

Info Sheet

Lockout-Tagout and the Master Disconnect Switch

Lockout-tagout is a safety procedure to ensure that dangerous equipment is properly shut off and not started up again before maintenance or servicing work is completed. It requires hazardous power sources to be “isolated and rendered inoperative” before any repair procedure is started.

Lockout-Tagout frequently works with a lock or tag securing a switch in the Off position. A lock completely secures a switch, while a tag is a marker that alerts a user that the switch should not be activated. The lockout is the most secure option, since the padlock can only be removed by someone who has a key – usually the person who locked-out the switch in the first place.

Workers servicing or maintaining equipment may be seriously injured or killed if hazardous energy is not properly controlled. Craft workers, electricians, machine operators, and laborers are among the 3 million workers who service equipment routinely in the USA, and face the greatest risk of injury. Failure to control hazardous energy accounts for nearly 10 percent of the serious accidents in many industries.



75920 series Master Disconnect Switches can be directly locked out

Heavy equipment such as this garbage compactor needs to be immobilized before servicing is performed



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Benefits of Master Disconnect Switches

Master Disconnect Switches are designed to immobilize the complete electrical system of a vehicle. The switches are typically installed near to the batteries to cut off all electrical power.

There are several excellent reasons to install a Master Disconnect Switch:

- *Safety, and immobilization of hazardous moving parts (discussed here).
- *Safety in the case of a road traffic accident. Emergency crews can quickly cut off a vehicle's power using a Master Disconnect Switch.
- *Cutting off the power when a vehicle is not in use for several days will eliminate parasitic drain of electrical power, and ensure that the vehicle is likely to re-start.
- *Security against theft, particularly on construction sites. Use of a Master Disconnect Switch can also prevent joyriders (unauthorized personnel) from operating equipment.



This CAT digger was stolen and recovered.

Cole Hersee brand Master Disconnect Switches

Littelfuse CVP manufactures dozens of types of Master Disconnect Switches with ratings up to 3000A intermittent, actuated by knob, lever, tumbler lock or Hencol lock.

Master Disconnect Switches, because they switch high power, tend to be some of the heaviest switches you'll find on a vehicle. Most are SPST (single pole, single throw), isolating one circuit, but we also manufacture DPST (double pole, single throw) which isolate two circuits at one time, even circuits with two different voltages. This type can also be used in a single circuit, isolating both positive and negative lines at the same time, as an added safety feature.



75912 disconnects two loads. Notice the four studs.



2484-02 with Hencol key and lock.



75920 series with integral holes for tagout/lockout.



M-284-01 with brass case and long stem.

75920 series Master Disconnect Switches are rated 300A continuous at 12V and 24V DC.

They are waterproof and dustproof to IP68, and can be installed in high-side or low-side applications. The composite engineered polymer construction will not rust or corrode.

Part Number	Markings	Threads	Stud Hardware
75920	English (Off-On)	English	Brass
75920-05	International	English	Brass
75920-10	International	English	Stainless
75921	International	English	Brass
75921-10	International	English	Stainless

75920 Switches on the Cole Hersee website

Lockout devices

Conventional master disconnect switches may need the addition of a Lockout Lever Kit, such as the Cole Hersee 24505.



24505 Lockout Kit (does not include padlock).



75920 series switches can be directly locked-out, and do not need an additional Lockout Kit.



Clamps like these provide the ability for a switch to be locked out by the locks of multiple inspectors.

US and Canadian practice



US Department of Labor Occupational Safety and Health Administration (OSHA) establishes safety procedures for lockout/tagout. The Control of Hazardous Energy (Lockout/Tagout) (29 CFR 1910.147) for general industry outlines measures for controlling different types of hazardous energy. The standard establishes the employer's responsibility to protect workers from hazardous energy, and requires employers to train each worker to ensure that they know, understand, and are able to follow the safety procedures.

Proper lockout/tagout (LOTO) practices and procedures safeguard workers from the release of hazardous energy. The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout) (29 CFR 1910.147) for general industry, outlines specific action and procedures for addressing and controlling hazardous energy during servicing and maintenance of machines and equipment. Employers are also required to train each worker to ensure that they know, understand, and are able to follow the applicable provisions of the hazardous energy control procedures. Workers must be trained in the purpose and function of the energy control program and have the knowledge and skills required for the safe application, usage and removal of the energy control devices.

Machinery must be disabled when employees perform servicing.

The OSHA standard, Title 29 Code of Federal Regulations (CFR) Part 1910.147, addresses the practices and procedures necessary to disable machinery or equipment, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities. The standard outlines measures for controlling hazardous energies—electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other energy sources.

In addition, 29 CFR 1910.333 establishes requirements to protect employees working on electric circuits and equipment. This section requires workers to use safe work practices, including lockout and tagging procedures. These provisions apply when employees are exposed to electrical hazards while working on, near, or with conductors or systems that use electric energy.

The OSHA standard does not specifically cover the agriculture, construction, and maritime industries or oil and gas well drilling and servicing, but there are similar regulations in place.

Canada

Lockout specifics are provided through the Canadian Standards Association's standard CSA Z460. Canadian health and safety legislation places a general duty on an employer to take all reasonable precautions.