

Summary Report for Individual Task
551-88L-3074
Troubleshoot Piping Systems
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD5 - This product/publication has been reviewed by the product developers in coordination with the [installation/activity name] foreign disclosure authority. This product is releasable to students from all requesting foreign countries without restrictions.

Condition: Given a piping system, aboard a vessel, at sea, at anchor or moored alongside a pier, day or night, under all sea and weather conditions, wearing appropriate PPE, (i.e. hearing protection, eye protection, etc.), lock out tag out kit and a marine rail tool box.

Standard: The Soldier correctly conducts troubleshooting procedures of a piping system aboard an Army vessel, IAW the appropriate Technical Manual and local SOPs, without injury to self or others and without damage to equipment.

Special Condition: None

Safety Risk: High

MOPP 4:

Task Statements

Cue: None

DANGER
None

WARNING
None

CAUTION
None

Remarks: None

Notes: None

Performance Steps

1. Demonstrate basic troubleshooting procedures for piping systems.

a. Pipe Corrosion

(1) The first sign of corrosion may be a leak in the system occurring within the walls or floors of the vessel.

(2) After locating the leak, cut out and replace the corroded pipe.

b. Frozen Pipes

(1) Water supply lines may freeze when exposed to temperatures below 32 degrees Fahrenheit.

(2) Two types of procedures for frozen pipes: aboveground and belowground.

(a) Aboveground pipes

1 A blowtorch is the best method to thaw aboveground pipes, but there is a risk of fire.

2 Pipes can be thawed by wrapping them with burlap or other cloth and pouring boiling water over the wrappings, thus transmitting heat to the frozen pipe.

(b) Underground Pipes

1 Place a small thaw pipe or tube into the frozen pipe.

2 After the flow starts, withdraw the pipe quickly.

c. Scale

(1) Scale can sharply reduce the flow of water to fixtures.

(2) In localities where the water is unusually hard, a water softener is used to reduce the hardness.

d. Continual leakage at a joint where a branch line joins another line is usually due to improper for expansion in one of the lines or to excessive vibration.

e. Pipe thread leaks should be repaired promptly.

f. Copper or brass piping may be permanently repaired by brazing.

g. The life of saltwater piping may be lengthened by operating the systems with the minimum practical water velocities and by eliminating grounds from electrical systems, especially direct current (DC) circuits.

2. Demonstrate basic troubleshooting procedures for valves.

a. Leakage and wear of valves are the most common problems found aboard vessels.

b. Most leaks are from leaky washers or bonnets that have been used for a long period of time.

c. Leak at the stem and the packing nut.

(1) Tighten the packing nut. If the leak continues, turn the valve off.

(2) Remove the wheel handle, packing nut, and old packing.

(3) Replace with new packing.

d. Valve will not close properly.

(1) Turn valve off, disassemble the valve.

(2) Resurface disk.

(3) Reassemble the valve.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: None

Evaluation Preparation: None

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Demonstrated basic troubleshooting procedures for piping systems.			
a. Pipe Corrosion			
b. Frozen Pipes			
c. Scale			
2. Demonstrated basic troubleshooting procedures for valves.			
a. Leak at the stem and the packing nut.			
b. Valve will not close properly.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	TC 55-509	MARINE ENGINEMAN's HANDBOOK	No	No
	TM 3-34.70	Plumbing, Pipe Fitting, and Sewerage	No	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks : None

Supported Individual Tasks : None

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data
88L30 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL3, Duty Pos: TFR, LIC: EN
88L40 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL4, Duty Pos: TGB, LIC: EN, SQI: O