

Chapter 5

WORKSHOP PRACTICES – USING MACHINE AND HAND TOOLS

Topics covered in this chapter

Training and maintenance

Hand held power tools

Machine tools

Workshop tidiness

Unfortunately, far too many accidents still occur in workshops, machinery spaces and on deck when using machine tools and hand tools. Many such injuries could be avoided by adopting safe practices.

TRAINING AND MAINTENANCE

There is a correct tool for every job and any tool being used for a purpose for which it is not designed is a potential hazard. All staff should be trained in the use of both hand and machine tools prior to using them. All tools should be maintained in good working order, only being used for the duties for which they are designed. Operating guides and manuals should be circulated and readily available. All tools should be stowed carefully and on completion of the task in hand they should be returned to the correct storage location, cleaned and prepared for future use.

Damaged, worn or potentially hazardous tools must not be used and should be taken out of service. When this course of action is taken the relevant head of department should be advised. The tools should only be returned to service when all faults are rectified. If it proves impossible to repair a tool, it should be disposed of or destroyed.

Some faults may be simple to rectify, but if they remain unrepaired they will lead to injuries. Such fault rectification may include dressing chisels, sharpening punches or fitting a new file handle.

HAND HELD POWER TOOLS

Hand held power tools can be potentially very dangerous and should only be used in accordance with manufacturers' instructions and operated by experienced and trained staff. Such tools may be driven by electricity, battery or compressed air, but the same fundamental safety rules apply in each case.

All plugs, cables, fittings and connections should be regularly checked and any fuses fitted should be of minimum serviceable rating. For work carried out in confined spaces, tools should be of the low voltage type – typically 24V. If low voltage supplies and tools

are not readily available on board vessels, then ship owners must consider the possibility of purchasing portable transformer units and low voltage hand tools. Any equipment used in hazardous areas should be intrinsically safe and maintained correctly. Such intrinsically safe equipment should be labeled with the correct approvals.

Operating triggers on hand held power tools should never be 'fixed' either by using wire or jubilee clips. This is a very dangerous practice.

No maintenance should be attempted on any power tool before it has been isolated from its power source. Even basic operations such as changing drill bits should only be attempted when the drill has been isolated.

MACHINE TOOLS

The improper use of workshop machine tools results in many accidents and injuries and such machine tools should only ever be operated by trained and competent personnel. In this section all secured machine tools are included except welding machines which will be considered separately.

The first and most important thing any machine tool operator must know is how to stop the machine. Various methods may be employed, including stop buttons, emergency stop kick bars and emergency stops, to name but a few, but the single most important lesson is this.

Never start a machine unless you know how to stop it !

All stopping methods should be clearly indicated. Emergency remote 'stops' capable of stopping all workshop machines should be sited around the workshop.

Tool guards

Guards should be fitted to all machine tools and no machine should be operated unless guards are in place. Guards should only be of approved designs and must be fully compatible with the machine.

Even with guards fitted, the operator should always wear approved goggles whenever there is a risk of eye injury.

Artificial lighting in workshops should be carefully selected to avoid the potential stroboscopic effect of fluorescent lights on rotating machinery.

As with power tools, if a machine is considered defective it should be taken out of service, until it is repaired and tested. In the meantime it should be isolated and 'danger notices' posted.

Some machines, pedestal grinding machines for example, may be belt driven and consequently these belts should be well maintained with belt guards fitted. These guards should only be removed when the machine is confirmed fully isolated.

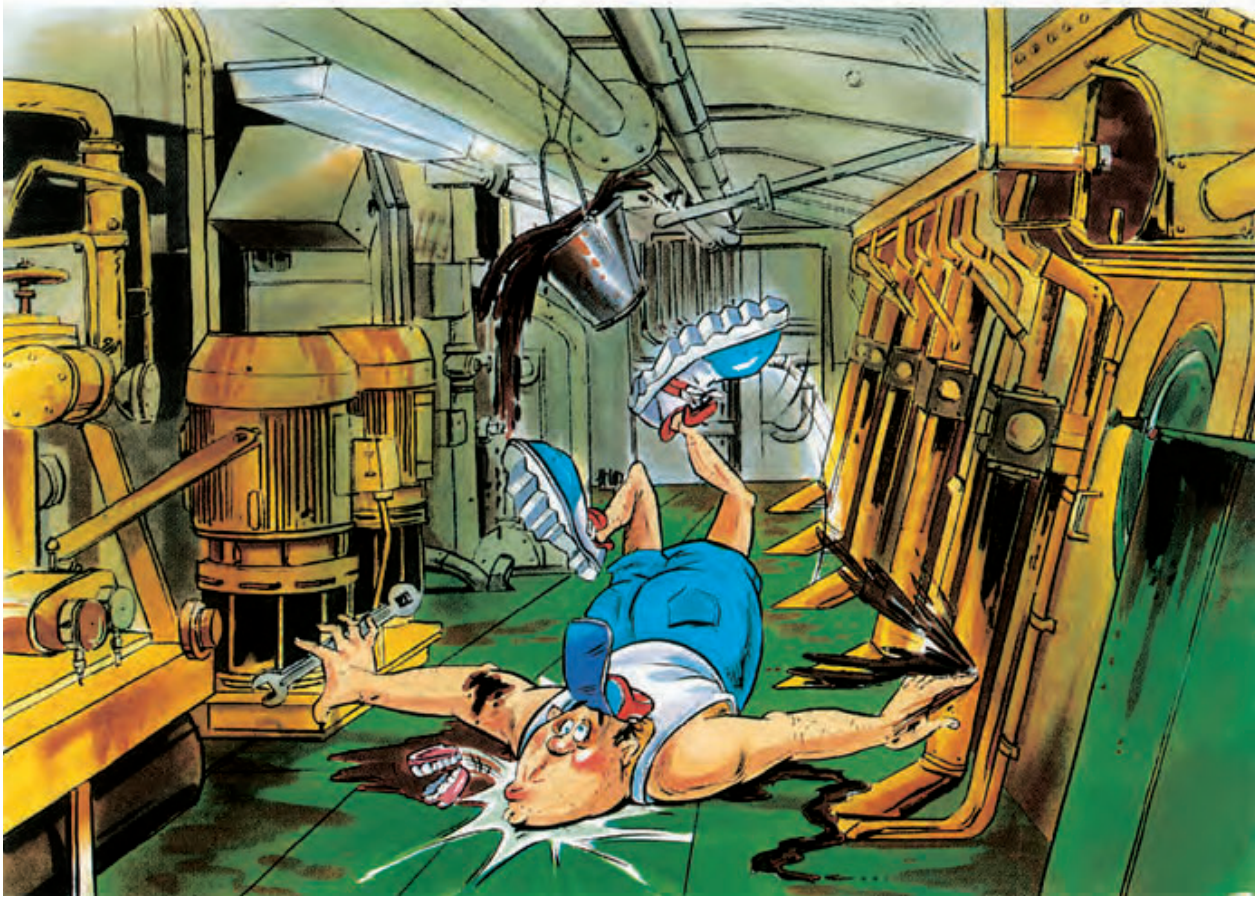
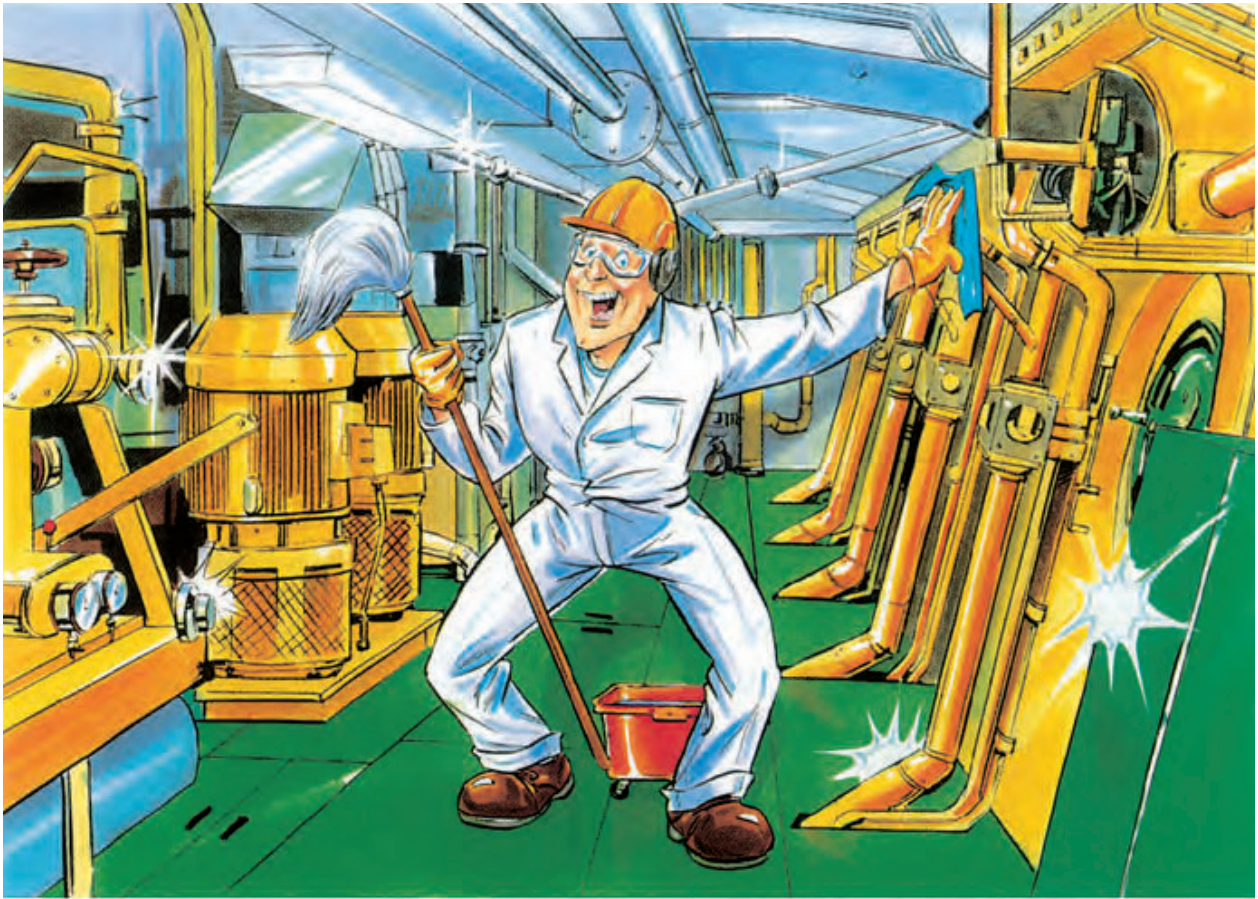
Simple things such as swarf removal, chuck keys left in chucks, unguarded machines and unsecured work pieces still lead to too many accidents and injuries. Clothing should be fastened and hair should be secured or tied up so as to prevent entanglement in rotating machinery.

WORKSHOP TIDINESS

All workshops should be kept clean and tidy with all tools returned to shadow boards, which allow easy identification of missing tools. The workshop should be uncluttered and all benches, decks and machines should be tidied between jobs and each evening.

Areas in the immediate vicinity of machines can be enclosed by grid lines painted on the deck within which nothing should be placed or stored.

All machines should be cleaned and swept down after use. However, the use of compressed air for this purpose can be very dangerous and must be prohibited.



Chapter 6

GOOD HOUSEKEEPING

Topics covered in this chapter

Encouraging good housekeeping

Unmanned machinery spaces

Reporting deficiencies

Garbage

Good housekeeping is a vital part of shipboard safety management and is an area worthy of great attention. Slips and falls are the largest cause of injuries.

ENCOURAGING GOOD HOUSEKEEPING

Good housekeeping must be actively encouraged and senior officers must promote it.

All personnel should always ensure that they

- keep the work place clean, tidy and well lit
- always clear up oil spills, however small
- remove obstacles
- clearly mark and effectively fence off openings in decks or gratings
- clearly mark safe paths of access for visitors and crew
- return tools after use
- promptly dispose of garbage and waste in accordance with legislation
- rectify oil leaks before they become too serious – buckets or catch pots should not be used
- keep all equipment and stores properly secured.

In addition, save-alls should be kept clean and oil free. Buckets or drums of petroleum products used for cleaning, and typically found being used for cleaning purifiers and fuel components, should be emptied after use and prior to going unmanned.

Running lights should be operational, and machinery instructions and notices should be legible, as well as clear and concise. All machinery operating instructions should be prepared in the language of the operators. If machinery or pipe-work lagging is damaged then it should be correctly repaired. If asbestos lagging has been used on a ship then it should be brought to the owner's attention and dealt with by professionals.

As all seafarers are aware, vessels are seldom still, but in times of rough weather all items on board, from cabin ornaments to main engine spares, should be correctly secured.