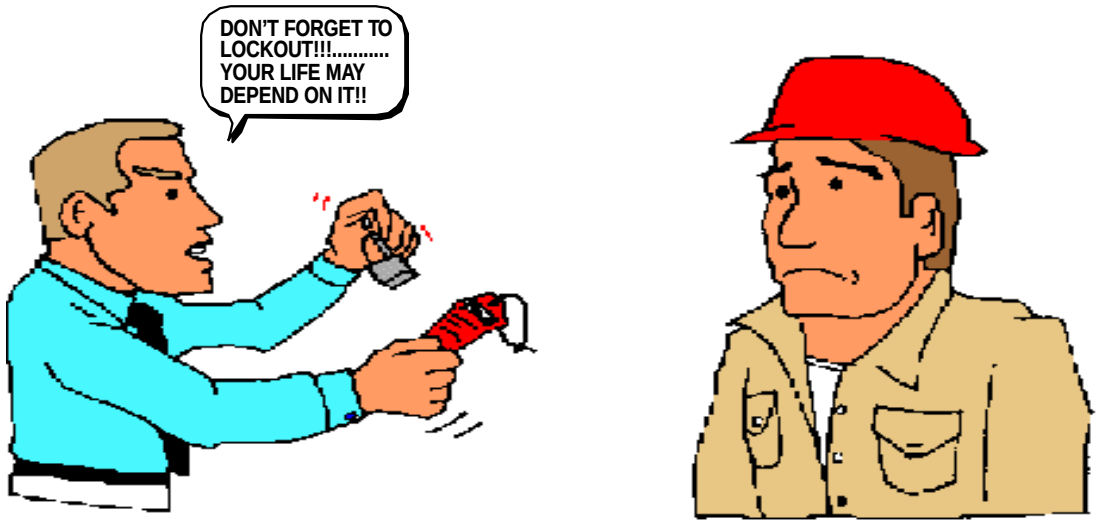
# LOCKOUT PREVENTS ELECTRIC SHOCK INJURIES AT NAVAL NETWORK OPERATIONS COMMAND

The U. S. Navy's policy for ships and shore facilities worldwide is to use Lockout/Tagout procedures to substantially eliminate the risk of personal injury to electricians and electrical maintenance technicians and others from unintentional activation of electrical energy during servicing or repair of the many different types of machinery and equipment used by the Navy.




Lockout is a procedure for locking out an energy source to eliminate the risk of electric shock or other injury due to the start-up or release of stored energy. To lock equipment out, an electrician or electrical maintenance technician disconnects switches, circuit breakers, or other energy-isolating mechanisms. Next, a device is placed over the circuit breaker to keep the electrical circuit from being turned on before the electrician or electrical maintenance technician finishes working on it. He or she then attaches a lock to the device so that the electrical system is completely *locked out* and cannot be turned on until each person who locked the system out removes his or her lock.

Only a qualified electrician or electrical maintenance technician who initiated the Lockout and is authorized by the Commanding Officer (CO) or Electronics Maintenance Officer (EMO) can unlock and remove a lockout device and restart the equipment that had been locked out of service. Nobody is authorized to remove any other person's lock except under exceptional circumstances and with the explicit approval of the CO or EMO. Where more than one person is working on the same system, each uses his or her own lock to lock out the system and removes that lock *only*, and no other.

Tagout involves placing an energy source in the safe position and attaching a red warning tag, as shown in the photo at right, to the switch or handle that controls the energy source. The tag warns against energizing the equipment. This is done to avoid the risk of electric shock or injury to anyone in contact with that equipment. Each tag identifies a person working on the tagged out equipment. Only the person who is specifically identified on the tag is authorized to remove that tag and re-energize the equipment. This Tagout procedure is not entirely foolproof; it does not provide the same degree of protection as a lock. The Occupational Safety and Health Administration (OSHA) has determined that Tagout alone may not be adequate to protect maintenance or inspection workers from unintended energizing of dangerous equipment. OSHA and Navy policy state that Lockout is the preferred method of energy control.


**Danger tag warns against energizing electrical power panel.**

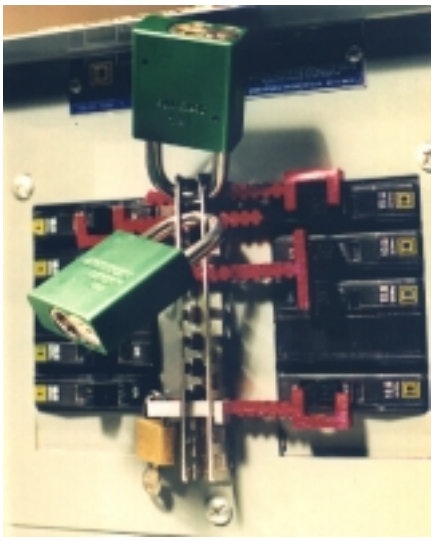
Naval Network Operations Command (NNOC) maintains and operates various types of equipment, such as transmitters and receivers, that the Navy uses to communicate with ships, submarines, aircraft, and other communications stations throughout the world. All electronic and communications workers who operate and maintain communications equipment need lockout protection.

**Performing maintenance on electronic communications equipment.**

In the past, technology was not available for locking out electrical power panels during maintenance of transmitters, receivers, and other electronic communications equipment. Electric circuits at NNOC were de-energized for maintenance by switches that placed the equipment in a neutral or off position. Then those circuits were tagged out. There were no

means to lock them out. Without locking a powered system out, there is always a risk, however small, of unintentional energizing of an electrical circuit with the possible consequence of injury or death to maintenance or service workers. Because Tagout alone does not guarantee that the equipment will remain in the off position, the risk of electric shock remained.

Recently, a small company in Huntsville, TX came up with an excellent solution for locking out NNOC electrical power panels during maintenance of communications equipment - the *breaker lockout device*. The device locks the electrical breaker panel out and prevents it from being turned on again until the lock is removed. The *breaker lockout device* makes it possible to lock out any power panel and prevent injuries to persons while they work on electrical systems. The device is attached to a power panel by mounting it vertically, down the center of the panel, as shown in the photo at left, so that the electrician or electrical maintenance technician can attach a lock to any turned-off circuit breaker.



***Breaker lockout device*** **allows lockout of electrical power panel.**

B*reaker lockout devices* have now been installed on all of NNOC's electrical power panels. NNOC Headquarters and its individual Communications Stations funded the project. Only authorized persons such as the Electronics Maintenance Officer (EMO), electricians, and electrical maintenance technicians have keys to lock out electric power to equipment. These employees can concentrate on their work tasks, secure in the knowledge that an electric circuit will not be turned on while they are working on it.

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