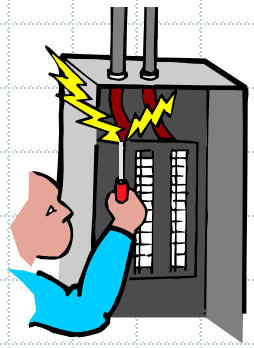
Risk Management Department

Control of Hazardous Energy



Control of Hazardous Energy

Introduction

Power tools, machinery and devices make our lives easier and our jobs more productive. However, the tools, machines and systems we use every day can be dangerous.

This is especially true for those that service, maintain and repair powered systems and devices. It is essential that work be performed without the possibility of the tools, machines and devices being serviced to become energized and cause serious injury.

Control of Hazardous Energy

Introduction

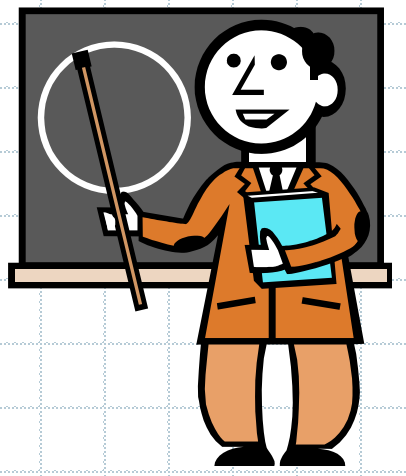
In order to prevent injuries caused by tools, machinery and equipment becoming accidentally energized when being serviced, APS has developed this training to provide the knowledge and processes required to control hazardous energy and to safe on-the-job.

Control of Hazardous Energy

Introduction

In this training we will cover:

- Who needs training?
- What is hazardous energy?
- When is lockout/tagout required?
- What are lockout devices?
- What is tag-out?
- What procedures must be followed?



Control of Hazardous Energy

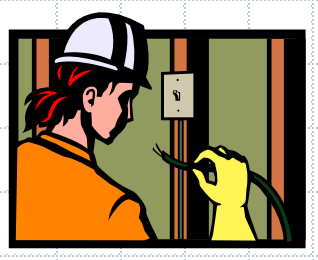
Who Needs Training?

- Authorized employees

  People who lock or tag out machines or equipment to perform servicing
- Affected employees

  People who use machines or equipment on which servicing is performed under lockout/tagout
- Other employees

  People who work in the area of locked out machinery or equipment



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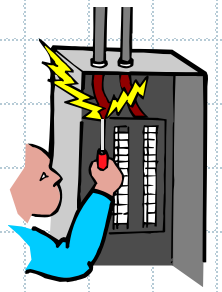
What is Hazardous Energy?

- Electricity – live or stored



- Moving machinery parts

- Stored mechanical movement in machinery

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What is Hazardous Energy?

- Stored heat (steam lines or hot liquids)
- Chemicals in pipelines under pressure or force of gravity
- Any other active or stored energy sources that could harm a worker

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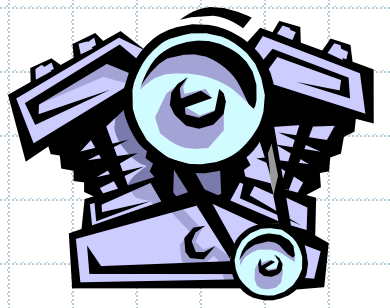
What is Hazardous Energy?

Examples:

- Live electrical lines
- Electrical capacitors
- Engines that move machinery parts
- Hydraulic lifts
- Pneumatic (air pressure) lines
- Springs



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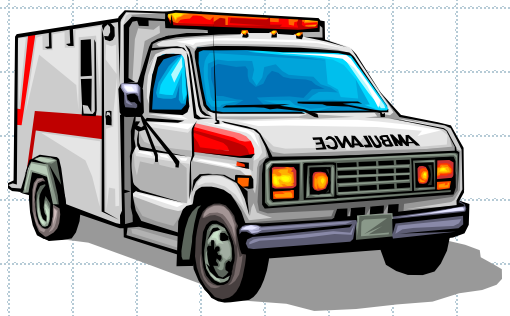
What is Hazardous Energy?

Types of injuries from hazardous energy:

- Electrocution from live parts
- Scalding from steam or hot liquids
- Chemical burns or poisoning
- Deep cuts and gashes
- Crushing injuries
- Amputations



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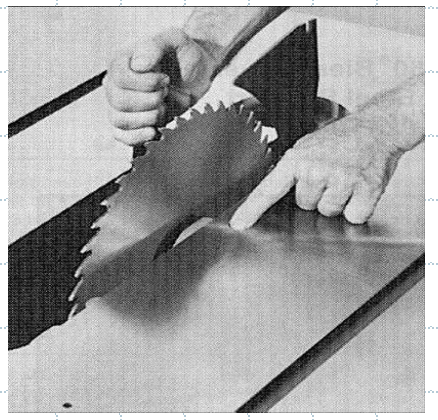
When is Lockout/Tag-out required?

- When someone will be servicing or repairing machinery or equipment, and
- The unexpected machinery start-up or release of stored energy could cause injury



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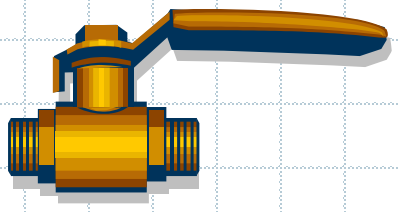
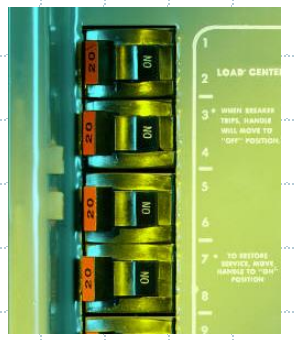
What is a Lockout Device?

An energy isolating device is meant to cut-off the energy source. It physically prevents the transmission or release of energy such as:

- An electrical circuit breaker,
- A pipeline valve





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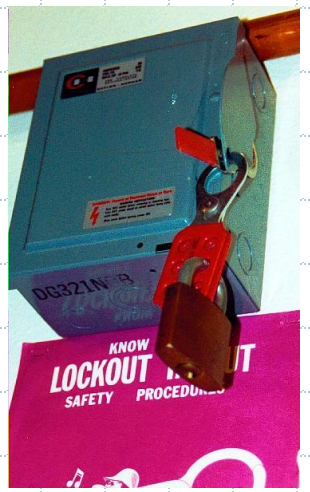
What is a Lockout Device?

A lockout device positively:

- Prevents a machine from being started up or turned on,
- Prevents machinery parts from moving
- Prevents electrical energizing,
- Blocks a pipeline, steam line or air line



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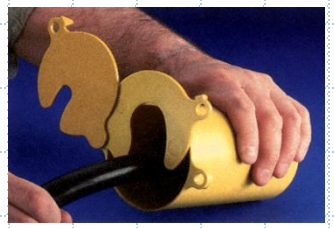
What is a Lockout Device?

Examples include:

- Locked out circuit breaker

- Locked out electrical plug



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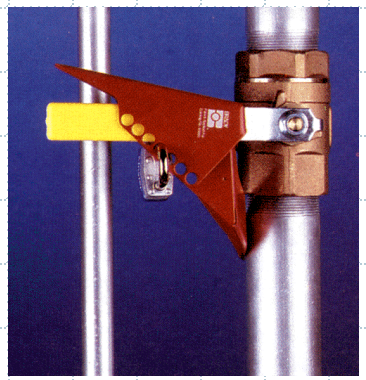
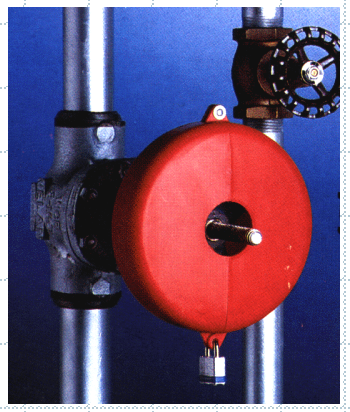
What is a Lockout Device?

- Fluid and gas lockout devices





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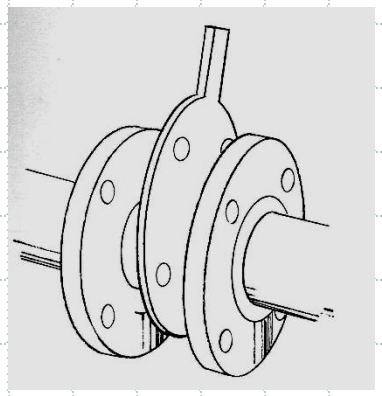
What is a Lockout Device?

- Pipe lockout devices



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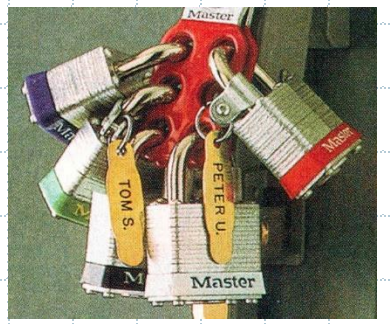
What is a Lockout Device?

Group Lockout

- Used when more than one person doing maintenance or repair on same machine or equipment.
- Machinery or equipment can't be started up until all locks are removed.
- Each person places and removes their own lock.



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What is Tag-out?

- Tags are to be used in conjunction with lockout devices
- Tags are a means of letting others know that someone is servicing equipment

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What is Tag-out?

- Tags are warning devices only
- They don't provide the same level of protection as lockout devices.
- They can only be removed by an authorized person.
- They must be legible, securely attached and resistant to degradation.

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What Procedures Must be Followed?

Six steps must be followed when servicing equipment that needs to be locked out:

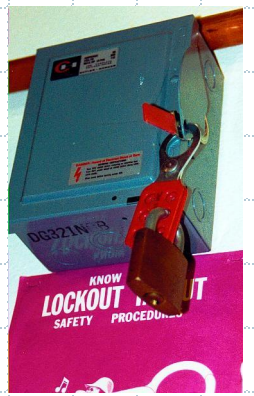
1. Notify affected employees that machine or equipment will be shut down and locked out
2. Shut down the machinery or equipment
3. Isolate energy sources with energy-isolating devices

Control of Hazardous Energy

What Procedures Must be Followed?

Six steps:

4. Lock out energy-isolating devices with assigned locks.
5. Release or restrain stored or residual energy
6. Test machinery to make sure it can't start up



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What Procedures Must be Followed?

Startup procedures after service:

- Only authorized employee can do startup!
- All warned to stay clear
- Remove all tools, locks and tags
- Remove, reverse, open or reactivate isolating devices
- Visual check that all is clear
- Start up machine, process or line flow

Control of Hazardous Energy

You are finished!

You have finished the Control of Hazardous Energy training.

Download the quiz from the Risk Management website's training page.

Print the form and be sure to write your name, location and employee number in the spaces provided.

Complete the ten questions and have your supervisor send it to the Risk Management office