

Workplace Safety Procedures 15-5.01-P

CONDUCT a training session on your workplace safety procedures, as presented in the E-PME Study Guide.

Training on Workplace Safety Procedures

To prevent death, injuries, and property damage, employees need to be trained on how to work safely and to check that preventive measures are in place.

Applicable safety precautions are presented for the following tasks:

- Working on or around machinery
- Using hand and power tools
- Entering or working in tanks, voids, and unventilated spaces
- Performing watch standing duties in machinery spaces
- Working on or around electrical equipment
- Handling flammable or toxic materials
- Working aloft
- Working over the side
- Bio-hazardous material

Working On or Around Machinery

Moving machine parts can cause severe workplace injuries such as crushed fingers, hands, or arms; amputations; burns; and blindness, just to name a few. When the operation of a machine or accidental contact with it can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated by installing safeguards. These safeguards are essential for protecting workers from needless and preventable injuries.

The most common hazards are flywheels, shafts, clutches and wenches. All of these require safeguards securely fixed to protect workers from contacting them while they are in motion.

Emphasize the rule that any machine part, function, or process that could cause injury MUST be safeguarded.

Using Hand and Power Tools

While manufacturers produce tools with safety in mind, they are not hazard-free. Most people do not think of hand and power tools as being dangerous. Unfortunately, many people sustain serious injuries each year from hand and power tools. Most hazards strike without warning!

Safety precautions are necessary to remove or prevent these hazards. Hand and power tools are dangerous, in part because everyone is so familiar with them. Hazards associated with hand and power tools can be alleviated by following six basic safety rules:

1. Keep all tools in good condition, with regular maintenance and proper guards in place.
 2. Use the right tool for the job.
 3. Examine each tool for damage before use.
 4. Operate according to the manufacturer's instructions.
 5. Provide and use the proper protective equipment. (This cannot be overemphasized.)
 6. Tag defective tools "Do Not Use" and immediately remove from service. *(For example, if an electric drill is missing the grounding prong from the plug, tag it and remove it from service until it can be repaired. If it cannot be repaired, then properly dispose of it.)*
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Hand Tools

Hand tools are non-powered: axes, hammers, screwdrivers, etc. The greatest hazards posed by hand tools result from misuse and improper maintenance. Misuse involves using tools for things that they are not designed or intended for that purpose.

Some examples include using:

- A screwdriver as a chisel, which can break the screwdriver tip sending fragments flying. These fragments can hit the user or others nearby.
 - Hammers or axes with loose, splintered, or cracked wooden handles. These handles can cause the head to fly off.
 - Sprung wrench jaws, which can slip.
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Power Tools

With electric power tools, there are still more applicable safety precautions to consider. These involve:

- Cords, plugs, hoses, and tool casings
- Grounding and insulation
- Storage
- Lighting

The applicable safety precautions are depicted in the following table.

Power Tools	Safety Precaution
Cords, plugs, hoses, and tool casings	Abiding by the following rules will help prevent injuries: <ul style="list-style-type: none">• Always inspect cords, plugs, and tool casings before each use.• Never carry tools by the cord or hose.• Never yank cords or hoses to disconnect them from receptacles.• Keep cords and hoses away from heat, oil, and sharp edges.• Always disconnect tools when not in use, before servicing, and when changing accessories like blades, bits, and cutters.
Grounding and insulation	To protect the user from shock, tools must have a 3-wire cord with grounding and be used with grounded receptacles. An adapter wire should be attached to a known ground when the adapter is used to accommodate a two-hole receptacle. NEVER remove the third prong from the plug.
Storage	Store tools in a dry place. Never use tools in damp or wet areas.
Lighting	Having proper lighting when using power tools avoids mishaps and injuries.

Entering or Working in Tanks, Voids, and Unventilated Spaces

Tanks, voids, and unventilated spaces are classified as confined spaces. Confined spaces are any areas that have all three characteristics:

- Large enough and so configured that an employee can bodily enter and perform assigned work
- Limited or restricted means for entry and exit
- Not designed for continuous human occupancy or worked in on a full-time basis

Confined spaces can increase the risk of injury and death by forcing entrants to work in close proximity to hazards. While it is impossible to determine all the hazards inside the space until the space is opened, most can be anticipated.

Each confined space has unique contents, configuration, ventilation, temperature variations, etc., and each of the space's hazards can affect the others. Some spaces present entrapment hazards; others contain atmospheric hazards; some contain both.

All confined spaces are to be considered hazardous until proven otherwise. Low oxygen, explosive vapors, and toxic fumes are the most common findings upon initial testing of a confined space. Confined spaces are either a non-permit or permit required.

- **Non-permit confined space.** A non-permit confined space does not contain hazards or potential hazards. Once determined a non-permit confined space, no special requirements are necessary for entry by any employee.
- **Permit-required confined space.** A permit-required confined space contains or has potential to contain:
 - ▶ A known or potentially hazardous atmosphere (fuel tanks, CHT tanks, ballast tanks, etc.)
 - ▶ Material capable of engulfing entrants (soil, sand, grain, woodchips, etc.)
 - ▶ An internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a dangerously sloping floor
 - ▶ Any other recognized serious safety or health hazard.

Entering or Working in Tanks, Voids, and Unventilated Spaces (continued)

Some examples of permit-required confined spaces ashore include:

- Process vessels, silos, pits, sewers, boilers, vaults, pipelines, and storm drains
- Open-top permit spaces include pits, degreasers, open water tanks, ship holds, excavations, and trenches

Some examples of permit-required confined spaces on cutters and other vessels include fuel tanks, cofferdams, double bottoms, ballast tanks, and CHT storage tanks.

Examples of aircraft confined space include wing tanks, fuel cells, APO spaces, center tanks, etc.

Opening Confined Spaces

A Closed Compartment Opening Request Form is not required to open confined spaces. However, it can be an effective tool to communicate the need to open a confined space. Before opening confined spaces:

- Tag out all systems connected to affected space, and make an entry into DC closure log as per Coast Guard regulations manual. M5000.3 (series).
- Ensure a Gas Free Engineer (GFE) is present at the space opening prior to opening space.
- Ventilate the space for 24 hours.

Note: After confined space is opened and tested, GFE will issue a gas free certificate stating the condition of the confined space and the safety precautions to be observed while working in the confined space. Ensure that the gas free certificate is posted at all space openings bridge or quarterdeck and EOW log.

An example of the Closed Compartment Opening Request Form follows.

*Opening Confined
Spaces (continued)*

CLOSED COMPARTMENT OPENING REQUEST FORM

<i>Division requesting</i>	<i>Date of request</i>
<i>Division P.O.C.</i>	
<i>Compartment #</i>	<i>Reason for opening compartment</i>
<i>Systems connected to compartment</i>	
<i>Department Head</i>	<i>Signature</i> _____
<i>EOW</i>	<i>Signature</i> _____
<i>EO/DCA</i>	<i>Signature</i> _____
<i>OOD/CO</i>	<i>Signature</i> _____

***Performing Watch
Standing Duties in
Machinery Spaces***

Machinery spaces present various hazards to personnel, such as loud noise, moving parts, and high heat. However, it is easy to protect yourself and personnel from noise and moving parts.

Loud Noise

Hearing protection is essential equipment for watch standing personnel. Protection comes in the form of earplugs or earmuffs.

- If personnel are exposed to 85 dB of noise, single hearing protection is required. This can be earplugs or earmuffs.
 - If a noise level of 105 dB is present (usually in engine rooms), double hearing protection is required. Earplugs and earmuffs both are worn to achieve double hearing protection.
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Moving Parts

Flywheels, shafts, generators, and clutches are all common moving parts that can be found in a machinery space.

All these parts should have guards to prevent personnel from coming in contact with them while they are moving. For maintenance reasons, these guards are periodically removed. It is imperative that they be properly replaced for the safety of everyone.

High Heat

Lube oils sampling is a frequent task during watch. Personnel must wear safety goggles while drawing lube oil samples. While handling hydraulic oil, gloves, apron, and goggles are required. Uniforms should not be extremely loose as this can pose a safety hazard when working around rotating machinery and petroleum products.

Unfortunately, high heat is a byproduct of combustion engines and is also generated through friction of moving parts. Each unit is required to have a heat stress-monitoring program to ensure the safety of the crew.

***Working
On/Around
Electrical
Equipment***

Unsafe work practices cause most electrical accidents, so employees must observe safe work practices at all times. Electrical safety basics can prevent injuries to you and your shipmates:

- Never work on electrical equipment alone.
 - Stay a prescribed distance from exposed energized lines. (*Many electrical fatalities are caused by the operation of materials handling equipment, e.g., cranes, near overhead power lines or operating excavation equipment, e.g., backhoes, near underground power lines.*)
 - Do not use electrical equipment when the user, work surface, or equipment is damp or wet, unless the equipment is specifically listed for this application, and the workers are protected against electrical shock (lockout tagout, insulating gloves, insulating mats, etc.).
 - Ensure all electrical equipment is grounded.
 - Implement a lockout tagout system to deenergize and secure electrical equipment.
 - Properly secure locking-type connectors after connection.
 - Handle only the insulated portion of energized plug and receptacle connections.
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***Handling
Flammable or
Toxic Materials***

Personal Protective Equipment (PPE) is required when handling flammable or toxic materials. Before using a product, review container warning labels and respective Material Safety Data Sheets (MSDS). MSDS provide information on proper use, potential hazards, protective measures to be taken, and emergency first aid procedures to be followed. The MSDS for a specific material might specify certain types of hand, face, and respiratory protection.

MSDS Excerpt for a General Purpose Cleaner:

- **Respiratory Protection: NIOSH CARTRIDGE RESPIRATOR WHEN VAPORS EXCEED TLV.**
- **Ventilation: LOCAL EXHAUST RECM BY MFG.**
- **Protective Gloves: RUBBER,NEOPRENE OR LATEX.**
- **Eye Protection: CHEMICAL GOGGLES**
- **Other Protective Equipment: RUBBER APRON,RUBBER BOOTS.**
- **Work Hygienic Practices: OBSERVE GOOD WORK HYGIENIC PRACTICES FP-N.**
- **Supplemental Health & Safety Information: PART NO:16 OZ SIZE.**

For your safety and the safety of others, ensure the PPE requirements listed are strictly adhered to.

Working Aloft

Before sending a person to work aloft, a Man Aloft Chit must be completed specifying the safety procedures that must be in place. The Chit is routed to the various division involved and must be acknowledged by the appropriate signature.

On the following page is a sample Man Aloft Chit for performing a safety inspection of the climbing harness, working lanyards, safety lanyard, and safety climbing device.

MAN ALOFT CHIT

1. NAME OF PERSON GOING ALOFT: YOUR NAME HERE	2. NAME OF SAFETY OBSERVER:	
3. NAME OF WORK SUPERVISOR:	4. EST. TIME UP: CURRENT TIME	5. EST. TIME ALOFT:
6. PERFORM SAFETY INSPECTION OF THE CLIMBING HARNESS, WORKING LANYARDS, SAFETY LANYARD AND SAFETY CLIMBING DEVICE, IAW MRC 6231.001-12		6A. SIGNATURE OF PERSON PERFORMING INSPECTION: YOUR SIGNATURE HERE
7. DESCRIBE WORK AREA: MAST; PORT AND STARBOARD YARDARMS	8. DESCRIBE WORK TO BE DONE: PMS OF UHF ANTENNAS	

ROUTE THIS MAN ALOFT CHIT TO THE FOLLOWING:

DIVISION	ACTION TAKEN	SIGNATURE
9. CSC	ALL RADARS, IFF, AND TRANSMITTERS SECURED AND TAGGED OUT.	
10. COMM CENTER	ALL TRANSMITTERS SECURED AND TAGGED OUT.	
11. FIRE CONTROL	MK-92 AND CIWS LIVE TRANSMIT SECURED AND TAGGED OUT.	
12. BRIDGE	RADAR INDICATORS AND BRIDGE TRANSMITTERS SECURED AND TAGGED OUT.	
13. ENGINEERING	MINIMIZE STACK GASSES, MAN ALOFT NOTICE POSTED AND ENGINEERING WATCH NOTIFIED.	

OTHER SHIPS IN COMPANY

14. SHIP 1	SECURE ALL TRANSMITTERS, SECURE ALL RADARS, MINIMIZE STACK GASSES, AND PIPE "MAN ALOFT" FOR YOUR UNIT AT 30-MINUTE INTERVALS.	
15. SHIP 2	SECURE ALL TRANSMITTERS, SECURE ALL RADARS, MINIMIZE STACK GASSES, AND PIPE "MAN ALOFT" FOR YOUR UNIT AT 30-MINUTE INTERVALS.	
16. SHIP 3	SECURE ALL TRANSMITTERS, SECURE ALL RADARS, MINIMIZE STACK GASSES, AND PIPE "MAN ALOFT" FOR YOUR UNIT AT 30-MINUTE INTERVALS.	

17. OOD/COMMANDING OFFICER	VERIFY ALL SIGNATURES AND EQUIPMENT SECURED.	
18. QUARTERDECK	HOIST KILO FLAG, PIPE "MAN ALOFT" IN 30-MINUTE INTERVALS, RETAIN THIS SHEET UNTIL MAN ALOFT COMPLETED AND NOTIFY WORK SUPERVISOR IF MAN ALOFT EXCEEDS TIME ALOFT BLOCK.	
19. ACTUAL TIME UP:		20. ACTUAL TIME DOWN:

Working over the Side

Numerous safety precautions are applicable when working over the side or aloft using a Bos'n chair or stage. A few safety measures are given here. Consult your unit's SOP to outline your unit's particular requirements.

1. Get permission from the OOD.
 2. Wear a PFD when working over the side as mandated by the Coast Guard Rescue and Survival Systems Manual, COMDTINST M10420.10 (series).
 3. Delegate someone as a safety observer.
 4. Rig a manrope or Jacob's ladder at one end of the stage.
 5. Rig a safety runner (second line) to both ends of the stage when working over a dry-dock bed.
 6. Check the position of the staging to ensure it's clear of scuppers or overboard discharges.
 7. Only use pneumatic tools; do NOT use electric tools.
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Biohazardous Material

Coast Guard resources, e.g., helicopters, small boats, and cutters are routinely dispatched to transport persons with serious injuries or life-threatening illnesses. Frequently, the interior decks and rescue/medical equipment are contaminated with biohazardous wastes. These wastes may consist of bodily fluids, bandages, needles, scalpels, ampoules, and equipment used to aid in respiration.

Each unit is required to have a written plan for the decontamination of resources and protection of personnel from biohazardous material. The plan should establish procedures for decontaminating aircraft, vessels, and equipment after exposure to biohazardous wastes. Proper completion of these procedures protects personnel from exposure to infectious agents such as Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV).

*Universal
Precautions*

Universal Precautions shall be used by all members whenever the potential for exposure to bloodborne pathogens exists. Personnel shall adhere rigorously to infection control precautions to minimize risk of exposure to all blood and other body fluids, all of which shall be considered infectious materials.

Universal Precautions is an infection control approach developed by the Center for Disease Control (CDC) that assumes every direct contact with body fluids is potentially infectious. The precautions require that employees who may be exposed to direct contact protect themselves as though such body fluids were HIV or HBV infected.

Potentially infectious blood and body fluids include blood, semen, vaginal secretions, amniotic fluid, cerebrospinal fluid, joint (synovial) fluid, chest (pleural) fluid, abdomen (peritoneal) fluid, and heart (pericardial) fluid. These fluids may be released and mixed with blood as the result of an injury or other natural process. Since it is difficult to distinguish between body fluid types, ALL body fluids are considered potentially infectious and Universal Precautions must be taken.

Protective measures to eliminate or minimize employee exposure to infectious materials include:

- Engineering controls
- Work practice controls
- Use of personal protective equipment to minimize the risk of acquiring HIV, HBV, and other bloodborne diseases in the occupational setting
- Appropriate personnel trained in the application of universal precautions

The following sample documents are contained in the Additional Resources section of this E-PME Study Guide:

- Sample Air Station Biohazard Decontamination Plan
 - C-130 Decontamination Check List
 - Sample Station Biohazard Decontamination Plan
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***Conducting a
Training Session***

For this performance requirement, develop a brief lesson plan to use as an aid in conducting your training session.

Before conducting your training session, you may want to review the following sources:

- 17-5.01-P requirement (Instruct personnel) [*See the performance requirements section of this E-PME Study Guide.*]
- 17-4.01-K requirement (Guidelines for preparing a training session) [*See the knowledge requirements section of this E-PME Study Guide.*]

After practicing your delivery, contact your supervisor to make arrangements for your training session on applicable safety precautions for the tasks presented in this E-PME Study Guide.
