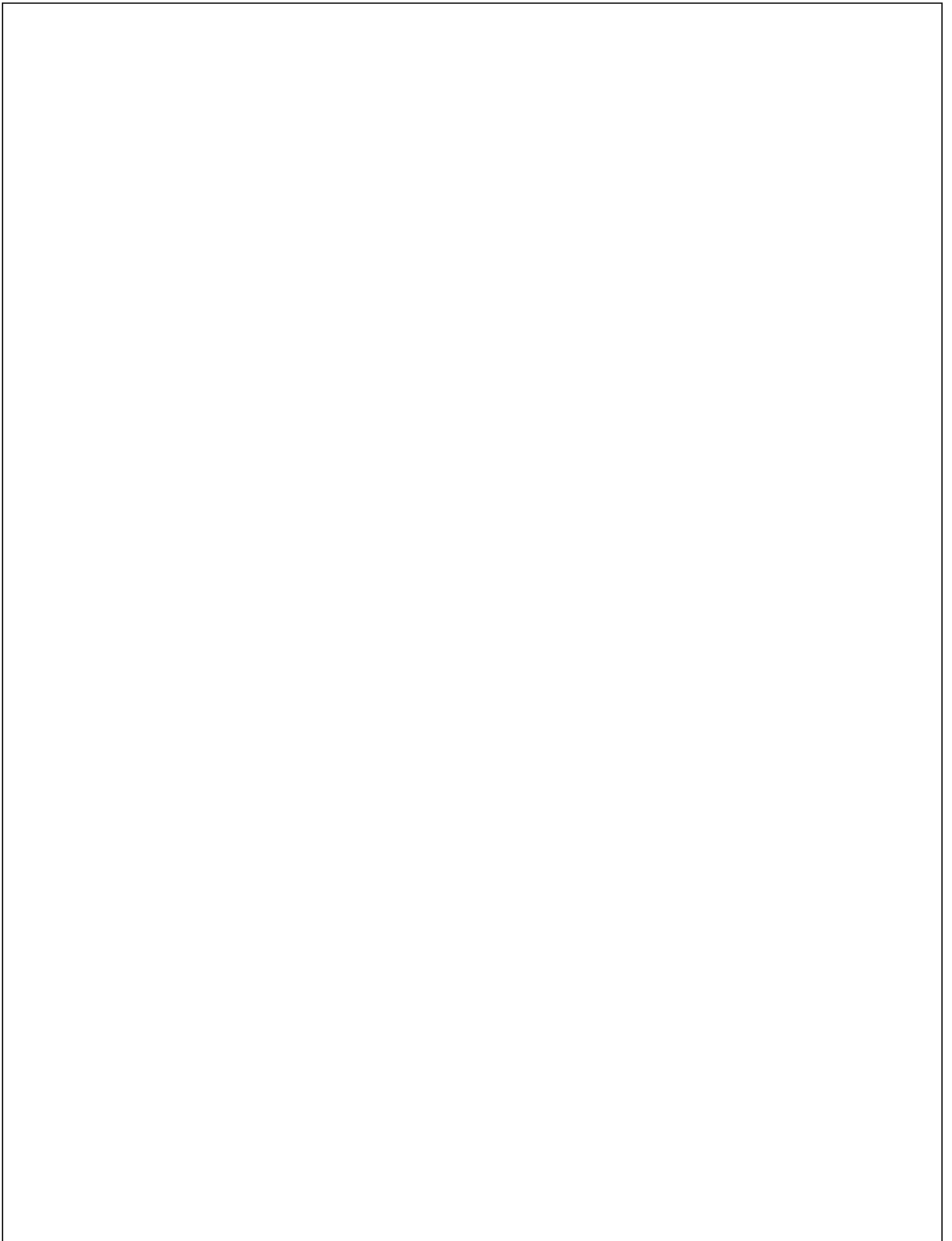
Issues:	What was done to fix the issue:



Name: \_\_\_\_\_

## Machine Orientation Quiz

1. What should you never stop doing?
  - A. Walking
  - B. Running
  - C. Thinking
  - D. Greasing
  
2. What does 3-point contact mean?
  - A. You point at a machine 3 times.
  - B. You make 3 points and add a story or poem.
  - C. You have two hands and one foot, or two feet and one hand in good contact with the machine at all times.
  - D. You stick your right foot out and left hand in and shake it all about.
  
3. Slips, Trips & Falls is the \_\_\_\_\_ cause of injury cost.
  - A. 3<sup>rd</sup>
  - B. 8<sup>th</sup>
  - C. 2<sup>nd</sup>
  - D. 1<sup>st</sup>
  
4. Audio & Visual contact means:
  - A. That you hear a machine running.
  - B. You can see what a machine has done.
  - C. You can see or talk to the everyone whenever you want.
  - D. You can see tracks where a machine has been.
  
5. At the end of the day, you can stop checking on each other.
  - A. True
  - B. False (The last check of the day is to make sure everybody is out of the woods and heading home.)





# Lock Out / Tag Out



Definition: Lock Out / Tag Out renders a piece of equipment safe to work on by:

- A. Making a plan for all employees to follow while working on a particular piece of equipment.
- B. De-energizing the system you are working on (i.e., Hydraulic, Pneumatic, Coolant, Electrical, Mechanical)
- C. Making the piece of equipment unable to start or move while you are working on it.

## 1. When do you need to use Lock Out / Tag Out:

- a. When the servicing and maintenance of machines and equipment in which the unexpected energization or startup of the machines or equipment, or release of stored energy, could harm employees.
  - i. This standard establishes minimum performance requirements for the control of such hazardous energy.
  - ii. This standard applies to the control of energy during servicing and/or maintenance of machines and equipment.
- b. Normal production operations are not covered by this standard. Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if:
  - i. An employee is required to remove or bypass a guard or other safety device; or
  - ii. An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.
  - iii. Note: Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

## 2. You need a plan, and the plan needs to be in the piece of the equipment.

- a. This section requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy in order to prevent injury to employees.
- b. The plan will have:
  - i. Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;
  - ii. Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them; and
  - iii. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.
  - iv. The Plan needs to be reviewed at least annually.
- c. Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be:
  - i. Provided by the employer for isolating, securing or blocking of machines or equipment from energy sources.
  - ii. Lockout devices and tagout devices shall be singularly identified; shall be the only device(s) used for controlling energy; shall not be used for other purposes; and shall meet the following requirements:
    1. Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
    2. Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
    3. Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
    4. *Standardized*. Lockout and tagout devices shall be standardized within the facility in at least one of the following criteria: Color; shape; or size; and additionally, in the case of tagout devices, print and format shall be standardized.

5. *Lockout devices.* Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.
6. *Tagout devices.* Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. 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 no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.
7. *Identifiable.* Lockout devices and tagout devices shall indicate the identity of the employee applying the device(s).
8. Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: **Do Not Start. Do Not Open. Do Not Close. Do Not Energize. Do Not Operate.**

d. Training & Communication

- i. The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:
  1. Each authorized employee 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.
  2. Each affected employee shall be instructed in the purpose and use of the energy control procedure.
  3. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

ii. When tagout systems are used, employees shall also be trained in the following limitations of tags:

1. Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
2. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
3. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
4. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
5. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
6. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.



e. Group tagging for everyone's safety.

- i. If there are multiple companies involved all should have a lock and/or tag on the machine.
- ii. No one should undo any energy isolating equipment before all locks and / or tags are removed by the employee who placed the lock and/or tag.

3. When you need to work on a piece equipment you need to to:

a. Guidelines for implementing Lock Out / Tag Out

i. Communicate

1. Notify all affected employees that servicing, or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

ii. Identify the potential energy & methods of control.

1. The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
2. Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

iii. De-energize.

1. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s). (The energy sources that are involved).
2. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, gravity, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.



iv. Lock Out and/or Tag Out (You can do both or just one)

1. Lock out the energy isolating device(s) with assigned individual lock(s). (If it is possible, if not, tag)

v. Test

1. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.



vi. Work on the equipment

b. Guidelines for undoing Lock Out / Tag Out

i. Communicate

1. Notify all affected employees that you are done servicing or repairing your piece of equipment.

ii. Check for people still working on equipment.

1. Make sure all helpers are clear.

iii. Pick up tools.

1. Count and put away tools, many pieces of equipment have been damaged by a tool left in the wrong location when the equipment is started up.

iv. Remove Locks & Tags

1. Put them where you will be able to find them next time.

v. Re-energize

1. Make sure you re-energize all energy sources. (i.e., capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, gravity, etc.).

vi. Test

1. Make sure that all is functional.

vii. Back to work

4. Things to remember:

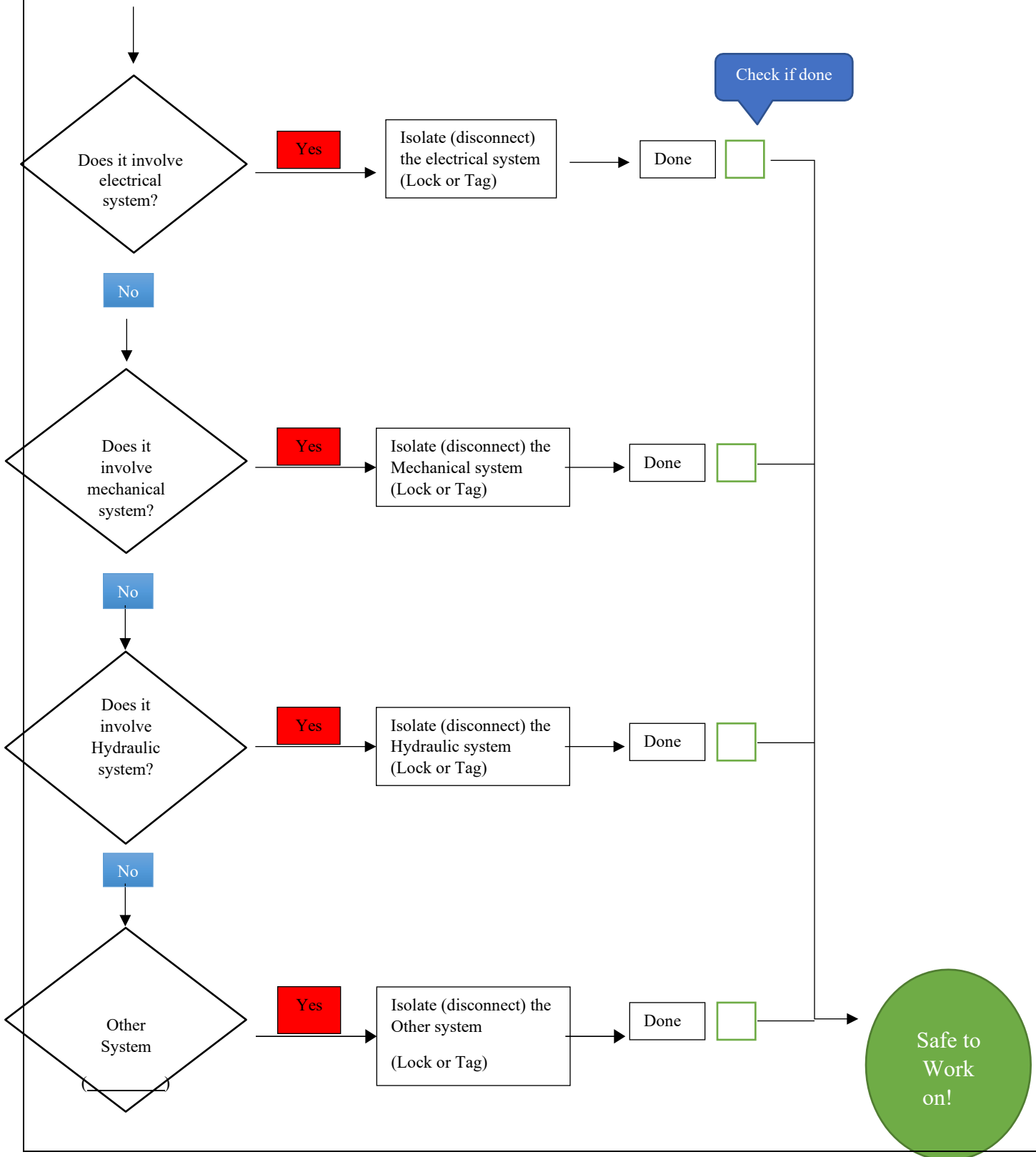
- a. **De-energize** because energy is what kills you.
- b. **Communicate** because that will keep other from energizing the equipment and killing you and it protects the equipment from further damage.
- c. Make sure to **pick up** all tools & clothing before you restart.
- d. Make sure you **turn on all energy sources** before you start.

# Group Activity

Work through the lock out / tag out flow chart. **Examples:**

**A. Issue: Hydraulic hose leaking on a grab arm cylinder on a Delimber.**

Why are you using Lock Out / Tag Out?



Name: \_\_\_\_\_

## Lock Out / Tag Out Quiz

1. What are the four important things to remember with lock out / tag out?
  - A. De-energize because energy is what kills you.
  - B. Communicate because that will keep other from energizing the equipment and killing you and it protects the equipment from further damage.
  - C. Make sure to pick up all tools & clothing before you restart.
  - D. Make sure you turn on all energy sources before you start.
  - E. ALL of the Above
  
2. Where does the machine specific lock out / tag out plan need to be?
  - A. In your pickup.
  - B. In the company office.
  - C. In the specific machine that it was written for.
  - D. In your head.
  
3. Do you need a written Lock Out / Tag Out plan?
  - A. No
  - B. It is in my head.
  - C. Yes
  - D. None of the above
  
4. Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate.
  - A. True
  - B. False
  
5. All employees need to be training in the same manner covering the same material.
  - A. True
  - B. False

