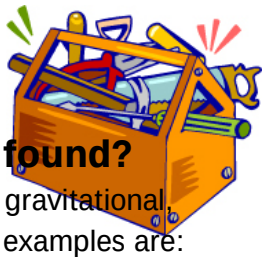
Let's Talk LOTO & Stored Energy



What is stored energy and LOTO?

Lockout/Tagout (LOTO) is used on stored energy sources to ensure the energy is not unexpectedly released. Stored energy (also residual or potential energy) is energy that resides or remains in the power supply system. When stored energy is released in an uncontrolled manner, individuals may be crushed or struck by objects, moving machinery, equipment or other items.

How does it work?

Stored energy is energy in the system which is not being used. Once the energy is released it provides the power for the work to be done.

EXAMPLES:

#1 Ben climbed a 70 foot leg platform to check why the leg was not running. He reached to feel if the belt was hot. As Ben touched the belt the weight of the material in the leg caused the belt to reverse direction. Ben's finger was caught between the bucket and the casing. Ben had to climb down with his finger tip missing.

#2 Sid was working on a machine that had a frozen air hose. He removed the end of hose from the machine. Sid did not lockout the air valve and didn't realize the hose was under pressure. As Sid was working on the machine the hose thawed and whipped around, striking Sid in the eye.

1. **What energy sources were involved?**
   Mechanical, pneumatic, and gravitational.
2. **What LOTO procedures were needed?**

#1 Clamp the belt in place or empty the product from the up leg. LOTO the leg. #2 Vent or block the air valve to release the pressure. LOTO all energy sources.

Where is stored energy found?

Stored energy can be mechanical, gravitational, hydraulic, or pneumatic. Common examples are: Capacitors, springs; elevated components; rotating flywheels; hydraulic lift systems; air, gas, steam, water pressure; cliffed grain; etc.

Mechanical – energy is contained in an item under tension. A coiled or compressed spring will release stored energy in the form of fast movement when the spring expands.

Hydraulic –energy is stored within liquid that is pressurized by an outside source. When under pressure, the fluid can be used to move heavy objects, machinery, or equipment. Examples: grain truck beds, power presses, vehicle braking systems.

Pneumatic – energy is stored within pressurized air. Air under pressure, can be used to move heavy objects and power equipment. Examples: spraying devices, air hoses, air compressors, or air cylinders.

Gravitational - energy related to the mass of an object and its distance from the ground when it is put in motion. The heavier the object, and the further it is from the ground, the greater its gravitational energy. For example, a 10 pound load falling from a loader 20 feet above the ground has greater gravitational energy than the same load falling from 12 feet high.

What do you do with stored energy?

Dissipate (use up the energy) or restrain (keep from use) stored energy. Methods to dissipate or restrain stored energy include: grounding, repositioning, bleeding, venting, blocking, etc.

Let's Talk about Our Worksite

1. What types of stored energy sources are at our worksite? Where can these be found?
2. What methods should be used to safely release or restrain the stored energy?
3. What equipment is needed to properly control stored energy and lockout/tagout the energy system?

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Lockout/Tagout for Stored Energy

Release or restrain stored energy **BEFORE** beginning service or maintenance.

LOTO electrical & **ALL** other power sources.

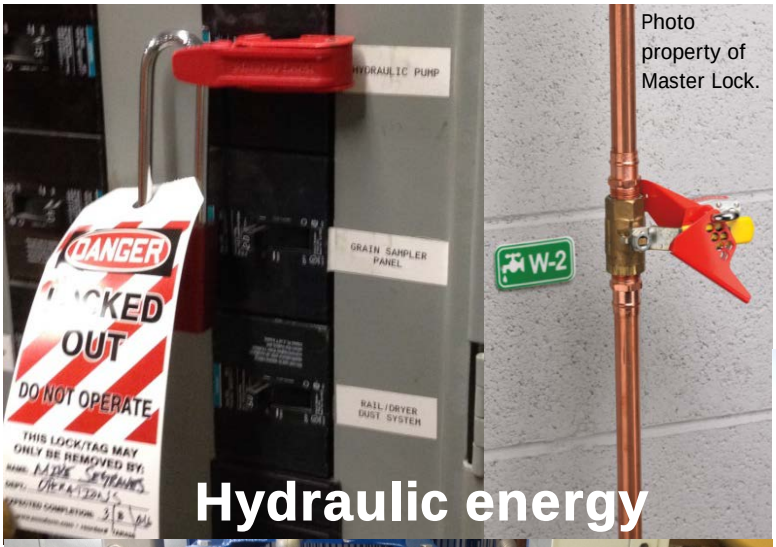
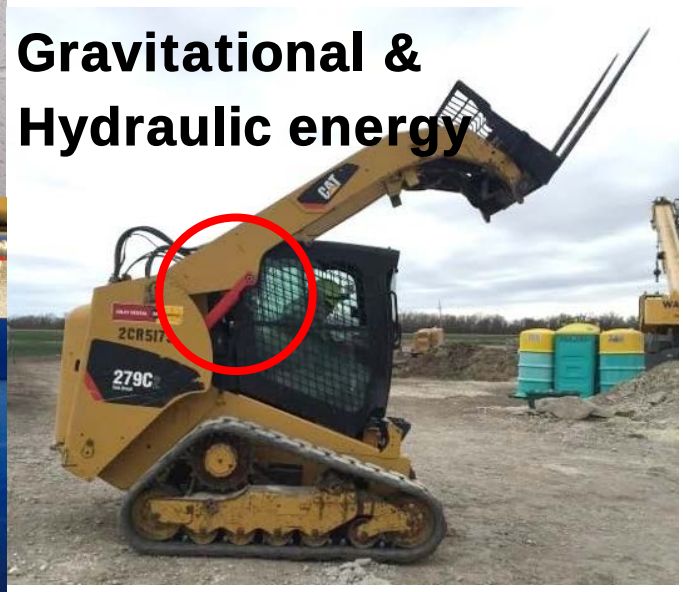


Photo property of Master Lock.

Hydraulic energy

Depressurize the lines.

Use **blocking** devices.



Gravitational & Hydraulic energy

Pneumatic energy

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