Is This a Safe Way to Control Hazardous Energy?



What's wrong with this picture? Spot the safety violation!

There are 3 problems with this lockout/tagout arrangement:

1. There is no locking device on the electric box;
2. The tag out warning scrawled on that shred of red duct tape, which in case you can't read it, reads "DO NOT TURN ON," is obscure, unclear and very hard to notice; and
3. Most important of all, the electric box *is*, in fact, turned on.

The Moral: To implement an effective lockout, the energy source of the machine being serviced must be turned off and either:

- Locked out, i.e., physically isolated from the machine by a locking device; and/or
- Tagged out, i.e., marked with a tag clearly warning people

that the machine is being serviced and that the energy source may not be started up.

The arrangement in this photo meets none of these requirements and poses a significant danger to any worker who performs service on the machine powered by the electric box.

WHAT'S AT STAKE: The Dangers of Hazardous Energy

If you work in a plant, there are probably some pretty big machines in your work area—machines that cut, press, grind, stamp or shape different materials. Take a look at the scariest machine on the floor and ask yourself a question:

Would you want any part of your body in that machine's point of operation, i.e., the part of the machine where the cutting, pressing, stamping, grinding, etc., is carried out?

Now ask yourself this: Would you like to clean or repair that machine while it was still running?

The answer, of course, is NO. And that's why you turn off most machines before you service them.

Why Just Turning Off the Machine Isn't Enough

The problem is that bad things can still happen after that machine is turned off while you're working on it:

- Somebody who doesn't know you're working on the machine may turn the machine back on;
- You might accidentally turn the machine on yourself;
- It might turn out that the machine really wasn't shut off after all; or
- There may still be residual power in the system that causes the machine to start up.

LOCKOUT/TAGOUT: What It Is & Why It's So Important

OSHA requires employers to take measures to control hazardous energy and ensure these things don't happen. The process of controlling hazardous energy is called lockout/tagout because of the 2 principle methods used:

- **Lockout,** which involves isolating the machine by putting a locking device on an energy isolating device like an electrical breaker switch or hydraulic valve;
- **Tagout,** which involves notifying people in the area that the machine is being serviced and shouldn't be started up.

Lockout is the preferred method because it creates a **physical barrier** to prevent start-up; tagout is allowed only when the machine *can't be* locked out and you can certify that the tagout method is just as safe. But in the real world, many companies use **both** methods in combination by attaching a lock *and* tag to each isolation point.

HOW LOCKOUT/TAGOUT WORKS: The 9 Steps of Controlling Hazardous Energy

Although methods differ based on the kinds of machine being serviced and servicing operation performed, hazardous energy control procedures involve the same basic 9 steps:

Step 1. Preparation for Shut Down

Before lockout begins, a designated worker called "an authorized employee" identifies all potential sources of energy to the machine and gathers the necessary LOTO devices.



Step 2. Notification of Lockout

Next, the authorized employee notifies all “affected employees,” i.e., workers that use or operate the machine to be serviced, and “other employees,” workers in the area where the LOTO operation is being carried out, that a lockout is about to take place.



Step 3. Shut Down of Machine

The machine is then shut down using the normal shutdown operation, e.g., hitting the OFF switch



Step 4. Isolation of Power Source

Remember that hitting the OFF switch isn’t enough; devices must be attached to isolate the machine from its power sources.



Step 5. Attachment of LOTO Devices

Next, the authorized employee attaches locking devices (or tags if it’s a tagout–or both) to each energy isolating device to ensure it isn’t moved or removed.



Step 6. Release of Stored Energy

Next, steps are taken to release any leftover energy that may still be in the system, e.g., by venting gases, stopping flywheels that may still be rotating, draining fluids, etc.



Step 7. Verification of Zero Energy State

Next, the authorized employee verifies that the locked out/tagged out machine has been effectively isolated and deenergized and that

things have been put into what’s called a “zero energy state”.



Step 8. Servicing of Machine

Only now, after verification of isolation and deenergization, can the machine be serviced.



Step 9. Ending of Lockout/Tagout

After service is complete, the authorized employee notifies affected and other employees that the lockout is over and then, after verifying that it’s safe to do so, removes the LOTO devices and give the green light to reenergize the machine.

