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U.S. NAVY
SHIP SALVAGE MANUAL
VOLUME 3
(FIREFIGHTING
AND DAMAGE CONTROL)

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FOREWORD

This manual is the third in a series of six related publications that comprise the *U.S. Navy Ship Salvage Manual*. Each volume in the family addresses a particular aspect of salvage. The family collectively replaces the three volumes of the *U.S. Navy Ship Salvage Manual* issued between 1968 and 1973.

The primary purpose of these volumes is to provide practical information of immediate use to Navy salvors in the field. These publications are not cook books; they are guidance. Salvors must use their imagination, intellect and experience to expand the basic information and apply it to a particular situation. A secondary purpose is to provide an educational vehicle for learning the technical and practical aspects of our business before the fact.

This volume, *Firefighting and Damage Control*, deals with an aspect of the Navy salvor's work that has not been formally addressed until now. Historically, providing services to battle-damaged ships has been one of the most important functions of the Navy salvor, greatly increasing the survivability of fleet units when the damaged ship's damage control organization becomes taxed or overwhelmed. This assistance inevitably involves firefighting because one of the principal effects of weapons strikes is to start large fires. Following World War II, Rear Admiral W. A. Sullivan, Chief of Navy Salvage and Supervisor of Salvage during the war, wrote:

"In most cases, vessels needing assistance as a result of damage inflicted by enemy action are afire or are a fire hazard. During a fire, it is most times impossible to engage in salvage operations other than ascertaining the damage and controlling flooding and stability, since salvage as well as firefighting personnel must engage in firefighting."

Firefighting and damage control assistance are the most time-critical forms of salvage. The salvor assisting a stricken ship must understand the principles of his trade thoroughly and must think on his feet. This was aptly demonstrated during *Desert Storm* in the Persian Gulf when emergency support was provided following the USS PRINCETON (CG 59) and USS TRIPOLI (LPH 10) mine strikes. Rear Admiral Sullivan succinctly summarized the need for rapid information gathering and timely action: "...a conference cannot be held while the ship is sinking."

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STANDARD NAVY SYNTAX SUMMARY

Since this manual will form the technical basis of many subsequent instructions or directives, it utilizes the standard Navy syntax as pertains to permissive, advisory, and mandatory language. This is done to facilitate the use of the information provided herein as a reference for issuing Fleet Directives. The concept of word usage and intended meaning which has been adhered to in preparing this manual is as follows:

"Shall" has been used only when application of a procedure is mandatory.

"Should" has been used only when application of a procedure is recommended.

"May" and "need not" have been used only when application of a procedure is discretionary.

"Will" has been used only to indicate futurity; never to indicate any degree of requirement for application of a procedure.

The usage of other words has been checked against other standard nautical and naval terminology references.

SAFETY SUMMARY

This Safety Summary contains all specific WARNINGS and CAUTIONS appearing elsewhere in this manual. Should situations arise that are not covered by the general and specific safety precautions, the Commanding Officer or other authority will issues orders, as deemed necessary, to cover the situation.

GUIDELINES

Extensive guidelines for safety can be found in the OPNAV 5100 Series instruction manual, "Navy Safety Precautions." Personnel required to perform salvage operations must be thoroughly trained and equipped not only to perform routine duties but also to react appropriately to unusual or non-routine situations.

The officers and crew of vessels likely to be involved in salvage operations should continuously conduct safety indoctrination lectures and exercises aimed at reducing hazards and at reacting appropriately to unusual circumstances with professional understanding of their duties and the proper use of safety equipment.

PRECAUTIONS

The **WARNINGS** and **CAUTIONS** contained in this manual and listed below are referenced by page number. In addition, the following general precautions are offered as part of this Safety Summary:

- All personnel responsible for salvage should read and comprehend this manual.
- Observe all warnings, cautions, and notes listed in this manual.
- Follow operational procedures. Observe operating parameters of all equipment.

Definitions of warnings and cautions are as follows:

WARNING

A statement used to call particular attention to an action or procedural step which, if not strictly followed, could result in the injury or death of personnel.

CAUTION

A statement used to provoke notice, awareness, and attention from personnel regarding an action or procedural step which, if not followed, could result in possible injury or equipment malfunction.

The following warning and caution statements appear in this manual and are repeated here for emphasis:

WARNING

Water fog will non conduct electricity, but an inadvertent shift to solid stream causes severe electrocution hazards for the firefighter. (page 3-17)

WARNING

Inert gases will not support life and many of the vapors being displaced may be toxic. Ensure the safety of personnel and monitor the atmosphere at all times. (page 3-18)

WARNING

Corfam shoes and polyester clothing are not appropriate for any form of battle dress. When exposed to flame or high temperature, these materials melt and stick to the skin. (page 4-2)

WARNING

Fires involving nitrates, chlorates or other materials that produce oxygen when heated, should NEVER be battened down. Serious explosion may result. (page 7-29)

CAUTION

Hazardous materials are highly toxic and often difficult to detect. Familiarization with the effects and warning signs of exposure to these materials is a matter of education and training. The *U.S. Navy Ship Salvage Safety Manual*, S0-400-AA-SAF-010, provides guidance concerning hazardous materials. (page 3-14)

CAUTION

Navy salvage firefighters responsible for ordering or arranging resupply of foam concentrate overseas should realize that foam container sizes are figured in Imperial gallons or liters. An order for 55-gallon drums will confuse the foreign supplier who is used to an international system of "standard" drum sizes, where:

CAUTION

The operating times for air cylinders are based on the normal breathing rate of an average person. Air may be used more quickly due to exertion, extreme heat or the psychological effect of wearing a breathing apparatus. (page 7-10)

CAUTION

Ventilation of burning compartments may serve to intensify the fire by introducing oxygen. Venting should only be used during direct attacks. During indirect attacks, the area must be made as airtight as possible to keep oxygen out and the extinguishing agent confined. (page 7-18)

CAUTION

Check all hatch covers and vent dampers to ensure no agent leaks from the hold or air leaks in. Check for smoke or heat being pushed from openings and seal with sealant or tape. (page 7-30)

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