

# Tame power sources with lock-out/tag-out



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Have you wondered why there is a hole in the flat prong of an electrical plug or in a circuit breaker handle? These holes became mandatory back on Jan. 2, 1990 as a safety measure because they allow for a wire or a special device to be inserted into the holes and locked so that the electrical device cannot be plugged in or that a breaker can be locked in open-circuit position.

Why is this locking-out necessary? There have been many cases in which people were injured or killed because a piece of equipment or an appliance remained connected to its energy source while it was being worked on.

We are often warned that it is not enough to merely turn off an appliance before working on it because of the risk of electrical shock if it is still connected to the energy source. Moreover, accidents have happened when employees who were cleaning machinery with rotating parts have been caught in them when they were accidentally turned on, resulting in serious injury, amputation, or fatality.

There was a fatal accident in the fishing industry several years back when a fisherman was pulled into the drive shaft he was working on after the strings on his hooded sweatshirt became caught in the rotating shaft.

## LOTO standard

On Sept. 1, 1989, the Occupational Safety and Health Administration (OSHA) promulgated a safety standard for a process officially known as “lock-out/

tag-out.” This is often referred to as the LOTO standard.

Curiously, the LOTO standard does not cover construction, agriculture, or maritime workers. However, fishermen can and should voluntarily use the concepts.

The goals of LOTO are to isolate machinery from energy sources using a mechanical device and to use a procedure that ensures that the machinery cannot be turned on inadvertently.

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## Hazardous energy

The energy sources found on board fishing vessels are exactly the same as those found in land-based environments. They include:

- Electrical – generated and static;
- Mechanical – transitional and rotational;
- Thermal – machine and chemical reactions; and
- Potential – pressure (hydraulic, pneumatic, and vacuum), springs, and gravity.

That being the case, there are a variety of situations in which applying the lock-out/tag-out concept can help ensure the safety of fishermen and boat mechanics.

## Engine example

Let’s suppose you are going to lay up your engine for the winter or just give it a thorough going-over. This might entail changing the oil and the antifreeze, cleaning out the valves, removing to inspect and clean out the exhaust hose, replacing the air filter and belts, and more.

The sources of energy associated with the engine are electrical, mechanical, thermal, and pressure related.

In order to ensure that the engine is not “energized” in any way while you are working on it, you need to isolate it from its energy source. For a diesel engine, that means disconnecting the fuel supply by closing the valve or, in the case of a solenoid-controlled fuel pump, disconnecting the solenoid from its energy

a device that will prevent the valve from being opened. You also could lock-out the circuit breaker associated with the solenoid or disconnect the electrical wires from the solenoid.

## Power on

Under the LOTO standard, the person who de-energizes the machinery is the only one authorized to re-energize it, except in an emergency situation. That’s a good procedure to follow on any fishing boat.

If your engine winterizing process includes lightly oiling the cylinders, you may want to turn the engine over without starting it to coat the cylinders. This would require that you re-energize the engine.

However, after oiling the cylinders, you should de-energize again, seal all openings, loosen the belts, and leave the engine in a locked-out status until you are ready to use it again.

A tag should be affixed to the engine  
*See FISH SAFE, next page*

# PERFORMANCE COUNTS

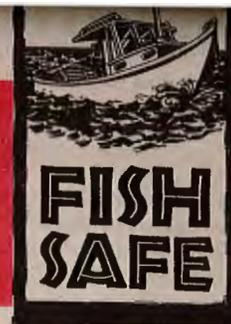
Marine Performance Line

Engine productivity starts with Marine

## FISH SAFE:

- Isolate equipment from its energy source while working on it.
- Use a lock-out/tag-out system to ensure that equipment cannot be started while being worked on or while stored in an unusable

# Same power sources with lock-out/tag-out



Theresa DeBartolo graphic

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Borrowing ideas from LOTO, one could lock-out the fuel valve using a valve lock-out device designed specifically for that purpose. Or you could come up with

a device that will prevent the valve from being opened. You also could lock-out the circuit breaker associated with the solenoid or disconnect the electrical wires from the solenoid.

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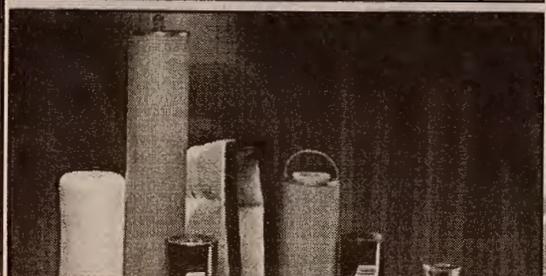
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**FISH SAFE:**

- Isolate equipment from its energy source while working on it.
- Use a lock-out/tag-out system to ensure that equipment cannot be started while being worked on or while stored in an unusable condition.
- Train crew that only the person who installed the lock or tag is permitted to remove it.

# PERFORMANCE COUNTS

## Marine Performance Line



Engine productivity starts with Marine Performance Line (MPL) Filtration Products. MPL is designed to maximize performance and minimize engine

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