FACT SHEET

Lockout/Tagout for the Automotive Repair Industry

OAR 437 • Subdivision 2/J

How does The Control of Hazardous Energy standard apply to the automotive industry?

The Oregon OSHA standard for *The Control of Hazardous Energy (Lockout and Tagout)*, 1910.147, requires employers to control hazardous energy during service and maintenance activities. The standard applies to all general industry workplaces, including automotive repair shops. Vehicles, machinery, and equipment such as, but not limited to, automobiles, trucks, tractor/trailers, material handling equipment, tire repair machines, hoisting equipment, and automotive lifts are included.

Employers must ensure that vehicles, machinery, and equipment serviced and maintained in the automotive repair industry are isolated from their energy source, and made inoperable during repair and maintenance activities.

This standard also applies to automotive electrical sources (not covered by Subdivision 2/S) at any voltage whenever there is sufficient energy to injure employees. For example, low voltage industrial batteries have exploded when they were not properly isolated from systems during maintenance work. Low voltage equipment, such as automotive wiring system (not covered by Subdivision 2/S), has caused thermal hazards and burns due to the heat from electrical resistance. Other low voltage equipment has enough energy to ignite vapor clouds during maintenance work on equipment containing flammable substances.

Types of hazardous energy exposures in an automotive shop

For the purpose of vehicle, machinery, and equipment servicing and maintenance, hazardous energy refers to: mechanical motion; potential energy due to pressure, gravity, or springs; battery-generated electrical energy; thermal energy, including chemical energy; and other forms of energy, which can cause injury to employees working with or around machines or equipment.

Any vehicle, machinery, and equipment with internal combustion engines such as gasoline, natural gas, and diesel; electric; and hybrid (gasoline/electric) may contain the following types of hazardous energy or conditions:

- Chemical energy due to contact with battery acid, coolant, lubricants
- Electric battery shock, arc, and burn hazards
- Explosion hazards associated with air bags
- Fire and explosion hazards associated with the fuel and fluid systems
- Gravitational energy (mechanical) hazards that may result in movement of elevated vehicles, machines, or equipment parts
- Hot or cryogenic fluid, surface (thermal) hazards
- Hydraulic hazards associated with fluids under pressure

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- Mechanical hazards associated with mounting and dismounting tires
- Mechanical motions due to moving power transmission components
- Premise wiring electrical hazards associated with battery recharging (addressed by Subdivision 2/S of the rules)
- Mechanical hazards associated with energy from vehicles or vehicle components unexpectedly starting
- Loss of pneumatic or hydraulic pressure used to prevent movement of vehicles, machines, equipment or their parts

Employers must thoroughly evaluate employee exposure to the hazards, the risk of injury associated with each machine or piece of equipment, and the feasibility of applying a particular method of control.

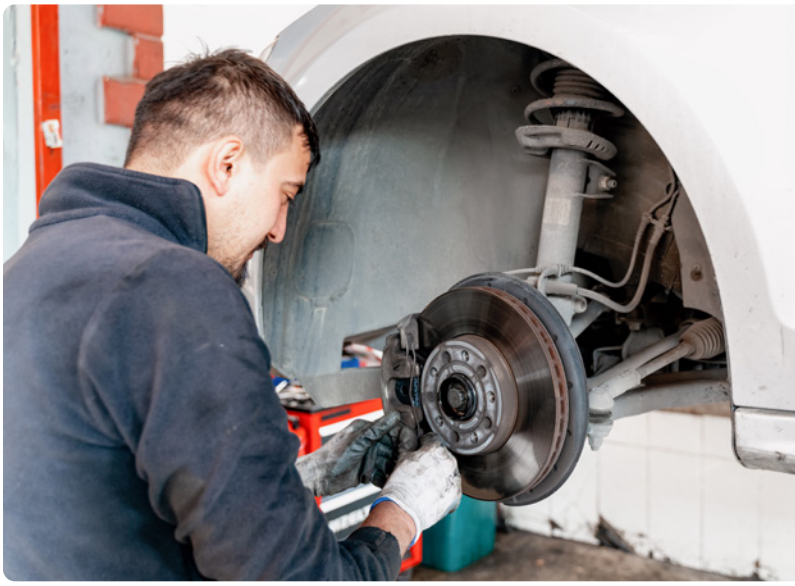
What type of hazardous energy control program do you need?

The 1910.147 standard requires employers to develop a hazardous energy control program that is tailored to their workplace and will protect employees from the release of hazardous energy. The program must include instructions that define the energy control procedures and how to implement them. It must identify employee training and inspection requirements. The standard allows flexibility in developing and implementing the program to fit the specific conditions in their workplace.

The method of control must reflect a thorough evaluation of employee exposure to the hazards, the risk of injury associated with a particular vehicle, machine, or equipment, and the feasibility of applying a particular method of control.

Due to the nature and unique aspects of vehicle, machine, and equipment maintenance and servicing, employers must consider those instances where turning off the engine and removing the ignition key, even with an authorized employee having sole control of the key, may not be enough to adequately control other types of hazardous energy. Although this control practice reasonably protects employees from inadvertently starting the vehicle's engine, it may not adequately control other energy sources that are independent of the ignition key subsystem.

It may be necessary to disconnect the battery cable for some repair tasks, such as working on cooling fans, to guard against hazards created by fans starting automatically. Likewise, air bags may inadvertently deploy and cause employee injury if the system is not properly controlled. There may be situations when the work itself may activate the ignition circuit and in those cases additional measures are necessary to protect employees. Employees have been struck by and even run over when the technician "shorted out" the ignition circuit causing unexpected movement. These and other hazards require employers to carefully evaluate and select additional hazard-specific control measures.



Writing The Hazardous Control of Hazardous Energy procedures

It is essential for employers to use specific manufacturer servicing and maintenance guidelines, and other relevant materials, to establish hazardous energy control procedures. A procedure must have, at a minimum, enough detail for authorized employees to have a clear understanding of the energy control measures so they can follow the steps to effectively control all types of hazardous energy.

Due to the number of variables, a documented energy control procedure is necessary in most situations. There are limited situations, specified in the exception note in paragraph 1910.147(c)(4)(i), where documentation is not required. This exception applies to situations where employees don't interact with the energy sources of vehicles, machines, and equipment during the lockout/tagout process. Procedures need to be followed, but documentation is not necessary if all of the following elements are in place:

- There is a single source of hazardous energy that employees can easily identify and isolate, and there is no potential for stored or residual energy in the machine
- The vehicle, machine, or equipment will deactivate after employees isolate and lockout the single energy source
- Employees can fully lockout the energy source with a single lockout device, exclusively controlled by the authorized employee performing the work
- Other employees are not exposed to hazards while employees are servicing the locked out machine

If an accident involving hazardous energy occurs, procedure documentation becomes necessary because it indicates the employer needs to formally address the hazardous energy control procedures.

A written hazardous energy control program doesn't need to be complicated and detailed if the system the employer is controlling is not complex or does not require unusual control measures.

Resources

- For the full text of Oregon OSHA rules for lockout and tagout, refer to OAR 437, Division 2/J, The Control of Hazardous Energy
- Control of Hazardous Energy (Lockout/Tagout)
- Control of Hazardous Energy – Enforcement Policy and Inspection Procedures
- Oregon OSHA's Fact Sheet 8 gives an overview of rules that contain requirements for the control of hazardous energy.

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