

I. SAFETY

It's hard to walk past the plant gate or the security office without seeing a sign indicating how many days since the last lost-time accident at the facility. Most employers take great pride in their safety record and preach safety as a way of life. This section includes some tips and information for keeping your operations safe.

OSHA

The *Occupational Safety and Health Act* (OSHA) in the United States covers workplace conditions for employees. If you are engaged in maintenance, repair, or installation activities, your employer probably has details on the particular parts of the OSHA standards that apply to you.

As a mechanical tradesperson, you might find yourself involved in many activities that require you to think out particular safety issues for your own special type of work. For example, you might be servicing a pump and have all the parts and the manufacturer's manuals, but it would make a great deal of difference in your approach to the job if the pump were handling acid instead of water. You have to consider the safety details for each job, using your trade skills combined with your knowledge of the process, location, or conditions.

Lock Out and Tag

When you shut down a machine, process, pipeline, or electrical apparatus to inspect or perform a repair, you need to *lock out and tag* a piece of equipment so that it cannot be accidentally started or energized. Usually, the start/stop of the switchgear controlling the piece of equipment is physically disabled with a lock (Fig. 1-1).

The employee working on the equipment usually holds the key to the lock. The lock itself has a tag identifying whose lock is being used. In the case of a pipeline, the valve controlling the flow into the line is closed and a lock placed

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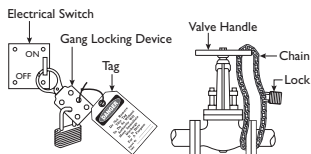


Fig. 1-1 Lock out and tag.

used to hold many locks on the job. In addition, it's a smart idea to try the local start/stop switch at the machine site or open the valve downstream from the locked main valve as a double check to make sure that the machine or process is "safed-out."

MSDA

Another safety issue for maintenance or installation personnel is the use of chemicals or hazardous materials. In the United States, *Material Safety Data Sheets* (MSDA) are used to identify the details of each particular chemical and list safe handling techniques. These sheets, usually available in the workplace, indicate if rubber boots, face shield, respirator, dust mask, or goggles might be required to work safely around a substance. Keep in mind that chemicals can be oil or grease, too. Removed parts of a machine often need to be cleaned after disassembly and require chemical degreasers or solvents.

Use of Protective Equipment

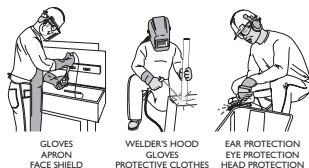


Fig. 1-2 Protective safety gear.

on the handle or bonnet with an appropriate tag attached. If two or more people are working at the same machine, then each additional person also places a lock on the equipment. A gang-locking device can be

used to hold many locks on the job. In addition, it's a smart idea to try the local start/stop switch at the machine site or open the valve downstream from the locked main valve as a double check to make sure that the machine or process is "safed-out."

Often the maintenance worker needs gloves, a hard hat, steel-toe shoes, earplugs, or other articles of apparel to guard against injury to the eyes, feet, head, or ears. Jobs such as grinding, drilling, nailing, painting, or welding mandate protective gear (Fig. 1-2).