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# SECTION I: THE RRF LOGISTICS MANAGEMENT PROGRAM

## CHAPTER 1: INTRODUCTION TO THE RRF LOGISTICS MANAGEMENT PROGRAM

The Ready Reserve Force (RRF) was established by the Maritime Administration (MARAD) in coordination with the U.S. Navy in 1976 as a support element for the deployment of U.S. forces. The RRF is a element of the National Defense Reserve Fleet (NDRF) that has been designated for quick-action response to requirements for certain types of sealift capability. MARAD manages RRF vessel acquisition, upgrade, activation, maintenance, operations, and subsequent deactivation. RRF vessels are entrusted to Ship Managers or to General Agents. From a logistics management perspective, Ship Managers and General Agents are functionally identical. The term "Ship Manager" will be used in this manual to indicate General Agents as well as Ship Managers.

### 1.1 RRF LOGISTICS MANAGEMENT MANUAL

The *RRF Logistics Management Manual* has been developed to provide policy guidance and operating procedures to MARAD Headquarters and Region personnel for the management of RRF logistic support functions. It also provides authoritative guidance and direction to Ship Managers, General Agents, and other support contractors when invoked in their respective contracts. This Manual shall also serve as a reference for those Government agencies whose functions and responsibilities require them to interact with MARAD and the RRF.

The *RRF Logistics Management Manual* addresses MARAD's Supply Management Program policy, responsibilities, and procedures within the context of the RRF Logistics Support System (LSS). It also prescribes uniform Configuration Management and provisioning requirements, applications, objectives, and definitions for the RRF, and assigns responsibilities related thereto. All guidance and procedures apply principally to the RRF, but shall also apply to non-RRF vessels in the NDRF when specifically indicated herein, or when considered appropriate by MARAD authorities.

**1.1.1 Manual Organization.** The Manual is divided into four major Sections:

- a. RRF Logistics Management Program
- b. Shipboard Supply Management Program
- c. Configuration Management Program
- d. Shore-based Spares Management Program

Chapters and paragraphs are numbered in legal style, with chapters numbered consecutively, irrespective of Section. Users should examine the Tables of Contents to grasp this structure and to obtain an overview of the contents of each Section and Chapter. Whenever a specific paragraph is referred to in the text or illustrations, its respective subparagraphs are included by implication in the reference. Whenever possible, illustrations, tables, and figures have been provided to clarify the processes or procedures contained in the text. An index is provided at the end of the Manual.

**1.1.2 Changes to the Manual.** Recommendations for changes to this manual are encouraged and should be submitted, along with the proposed revision to text and/or illustrations to the Division of Logistics Support (MAR-614). Approved changes will be disseminated by MAR-614 in the form of pen-and-ink changes or as replacement pages for insertion in the manual. Requests for waivers from the procedures contained in this manual should be submitted to MAR-614, and will be considered on a case-by-case basis.

**1.1.3 Authority.** This manual shall serve as authoritative guidance for all MARAD employees in the performance of their duties relative to the RRF Logistics Management Program. This manual shall also serve to guide Ship Managers and other contractors in the performance of their contracts, subject to the terms of said contracts. When there is an apparent conflict between the terms of a contract and this manual, the contract shall take precedence.



## 1.2 RRF LOGISTICS SUPPORT CONCEPT

RRF Logistics Management Program policy has been established in Maritime Administrative Order (MAO) 630-7<sup>1</sup>. This policy provides for overall Supply Management Program direction and support by MARAD Headquarters (MAR-614), with implementation at the Region. Each Region operates the Program for assigned RRF vessels, as well as the Shore-Based Spares Program.

### 1.2.1 Shipboard Supply Management Program.

The Shipboard Supply Management Program addresses supply management functions performed aboard ship or in direct support of shipboard operations. It encompasses allowance and inventory management policy, procedures, and information for shipboard spare parts, outfit material, and technical documentation. The Shipboard Supply Management Program is addressed in Section II of this manual.

**1.2.2 Configuration Management Program.** The discipline of Configuration Management (CM) provides a systematic means for documenting and controlling the configuration of material items (primarily equipment). An active and complete definition of the configuration of each vessel and its system configuration is necessary for effective logistics support. The RRF CM Program includes provision for Configuration identification, change control, and status accounting, as well as spare part provisioning and allowance support. Section III of this manual addresses the RRF CM program in detail.

**1.2.3 Shore-based Spares Program.** Shore-based inventories consist primarily of RRF equipment that is critical to the RRF readiness mission, but is not readily available on the open market, or is otherwise considered advantageous to be stocked by MARAD. Shore-based warehouses additionally provide convenient temporary storage for spare parts, controlled material, and technical documentation removed from vessels undergoing overhaul, slated for disposal, etc. The Shore-Based Spares Program is addressed in Section IV of this manual.

**1.2.4 RRF-ECSMIS.** The RRF Equipment Configuration and Spare Parts Management Information System (ECSMIS) is the primary repository of material information for equipment, spare parts, outfit material (including controlled material and lashing gear), technical

manuals, and vendor drawings. It encompasses material stored aboard ship and ashore, and contains essential ship and equipment configuration data.

Virtually all material management information for the shipboard, shore-based, and configuration management programs is obtained, either directly or indirectly, from ECSMIS. The policies and procedures contained in this manual seek to

- Demonstrate and clarify the central role of ECSMIS in the RRF Logistics Support System;
- Make ECSMIS data and data products (e.g., SALs) readily available and useful to managers and other personnel
- Provide instructions and emphasize the *vital importance* of reporting all material additions, deletions, quantity changes, and other transactions. *promptly and accurately* to ECSMIS.

Instructions for using the ECSMIS software interface are contained in the *RRF-ECSMIS User Handbook*, which is available separately from MAR-614.

**1.2.5 Interagency Support.** The Division of Logistics Support (MAR-614) is the central requisitioning point for spare parts available through the Federal Supply System. Access to the Federal Supply System is accomplished through the DAASO Automated Message Exchange System (DAMES).

**1.2.6 Inspections and Reviews.** MAR-614 conducts several types of formal and informal inspections and reviews as a way of monitoring the performance and effectiveness of the RRF/LSS.

**1.2.6.1 Supply Readiness Assessment.** MAR-614 will conduct periodic supply readiness assessments of ship-owning MARAD Regions. The factors to be assessed will be published and provided to each affected Region Director. The assessment will examine the degree to which actual Region practices conform to the policies and procedures contained in this manual, Maritime Administrative Orders, and other MARAD directives. Such evaluation will also evaluate the effectiveness of these policies and procedures in supporting the operational logistics needs of the Regions.

**1.2.6.2 Logistics Compliance Reviews.** Logistics Compliance Reviews examine and evaluate the contract

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<sup>1</sup>Ready Reserve Force: Logistics Support System (RRF/LSS) dated June 27, 1989.



performance of Ship Managers, normally focusing on a specific vessel. This manual as well as the contract itself are used as the basis for the evaluation. They are performed jointly by MAR-614 and Region personnel. The areas addressed during Logistics Compliance Reviews are published by MAR-614.

**1.2.6.3 Other Inspections and Reviews.** Other inspections and reviews may be conducted by MAR-614 or Region staffs on an ad-hoc basis to address specific concerns and situations. These inspections may be conducted on a “notice” or “no-notice” basis, as required.

### 1.3 FEDERAL GOVERNMENT PROPERTY REGULATIONS

All persons and activities involved in the RRF Supply Management Program may at one time or another find themselves accountable or responsible for Government property. The procedures contained in this manual are designed to accomplish the supply management mission while protecting this accountability. "Government property" is defined as all property owned by or leased to the Government or acquired by the Government under the terms of a contract. It includes both Government-furnished property and contractor-acquired property as defined in the Federal Acquisition Regulation. It includes all facilities, material, special tooling, special test equipment, and agency-peculiar property. The following publications and instructions provide requirements and guidance for the management of such property:

- **Federal Acquisition Regulation (FAR), 48 CFR Part 45.** This publication prescribes policies and procedures for providing Government property to contractors; contractor's use and management of Government property; and reporting, redistributing, and disposing of contractor inventories of Government property.
- **Department of Transportation Acquisition Regulation (TAR), Part 1245 and Maritime Administration Acquisition Procedures (MAAP), Part M1245.** These documents amplify the guidance contained in the 48 CFR Part 45 concerning Government property.
- **Federal Property Management Regulations (FPMR), 41 CFR Chapter 101.** This publication prescribes regulations, policies, and procedures pertaining to the management of Government property.

- **Equipment Management and Control (DOT Order 4410.4).** This order contains Department of Transportation (DOT) policy for the management, accountability, control, utilization, and disposal of government-owned, leased, and/or borrowed equipment. It implements and supplements the Federal Property Management Regulations (FPMR).



# CHAPTER 2: RRF SUPPLY ORGANIZATION AND RESPONSIBILITIES

The following paragraphs describe in general terms the functions and responsibilities of the organizations and individuals supporting the RRF Supply Management Program. Additional specific responsibilities are contained in applicable sections and chapters.

## 2.1 MARAD HEADQUARTERS

MARAD headquarters in Washington, D.C. provides overall RRF program policy, management, direction, and support through the offices and divisions described below:

**2.1.1 Associate Administrator for National Security (MAR-600).** The Associate Administrator for National Security has overall responsibility for ensuring the required coordination and implementation of the policies prescribed herein.

**2.1.2 Director, Office of Ship Construction (MAR-720).** The Director, Office of Ship Construction (MAR-720), as MARAD's Program Manager for the construction and conversion of vessels scheduled for inclusion in the RRF, shall ensure (in conjunction with MAR-614) that all specifications for construction and conversion of RRF vessels reflect the requirements and details established by the CM and provisioning program.

**2.1.3 Office of Ship Operations (MAR-610).** The Director, Office of Ship Operations serves as the RRF Program Manager and is responsible for

- a. ensuring that the RRF/LSS effectively supports the requirements of the RRF
- b. providing adequate funds and personnel resources to support all aspects of the RRF Supply Management Program
- c. approving the issue of instructions, manuals, and other directives required to implement RRF/LSS policies and procedures. All issuances shall be coordinated in advance with and shall be co-signed by the Director, Office of Management Services; those issuances that require action by contractors or agents also shall be coordinated with the Director, Office of Acquisition, to ensure the procedures do not conflict with or exceed the terms of the applicable contracts or service agreements

- d. coordinating interagency support with the Military Sealift Command (MSC) and other agencies as required
- e. establishing the policy and associated parameters required for the management of the CM and provisioning program
- f. approving proposed configuration changes and spare parts provisioning for vessels undergoing conversion, upgrade, or sealift enhancement

**2.1.4 Chief, Division of Ship Maintenance and Repair (MAR-611).** The Chief, Division of Ship Maintenance and Repair is responsible for

- a. establishing the configuration change control criteria for the RRF
- b. ensuring that all RRF vessel upgrade specifications include the requirements stated herein
- c. monitoring and approving all configuration changes requiring shipyard assistance

**2.1.5 Division of Logistics Support (MAR-614).** The Chief, Division of Logistics Support is responsible for

- a. serving as the RRF/LSS Program Manager with functional responsibility for the RRF/LSS, including development and implementation of policies, procedures, and systems necessary to provide effective logistics support for the RRF
- b. monitoring and evaluating conformance with the established policies and procedures; reporting deficiencies to the RRF Program Manager (MAR-610); and ensuring that corrective action is taken by responsible officials when required
- c. maintaining and revising this manual as necessary, and evaluating recommendations for changes to existing procedures
- d. exercising supervisory control over all administrative and technical matters pertaining to RRF-ECSMIS
- e. establishing policy concerning SAL development, structure (format), and maintenance
- f. monitoring the validity of ECSMIS and PC-SAL databases
- g. Publishing updated SALs when required



- h. coordinating the development, approval, and publication of Shipboard Allowance Lists (SALs)
- i. coordinating logistics support requirements for any new RRF vessel acquisitions, upgrades, conversions; or additions of Sealift Enhancement Features
- j. monitoring the overall security of spare parts, outfit items, and shore-based spares, which shall include: periodic reviews of the Region's inspection program; inspections of warehouses and at least two vessels in each Region annually; and reporting results to the RRF Program Manager (MAR-610), with copies to the responsible Region Director
- k. scheduling validations and inventories for both shipboard and shore-based material
- l. developing and implementing the policies and procedures associated with the CM and provisioning program
- m. coordinating with the divisions of the Office of Ship Construction, the inclusion and quality assurance of the logistic support requirements
- n. assessing the impact on logistics support of all proposed configuration changes
- o. recording configuration change data in the RRF-ECSMIS as specified in this manual
- p. maintaining the equipment configuration baseline for all RRF vessels and selected NDRF vessels in accordance with Maritime Administrative Order 630-7 and the RRF Logistics Management Manual
- q. approving or directing acquisition of Shore-based Spares
- r. approving or directing transfer of shore-based spares among regions
- s. exercising technical and administrative supervision of the Shore-based Spares Program
- t. scheduling shore-based inventories
- u. providing initial SBS Program training and guidance to Region personnel as required
- v. providing periodic financial accountability reports for shore-based spares to the Chief, Division of Accounting Operations (MAR-333)
- w. serving as the designated Accountable Property Officer (APO) for Shore-based Spares per MAO-330-13

### **2.1.6 Division of Supply and Space Management (MAR-313).** The Division of Supply and Space

Management is responsible for all policy and procedures concerning matters of personal property management.

**2.1.7 Division of Accounting Operations (MAR-333).** The Chief, Division of Accounting Operations is responsible for maintaining financial accountability records for shore-based spares based on periodic summary transaction reports received from MAR-614.

**2.1.8 Office of Acquisition (MAR-380).** The Office of Acquisition provides contracting and purchasing support and guidance.

## **2.2 REGION OFFICES**

Of the five MARAD Regions, only the South Atlantic Region, Central Region, and Western Region have Reserve Fleet management responsibilities under the RRF Supply Management Program. Each Region is organized in a similar, but not identical manner. The descriptions of functions and responsibilities that follow and those contained elsewhere in this manual are typical, but may vary in accordance with the policy of each Region Director.

**2.2.1 Region Director.** The Region Director is responsible for:

- a. appointing a Region Logistics Management Officer (LMO) for the RRF/LSS
- b. appointing a Region Accountable Property Officer (APO) for the RRF/LSS
- c. monitoring the performance of Ship Managers and the Fleet Superintendent to ensure all responsibilities related to acquisition, security, use, and disposal of Government-owned property are carried out in accordance with RRF/LSS policy and procedures and other applicable requirements
- d. monitoring the performance of Ship Managers to maintain equipment configuration data and inventory records of RRF vessels within the Region through data input to the RRF-ECSMIS
- e. ensuring that established policy and procedures relating to the CM and provisioning program are followed for vessels located and assigned in their respective regions

The Region Director is also responsible for providing for the quality assurance of all logistic support operations



## RRF Supply Organization and Responsibilities

conducted within the Region. This includes, but is not limited to:

- f. verification of equipment validations and inventories related to new vessel acquisitions
- g. verification of inventories related to Ship Manager turnover
- h. ensuring that logistic support requirements in support of RRF upgrades, conversions, and enhancement features exist and are properly acted upon

**2.2.2 Region Ship Operations and Maintenance Officer (SOMO).** The SOMO or designated equivalent is the individual responsible for scheduling activations, yard periods, and other RRF vessel evolutions, and as such must at all times be aware of the supply readiness status of the RRF vessels assigned to the Region. The SOMO must be consulted when considering a supply action affecting readiness, such as transfer of parts from a vessel with operational commitments. The SOMO is also designated as the Custodial Officer for the Shore-Based Spares Program and is responsible for property custodian duties as required by the Equipment Management and Control Handbook (DOT H 4410.4). The SOMO is responsible for:

- a. approving configuration change proposals falling within the appropriate criteria in accordance with paragraph 15.4.4
- b. advising MAR-614 when a new SAL is required to be published for a given vessel
- c. preparing Configuration Change Proposals for changes requested by ship managers for vessels in Phase V or Phase O
- d. ensuring that validation quality control procedures are carried out in accordance with the procedures contained in Chapter 14
- e. ensuring that configuration documentation is prepared and submitted as prescribed in Chapter 15

Additional responsibilities pertaining to equipment validation are listed in paragraph 14.4.5.

**2.2.3 Logistics Management Officer.** The Logistics Management Officer (LMO) is responsible to the SOMO for

- a. overall RRF logistics support functions within the Region

- b. monitoring the performance of Ship Managers, and Fleet Superintendents to ensure that all responsibilities relating to acquisition, security, use and disposal of all Government property are effectively carried out per RRF/LSS policy and procedures and other applicable requirements and Government regulations
- c. assessing the performance of Region surveyor efforts to monitor the transaction reports generated via the automated version of the Shipboard Allowance List (PC-SAL) and ECSMIS in order to ensure Ship Manager's are maintaining the logistics database for their assigned vessels
- d. ensuring that Region personnel are trained in the use of PC-SAL and ECSMIS
- e. conducting routine inspections to ensure compliance with the logistics requirements of the Ship Manager contract
- f. ensuring that the Controlled Equipment and High Dollar Value Item Record is maintained via ECSMIS
- g. ensuring that inventories of controlled equipment and high-value items are conducted as required in Section II, Chapter 10
- h. managing the Region Shore-Based Spares inventory as directed by the SOMO
- i. ensuring that data in the RRF-ECSMIS is accurate and up-to-date
- j. ensuring that Property Custodians are aware of the detailed operating procedures and necessary documentation submissions to ensure proper accountability for property assigned to their custody
- k. providing Property Custodians with periodic updates of property listings (i.e., SAL) for which the custodian is responsible
- l. scheduling inventories upon assignment of property to a new custodian, upon termination of appointment as a custodian, on a cyclic basis as required, and when there is reason to believe that significant deficiencies exist in property accountability
- m. ensuring that all warehouse personnel are provided with training, as required, for managing the shore-based inventory, reporting to ECSMIS
- n. keeping the Region Director informed of the operating status of the warehouse and providing SBS Program reports as required.

**2.2.4 Marine Surveyors.** Marine Surveyors are engineering and management representatives assigned to



each RRF vessel by the Region Director. They normally serve as the MARAD Contracting Officer's Technical Representative (COTR) or Alternate COTR (ACOTR) for their assigned vessel(s). They are responsible for

- a. monitoring security of the onboard inventory of spare parts and outfit material
- b. serving as liaison between the Ship Manager and the Region relative to the approval of certain supply actions
- c. monitoring and acknowledging the Ship Manager's configuration change input to ECSMIS
- d. reporting configuration changes for vessels undergoing repair or overhaul
- e. ensuring that shipyard work packages include provisions for reporting equipment additions, deletions, and changeouts

A **Supervisory Marine Surveyor** may also be assigned by the Region Director. When so assigned, he or she will serve as the senior engineering representatives within the Region. Their area of responsibility is Region-wide and includes all RRF ships within the Region. Other Marine Surveyors report to the Supervisory Marine Surveyor when so-assigned.

### 2.2.5 Region Accountable Property Officer (APO).

The Region APO for the RRF/LSS must be designated in writing by the Region Director and shall be responsible for:

- a. ensuring that Reports of Survey for lost, damaged, or destroyed equipment are promptly prepared and processed per MAO 330-14
- b. ensuring that Survey Boards/Officers are designated in writing per MAO 330-14
- c. ensuring that Reports of Excess Personal Property (SF-120) for excess, obsolete, or beyond economic repair items are prepared and processed per Section IV of this manual
- d. conducting periodic evaluations of the Region RRF/LSS property management system for performance and effectiveness

**2.2.6 Fleet Superintendent, National Defense Reserve Fleet.** Fleet Superintendents are appointed by the Region Director. They serve as Property Custodian for RRF vessels that are located at their respective fleet site but not assigned to a Ship Manager.

**2.2.7 Property Custodians.** The term "Property Custodian" refers to the Fleet Superintendent, Ship Manager, or General Agent with current management responsibility for a specific RRF vessel. The Property Custodian is responsible for the custody and security of onboard spare parts and outfit material in accordance with this manual, the FAR, and the respective contract, as applicable, including:

- a. updating the RRF Equipment Configuration and Spare Parts Management Information System (ECSMIS) and PC-SAL automated SAL programs for vessels over which they have cognizance
- b. ensuring that property is used only for official purposes and is accorded proper care and security
- c. submitting reports to the Region APO of lost, damaged or destroyed property
- d. requesting that a new SAL be published when significant or cumulative changes make this necessary
- e. maintaining current custodial records and processing necessary documentation to the LMO to support all transactions that change those records, including data input to ECSMIS
- f. ensuring property is accorded proper care and security and is used only for official RRF purposes
- g. assisting with physical inventories to reconcile property accounting records

**2.2.8 Inventory Specialists.** Inventory Specialists perform all Region cataloging, inventorying, acquiring, validating, transferring, inspecting, and disposing of material. They also manage and operate the Region's shore-based warehouse facilities under the guidance of the LMO. Their duties may also include monitoring contractor-performed inventories and other services as MARAD's on-scene logistics representative for the COTR or ACOTR. Responsibilities pertaining to equipment validation are listed in paragraph 14.4.5.

**2.2.9 Warehouse Manager and Warehouse Personnel.** The Warehouse Manager and warehouse personnel are Inventory Specialists, responsible for the following:

- a. receiving, marking, labeling, storing, packaging, shipping, issuing, and transferring of shore-based stock
- b. maintaining inventory stock records and files



- c. ensuring the maintenance, cleanliness, security of warehouse facilities, stock, and records
- d. ensuring that proper safety procedures and precautions are observed at all times

### **2.3 SHIP MANAGERS AND GENERAL AGENTS**

Ship Managers and General Agents are Property Custodians, responsible for providing security of onboard spare parts and outfit material on RRF vessels in accordance with their respective contract or service agreement.

Each Ship Manager shall report Configuration Changes in accordance with paragraphs 15.4.4 and 15.6.1. Update of ECSMIS must be accomplished with 10 days of the transaction activity. See Chapter 8 for ECSMIS update procedures.

### **2.4 CONTRACTORS**

MARAD periodically engages the services of private contractors to perform shipboard equipment maintenance or alterations, equipment validations, shipboard and shore-based property inventories, and ADP and logistics support services. Contractor responsibilities will be defined in their respective contracts. Contractor services may be acquired for a period of limited duration to accomplish a specific task, or on an ongoing support basis. MAR-614 will provide information on contractor services to the affected SOMO, LMO, and Property Custodian.



# CHAPTER 3: MATERIAL IDENTIFICATION

All MARAD logistics and ship operations personnel must have a general understanding of the material identification systems used by MARAD and the Federal Supply System. The paragraphs and illustrations that follow provide an overview and ready reference for these systems.

## 3.1 EQUIPMENT NUMBERING SYSTEM

Every equipment within the RRF has been assigned either

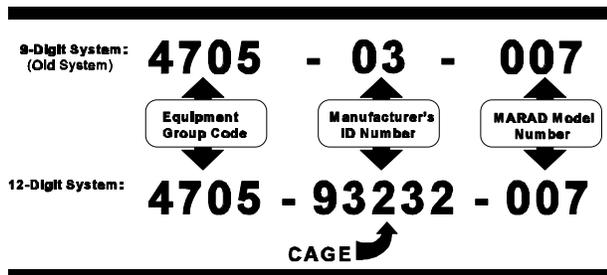


Figure 3-1 Equipment Numbering System

a nine- or twelve-digit equipment number. Twelve-digit numbering reflects a newer system which is described below. Both nine- and twelve-digit equipment numbers are assigned so as to identify a *specific* equipment within a service application by manufacturer. Figure 3-1 illustrates the structure of equipment numbers of both the nine-digit and twelve-digit type.

**3.1.1 Equipment Group Code (EGC).** The first four digits of the equipment number identify a *type* of equipment. The first two digits (the *Section*) identify either

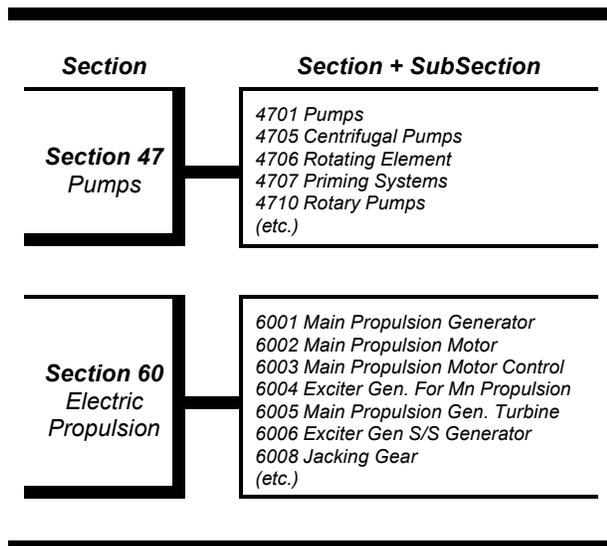


Figure 3-2 Equipment Group Code

a major piece of equipment onboard a vessel (e.g., Electric Propulsion), or a general type of equipment such as "Pumps". The second two digits (the *Subsection*) represent a component or subcategory of equipment type within the major item (see Figure 3-2). The Section and Subsection together are collectively referred to as the *Equipment Group Code*. Appendix D contains a complete listing of EGCs.

**3.1.2 Equipment Manufacturer.** Two systems have been used for denoting the equipment manufacturer. The twelve-digit system is replacing the nine-digit system throughout the RRF.

**3.1.2.1 Nine-Digit System.** Under the old nine-digit equipment numbering system, equipment manufacturers are represented by a **two-digit** manufacturer's code occupying the fifth and sixth positions of the equipment number. This two digit number is sequentially assigned within an equipment subsection. The codes do not uniquely identify a manufacturer within the RRF. In other words, two different equipments with the same manufacturer's code are not necessarily (or even likely to be) manufactured by the same company. MARAD personnel must continue to remain familiar with this system, since a number of RRF vessels have equipment that is marked and documented in this manner.

**3.1.2.2 Twelve-Digit System.** The new system of equipment numbering replaces the two-digit code with a five-digit Commercial and Government Entity (CAGE) code. The code occupies the fifth through ninth character positions of the equipment number (the CAGE was formerly referred to as the Federal Supply Code for Manufacturers (FSCM)). CAGEs are listed in the microfiche Cataloging Handbook H4/H8 produced by the Defense Logistics Services Center (DLSC).

Some manufacturers have more than one CAGE assigned. The different CAGEs represent a company's various divisions, plant locations, etc. In all such cases, the company's primary CAGE will be the only one used. The primary CAGE is the one listed first in the alphabetic listing on the microfiche.

When the manufacturer of an equipment can not be identified, MAR-614 will assign a five-digit pseudo-CAGE code consisting of the letter M followed by four digits, e.g. "M0001".



**3.1.3 Equipment Model Number.** The last three digits of the equipment number represent the equipment Model Number under both numbering systems. The Model Number is an arbitrary, sequentially-assigned number used to differentiate between similar (but not identical) items of equipment made by the same manufacturer. For example, if there are two different models of electrical generators manufactured by General Electric aboard vessels in the RRF, Model number 001 would be assigned to one of the generators and Model Number 002 would be assigned to the other. The Model Number is used to distinguish different models of equipment from each other; it is *not* the manufacturer's actual model number for the equipment.

## 3.2 PART NUMBERS

Every manufacturer employs different part numbering schemes for its own products. ECSMIS contains many items with almost identical descriptions. The part number helps to ensure that the correct item will be selected. It is not necessary to understand the logic behind the manufacturer's choice of part number. All that is required is to be able to use the number that *uniquely* identifies a specific part.

When using part numbers to identify material, it is important to pay attention to each number, letter, space and dash which may be present. For example, "A-934" is not the same as "A/934" or "A 934". A mistaken dash or space may result in the incorrect selection of a part. Automated systems (such as ECSMIS) generally require **precise** input and will not recognize a number even if it is only one character off.

Different manufacturers frequently use the same part numbers. For example, part number "600-5" might refer to a diode for a manufacturer of electronic equipment, while the same part number could be used by a different manufacturer for a gasket. To be absolutely certain that a part is correctly identified, it is necessary to specify the manufacturer in addition to the part number. The manufacturer is normally identified by its five-digit CAGE code.

## 3.3 NATIONAL STOCK NUMBERS

National Stock Numbers (NSNs) have a 13-digit (not including dashes) standard numbering system used throughout the Federal Supply System to provide a uniform material identification system (see Figure 3-3). Within the RRF, NSNs provide a secondary means of

identifying material. All RRF vessels that were formerly operated by the Navy or the MSC contain National Stock-Numbered items. If required, NSNs can be cross-referenced to part numbers and manufacturers using the Master Cross Reference List (MCRL) which is published in microfiche form by DLSC.

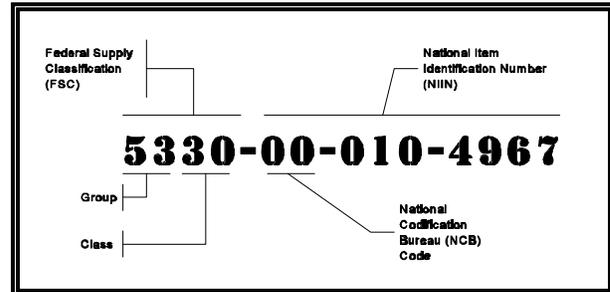


Figure 3-3 National Stock Number

A NSN contains *digits only* (i.e., no letters) and is composed of the following elements:

**3.3.1 Federal Supply Classification (FSC).** The FSC is designed to permit the classification of all items of supply used by the Federal Government. Each item of supply will be classified in one, and only one four-digit FSC. The first two digits denote the Group, or major subdivision of commodities; the last two digits denote the Class or subdivision of commodities within a group (see Figure 3-4). As presently established, the FSC consists of 76 Groups and approximately 600 Classes. The number of Classes within each Group varies. Each Class covers a particular area of commodities in accordance with their physical or performance characteristics, or based on the fact that the items in the Class are usually ordered or issued together.

**3.3.2 National Item Identification Number (NIIN).** The NIIN constitutes the remaining nine digits of a NSN. It consists of a two-digit National Codification Bureau (NCB) code (usually "00" or "01"), plus seven additional digits that uniquely identify and differentiate each item in the Federal Supply Catalog. Most catalogs and microfiches within the Federal Supply System list stock numbers in NIIN rather than NSN sequence.



### 3.4 LOCAL STOCK NUMBERS

In order to take advantage of the standard stock-numbering system used for NSNs, many agencies have assigned local stock numbers that follow the 13-digit format of an NSN. Until recently, MARAD used local stock numbers to identify and manage Shore-based Spares. Since local stock numbers are not recognized in Federal Supply Catalogs, they are of limited use for identifying and obtaining spare parts.

<b>Group</b>	<b>Group &amp; Class</b>
<b>Group 53</b> <i>Hardware and abrasives; washers</i>	5305 - <i>Screws</i> 5306 - <i>Bolts</i> 5307 - <i>Studs</i> 5310 - <i>Nuts</i> 5320 - <i>Rivets</i>
<b>Group 48</b> <i>Valves</i>	4810 - <i>Valve, solenoid</i> 4820 - <i>Valve, angle</i>
<b>Group 40</b> <i>Rope, cable, chain, and fittings</i>	4010 - <i>Wire rope, steel</i> 4020 - <i>Rope, fibrous</i> 4030 - <i>Hook, guy</i>

Figure 3-4 Federal Supply Classification

As a general rule, local stock numbers can be recognized by the presence of one or more letters in the stock number, e.g. **4090-LL-124-9967**.



# CHAPTER 4: RRF-ECSMIS

The **R**eady **R**eserve **F**orce **E**quipment **C**onfiguration and **S**pare parts **M**anagement **I**nformation **S**ystem (RRF-ECSMIS, more often referred to simply as "ECSMIS") is MARAD's official repository of logistics data pertaining to equipment, spare parts, outfit material, and technical documentation aboard all RRF (and selected NDRF) vessels and in the Shore-based Spares system.

## 4.1 USE

The information contained in ECSMIS serves many purposes and is valuable to personnel at all organizational levels. Shipboard personnel use ECSMIS to locate parts, technical manuals, and other items, to assess the ship's readiness, to obtain reference data for maintenance and procurement, and to identify material deficiencies that may impact on the ship's mission. Region and Headquarters staff use the information in ECSMIS to manage inventories, assess ship and fleet readiness, evaluate supply program effectiveness, resolve material deficiencies, and to record and report program cost and property data.

ECSMIS provides MARAD personnel and ship managers with the capability to scan information for individual RRF vessels, or across the entire RRF. Spare part/technical manual/vessel drawing information may be quickly and easily obtained for any equipment. ECSMIS provides the capability to sort data and to view it in a variety of useful ways, such as by spare part box location.

ECSMIS data serves as the basis for rapid and efficient production of Shipboard Allowance Lists, validation aids, and inventory aids for parts and technical manuals. Tailored databases serve as the foundation for automated PC-SAL systems installed aboard active and ROS ships.

ECSMIS is a cornerstone of MARAD's logistics management program.

## 4.2 CONTENTS AND STRUCTURE

ECSMIS contains databases for equipment, spare parts, technical manuals, drawings, controlled material, and lashing gear (see Figure 4-1). Each database is comprised of data *records*, each representing an ECSMIS line item aboard a particular ship or at a shore-based warehouse. These records contain all available management information for each line item, such as name, description, specifications, allowance quantity, on-hand quantity, location, manufacturer, and other information as

applicable. Some data elements, such as the name of the item, apply to all line items in ECSMIS. Other data elements apply only to one or two types of items. For example, controlled material items include a serial number, but lashing gear items do not.

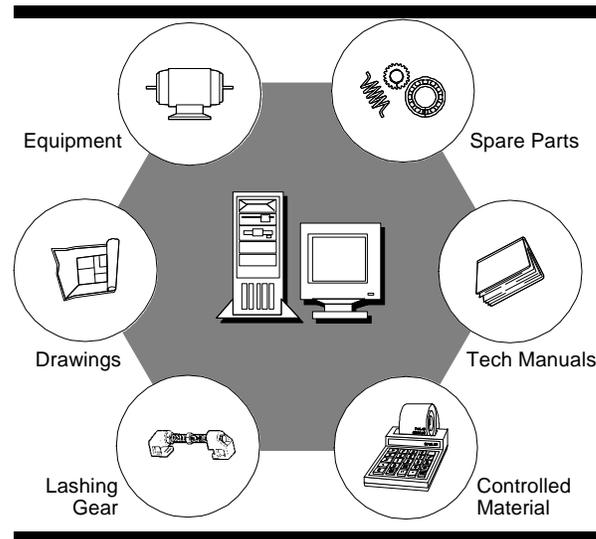


Figure 4-1 ECSMIS Databases

In addition to the material databases that represent physical items, ECSMIS records all supply transactions, keeping historical records for research and reporting purposes.

Much of the power and flexibility of ECSMIS comes from its *relational* structure. Equipment records are linked to the ship where the equipment is installed (or to the warehouse where it is stored). Spare parts records similarly contain a field for *related* equipment number, so that they may be linked to their parent equipment.

## 4.3 PC-SAL

PC-SAL is a computer program containing a tailored subset of ECSMIS data pertaining to a single ship. PC-SAL permits operating ships and ships in ROS to benefit from many of the automated features of ECSMIS even though operational factors prevent them from having direct access to ECSMIS.

PC-SAL obviates the need to use the hardcopy SAL, replacing its functions entirely and far more powerfully. On ships that have PC-SAL installed, the SAL serves primarily as a backup tool.



#### 4.4 ECSMIS DATABASE MAINTENANCE

Maintaining the ECSMIS database is not an aim in itself. Rather, it serves to promote and facilitate a wide range of supply and configuration management tasks that are covered throughout this manual. These paragraphs describe the general, conceptual basis of ECSMIS database maintenance. Specific ECSMIS responsibilities and procedures are provided in Sections II, III and IV of this manual in connection with the logistics tasks that they apply to. Additional information can be obtained from the *RRF-ECSMIS User Handbook*.

The ECSMIS software and databases reside on a computer in a central facility under the control of MAR-614. Direct access to ECSMIS may be obtained using a personal computer with a modem, requiring an assigned user name and password. Access is granted to selected Headquarters, Region and Ship Manager personnel and to others by MAR-614.

**4.4.1 Inputs to RRF-ECSMIS.** Data is provided to ECSMIS from three primary sources.

**4.4.1.1 Initial Data Load.** Creation or upgrade of a ship's database normally occurs as the result of a vessel acquisition, conversion or logistics overhaul. Inventories and validations are performed, and the resulting data is loaded into ECSMIS. Most of these tasks are normally performed by a logistics support contractor under the direction of MAR-614.

**4.4.2 PC-SAL Download.** Ship Managers are responsible for updating the ECSMIS databases for ships on which PC-SAL has been installed. The process is straightforward since the data is already in electronic form

and there is no paperwork to fill out. Each month, the ROS or retention crew generates a download of all transactions that have occurred and forwards it to MAR-614 on a diskette. Ship Managers must forward the diskettes to MAR-614 by the 10<sup>th</sup> of the month following the month covered by the transactions.

Transactions will be entered in PC-SAL and downloads submitted in accordance with the *PC-SAL User Handbook*.

**4.4.2.1 On-line Access to ECSMIS.** MARAD Headquarters and Region personnel, and Ship Managers can input new records and changes to existing records into ECSMIS directly. They may also delete records. They are able to do this using Remote ECSMIS (RECSMIS) communication software provided by MAR-614.

Ship Managers are responsible for updating ECSMIS with equipment changes, spare parts receipts and issues, and other supply-related transactions. However, direct input is necessary only when there is no active PC-SAL system installed on a vessel. All changes shall be made in accordance with the RRF-ECSMIS Handbook.

Region Inventory Management Specialists update Shore-based Spares inventories directly using RECSMIS. ECSMIS incorporates a Shore-based Spares Module that provides for the additional data requirements of the Shore-based Spares System. For more information, see Section IV of this manual.

**4.4.3 ECSMIS Outputs and Products.** All ECSMIS output products depend entirely on the timeliness and accuracy of the input. This can not be over-emphasized.

The following are produced from ECSMIS data:

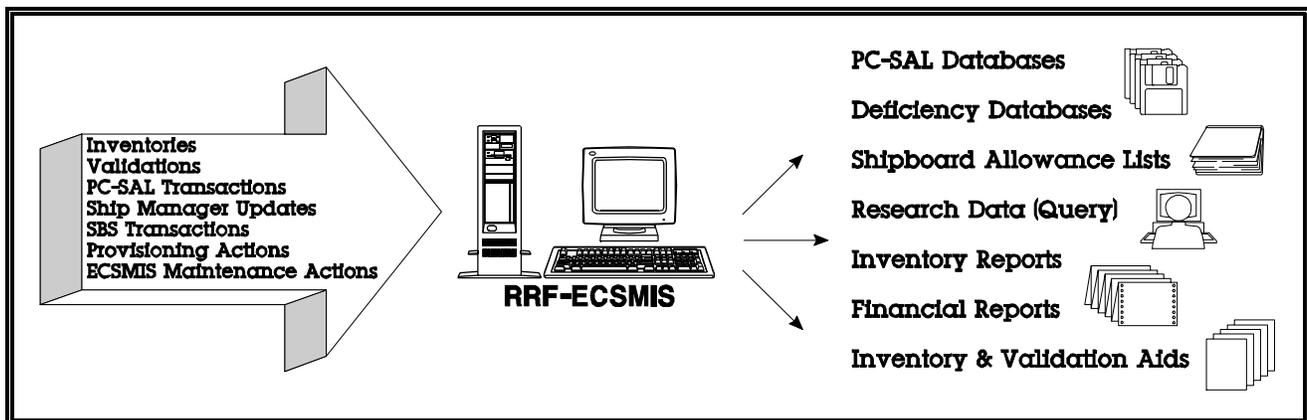


Figure 4-2 - ECSMIS Inputs and Products



- Shipboard Allowance Lists (hard copy SALs) placed aboard all RRF vessels
- PC-SAL systems installed aboard activating and operating RRF ships and ships in Reduced Operational Status (ROS)
- inventory and validation aids
- spare parts box contents listings
- inventory and financial reports

Not all ECSMIS outputs are documents. PC-SAL systems are produced on diskette. Another type of output is the data that is viewed on-line using RECSMIS.

The accuracy and usefulness of these products is directly dependent on the timeliness and accuracy of transaction reporting to ECSMIS.



# SECTION II: SHIPBOARD SUPPLY MANAGEMENT PROGRAM

## CHAPTER 5: INTRODUCTION TO THE SHIPBOARD SUPPLY MANAGEMENT PROGRAM

### 5.1 RRF SUPPLY MANAGEMENT MISSION

The RRF supply management mission is twofold:

- To ensure that required material support is provided to RRF vessels to sustain each vessel's operation for a continuous period of 180 days;
- To acquire, maintain and be responsible for such spare parts and outfit material as are required, onboard vessel and shore-based, to support the RRF's readiness posture and objectives in a cost-effective manner. RRF supply readiness is measured by MAR-614 for individual vessels using three status criteria. Based upon these, a supply status rating of S-1 through S-5 is assigned as indicated in Table 5-1. Readiness status reports are provided to The Military Sealift Command (MSC), MAR-610, and other MARAD offices as required.

In evaluating readiness, the first criterion is the status of ECSMIS database and Shipboard Allowance List (SAL) development. This serves as a general measure of the accuracy of a vessel's equipment configuration. There are three possibilities:

- ECSMIS databases and resultant SAL have been established;
- SAL *may* be established, but if not, a Builder's Allowance List (BAL) or Coordinated Shipboard

Allowance List (COSAL) is on board;

- No allowance list is on board.

The second criterion is spare part inventory accuracy, as defined in Section II Chapter 11, paragraphs 11.4.1.3 and 11.4.1.4 of this manual. This factor measures the accuracy of on-hand balances or the stock records for the spare part inventory listed in the SAL.

The third criterion is Projected Supply Effectiveness. Projected Supply Effectiveness equals the percentage of line items within the total number of line items which have no deficiencies in quantity. When calculating Projected Supply Effectiveness, the following factors should be observed:

- Each spare part line item that is deficient by a quantity of one or more counts as a single deficiency against the total number of line items. For example, if a gasket has an Allowed Quantity of 3, any quantity less than three would count as a single deficiency for that line item. Note that Projected Supply Effectiveness does *not* quantify *overall* deficiency levels for spare parts.
- When the on-hand spare part quantity for a line item equals or exceeds the allowed quantity, the line item is counted as allowed material with no deficiencies.
- Spare parts having multiple equipment application are counted as a separate line item for each equipment.

Status	Allowance List	Inventory Accuracy	Projected Supply Effectiveness
S-1	SAL Established	90 - 100%	85 - 100%
S-2	SAL Established or BAL or COSAL onboard	80 - 89%	75 - 84%
S-3		70 - 79%	65 - 74%
S-4		Less than 70%	Less than 65%
S-5	No Allowance List onboard	Unknown	Unknown

Table 5-1 Supply Readiness Status



# Introduction to the Shipboard Supply Management Program

An identical spring used in two different pieces of equipment would be treated as two different line items.

All three criteria must be met for any given supply readiness status. When all three criteria are not met, assign the lowest status for which all three criteria are met or exceeded. For example, a vessel with an established SAL, a 95% inventory accuracy, and a 80% Projected Supply Effectiveness would have a Supply Readiness Status of S-2.

**5.1.1 RRF Readiness Ratings.** In addition to supply readiness, overall RRF readiness is measured by MAR-610 using ratings which are provided here for information purposes (Table 5-2). These readiness ratings may have an impact on supply operations (e.g., when it is necessary to issue spare parts during Phase IV). These ratings apply to RRF vessels in layup. Upon activation and tender to MSC for operations, all outstanding casualties and any new casualties are reported in accordance with Navy and MSC instructions included in the Ship Manager contracts.

<u>Rating</u>	<u>Definition</u>
C-1	No mission-degrading deficiencies
C-2	Documented and correctable mission degrading deficiencies
C-3	Mission-degrading deficiencies exist which cannot be corrected
C-4	Major deficiencies prevent the ship from performing its primary mission which cannot be corrected within the assigned readiness period
C-5	Scheduled major repairs in progress; unable to meet assigned readiness criteria

Table 5-2 RRF Readiness Ratings

**5.1.2 RRF Activity Phases.** The life-cycle of a RRF vessel may include many different events, including initial acquisition, routine maintenance periods, activation, and operation. These stages in the life cycle are referred to as *phases*, which are defined in Table 5-3. Phase III applies only to the original vessel deactivation, following acquisition and upgrade. Subsequent deactivations, which follow exercise and operational periods, are included in

<u>Phase</u>	<u>Definition</u>
I	Vessel Acquisition
II	Vessel Upgrade
III	Deactivation
IV	Maintenance
V	Exercise (i.e., activation and subsequent deactivation)
VI	Sealift Enhancement Features (SEF)
O	Operation

Table 5-3 RRF Activity Phases

Phase V. Phases IV, V, and O are the primary phases affected by the RRF Supply Management Program. Supply procedures vary significantly according to the current phase of a particular RRF vessel. For the purposes of this manual, there are two conditions under which afloat supply procedures apply: Inactive (Phase IV) and Active (Phases V and O).

## 5.2 PROGRAM SCOPE

The Shipboard Supply Management Program encompasses supply management of shipboard equipment and spare parts, outfit material (including controlled material), technical documentation, and associated shipboard supply procedures including procurement, issue and receipt, transfers, physical inventories, equipment validation, safety, and security procedures.

## 5.3 SPARE PARTS STOCKAGE POLICY

Stockage of spare parts on each RRF vessel will be based on a MAR-614-approved SAL. The SAL will include spare parts to support underway repairs by the ship's crew and also hard to get, long lead-time spare parts that may be required during a major overhaul. In the case of the latter, such parts will be added to the SAL and stored aboard the



# Introduction to the Shipboard Supply Management Program

lead vessel of a particular "series" or class, whenever practicable.

SAL allowances will normally be based on the spare part quantities identified in the BAL or COSAL that accompany the vessels at the time the vessel is acquired by MARAD. Subsequent changes will result from the following:

- Experience gained during the Operational Phase of the vessel
- Deletions and additions resulting from equipment changeouts
- Acquisition of hard to get, long lead-time parts required for major overhauls
- Programmed efforts to standardize shipboard allowances for like equipment within the fleet
- Adjustments necessary to meet the 180-day mission requirement

Allowance Change Requests (ACRs) shall be submitted in accordance with the procedures contained in Section III, Chapter 17.

Spare parts acquired in conjunction with vessel acquisitions or other bulk acquisitions will be based on overall fleet requirements. When practical, requirements for equipment validations and spare parts inventories will be included in the appropriate specification for the acquisition, upgrade or conversion of vessels to be added to the RRF.

For more on SAL allowance development and

provisioning, see Section III Chapter 17.

## 5.4 EQUIPMENT MISSION CRITICALITY

Each system, equipment, and component in a specific application has been assigned a Mission Criticality Code to denote its importance to the mission of the vessel in which it is installed. The code ranges from 1 (least critical) to 4 (most critical). Equipment Mission Criticality Codes are provided in Table 5-4.

## 5.5 SUPPLY OPERATIONS

Supply Operating Procedures are significantly affected by a ship's operating status, corresponding to the designated Activity Phase (see paragraph 5.1.2 for a discussion of Activity Phases for RRF vessels). Supply operations under the scope of this manual all occur during Activity Phases IV (Maintenance), V (Exercise), or O (Operation). The areas affected by operating status include:

- a. **Use of Shipboard Spare Parts.** Ships in Phase V/O or Phase IV ships in ROS may use shipboard spare parts. Ships in Phase IV are not ordinarily permitted to use shipboard spare parts for maintenance. For more information see Chapter 8.
- b. **Procurement of Spare Parts.** Phase IV procurements require prior MARAD approval. Phase V/O ships use a streamlined procurement procedure that offers more discretion to Ship Managers, reflecting operational realities. Phase IV ships in ROS are authorized to use the streamlined procurement procedures for Phase V/O ships. Procurement procedures are addressed in Chapter 7.

Alternatives for Mission Accomplishment*			Impact If Alternatives Fail
I	II	III	
3	4	4	Total Loss of Mobility (Propulsion or Life Support)
2	3	4	Severe Degradation of Mobility or a Total Loss of a Primary Mission
1	2	3	Severe Degradation of a Primary Mission
1	1	2	Total Loss or Severe Degradation of a Secondary Mission
1	1	1	Minor Mission Impact

\*I: Redundant Systems, Equipments, or Components Available  
 II: Alternatives (Excluding Redundancies) Available  
 III: Neither Redundancies or Other Alternatives Available

Table 5-4 Equipment Mission Criticality Matrix



## **Introduction to the Shipboard Supply Management Program**

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- c. **Transaction Reporting.** Ships in Phase V/O and Phase IV ships in ROS normally report transactions to ECSMIS using a PC-SAL download diskette. Phase IV ships not in ROS must report transactions manually. For more information, see Chapter 8.

# CHAPTER 6: SHIPBOARD ALLOWANCE MANAGEMENT TOOLS

Shipboard personnel with engineering and supply management responsibilities routinely face a set of recurring tasks that require complete and accurate logistics and technical information. Technicians and engineers use this information to determine equipment configuration and technical data at a glance, locate spare parts and technical manuals required for equipment maintenance, identify deficiencies, and prepare requisitions and purchase documents. The information must be clearly presented in a useful fashion, and must be *cross-referenced* in ways that allow users to accomplish a wide range of logistics tasks using a single set of data.

This information has traditionally been provided in the form of hard-copy *allowance lists* generated by the builder during ship construction, or by the ship owner or operator following a 100% inventory and validation. The RRF uses a standard format for hard-copy allowance documentation known as the *Shipboard Allowance List*, or SAL.

The ready availability of the personal computer (PC) and the development of RRF-ECSMIS have enabled MARAD to provide supply and configuration data *directly* to shipboard personnel, allowing them to manipulate it more flexibly and in more useful ways. The automated system for storing and using this logistics data is called PC-SAL.

PC-SAL has replaced the SAL as the primary shipboard allowance management tool. SALs provide a secondary tool that can be used when PC-SAL is not functioning, and aboard the few ships that are not equipped with PC-SAL.

PC-SAL is much more than just a SAL on a PC. However, since it is easiest to understand PC-SAL as an extension of the SAL, the SAL will be presented first in this chapter.

## 6.1 SHIPBOARD ALLOWANCE LIST

The Shipboard Allowance List (SAL) is the principal logistics support document aboard RRF vessels. It lists:

- installed equipment and components
- spare parts and special tools required for the operation, overhaul, and repair of equipment and components
- onboard technical manuals and drawings that support installed equipment and systems
- controlled material

The SAL is both a technical and a supply document. It is a technical document to the extent that equipment, spare part nomenclatures, descriptions, locations, technical manuals, etc., are provided or referenced in a manner that is useful for engineering personnel. It is a supply document inasmuch as it lists the items required to achieve maximum self-supporting capability for the duration of the 180-day mission requirement.

Each SAL is a tailored product of the ECSMIS databases. It is actually a highly specialized ECSMIS *report*. A SAL is produced for an individual vessel and applies only to that particular vessel. The information contained in the SAL is obtained, via ECSMIS, from (a) initial loading of ship inventories and (b) from regular transaction reporting to ECSMIS.

When printed, a SAL reflects the most current information in ECSMIS. As activity occurs, the SAL will inevitably become more and more out of date. If necessary, SALs can be re-published to reflect major configuration changes, allowance changes, on-hand spare parts balances, or other changes.

These paragraphs describe the SAL in general terms. For a more detailed discussion of the structure and use of the SAL, refer to the SAL Introduction found at the beginning of every SAL.

**6.1.1 SAL Structure, Organization, And Data Content.** Each SAL is unique in its specific content, reflecting the unique configuration aboard an individual vessel. However, all SALs are structured and organized in a similar manner. The following reflects the format used to produce SALs. A typical SAL consists of three Sections, as illustrated in Figure 6-1. This illustration and the following description represents the *maximum* contents of a SAL. Some SALs may lack one or more of the listings.

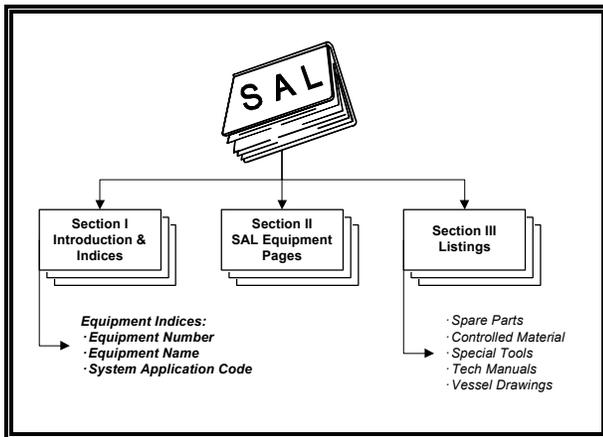


Figure 6-1 SAL Structure

**6.1.1.1 SAL Section I: Introduction and Equipment Indices.** All equipment onboard a vessel is listed in the Equipment Indices in equipment number sequence, equipment nomenclature sequence, and by equipment number within System Application Code. In addition to the name, the Equipment Indices include the equipment model number<sup>2</sup>, description, MARAD equipment number, and the page number on which the equipment page listing of spare parts begins. The system for numbering MARAD equipment is described in paragraph 3.1.

**6.1.1.2 SAL Section II: SAL Equipment Pages.** SAL Equipment Pages are the "heart" of the SAL and constitute its major bulk. They contain a listing of spare parts for each piece of equipment onboard the vessel.

All maintenance-significant spare parts that have an allowed quantity or actual onboard inventory quantity greater than zero are included. An equipment may in fact be supported by more line items than are actually listed on a SAL Equipment Page. However, the item will be listed only if it has an allowance or on-hand quantity of one or greater. To obtain the most complete listing of spare parts associated with a particular equipment, refer to the equipment's technical manual.

SAL Equipment Pages are entered in the SAL in **equipment number** sequence. The equipment number may be found in the upper left portion of the SAL Equipment Page, followed by the equipment name, manufacturer's name

and model number, and selected characteristics data. Following the characteristics data, parts data are listed.

Only the first printed page will normally have full equipment descriptive data. The second and any subsequent printed pages of a SAL Equipment Page will have only a portion of the description.

### 6.1.1.3 SAL Section III: Spare Parts and Special Listings.

Section III of the SAL contains

- a listing of all SAL spare parts sorted in part number, nomenclature, and/or NSN sequence
- a listing of controlled material
- a listing of Special Tools in nomenclature sequence
- onboard technical manuals are listed by Equipment Group Code
- listings of vessel drawings sorted by drawing title, MARAD drawing number, vessel drawing number, and the manufacturer's drawing number

**6.1.2 Using The SAL.** Effective use of the SAL presupposes an understanding of its structure, organization and content as described in paragraph 6.1.1. The interrelationship of the different sections of the SAL should be clear to the user, who should also be familiar with the material identification and numbering systems described in Chapter 3. Once these elements have been mastered, it is sufficient to be aware of the "point of entry" for obtaining whatever information is required. The SAL Introduction contains several examples of how to locate information and describes how solve specific supply problems.

In the absence of PC-SAL, the SAL can and should be used routinely to obtain information about the location and availability of spare parts. Typically, this involves looking up an equipment in the Equipment Index, finding the Equipment Number, and turning to the correct SAL Equipment Page.

The Part Number Listings in SAL Section III provide additional tools for solving specific problems. For example, if a needed spare part for a specific piece of equipment has an on-hand balance of zero on the SAL Equipment Page (and therefore presumably in the spare part box or storeroom), one could use the Part Number Listings to see if the spare part is carried on board for a different piece of equipment. One could then refer back to

<sup>2</sup>The Manufacturer's Model Number, not the MARAD Model Number.



the SAL Equipment Page for that equipment to determine if the part is available.

**6.1.3 SAL Maintenance.** Following a period of major activity, Ship Managers should request publication of an updated SAL to reflect the issues, receipts, and other transactions that have occurred. Requests should be submitted to the Region SOMO. The SOMO will evaluate the request and pass it to MAR-614. The Region LMO will audit the updated SAL received from MAR-614 to ensure that it accurately reflects supply transactions before forwarding it to the Ship Manager. Once a new SAL has been verified by the LMO and delivered to the vessel, the old SAL should be discarded.

## 6.2 PC-SAL

Although the hard-copy SAL is indispensable to every RRF vessel, it has several inherent drawbacks. It provides only a “snapshot” of the vessel’s configuration and supply status. Pen-and-ink entries excluded, it does not reflect configuration changes, allowance changes, and spare parts issues and receipts that occur after its publication. It is bulky and can be physically awkward to use. Finally, it can present equipment and spare parts data in only a limited number of ways.

PC-SAL contains the same data as a SAL, however, it has far greater flexibility. Data can be sorted and searched in many different ways, and the data itself is more likely to be current at any given point in time, as it is easily and quickly maintained. All RRF vessels are provided with the automated *PC-SAL* system when they are activated. Ships in ROS normally also have PC-SAL installed.

**6.2.1 PC-SAL System Description.** PC-SAL is essentially a stand-alone version of ECSMIS that applies to a single ship. Whereas ECSMIS contains all equipment and spare parts data for the entire RRF, PC-SAL reflects only the information pertaining to the vessel that it resides on. PC-SAL is designed to operate *locally*, as a stand-alone system aboard a single vessel during vessel activation, operation, and deactivation.

PC-SAL allows the user to perform *all* of the tasks associated with the use and maintenance of a hard copy SAL, and more. It enables each vessel to determine its *current* equipment and spare parts status quickly and easily. Of course, this requires that PC-SAL be kept current through regular updates.

An additional advantage of PC-SAL is simplified reporting requirements and procedures. Receipts, issues, and other transactions may be entered directly into PC-SAL. All of these may in turn be transmitted directly to ECSMIS on a diskette, rather than through the manual reporting process.

The *PC-SAL User Handbook*, available from MAR-614, provides a detailed description of the functions and operation of the PC-SAL program.

**6.2.2 Relationship with the SAL.** PC-SAL and the hard copy SAL serve similar functions. Although PC-SAL is superior for most applications, a SAL will always be available for use as an emergency back-up in case of power failure or computer problems. It will also be necessary to use the SAL aboard vessels that are in Phase IV (not in ROS) or that, for some other reason, have not been equipped with PC-SAL.

## 6.3 OTHER ALLOWANCE LISTS

The SAL structure presented here reflects a *typical* SAL. Individual SALs may depart from this structure in some respects. These variations result partly from evolutionary changes in the composition of SALs, and partly from the need to adapt to the individual requirements of a given vessel. In some cases, a RRF vessel is placed into service before a SAL has been developed. These vessels normally have one of the two documents described in the following paragraphs. Whatever allowance document is used, the purpose of the document, and the principles and procedures involved are fundamentally the same as for a typical SAL.

**6.3.1 Builders Allowance List (BAL).** BALs may be present and in use aboard vessels recently received by the RRF from ship lines or other commercial sources, or vessels that for some reason have never been validated and inventoried or fully incorporated into the RRF-ECSMIS database. BALs vary according to the vessel and shipbuilder. A BAL is necessary when no SAL has been produced. However, the BAL is of limited value since it usually will not reflect all of the changes in stock levels or vessel configuration that have occurred since the vessel was built (or converted).

**6.3.2 Coordinated Shipboard Allowance List (COSAL).** COSALs are produced by the U.S. Navy for Navy vessels. Vessels received from the Navy or MSC will have a COSAL onboard. Unlike most BALs, COSALs



are periodically revised by the Navy during the life of the vessel and are generally more up-to-date. However, COSALs have a unique format that differs significantly from the MARAD SAL. SALs and PC-SALs will ultimately be produced for COSAL-supported vessels.

### **6.4 POSTING SUPPLY TRANSACTIONS MANUALLY**

BALs and COSALs are to be used only aboard vessels for which a SAL has not been produced and for which ECSMIS records have not been entered. For this reason, it is necessary to manually post spare part issues and receipts, so that on-hand balances may be recorded and available. When a part is received or issued, the quantity indicated in the allowance document should be lined through with a single line, and the new on-hand quantity recorded next to the old quantity. The new quantity should be written legibly, but in small print, to leave room for future transactions. Other types of transactions, such as equipment removal, should also be noted similarly on the allowance document.

# CHAPTER 7: ACQUISITION OF SHIPBOARD SPARE PARTS AND EQUIPMENT

Acquisition of spare parts may be required for any of the following reasons:

- to replenish onboard stock levels depleted as a result of parts usage, loss, or damage
- to maintain and repair shipboard systems and equipment
- to increase stock levels in response to allowance quantity changes
- to support equipment installations and upgrades

The Ship Manager is contractually responsible for maintaining each shipboard spare part inventory at the level indicated in the vessel's SAL. With the exception of parts acquired in connection with installations and upgrades, parts will ordinarily be acquired by the Ship Manager. The Ship Manager and MARAD are *jointly* responsible for identifying allowance deficiencies and initiating replenishment action.

## 7.1 SOURCES OF SUPPLY

Spare parts may be obtained from a variety of sources, including the following, listed in descending priority:

- a. Shore-based Spares
- b. transfer of *excess* material from other RRF ships or material from NDRF ships
- c. DoD and other Government supply stocks
- d. commercial procurement (purchase)
- e. transfer of non-excess stock from other RRF ships

Although sources will be used according to their priority, availability and urgency of the requirement will be considered in selecting a source. It is entirely the prerogative of MARAD to make this decision. Region Directors are responsible for ensuring that proper sources of supply are used.

**7.1.1 First Source of Supply.** The first source of supply for spare parts (and also equipment) is Shore-based Spares assets. Prior to purchasing equipment or spare parts, warehouse inventories must be screened through ECSMIS to determine whether or not the desired item(s) are available. All warehouses will be screened, not just the

screening Region's warehouse(s). However, the following material may be excluded:

- material designated for special projects or otherwise set aside for a special purpose
- material that is not in acceptable condition



Purchase requests (Form MA-949) for RRF equipment and spare parts *must* contain a statement certifying that Shore-based Spares assets have been screened by a Marine Surveyor before a MARAD COTR or contracting officer will sign the purchase order.

**7.1.2 Transfers From Other RRF Vessels.** Spare parts that are available on other RRF vessels may be obtained when required, subject to the conditions and procedures laid down in Chapter 9. Spare parts that are excess to the ship's allowance may be transferred with the approval of the cognizant Marine Surveyor(s).

Transfers of parts that are *not* excess may decrease the readiness of the losing vessel and will be used only after all other methods have been exhausted. For example, a part might be removed from an inactive (Phase IV) ship to support maintenance on an activating ship when the part can not be obtained from any other Government or commercial source.

**7.1.3 DoD and Other Government Supply System Stocks.** Some spares, spare parts, and outfit material items carried aboard RRF vessels are identified by National Stock Numbers (NSNs). This is particularly true in the case of vessels formerly operated by the U.S. Navy and the Military Sealift Command (MSC). Most items identified by a NSN can be cross-referenced and identified to a commercial manufacturer and part number with the assistance of MARAD's Region Inventory Specialists.



## Acquisition of Shipboard Spare Parts and Equipment

However, certain older items that have passed out of commercial use may still be found in Government supply system stocks.

To obtain items that have been identified with NSNs, contact MAR-614 and provide the following information:

- vessel name
- part name and related equipment number
- NSN and part number (if known)
- manufacturer (if known)
- quantity required and Unit of Issue
- estimated cost to procure commercially (if known)

MAR-614 will screen the NSN for availability and submit a requisition to the Defense Automatic Addressing System Office (DAASO) through the DAASO Automated Message Exchange System (DAMES).

**7.1.4 Commercial Procurement (Purchase).** Ship Managers and MARAD activities will resort to open purchase of commercially-available spare parts only after determining that the parts are not available from MARAD or other Government sources, to obtain them from these sources would be impractical, or that they can not be obtained in time from those sources.

## 7.2 GENERAL PROCUREMENT PROCEDURES

Ship Managers will purchase required spare parts and transport the parts to the vessel in accordance with their respective contract and applicable regulations, including the Federal Acquisition Regulations (FAR), Transportation Acquisition Regulations (TAR), and Maritime Administration Acquisition Procedures (MAAP). The key aspects of this process include the following:

- a. requirements determination
- b. validation and screening
- c. approval and funding
- d. ordering and receipt of material
- e. reporting receipt and submission of invoices
- f. records update

**7.2.1 Requirements Determination.** This is normally the Ship Manager's responsibility. When a Ship manager is not assigned, the cognizant Marine Surveyor is

responsible. Information such as the following must be obtained:

- parts description, including manufacturer and part numbers, and National Stock Number (if available)
- quantity required
- estimated cost
- anticipated availability of material from vendors
- reason for requirement (replenishment of issued stocks, maintenance, etc.)
- urgency of requirement

**7.2.2 Validation and Screening.** Before approving and funding a request for procurement, the cognizant Marine Surveyor will examine it for overall validity of the requirement, completeness of data submitted, and desirability for purchase. Factors such as cost and urgency will influence MARAD's decision to approve purchase. Availability of suitable material in shore-based inventories, excess quantities aboard other RRF vessels, or an unacceptably-long procurement lead time may point to preferable source of supply. MARAD may request additional information from a Ship Manager concerning individual requirements, particularly when non-SAL spare parts are involved. The following is a detailed list of the key factors that screening MARAD personnel should consider:

- ✓ What is the activity Phase of the Vessel (Phase IV, Phase IV ROS, or Phase V/O)?
- ✓ How urgent is the requirement?
- ✓ Are the required parts SAL items for stock, SAL (i.e., allowed) items for immediate use, or *non-SAL* items for immediate use?
- ✓ What are the parts required for (replenishment, immediate maintenance requirements, etc.)?
- ✓ Has sufficient data been provided to uniquely identify the parts?
- ✓ Can the requirement be satisfied from Shore-based Spares?
- ✓ Has ECSMIS been checked to ensure that the parts application is correctly indicated?
- ✓ Is the material actually available from a commercial source?
- ✓ Is the cost reasonable?



## Acquisition of Shipboard Spare Parts and Equipment

- ✓ If the material is not readily available, are there any substitute items that can satisfy the requirement?

MARAD may elect to procure material directly and provide it to the Ship Manager.

**7.2.3 Approval and Funding.** The Supervisory Marine Surveyor (or other official appointed by the Region Director) is responsible for approving the procurement of spare parts. Approval of the funding necessary to accomplish the procurement will be obtained from the appropriate Fund Control Officer. Approvals are granted in the form of a Supply, Equipment, or Service Order/Contract (Form MA-949). The Form MA-949 may be used to approve and fund a specific purchase of material at a given time, or it may be used to provide a funding ceiling against which the Ship Manager may subsequently purchase material as requirements arise. The manner in which the Form MA-949 is used depends on the current activity phase of the vessel for which the material is being procured. If a Ship Manager will be purchasing the material, the Form MA-949 will be forwarded to the Ship Manager.

**7.2.4 Ordering and Receipt of Material.** This is the responsibility of the Ship Manager when one is assigned. Spare parts will be procured in accordance with the Ship Manager's contract and applicable regulations as noted above. When procuring material, the Ship Manager is acting as an agent of the Government and is responsible for receipt and inspection of all material, and resolution of all shortages, overages, and deficient materials.

**7.2.5 Reporting Receipt and Submission of Invoices.** The Ship Manager must forward the following documents and information to the Region LMO:

- copy of Form MA-949 or other MARAD approval and funding documents
- copy of Ship Manager's Purchase Order and Vendor Invoice
- other documentation if and as required in the Ship Manager's contract

**7.2.6 Records Update.** Whenever material is procured *for stock*, the Ship Manager will update PC-SAL or ECSMIS, as appropriate.

Material procured for immediate use does not affect stock balances and should not be entered into PC-SAL or ECSMIS.

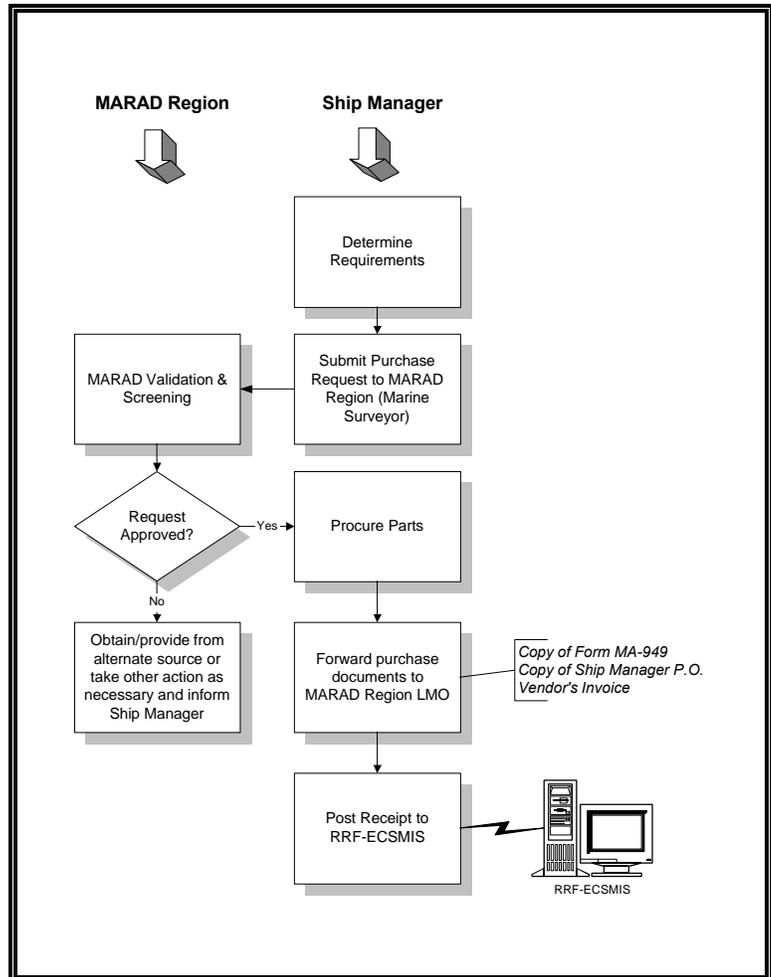


Figure 7-1 Phase IV Procurement Procedures

**7.2.7 Phase IV (non-ROS) Procurement Procedures.** Procurement during Phase IV involves the following steps (see Figure 7-1). Ships in ROS are considered "active" and may use the procurement procedures in paragraph 7.2.8.

- a. The Ship Manager determines the requirements in accordance with paragraph 7.2.1, and forwards a



## Acquisition of Shipboard Spare Parts and Equipment

request to the Region Supervisory Marine Surveyor (or other official appointed by the Region Director) or Headquarters COTR, if appropriate, via the Marine Surveyor assigned to the specific vessel for which the material must be obtained.

- b. MARAD personnel, under the guidance of the Supervisory Marine Surveyor, will review the request in accordance with paragraphs 7.2.2 and 7.2.3. The request may be approved, disapproved, or returned for additional information.
- c. If the request is approved, the Supervisory Marine Surveyor will so indicate by providing the Ship Manager with a signed Form MA-949. The Form MA-949 will contain a list of the parts to be procured and a monetary ceiling that may not be exceeded. For all Phase IV spare parts procurements, the signed Form MA-949 constitutes approval to procure the specific parts listed *and* to expend funds, up to the dollar limitation, for that specific procurement.
- d. The Ship Manager will obtain bids or take other required actions specified by procurement regulations (i.e., FAR, TAR, and MAAP) to accomplish procurement.
- e. Upon receipt and inspection of the material, the Ship Manager will either use the items for maintenance or place them into stock. If the items are being placed into stock, then a Phase IV Material Issue/Replenishment Report must be completed by the Chief Engineer and forwarded to the Ship Manager so ECSMIS can be updated in accordance with paragraphs 8.4.2 and 8.4.3.
- f. To substantiate reimbursement in accordance with the Ship Manager's contract, the Ship Manager will forward authorization, purchase and receipt documents to MARAD in accordance with the Ship Manager's contractual obligations (see paragraph 7.2.5).

**7.2.8 Phase V/O & Phase IV ROS Procurement Procedures.** Maintenance and repair actions during activation and operational phases inevitably generate demand for spare parts. When onboard spares are used, they must be replenished as expeditiously as possible. It may also be necessary to obtain not-in-stock SAL items or not-carried (non-SAL) items. To accommodate the increased volume and time-critical nature of such

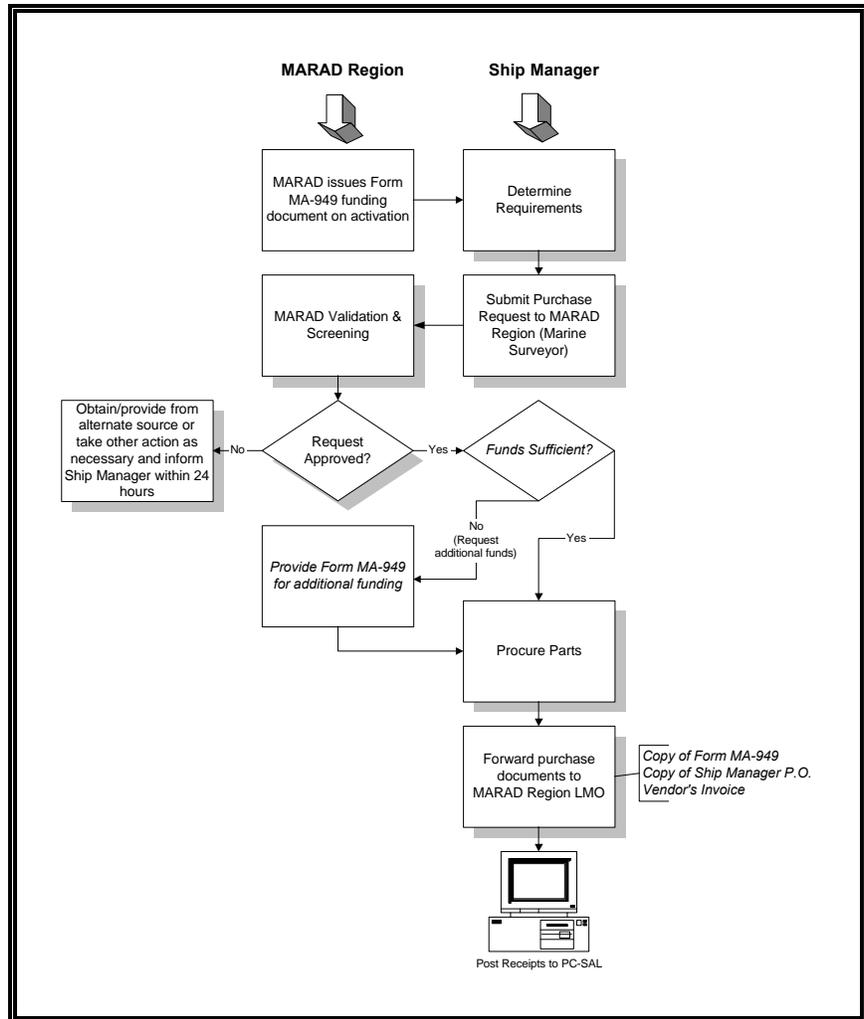


Figure 7-2 Procurement Procedure (Phase V/O & Phase IV ROS)

purchases, a streamlined approval procedure may be adopted during activation and operation to expedite purchases.

The streamlined procedure provides up-front *funding* to the Ship Manager in the form of a Form MA-949 when a ship is activated. Parts procurements must still be



## Acquisition of Shipboard Spare Parts and Equipment

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approved by MARAD, however, it is not necessary to provide the Ship Manager with a specific MA-949 listing all authorized items. This permits MARAD to communicate with the ship by any available and appropriate means to provide purchase authorization.

- a. At the commencement of activation, the cognizant MARAD Region will issue to the Ship Manager a Form MA-949 authorizing the expenditure of funds for spare parts. This document authorizes funding *only*. Separate approval must be obtained for specific items as indicated below. As purchases are made, the available balance of funds will decrease. MARAD will issue a new Form MA-949 as required to fund additional purchases.
- b. Ship Managers will inform MARAD of parts requirements as they arise. This information will be provided to the cognizant Marine Surveyor for the vessel or to the Region Supervisory Marine Surveyor. The request for authority to purchase may be made in writing, by telex, telephone, or other means. Justification should be provided whenever non-SAL material is requested. Entries on Form MA-971 are required whenever SAL parts are not available when required for maintenance, or whenever non-SAL parts are required (see paragraphs 8.3.3.2 and 8.3.3.3).
- c. The cognizant Marine Surveyor will review the request in accordance with paragraphs 7.2.2 and 7.2.3. The request will be approved, disapproved, or returned for additional information. The Ship Manager will be informed of MARAD's decision within 24 hours. The Region SOMO will be kept informed of all action taken.
- d. Approval is the responsibility of the COTR (i.e., Region Supervisory Marine Surveyor and/or SOMO). Approval will be provided in writing, or other "hardcopy" format (e.g., telex). The approval document must be specific and unambiguous as to which material may be procured by the Ship Manager. MARAD may elect to procure material itself, to obtain it by transfer from another vessel, or from yet another source.
- e. If approved, the Ship Manager will obtain bids or take other required actions specified by procurement regulations to accomplish the procurement.
- f. Upon receipt and inspection of the material, the Ship Manager will either use the items for maintenance or place them into stock. Appropriate entries will be made in PC-SAL or on Form MA-971 in accordance with paragraph 8.2.
- g. The Ship Manager will forward approval and funding, purchase, receipt, and vendor invoice documents to MARAD in accordance with paragraph 7.2.5 and the Ship Manager's contract requirements.



## **Acquisition of Shipboard Spare Parts and Equipment**

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# CHAPTER 8: SPARE PARTS USAGE AND REPORTING

Spare parts are placed aboard RRF vessels to provide for maximum readiness in the event of activation. Use of shipboard spare parts during routine upkeep and maintenance periods degrades readiness by depleting shipboard stocks.

***It is MARAD policy that shipboard spare parts are only to be used during vessel activation, operation, or Phase IV ROS.***

Spare parts may be used during Phase IV (non-ROS) only under the most extraordinary conditions, involving the specific circumstances and procedures laid out in paragraph 8.4.

Phase V (Exercise) and Phase O (Operation) are essentially the same from a logistics support perspective. Both involve breakout of a vessel that is in inactive retention under Phase IV and completion of necessary maintenance, followed by an operational, underway period. Although ships in ROS are *technically* in Phase IV, but maintenance is accomplished according to a more intensive plan than for other Phase IV ships. From a supply management perspective, ***ships in ROS operate in the same manner as Phase V/O ships.*** When a vessel is being activated, inactivated, operated, or in ROS, the Ship Manager is in control of the vessel and its operations, under either MARAD or MSC direction.

Although MARAD permits Ship Managers to use shipboard spare parts during the active phases discussed above, it does not *require* them to do so. To ensure maximum on-board stock levels while underway, Ship Managers may obtain parts from Shore-based Spares or the other off-ship sources cited in paragraph 7.1, including commercial sources, before using shipboard stock.

## 8.1 ISSUE PROCEDURES

The issue and replenishment process is illustrated in Figure 8-1. The following procedures will be used for making and reporting material issues:

- a. Parts storage boxes will *remain unopened and sealed* until material is actually required. Storerooms will also remain sealed, unless the Ship Manager requires access to perform maintenance, damage control, or other necessary functions.
- b. When a parts requirement arises, shipboard personnel will check in PC-SAL (or if necessary, in the SAL) to ascertain the location and box number of the required part(s). *Only* those boxes or storerooms containing the required part(s) will be entered. Once the seal on a spare parts box or a storeroom has been broken, it is not necessary to re-seal the box or space. Broken seals will be replaced with padlocks to which the Ship Master or Chief Engineer holds the keys. Refer to Chapter 12 (Security and Safety) for further information concerning locks and seals.

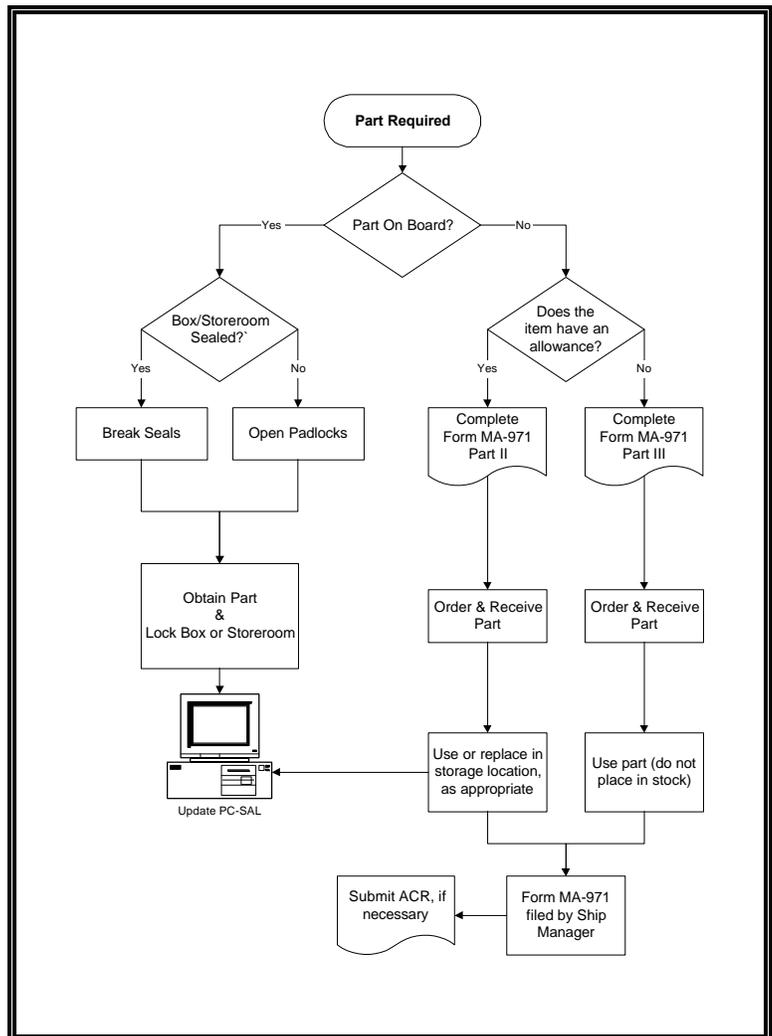


Figure 8-1 Parts Issue Procedures



Chapter 12 (Security and Safety) for further information concerning locks and seals.

- c. PC-SAL will be updated to reflect the new on-hand balance in accordance with the *PC-SAL User Handbook*. If PC-SAL is not being used, shipboard personnel shall record the parts issue in Part I of Form MA-971 in accordance with paragraph 8.3.3.1.

**MARAD provides all activating, operating, and ROS ships with a PC-SAL system. All ships will use this system, unless it has not been installed. Manual reporting methods are available only as a temporary back-up in case of a technical problem with the automated system.**

### 8.2 REPLENISHMENT PROCEDURES

Spare parts will be acquired in accordance with Chapter 7. SAL-allowed parts will be replenished in sufficient quantity to bring on-board stock levels back to specified allowance quantities. Non-SAL material will not be obtained in quantities greater than necessary to satisfy immediate requirements.

When the SAL-allowed replenishment item is received, the following actions will be taken:

- a. The part will be tagged or otherwise marked to ensure future identification and replaced in its original location.
- b. PC-SAL will be updated to reflect the new spare part balance as a result of the issue, in accordance with the *PC-SAL User Handbook*. Vessels without PC-SAL shall record the parts issue in Part I of the Spare Parts Usage/Replenishment Report (Phase V/Phase O) (Form MA-971) in accordance with paragraph 8.3.3.1.

### 8.3 REPORTING REQUIREMENTS

Most reporting requirements for spare parts use and replenishment are satisfied by regular, accurate updating of the ship's PC-SAL databases. PC-SAL makes the reporting process an integral part of the issue and replenishment process. Keeping PC-SAL up-to-date helps the *ship* by providing a current, accurate picture of the vessel's spare parts inventory. It also provides the quickest and most accurate means for reporting transactions to MARAD, and ultimately to ECSMIS. PC-SAL automatically records all transactions entered into it. These transactions are transferred to a computer diskette and forwarded to

MARAD at intervals determined by MAR-614, based on the length of the operational period. Procedures for using PC-SAL to report transactions are contained in the *PC-SAL User Handbook*, available separately from MAR-614.

**8.3.1 Manual Reporting Requirements.** Manual (form-based) reports are required whenever:

- the reporting vessel is not equipped with PC-SAL or is otherwise unable to use PC-SAL (paragraph 8.3.3.1).
- SAL items are required but not available (paragraph 8.3.3.2).
- parts not listed in the SAL are used (paragraph 8.3.3.3).

The Ship Manager shall prepare a Spare Parts Usage and Replenishment Report (Phase V/Phase O) (Form MA-971) to report transactions under these circumstances.

The Ship Manager is responsible for updating ECSMIS even when manual reporting is in effect, using Form MA-971 for this purpose. Original forms MA-971 received by the Ship Manager's office will be retained on file, segregated by vessel, to be available for MARAD review at any time.

**8.3.2 Form MA-971 Submission Schedule.** An initial report will be submitted to the Ship Manager designated office (i.e., the office of the Ship Manager where the ECSMIS terminal is located) within 15 days after the completion of activation. Subsequent reports will be submitted monthly, on the last day of the month, until operation and deactivation have been completed. A final report will be submitted on the final day of activity (i.e., the day the vessel is returned to Phase IV status). Negative reports (i.e., no parts issue or receipt activity) are not required. This submission schedule may be modified by the Region Ship Operations and Maintenance Officer (SOMO) with approval from MAR-614.

ROS ships reporting manually will submit Form MA-971 on the last day of the month.

**8.3.3 Form MA-971 Format and Contents.** MARAD provides Form MA-971 for the convenience of Ship Managers, however, reports may be submitted by alternative means (e.g., telex) as long as all of the required information is included. Each report will include the following heading information:

- vessel name



- period covered by the report (inclusive dates)
- vessel operator (i.e., Ship Manager).
- signature (except when submitted by Telex or other means of telecommunication)

Each report will contain three sections covering usage/replenishment activity:

- A. SAL Parts Used (necessary only when PC-SAL is not available)
- B. SAL Parts Not Available When Required
- C. Non-SAL Parts Required

**8.3.3.1 SAL Parts Used.** This portion of the report covers actual usage and replenishment of parts that are listed in the SAL and are on board when required. The vast majority of spare part transactions may be expected to fall into this segment of the report.

- a. **Equipment name and number.** Provide sufficient information to accurately identify the equipment supported by the required parts, e.g.: "PUMP, HYDRAULIC 26061CG45002".
- b. **Part name.** Provide a brief description, e.g.: "GASKET, FILTER ASSY". Include the Part Number, if available.
- c. **Item number.** Item numbers appear in the hard copy SAL. Each part listed therein has a sequential item number that, when taken together with the equipment number, serves to uniquely identify the part in the ECSMIS. In such a case, report the item number as "NONE". It is especially important that the part number be included under "Part Name" if there is no item number available.
- d. **Quantity used and date used.** Indicate the total quantity issued and the date that the issue took place. Only the quantity actually issued should be reported. For example, if three identical items are required, and only two are on board, list only the two that were issued. The remaining quantity would be reported as "SAL Parts Not Available When Required" (see paragraph 8.3.3.2 for further information).
- e. **Quantity replenished and date replenished.** This data will be used to report receipt of all SAL material during Phase V and Phase O. Receipt of non-SAL material need not be reported.

Note that it is possible to have entries for the same item under both "Quantity Used" and "Quantity Replenished"

if replenishment occurs during the same reporting period as issue.

### 8.3.3.2 SAL Parts Not Available When Required.

This portion of the report will be used whenever an item *listed in the SAL* is not available for required maintenance or repairs. The data contained in this section of the report serves a critical function by providing possible justification for increased depth of parts support for the supported equipment, not only for the vessel in question, but for all other vessels containing the same equipment. It is therefore important that such allowance deficiencies be identified. Such a condition may occur for various reasons, examples of which include, but are not limited to, the following:

- the part was required earlier to perform other repairs and has not yet been replenished
- the part could not be located
- the part was located, but was not usable (for any reason).

The following data will be reported:

- a. **Equipment name and number, Part Name, and Item Number.** (This is the same data format as for "Parts Used"; see paragraph 8.3.3.1.)
- b. **Quantity Not available when required.** Report the quantity of the item that was not available when actually required. For example, if three items are required for repairs but only two are on board, the quantity to be reported in this section would be "one".
- c. **SAL allowance.** Report the allowance figure listed in the SAL Equipment Page.

**Note:** This is only a list of parts that were not available when required and does not replace the requirement to report usage in Section A of the MA-971.

**8.3.3.3 Non-SAL Parts Required.** This section of the report will be used whenever specific parts are required but are not supported (listed) in the SAL. It should also be used whenever a substitute item is obtained and used because the SAL-specified item was not available when required. This data can serve as the basis for justifying the increased range of parts support for MARAD vessels. The report should include as much data as necessary to fully identify the part, including the following:



- a. equipment name and number, and part name *and number*
- b. manufacturer
- c. quantity required

If the Ship Manager believes that the part should be added to the SAL allowance then submit an Allowance Change Request in accordance with paragraph 17.4.

If the *equipment* is not listed in the SAL, make a "NO-SAL Support" notation in the Remarks Section of the form. A Configuration Change Report must also be submitted in accordance with paragraph 15.6.

The MARAD Marine Surveyor should be notified whenever equipments are identified that do not have ECSMIS or SAL support.

### 8.4 SPARE PARTS USE DURING PHASE IV (NON-ROS)

As stated at the beginning of this chapter, it is MARAD policy that shipboard spare parts will only be used during Phase V and O, or during Phase IV if the ship is in ROS. This means that spare parts required for maintenance must be procured from another source. Although the requirement to procure spare parts may delay some Phase IV maintenance, it is preferable to experience such delays during Phase IV than during the activation or operational phase. The forbiddance of spare parts usage during Phase IV includes two exceptions, that may be invoked solely at the discretion of the MARAD COTR:

- a. If equipment failure causes the "C" readiness status of the vessel to drop below C-2 (see Chapter 5, paragraph 5.1.1), then onboard spares or spare parts may be used, but only with prior written approval. This approval will be provided by the MARAD COTR in the case of a Ship Manager, and from the Region Supervisory Marine Surveyor in all other cases.
- b. If, during any shipyard period, the lack of spare parts will cause additional, unacceptable costs to the Government in terms of money and time, then onboard spares or spare parts may be used, but only with prior written approval. This approval will be provided by the MARAD COTR, who shall notify the Contracting Officer.

Ship Managers play a key role in controlling the usage of shipboard spare parts. This manual contains procedures that represent the *minimum* requirements for maintaining a system of control that is acceptable to the Government. Ship Managers may adopt additional controls at their own discretion and expense to maintain accountability for Government Furnished Material (GFM). MARAD Region Directors may augment the procedures contained in this manual, consistent with the terms of the Ship Manager's contract.

**8.4.1 Phase IV Spare Parts Issue Procedures.** Once prior written approval to use shipboard spare parts has been obtained from the MARAD COTR, the Ship

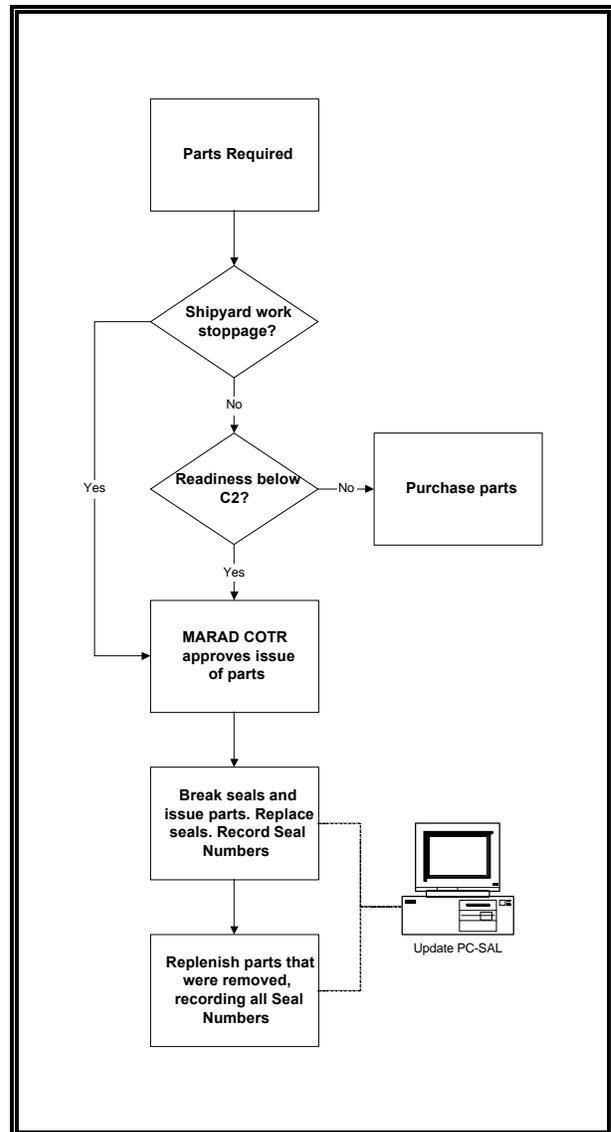


Figure 8-2 Phase IV Parts Issue Procedure



Manager will be permitted to enter the storeroom and/or storage box containing the required item. This procedure, illustrated in Figure 8-2, includes the following steps:

- a. Box and/or storeroom seals will be cut to gain access to the required part. Seals shall not be discarded until all affected seal numbers have been recorded. Before cutting seals, the Ship Manager and/or Marine Surveyor should verify the location of the part in the SAL (or in PC-SAL, if installed).
- b. The required part will be drawn from the storage location. If the part cannot be located, the MARAD Region Inventory Specialist will be contacted. The Inventory Specialist will investigate the situation and report findings to the Supervisory Marine Surveyor. In all such cases, an inquiry should be made of RRF-ECSMIS to ascertain the on-hand quantity and location of the required part. If the problem cannot be resolved and the part cannot be located, the Ship Manager or APO will update ECSMIS to reflect the actual balance on-hand.
- c. Once the part has been obtained, new seals will be affixed to the storage box and storeroom, as applicable, and the new seal number(s) recorded. Boxes and/or storerooms will not be left unsealed while waiting for a replacement to be procured, since usage during Phase IV presupposes that such a replacement is not immediately available. Padlocks or pilferage seals must be used until replacement items have been obtained. Adhesive seals shall not be used on storeroom doors. For more information on adhesive seals, refer to Chapter 12 (Security and Safety).
- d. ECSMIS will be updated in accordance with paragraph 8.4.3.
- e. The Phase IV Material Issue/ Replenishment Report, Form MA-973 shall be used to document material issues and the MARAD COTR approval. This form is designed to report the issue of a single spare part. The form will be forwarded to the Ship Manager who will use it as a source document to update ECSMIS.

*L If a BAL or COSAL is in use aboard the vessel, the onboard quantity in the allowance document should be annotated to reflect the new balance as a result of the issue, in accordance with paragraph 6.4.*

**8.4.2 Phase IV Replenishment Procedures.** Region surveyors shall monitor issues of shipboard spare parts during Phase IV to ensure prompt item replenishment.

Methods and procedures for obtaining replacement items are described in Chapter 7. During Phase IV, the administrative delay between drawing a part from shipboard inventory until the placing of an order for a replacement item should not exceed one week.

Once the item has been received, the following action will be taken:

- a. The seals placed on the storeroom and/or boxes at the time of issue will be broken and the part replaced.
- b. New cable seals will be affixed to the storeroom and/or storage box.
- c. ECSMIS will be updated in accordance with paragraph 8.4.3. *Note: some non-ROS ship are equipped with PC-SAL. Such ships should use update the records in PC-SAL rather than in ECSMIS.*
- d. The Phase IV Material Issue/Replenishment Report (Form MA-973) used to issue the part being replenished shall be completed by filling in the new seal numbers, quantity replenished, and date. All Forms MA-973 shall be forwarded to the Region LMO.
- e. *A partial receipt* occurs when the quantity received is less than the quantity ordered. Each partial receipt will be individually reported to ECSMIS until the entire quantity ordered has been received. The Form MA-973 should be retained by the Property Custodian until the replenishment action has been completed.

**8.4.3 Phase IV ECSMIS Update.** The Ship Manager (the Property Custodian) is responsible for ensuring that ECSMIS is promptly and accurately updated whenever parts are issued or received, and any equipment adds, deletes, or changeouts are accomplished. Information on these changes must be reported to the Ship Manager's office, where the data will be entered into ECSMIS. An effective way to do this is to fax a copy of the Phase IV Material Issue/Replenishment Report (Form MA-973) and the RRF Configuration Change Report (Form MA-985) to the office where the ECSMIS terminal is located. Updates must be accomplished within *10 days of the transaction activity*. Ship Managers have been given authority to copy the RECSMIS Communication Software to enable access to ECSMIS at locations other than their main office.

Region surveyors are responsible for reviewing and acknowledging all changes made to ECSMIS by the Ship Manager on their respective vessels. Procedures for



acknowledging ECSMIS transactions are contained in the RRF-ECSMIS User Handbook.

The cognizant Marine Surveyor is responsible for maintaining ECSMIS in an up-to-date status for vessels not assigned to a Ship Manager. Updates must be accomplished within *10 days of any transaction that affects ECSMIS*.

### **8.5 PARTS LOST, DAMAGED, OR DESTROYED**

Parts that have been lost, damaged, or destroyed for any reason (e.g., flooding) will be reported as "Parts Used". The circumstances of the loss, damage, or destruction will be described under "Remarks". PC-SAL has a remarks field that may be used for this purpose (see the *PC-SAL User Handbook*).

### **8.6 POST-DEACTIVATION RECEIPTS**

Parts will be ordered throughout an active period, and some spare parts may be received after deactivation. Unless the ship has been retained in ROS, such material will be received and reported according to the procedures laid down for Phase IV spare parts usage and reporting, paragraph 8.4.

# CHAPTER 9: TRANSFER OF EQUIPMENT AND SPARE PARTS BETWEEN RRF VESSELS

A *transfer* is the movement of spare parts from the custody and records of a vessel to the custody and records of another vessel. Transfers may take place within a MARAD region, or among vessels of different MARAD regions. The most common occasion for a transfer occurs when spare parts are required to support the activation or operation of a RRF vessel. Other types of transfers may occur as well, including transfers of an entire equipment. The impact on the vessel's configuration and upon ECSMIS depends on the type of transfer (equipment or spare parts), whether spare parts are being transferred out of stock or being cannibalized, and whether the parts will be put to immediate use aboard the gaining vessel or will be placed into stock.

## 9.1 SCOPE

This Chapter covers transfers between RRF vessels only. The movement of material to and from shore-based spares or other shore activities is discussed in Section IV. Transfer of Shipboard Outfit Material is discussed in Chapter 10 of this Section.

## 9.2 APPROVAL OF TRANSFERS

Spare parts and equipment will be transferred at the discretion of or by direction of MARAD. Ship Managers may recommend transfer of spare parts or equipment to support specific readiness objectives, such as maintaining an activation or operation schedule. Approval and the level of authority at which it may be granted are dependent upon the type of material being transferred (spare parts or equipment); the reason for transfer; the operating status of the losing and gaining vessels; and whether the transfer is intra-region (within a region) or inter-region (between regions). The request, the approval, or direction will be in writing and will address *specific* parts or equipment to be transferred. No blanket or "open-ended" transfer authorizations may be issued (e.g., "Turbine parts as required"). A directive will approve only a specific transfer action and will indicate the losing vessel and the gaining vessel. All transfer directives shall be kept on file for a period of three years by the LMO.

**9.2.1 Approval Authority Levels.** Each Region Director is responsible for transfers of equipment and spare parts within the respective region. Transfers between vessels assigned to different regions are the

joint responsibility of the Region Directors concerned. Authority to approve transfers may be delegated in writing. Levels of approval authority to be delegated are as follows:

	Within Region	Among Different Regions
<b>Equipment</b>	Supervisory Marine Surveyor or SOMO	Region Director
<b>Parts</b>	Cognizant Marine Surveyor(s)	Supervisory Marine Surveyor or SOMO

Transfers of spare parts or equipment from a vessel in Phase V or Phase O should only be approved with the knowledge and concurrence of the SOMO.

**9.2.2 Justification and Readiness Impact.** The decision to approve or direct a transfer of spare parts or equipment is a matter of judgment for the approving authority. The approving authority will consider the impact, both positive and negative, of a transfer on readiness, at both the individual vessel and the fleet level. For example, re-distribution of assets present on one vessel in excess of the allowance quantity to another vessel with a deficiency has a positive effect on readiness at all levels. On the other hand, transfers from one vessel to another to support activation or operation, while sometimes unavoidable, may degrade the readiness of the losing vessel. Transfer of spares or spare parts as a "source of supply" (see paragraph 7.1.2) should be a method of last resort.

## 9.3 TRANSFER PROCEDURES

All transfers involve the same basic steps:

- a. MAR-614 or a MARAD Region issues a transfer directive (or authorization in response to a request)
- b. the losing ship's Property Custodian removes the item(s); shipping it/them (if necessary) to the gaining ship
- c. the gaining ship receives and installs or stows the item(s)

**9.3.1 Spare Parts.** Parts transfers will be directed by MARAD using the Spare Parts Transfer Report form (MA-972). A separate MA-972 will be prepared for spare parts transferred on different dates or belonging to different equipments.



## Transfer of Equipment and Spare Parts Between RRF Vessels

The procedures that follow describe the process in its most detailed form, i.e., when parts are being transferred between different regions and different Property Custodians. If the losing and gaining regions or property custodians are the same, the process is greatly simplified. Refer to Figure 9-1.

- a. A Spare Parts Transfer Report will be initiated and signed by the appropriate approving authority. The form will specify:
- (1) the name of the losing and gaining vessels
  - (2) the losing and gaining Property Custodian
  - (3) related equipment name and MARAD equipment number
  - (4) the parts being transferred, including part number, and whether the part is to be taken from stock (i.e., from a storeroom or spare parts

storage box) or removed from an actual equipment

- (5) the reason for transfer
- (6) an authorized signature

Special shipment instructions, if any, may be attached if necessary.

- b. The approving authority will forward the original Spare Parts Transfer Report to the Property Custodian (ordinarily a Ship Manager) who will be “losing” the spare parts.
- c. The approving authority will provide copies to their own (losing Region) LMO, the gaining Region LMO (if the spare parts are being sent to a vessel under the control of a different MARAD Region), and the gaining Property Custodian (if different from the losing Property Custodian).

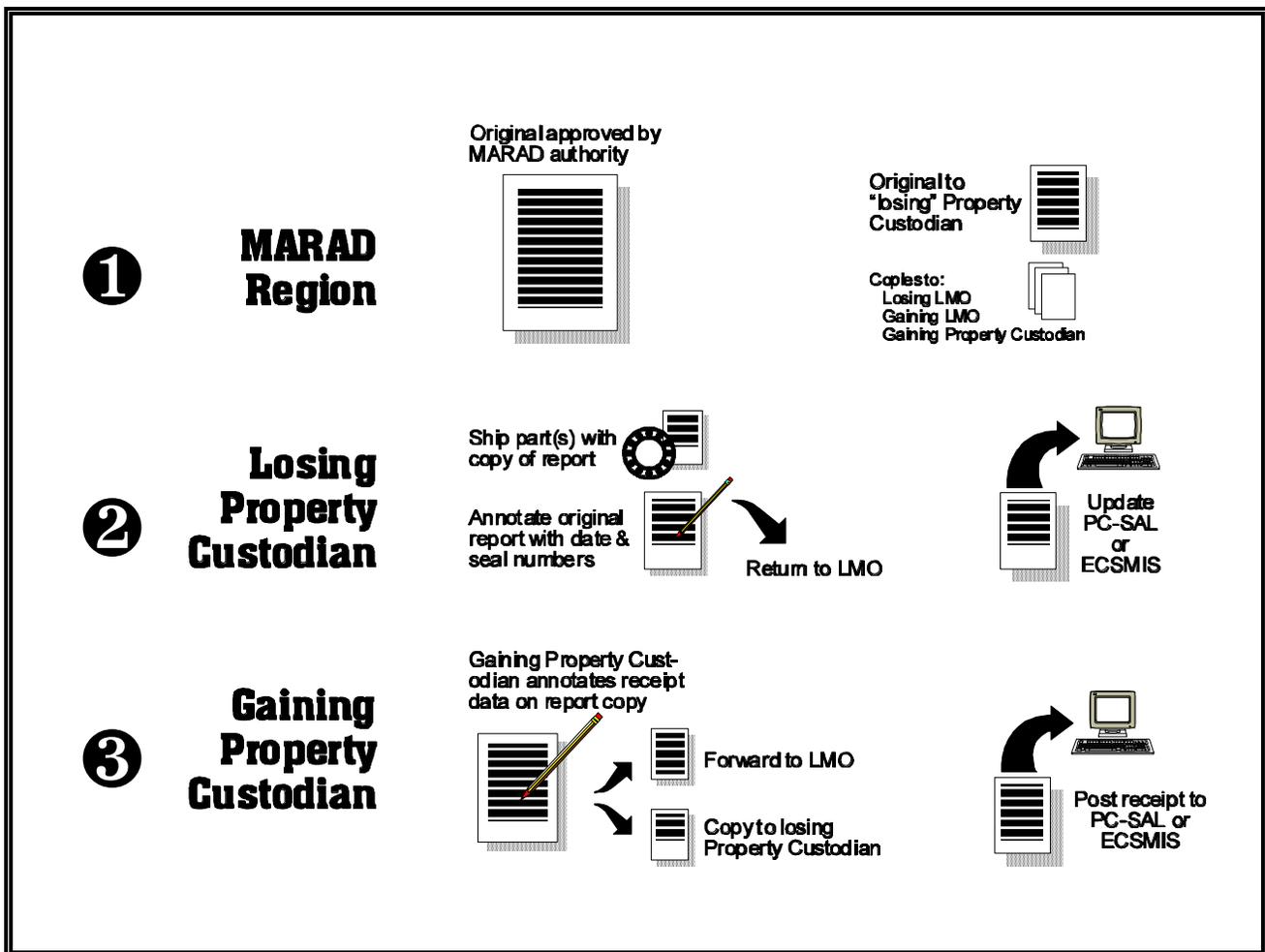


Figure 9-1 Procedure for Transfer of Spare Parts



## Transfer of Equipment and Spare Parts Between RRF Vessels

- d. The Property Custodian for the losing vessel will ship the spare parts as directed. The original Spare Parts Transfer Report will be annotated to show the Date of Transfer and old/new seal numbers for spare parts boxes or storerooms that were opened in compliance with the transfer directive.
  - e. The Property Custodian of the losing ship will retain a copy of the report, returning the original report (annotated with date of transfer and seal numbers) to the LMO in order to update the losing vessel's seal log. The original will be retained by the losing Region LMO.
  - f. Another copy of the report should be included with the shipment of spare parts as a packing slip. Any damage or other unusual condition at time of shipment should be noted on the back of the form.
  - g. A copy of the Spare Parts Transfer Report shall be used by the losing Property Custodian to update PC-SAL or ECSMIS, as appropriate, by deleting the items (see paragraph 9.3.3).
- ☞ The losing Property Custodian is responsible for the material being transferred until it has been physically received by the gaining Property Custodian.**
- h. The gaining Property Custodian will report receipt of the spare parts by completing the receipt data on his copy of the Spare Parts Transfer Report, indicating the Date Received and whether the parts were put to direct use or placed in a spare parts storage box or storeroom (i.e., stock). Changed seal numbers (if any) will be recorded as well.
  - i. The gaining Property Custodian will forward the annotated report to the gaining Region LMO in order to update the seal log of the gaining vessel.
  - j. An additional copy of the report showing receipt information, or other suitable notification, shall be forwarded to the losing Property Custodian to confirm receipt.
  - k. The Property Custodian shall post a receipt to PC-SAL or ECSMIS, as appropriate, for spare parts that are placed into stock only. Parts for direct use should not be entered into PC-SAL or ECSMIS (see paragraph 9.3.3).

**9.3.2 Equipment Transfer Procedures.** Equipment transfers between vessels constitute a *configuration change* to both gaining and losing vessels. Such changes

shall be based on an approved Configuration Change Proposal (CCP) and be reported on a Configuration Change Report (CCR) in accordance with Chapter 15 of this manual.

**9.3.3 RRF-ECSMIS Update.** Transfer of *spare parts* from one vessel to another affects ECSMIS *only* when the parts are taken out of stock or placed into stock (not when cannibalized from an installed equipment). If the losing vessel custodian removes a part from stock, the Property Custodian will post the transaction as a parts issue. The Property Custodian should include a remark in the transaction to identify it as a transfer and include the name of the gaining vessel. The gaining vessel custodian will post the receipt of spare parts to ECSMIS *only* if the item is received into stock. Spare parts put to immediate use do not require any reporting to ECSMIS.

ECSMIS will be updated directly for Phase IV non-ROS ships, or using PC-SAL if the vessel(s) are so-equipped.

Transfers of *equipment* constitute a configuration change to both the losing and gaining vessels. See chapters 15 and 16 for further information.

**9.3.4 Replenishment of Transferred Parts.** When parts have been transferred from a vessel, that vessel will be deficient in those parts (unless the parts were excess to begin with). For this reason, the Ship Manager of the losing vessel will take action to replenish all spare parts transferred off the ship.

If the parts were excess, then there is no need to replenish them. Also, if the parts were transferred in connection with an equipment de-installation, replacement parts will not be procured, as they no longer have any application aboard the losing vessel.

Stock replenishment will be accomplished in the same manner as for replenishing spare parts issues (see paragraphs 8.2 and/or 8.4.2).



## **Transfer of Equipment and Spare Parts Between RRF Vessels**

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# CHAPTER 10: SHIPBOARD OUTFIT

In addition to installed equipment and spare parts, each RRF vessel stocks and uses a considerable amount of non-installed items that are not listed in the SAL, and therefore not addressed or controlled by the regulations contained elsewhere in this manual. These types of material are identified collectively as *outfit material*. The procedures for managing outfit material differ in many respects from those for equipment and spare parts; consequently, outfit material management procedures are addressed separately in this chapter.

Items brought aboard the vessel by the ship manager or by individuals for their own use and at their own expense are not considered outfit material and are not included in the scope of this manual.

## 10.1 OUTFIT MATERIAL CATEGORIES

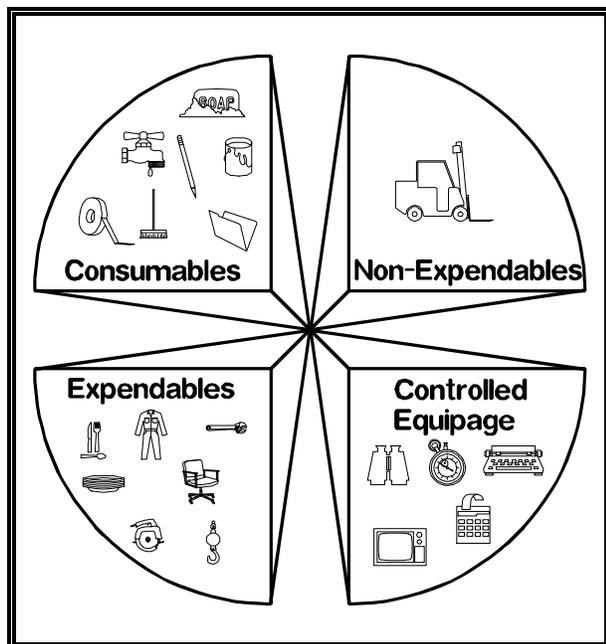


Figure 10-1 - Outfit Material Categories

Outfit Material consists of all *non-installed* equipment and supplies, less the spare parts identified in the SAL. It includes, but is not limited to maintenance and mission essential material and all items required by the U.S. Coast Guard and the American Bureau of Shipping (ABS), and any other regulatory body. Examples are: life saving, fire fighting, transfer-at-sea, communications, steward, deck, navigation and engineering items and equipment. All

items of outfit material fall into at least one of four categories as illustrated in Figure 10-1 and described in the following paragraphs.

**10.1.1 Consumables.** Consumables include those articles, commodities and supplies required in the maintenance and operation of the vessel and the living and berthing of passengers, officers and crew, including, but not limited to, the following general classifications:

- articles and commodities that are consumed in their initial use (e.g., paints, packing materials, soaps, medicines, metals, oils, greases, chemicals, gases, fuel for auxiliary machinery and equipment, etc.)
- articles and commodities whose term of usage or life is so short that after initial use, such items can not be recovered for re-issue, or are practically valueless for sale or transfer (e.g., paint brushes, brooms, swabs, rope (except hawsers) and cordage, etc.)
- articles and commodities of general use which after installation, lose their identity and become part of a system or a part of a larger piece of equipment (e.g., pipe, pipe fittings and valves, electrical fittings, fire bricks and tile, etc.)

Consumables are normally provided by the cognizant Ship Manager for the vessel as CFP. The Ship Manager is expected to maintain an ongoing awareness of the range and depth of the consumable inventory so as to prevent unnecessary purchasing of excess material.

**10.1.2 Expendables.** Expendables consist of those articles that are portable, semi-portable, and detachable and are used in the normal day-to-day operation and maintenance of the vessel. Such items are subject to casual or gradual deterioration and replacement, but are not readily consumed by usage and are not subject to economical repair. Examples include: hawsers, towing and mooring wire cables, hand tools and certain portable power tools, certain inexpensive test equipment, linens, silverware, crockery, draperies and curtains, desks, chairs, etc.

The most significant general category of expendable material is *Lashing Gear*, which includes shackles, container stacking cones, slings, nets, and other cargo securing gear.

**10.1.3 Non-expendables.** Those articles and equipage that are required for the maintenance and operation of the vessel but are subject to special controls or to economical



repair when no longer serviceable, rather than being disposed of and replaced. Included in this category are Controlled Equipage items (see paragraph 11.1.4). Other examples of nonexpendable outfit items include forklift trucks or other self-propelled Material Handling Equipment (MHE), certain communications equipment, certain highly technical test equipment, etc.

**10.1.4 Controlled Material.** Controlled Material consists of outfit items that require specialized controls. There are two categories of Controlled Material: Controlled Equipage and High-value Items. All Controlled Material is contained in a single database in ECSMIS.

**10.1.4.1 Controlled Equipage.** Controlled Equipage is a special category of non-expendable items. It is similar to the nonexpendable outfit category, but is distinguished by being highly pilferable, therefore requiring special attention in order to ensure positive control over the inventory. Appendix K contains a generic, but not all-inclusive list of Controlled Equipage items. Controlled Equipage is subject to signature control during all RRF phases, and each item is identified by nomenclature and serial number (if one exists). A perpetual and official inventory of Controlled Equipage will be maintained on ECSMIS by the Region office.

**10.1.4.2 High-Value Items.** High-value items consist of all outfit items with an acquisition cost of \$1,000 or greater. Unlike the other categories of outfit material, this one is *based on the acquisition cost of the item* alone. DOT Regulations<sup>3</sup> require that formal property records be maintained for all such items. Annual inventories and inventories incident to the activation of a vessel are not required for high-value items, however, in all other respects, high-value material shall be managed in the same manner as controlled equipage. This includes the requirement for turnover inventories and positive inventory control by the Ship Manager. A perpetual and official inventory of high-value items will be maintained on ECSMIS by the Region office.

## 10.2 ACCOUNTABILITY FOR OUTFIT MATERIAL

Outfit Material is obtained or provided in one of two ways:

- *Material Supplied by MARAD*, e.g., provided with a vessel, supplied during activation or deactivation, or supplied by MARAD during Phase O.
- *Material Supplied by the Ship Manager*, consisting of material procured on a reimbursable basis for a particular RRF vessel.

All Outfit Material is considered Government property regardless of the source of supply.

**10.2.1 Accountability for Controlled Equipage and High-Value Items.** The official record for controlled equipage and high-value items is the RRF Equipment Configuration and Spare Parts Management Information System (ECSMIS). Maintenance of the inventory record on ECSMIS shall be the responsibility of the Region LMO, with management policy and oversight provided by MAR-614. Region LMOs should require Ship Managers to use Form MA-997 (Inventory Sheet for Controlled Material) to add new items to the inventory. The Region LMO (ECSMIS Property Clerk) will also ensure that a completed Form MA-998 (Survey Form for Controlled Material) is obtained from the Ship Manager before removing any item from the inventory.

**10.2.1.1 Assumption of Custody.** Whenever a new ship manager is assigned custody of a RRF vessel, a joint validation of the controlled equipage and high-value item inventory will be conducted by a MARAD inventory specialist and a Ship Manager representative. The validation must be performed within 60 days of the assignment of a specific vessel and will cover 100% of controlled equipage and high-value inventory as recorded in the MARAD list for the vessel. A copy of this inventory, attested to by both representatives, will be included in the *Ship Survey Report* (required by the contract). The Ship Manager shall have written procedures for the signature control of controlled equipage and high-value items, a copy of which shall be included with the initial *Ship Survey Report*. Inventory adjustments necessary as a result of the validation will be recorded in ECSMIS. The validated inventory, including adjustments, will become the baseline inventory of controlled equipage and high-value items for which the Ship Manager will assume custodial responsibility.

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<sup>3</sup>DOT H 4410.4, Equipment Management and Control, dated January 28, 1992.



**10.2.1.2 Periodic Inventories.** Periodic inventory requirements are more stringent for controlled equipment than for high-value items

- a. **Controlled Equipment.** A 100% physical inventory of all controlled equipment will be conducted annually by the Ship Manager on or about the anniversary of the initial inventory described in paragraph 10.2.1.1, and immediately after an activation period. A certification of the inventories, including any adjustments with accompanying remarks, shall be forwarded to the appropriate Region SOMO. This certification shall be included in the appropriate *Ship Survey Report*. The Region shall initiate a follow-up letter to the Ship Manager if the above certification is not received within 30 days following the anniversary date or activation period.
- b. **High-value Items.** A 100% physical inventory of all high-value items will be conducted whenever it is considered necessary by *either* MARAD or the Ship Manager, however, the interval between inventories shall not exceed three years. A certification similar to that provided for controlled equipment inventories shall be provided to the cognizant MARAD Region. Annual and activation inventories are not required. Spot inventories of particular items or categories of items are recommended as a means of maintaining control for the property custodian.

**10.2.1.3 Release of Custody.** Within 45 days of the end of a contract period, a joint inventory by a Ship Manager representative and a MARAD representative of 100% of the controlled equipment and high-value items shall be conducted and certified in the same manner as described in paragraph 10.2.1.1.

**10.2.1.4 Inventory Reconciliation.** Physical inventories will be compared to the official record in ECSMIS. An attempt shall be made to reconcile all inventory differences by re-inventorying the material for which an overage or shortage has been recorded. Overages that can not be reconciled shall be recorded in ECSMIS as the new baseline inventory figure. Shortages that can not be reconciled shall be recorded in ECSMIS by the Region. The monetary value of the shortage will be calculated by MARAD and deducted from the last Ship Manager invoice.

**10.2.2 Outfit Material other than Controlled Material.** Whenever a new Ship Manager is assigned custody of a vessel, a joint assessment of the onboard

availability of Outfit Material will be conducted by the Ship Manager representative and a MARAD representative. The agreed upon availability of each item will be recorded as one of the following:

- Less than 25%
- 25%-50%
- 50%-75%
- 75%-100%

**10.2.3 Storage and Security of Outfit Material.** Outfit Material stored on a vessel is not to be used unless the vessel is activated. For this reason, it is essential that the material be stored in a secure area during Phase IV.

- a. **Controlled Equipment Items.** As soon as possible after the return of an activated vessel, all controlled equipment and high-value items shall be gathered, inventoried, and properly stored in secure areas by the Ship Manager. Ship Managers should use MA-997 and MA-998 Forms to record any additions or deletions to their official inventory records and forward the forms to the Region LMO to update ECSMIS. See paragraph 10.2.1. The Region LMO shall ensure that this action is taken promptly.
- b. **High-Value Items.** As soon as possible after the return of an activated vessel, all high-value items, not classified as controlled equipment, shall be gathered, and properly stored in secure areas by the Ship Manager. Inventory of high-value items after an activation is not required.
- c. **Consumables and Expendables.** Although not subject to the same level of control as controlled equipment, consumables and expendables shall nonetheless be properly stored in secure areas to prevent unauthorized use or removal.

At the discretion of the Region, a general walkover by a MARAD representative and a Ship Manager Representative may be required in order to determine compliance with these security requirements.

**10.2.4 Initial Outfitting List (IOL).** Ship Managers shall develop an Initial Outfitting List (IOL) of Outfit Material necessary to support the vessels that they are designated to operate in accordance with their respective contracts. IOLs will be developed for:

- Deck Department



- Steward Department
- Engineering Department

The Ship Manager shall ensure that all Ship Manager personnel, including any subcontractors, understand and follow the policy and procedures relating to outfit material as contained in this chapter and in the Ship Manager's contract.

**10.2.5 Transfer of Outfit Material.** Outfit material may be transferred from one RRF ship to another when operational considerations warrant. Consumables may be transferred with verbal approval from the cognizant Marine Surveyor. All other categories of outfit material (expendables, non-expendables, and all controlled material) require the written direction or approval of the SOMO or Supervisory Marine Surveyor (transferring Region's, if material is being transferred to another Region). Transfer of items to shore-based spares occurring in connection with ship deactivation, scrapping, etc. will be addressed in the applicable program directive. The LMO is responsible for ensuring that property custodians of the update ECSMIS to reflect transfers of controlled material, non-expendables, and any expendable items that are listed in ECSMIS (i.e., lashing gear).

### 10.3 SPECIAL CLASSES OF MATERIAL

Within the four designated Outfit Material categories, certain classes of material require special consideration.

**10.3.1 Material Handling Equipment (MHE).** MHE forms the most significant portion of the non-expendable Outfit Material category. It includes lashing gear and sealift enhancement equipment. Some examples are pallet jacks, diesel and electric fork-trucks, refueling-at-sea hoses, cargo blocks, cargo nets, and chain tensioner assemblies. These types of equipments are used during underway replenishment operations, off-load and on-load of cargo, and the stowage or lashing down of material stowed onboard.

Lashing Gear is a special category of MHE, consisting of devices intended to secure cargo to a stationary point or connect individual loads one to another for stability. Lashing Gear is generally designed for a specific purpose or cargo type such as containers, vehicles, and unitized loads. A *Lashing Gear Inventory Guide* is published separately from this manual. The guide covers specialized procedures for the physical inspection and inventory of Lashing Gear.

The outfitting list for MHE will be jointly developed by MARAD and MSC and be officially recorded in the ECSMIS database.

**10.3.2 Medical Equipment and Supplies.** Medical supplies will be provided by the Ship Manager on a reimbursable basis as directed by MARAD. Procedures are outlined in the *MARAD Operations Management Manual*.

**10.3.3 Small Arms.** Small arms and ammunition will be provided by the Government (MSC) if required during Phase O. Training in the handling and use of small arms will be provided by MSC, if necessary, in accordance with the *MARAD Operations Management Manual*.

Ship managers are responsible for returning all MSC-provided weapons and ammunition directly to MSC at deactivation, or when so directed. If, for any reason, the procurement of weapons and ammunition were authorized by the Region, such weapons and ammunition shall be taken into custody by the cognizant MARAD marine surveyor or other MARAD COTR.

# CHAPTER 11: PHYSICAL INVENTORIES OF SHIPBOARD MATERIAL

The primary and immediate objective of physical inventories aboard RRF vessels is to determine the onboard quantities and locations of spare parts, outfit material, and technical documentation. Inventory records exist aboard most RRF ships, however, physical inventories are regularly conducted in order to verify and correct existing material quantity and location records in ECSMIS. Secondary objectives are as follows:

- determine stock deficiencies that require replenishment
- determine and reconcile all differences between physical counts and balance quantities indicated in the SAL and ECSMIS
- provide the basis for determining and implementing controls needed to preclude recurrence of significant discrepancies
- ensure that material is correctly identified, properly stowed and in apparent good condition, and that material subject to deterioration or breakage is adequately packaged and/or preserved
- update location and other data in the SAL and ECSMIS
- establish or re-establish accountability baseline for the Ship Manager (Property Custodian) assuming custody of material
- monitor Ship Manager performance and determine accountability of property custodians following completion of all or part of a contract.

Most inventories are regularly scheduled or announced well in advance in order to provide for suitable planning and preparation. However, non-scheduled inventories are sometimes required in order to reconcile discrepancies (e.g., those discovered when parts are issued) or to ensure proper management by the Ship Manager.

Equipment validations are sometimes performed in conjunction with physical inventories of spare parts. Equipment validation and physical inventories of spare parts are logically related activities that serve as the starting point for supply management aboard any vessel. An understanding of the conceptual basis of these processes and the procedures for accomplishing them will aid MARAD personnel who must respond to the inevitable unique situations that arise during individual

vessel validations and inventories. Equipment validation is addressed in Chapter 14.

Most validations and inventories are performed by a logistics contractor and monitored by MARAD. The contract Statement of Work (SOW) is *the* definitive source of procedural guidance for both MARAD and contractor personnel. Although all RRF validation and inventory SOWs are similar, there may be some variations depending on the specific objectives of the particular validation or inventory. It is equally important that both MARAD and contractor personnel be thoroughly familiar with the contents of the SOW for the particular vessel being validated or inventoried.

## 9.4 BULKHEAD-TO-BULKHEAD INVENTORIES

A bulkhead-to-bulkhead inventory requires a physical count of all spare parts, outfit items, or other material within the vessel or within a specific storeroom or other storage area. This type of inventory is unlike most other types in that it begins with actual onboard stock, without reference to the SAL until *after* completion of the inventory. It is normally taken when vessels are acquired by MARAD, or whenever it is necessary to re-build the vessel's inventory data in RRF-ECSMIS and produce a new SAL. It is often conducted in conjunction with a validation of onboard equipment, but this is not a requirement. A bulkhead-to-bulkhead inventory may also be taken when the results of a random sampling inventory are deemed to be unsatisfactory.

## 9.5 SPECIFIC COMMODITY AND SPECIAL MATERIAL INVENTORIES

These types of inventories require the physical count of all items comprising a generic segment of material or which support the same operational function (e.g., boat spares, electron tubes, boiler tubes, etc.) or which, because of their physical characteristics, cost, mission essentiality, criticality or other reasons, are specifically designated for separate identification and inventory control. Controlled equipment inventories are an example of a special material inventory.



### 11.3 SPOT (SPECIFIC ITEM) INVENTORIES

A spot inventory is an unscheduled, informal type of physical inventory that is taken to verify the existence or nonexistence of specific items, or to obtain an initial, informal sample of the overall inventory condition of a storage location.

### 11.4 SPARE PARTS INVENTORIES

Of all inventories performed aboard RRF vessels, spare parts inventories are the largest in scope and complexity. The following paragraphs address the various types of spare parts inventories and inventory procedures.

#### 11.4.1 Random (Statistical) Sampling Inventories.

A random sampling inventory is a measure of the inventory stock record (i.e., SAL) accuracy for a segment of material based on the physical count of a specified number of randomly selected items within the segment. This type of inventory is desirable when the large number of stocked items and the limited availability of physical inventory personnel dictate the need for a selective type of inventory, and a bulkhead-to-bulkhead inventory is not required. This type of inventory is usually conducted for the following purposes:

- to verify inventory records and establish accountability incident to the change of custody from one property custodian to another
- to ensure the accuracy of bulkhead-to-bulkhead inventories (i.e., as a Quality Control technique).

For a change of Property Custodian, this type of inventory is always taken from inventory records to actual physical stock; i.e., the sample is taken from records and verified by physical count of the items listed in the records. When a random sampling inventory is used for Quality Control of a bulkhead-to-bulkhead inventory, half of the sample is taken from inventory records and the other half is taken from actual stock and verified by examination of the inventory records.

Because of its relative frequency, inherent complexity, and importance for measuring contract performance and establishing accountability, it is important that all MARAD and contractor personnel become familiar with the general theory behind this type of inventory as well as with the specific Statement of Work being followed.

**11.4.1.1 Size of Sample Inventories.** The specific criteria for the size of the sample and an acceptable accuracy rate will normally be specified in the SOW or other tasking document. A nominal percentage (normally from 5% to 20%) will be taken of the total range of onboard items covered by the scope of the inventory (e.g., in the case of a vessel manager, all items for which accountability is being transferred or assumed).

**11.4.1.2 Selection of Items for Sample Inventories.** All items eligible for random sampling must have an equal chance of being selected. One method for ensuring this (with spare parts) makes use of the Part Number Sequence Lists contained in the SAL. For example, if the predetermined sample size were 10% and the sample were being taken from inventory records to stock (e.g., a property custodian change); after random selection of an initial item from the first ten candidates, every tenth item after the initial item would be a candidate for inventory. A similar methodology could be applied to outfit items.

The selection technique is slightly more complicated when the sample is taken from both inventory records and from actual stock. In such a case (assuming the same 10% sample size), one would select every *twentieth* item after random selection of an initial item in the Part Number Sequence List (i.e., 5%), and the other half of the sample would be taken by selecting every twentieth part, selected as randomly as possible within a box, bin, or storeroom. Other methods may be used (subject to the SOW), provided that all items have an equal chance for selection.

**11.4.1.3 Accuracy Rate.** A specific accuracy rate goal (usually 98% for Quality Control purposes and 90% for change of custodians) will be preestablished. Failure to meet the preestablished goal provides an indication that stock records in ECSMIS do not accurately reflect the physical quantities onboard the vessel. In such a case, a new sample may be inventoried. The new sample must be the same size as the first sample, and must exclude items inventoried in the first sample. In extreme cases, it may be necessary to resort to a bulkhead-to-bulkhead inventory to ensure the integrity of the results. In the case of a Ship Manager assuming custody of material, such corrective action must be taken in order to establish accountability. When QC of a bulkhead-to-bulkhead inventory is involved, an unsatisfactory accuracy rate will require corrective action in accordance with the SOW and/or direction of the COTR.



### 11.4.1.4 Computation of Accuracy Rate.

Discrepancies determined from the random sampling inventory will be adjusted in inventory records. The differences to be considered as errors in computing the accuracy rate are as follows:

- a. Location difference
- b. Quantity difference
- c. Incorrect part number
- d. Incorrect manufacturer
- e. Incorrect nomenclature.

Since inventory differences are related to individual inventory records, more than one error in the same record will be counted as one error in computing the inventory accuracy rate. To compute the inventory accuracy rate, subtract the number of inventory records with errors from the number of items sampled. For example, if the number of items in the sample is 375 and the number of inventory records with errors is 5, the accuracy rate would be 98.6%.

**11.4.2 Preparation For Inventory.** The MARAD or contractor inventory team should be prepared with manpower and equipment necessary for unsealing, resealing, relocating heavy spares, grinding, or consolidating spares when required. Inventory team members should be equipped with flashlights, clipboards, pencils, hard hats, safety shoes (steel-toed<sup>4</sup>), and any other items necessary for working aboard ship.

Prior to physical inventory, any unposted receipt and issue documents pertinent to the segment of material to be inventoried should be collected. Transaction documents for items placed in or removed from their assigned storage locations should be posted to the SAL. Transaction documents for items that purposely have not been placed in or removed from assigned storage locations (pending positive material identification or completion of quality inspection, etc.) will be held in suspense.

**11.4.3 Inventory Count Document.** The inventory count document is the principal inventory aid used for conducting bulkhead-to-bulkhead inventories. It may take a variety of forms depending on the existing inventory data. For vessels previously recorded in ECSMIS, inventory aids can be produced from the databases. If

necessary, BAL or COSAL data can be loaded in order to produce an inventory count document. The inventory count document will contain all existing data about spare parts contained in each spare parts storage box or location, with the exception of quantities, which are to be filled in by the inventory team. The inventory count document contains space not only for quantities, but for changes to existing data such as part number, unit of issue, and manufacturer. Whatever type of inventory count document is used, it should be considered as a source of only limited and possibly inaccurate information. *It is the job of the personnel conducting the inventory to verify and complete any missing information, including adding parts not listed in the inventory aid.*

**11.4.4 Other Inventory Aids.** Depending on the nature and scope of the inventory, MARAD and/or the contractor may use locally developed forms as inventory aids for specific purposes. Before developing a local form, Region and/or contractor personnel should contact MAR-614 to see if a form meeting their requirements has previously been developed that may save the effort and expense of developing and printing a new form. Forms must also be designed so as to be compatible with the data fields contained in ECSMIS.

NAME : CRANKSHAFT

PART NO : 5F40-114

MFR : CARRIER CORP.

BOX : EM-111

UI : EA            \_\_\_\_\_ OF TOT QTY \_\_\_\_\_

EQ NAME : COMPRESSOR, S/S REFRIG.

Figure 11-1 Sample Spare Parts Label

**11.4.5 Labels And Tags.** The inventory team should be equipped with blank labels and tags as described in paragraph 11.4.8 and illustrated in Figure 11-1. Inventory data contained in the database should be used to produce pre-printed labels for spare parts. The labels should allow room for handwritten corrections.

**11.4.6 Recording Inventory Data.** Inventory data will be recorded on the Inventory Count Document and on any additional forms as required. The following parts information is typically required:

<sup>4</sup>See MARITIME ADMINISTRATIVE ORDER 270-8, "MARAD SAFETY SHOE PROGRAM" of January 15, 1992.



- National Stock Number (NSN) (if available)
- manufacturer (if available)
- manufacturer's Part Number
- nomenclature
- Unit of Issue (UI)
- actual quantity by physical count (the quantity on the labels of unopened sealed manufacturer's packages is acceptable)
- Equipment Group Code (EGC) (full equipment number if known) of the equipment that the part supports, and the nomenclature of the equipment
- storage location
- spare part box number
- shelf
- box mark
- nomenclature of the equipment on the box

If parts information is listed in the BAL, SAL, or Inventory Count Document, expand where possible with significant available data, for example: "Bolt, steel, Gr. 5, hex head, ½" - 13 x 3" lg" rather than just "Bolt, steel". If available, record the actual manufacturer and part number rather than just the vendor's information, for example: "Ball bearing, P/N 77425, NDH3304, ACME Inc. #20BC03" rather than just "Ball bearing, P/N 77425"

Complete and correct item counts are basic to physical inventory which, in turn, results in greater stock record accuracy and better inventory control and use. The inventory team may open sealed containers for item identification or quantity verification when so authorized by the MARAD COTR or Inventory Specialist. All opened containers should be resealed after the identification and count have been determined and marked on each container. The inventory team should ensure that:

- each item is legibly identified by an appropriate stock number or part number, and that each fragile or potentially hazardous item is conspicuously marked or labeled to indicate caution or warning, as applicable
- each item is carefully counted, weighed, or measured, as applicable, and that the quantity inventoried is legibly recorded on the Inventory Count Document (if the same item is stored in multiple locations, the quantities in all locations should be recorded; however, consolidated storage of such items will be achieved when possible)

### 11.4.7 Packing And Preservation of Spare Parts.

To maintain preservation after inventory, items should be repackaged to their original condition as far as practicable, or placed in plastic zip-lock bags when size permits. Three-inch Mover tape, or similar types of tape or wrappings are not acceptable, unless they are reinforced or filament-type. If special preservation or packaging is to be accomplished, this will be indicated in the contract specification. Otherwise, it is sufficient to restore packaging broken or opened during inventory. All items should be properly marked, tagged, labeled, or otherwise clearly identified. Cartons and other containers should be stowed with labels or other identifying information clearly visible, and uniformly sized packages of identical units should be stacked in rows and series of rows.

### 11.4.8 Marking And Labeling of Spare Parts.

Loose spares that have been placed in zip-lock bags should be marked with pressure-sensitive label (on the bag) or a Tyvek tag (on the part). Bulkhead-mounted spares and containers should be tagged in a similar manner, preferably with a larger tag (e.g., 3" x 5" Tyvek cards). Labels and tags should contain the item's part number, noun name, unit of issue, equipment number of the supported equipment, location data, and quantity. All information should be legible and written in indelible ink, or in pencil and covered with clear tape.

**11.4.8.1 Unidentified Parts.** Parts that can not be identified during the inventory should be marked with an "UNIDENTIFIED" sticker that states the equipment name and number (if available) and box number from which it was removed. Unidentified items shall be placed in a location determined by the Region Inventory Specialist for further research and identification. The following actions will be taken:

- If the part is identified by the MARAD COTR or on-site representative, the part shall be tagged with the proper identification and stowed accordingly.
- If the part cannot be identified to a specific equipment number, provide a complete description of the part, and assign it an EGC identifying it to the known family, e.g., pump, valve, etc.
- Items that cannot be identified to an equipment family or group shall be tagged with all available data and placed in a box marked "UNIDENTIFIED SPARES" and left in place.
- Spare parts that can be identified and that no longer support an installed equipment will be inventoried,



tagged "EXCESS", and brought to the attention of the MARAD representative.

The owning Region is responsible for the proper disposition of any parts that can not be identified, or that are determined to be excess to the vessel being inventoried.

**11.4.8.2 Used Parts.** Spare parts that are worn, used, rusty, or damaged may be reviewed by the MARAD Inventory Specialist or COTR to determine disposition. Items considered to be questionable because of their condition will be tagged or labeled to indicate the stowage location, box number and BAL/SAL information (if available), and placed in boxes marked "USED". The inventory count of such items will be included in the final inventory count document with a special notation to indicate that they are used parts.

**11.4.8.3 Inventory List.** An inventory list should be generated for each box, bin, locker, and storeroom. The list should be placed in a zip-lock bag and placed inside the appropriate storage area. Compartments where spare parts are stowed loose should contain the packing list in a zip-lock bag mounted to the bulkhead adjacent to the spare parts.

**11.4.8.4 Box and Other Location Markings.** Existing box marking shall be painted over, and all spare parts boxes shall be re-stenciled with their applicable box number only. The box number shall be placed on the front, top, and each side of the box; also on the inside of the box lid to ensure ready identification no matter how the box is placed or stowed. These marking requirements may be modified to suit unique box dimensions or locations.

When necessary, all existing markings shall be painted over and all storage racks, bins, cabinets, and shelves that contain or house spare parts or spare parts boxes shall be re-stenciled. Stenciling should be accomplished in alpha characters (A-Z, AA-AZ) starting on the port side of the storeroom or space, working from top to bottom, and left to right. Each separate storeroom or space should begin stenciling with alpha character A.

Existing markings on doorways, doors, and hatches shall be similarly painted over and re-stenciled with appropriate storeroom or space names in accordance with Appendix L.

**11.4.8.5 Bulkhead Mounted Spares.** All bulkhead mounted spares will be labeled. In situations where an

item is considered inaccessible, labels will be placed as close to the item as possible. Labels used for identification of bulkhead mounted spares should be of a metal substance, such as aluminum or stainless steel, that can be attached to the item. Metal tags will contain the following information:

- nomenclature
- equipment name
- equipment number
- part number
- location
- quantity

Temporary labels will be placed on bulkhead mounted spares until metal tags can be produced. Metal tags should be attached to bulkhead mounted spares prior to or during the placement of spare parts box listings inside onboard spare parts boxes.

### 11.5 INVENTORIES INCIDENT TO CHANGE OF CUSTODY

All Ship Manager contracts require joint inventory verification of transferred materials at contract start and contract termination for the purpose of establishing accountability. Normally, this will be a random sampling inventory as described in paragraph 11.4.1. Spare parts, controlled equipage, and other outfit items will be inventoried. Precise requirements will be contained in the SOW of the Ship Manager's contract.

Based on the quantities identified in the outfit list, the Ship Manager will provide a list of the existing consumable items stowed onboard. This list will be used for assessing shortfalls and does not establish a baseline inventory. MARAD will compare this list to a baseline requirement document to determine what is required to bring the consumables inventory up to required levels. The nature of the shortfall of shelf-life items and length of procurement lead-time for the items will drive procurement during Phase IV.

### 11.6 INVENTORY OF TECHNICAL DOCUMENTATION

This is a unique type of inventory, usually performed in conjunction with a comprehensive spare parts inventory and equipment validation. Technical documentation will be identified for all validated equipment. The technical



documentation may include technical manuals, drawings, or instructions depending upon the SOW. The inventory team must identify and list all technical manuals no longer required, and examine each technical manual to determine whether the manual should be replaced because of missing or tattered pages or heavy soiling.

A Technical Manual Inventory Aid will be used when conducting the inventory. Technical documentation to be inventoried and data to be gathered consist of:

- a. Instructions and Technical Manuals:
  - (1) Publication Number
  - (2) Title of Manual
  - (3) Equipment or System it supports
  - (4) Manufacturer
  - (5) Location of Manual
  - (6) Quantity
  - (7) Volume Number (if part of a multi-volume set)
  
- b. Builder Plans:
  - (1) Builder plan number including revision numbers
  - (2) Title of plan
  - (3) MARAD Plan Number (if assigned)
  - (4) Location of plan
  - (5) Quantity
  
- c. Vessel Drawings:
  - (1) Vendor plan number, including revision number
  - (2) Manufacturer and/or vendor
  - (3) Equipment or system it supports
  - (4) Title of drawing
  - (5) Location of drawing
  - (6) Quantity

### 11.7 INVENTORY OF LASHING GEAR

Lashing gear inventories involve special considerations involving identifying, marking, counting, and stowing the different varieties of lashing gear items. A *Lashing Gear Field Identification and Inventory Guide* which addresses these considerations is available from MAR-614.

# CHAPTER 12: SECURITY AND SAFETY

Security of shipboard spaces and the material stored in them is the foundation of accountability. This Chapter describes some of the tools and procedures used by MARAD Government and contractor personnel for maintaining control and accountability over Government property. Additional security requirements are contained in Chapter 10 for controlled equipment and other outfit material. Material stowage and handling security includes safety, shelf-life, and other considerations, which are addressed in this Chapter.

## 12.1 SEALS

Seals are used to establish and maintain accountability over the contents of spare parts boxes and storerooms. Although the physical barrier presented by a seal may range from substantial to negligible (depending on the type of seal used), the principal purpose of the seal is to indicate whether a box or space has been entered. Each seal (except for adhesive seals) carries a unique number. The absence of a seal, a broken seal, or a seal with a different number than the latest one recorded in the seal log indicates that accountability for the box or space may have been compromised. MARAD *will not* provide seals to Ship Managers. The type of seal that may be encountered in every situation may vary, but it must keep the box or space tightly closed and, with the exception of adhesive seals (see below), must not permit the hasp on boxes to pivot into the open position. The following paragraphs describe the type of seals used by MARAD.

**12.1.1 High-Security Seals.** High-security seals will be used on all boxes and storerooms whenever the box or space is to be sealed for a long or indefinite period. The type of seal currently being used has a 3/16" high tensile strength steel cable with one end anchored into a stamped sheet steel black oxide plated lock body. The seal number is pre-stamped on the lock body. The free end of the cable is led through the hole of the staple and anchored into the lock body. It is important to ensure that the lock body is snug against the staple with only a minimum loop in the cable upon completion.

**12.1.2 Pilferage Seals.** Pilferage seals provide a lesser degree of security than high security seals. They are to be used whenever it is necessary to secure a parts storage box for a temporary period, such as during an inventory or following issue of a spare part (when receipt of the replenishment part is imminent). This type of seal is not difficult to break and allows easy physical access to the box, however, the box can not be entered without breaking

the seal, and entry is immediately evident. Typical pilferage seals include metal or plastic car seals and adhesive seals. The latter consist of pre-printed adhesive labels that are placed directly over the box and its closed lid so as to prevent entry without breaking the seal. Adhesive seals are available from the Central Region. *Note: Adhesive seals will only be used on spare parts boxes, never on storerooms.*

**12.1.3 Seal Log.** A separate seal log will be established for each RRF vessel by the MARAD Region. Seal logs help to ensure accountability by providing a traceable record of access to a particular box or space. From the seal log it is possible to determine what the current seal number should be for any box or space. Actual maintenance and safeguarding of the logs is performed by the MARAD Surveyor or other individual(s) designated by the Region Director. The log shall consist of a listing of every box and space aboard the vessel and the current seal number assigned to the box or space. The log must contain the following information: Box/Space number; location; date seal removed; the person who removed the seal; and the reason for removing the seal.

Alternative formats and locally developed forms or logbooks may be used if they provide the required information. Note that the Material Issue/Replenishment Report and other documents can be used to provide a complete audit trail. Seal log data may be maintained on a computer (with appropriate security and access control), however, a fully up-to-date hardcopy should be available at all times. Seal logs will remain in the custody of Government personnel at all times. Ship Managers may examine or be given copies of the logs for vessels for which they are serving as Property Custodians. During Phase V and Phase O, the seal log will not be maintained. The log will be brought up to date upon vessel deactivation.

## 12.2 LOCKS

Padlocks should be used when it is necessary to provide a higher degree of physical security than can be obtained with seals alone, or when it is desirable to secure a space (or box) temporarily without actually sealing it (e.g. during activation or operation; see paragraph 8.1). Locks should never be used as a **substitute** for seals, since they do not by themselves provide an acceptable safeguard against unauthorized entry. There are no specific requirements for the type of lock to be used, except that the lock should be adequate to the security requirements



of the box or space. Keys and access must be tightly controlled by the Property Custodian.

### 12.3 SPARE PARTS BOXES AND STOREROOMS

Smaller parts for similar pieces of machinery found in the same general location are consolidated into spare parts boxes that have standard identification numbers stenciled on them. All spare parts boxes must be sealed with a high-security seal as described in paragraph 12.1.1. Some RRF vessels are also equipped with storerooms (particularly those received from the Navy or MSC). From a security standpoint, spare parts boxes and storerooms are equivalent in that they provide the most basic level of security for spare parts. A storeroom should be treated precisely as if it were a single, exceptionally large spare parts storage box. However, locating spare parts boxes in a locked storeroom does not eliminate the requirement to place high-security seals on each spare part box.

### 12.4 LOSS, DAMAGE, OR DESTRUCTION

Loss, damage, or destruction of Government property should be reported in accordance with MAO 330-14. Appropriate adjustments may also need to be made in the SAL or other inventory records (depending on the nature of the loss, damage, or destruction).

### 12.5 PRIVATE USE OF MATERIAL

No article of shipboard allowance material will be appropriated for the private use of, or loaned to, any individual, state, or organization except by special authority of Congress, or the Secretary of Transportation (or the Secretary of the Navy for vessels under the operational control of MSC).

### 12.6 STOWAGE OF HAZARDOUS AND OTHER SPECIAL MATERIALS

Certain materials with inherent hazardous or other unique properties require special stowage facilities and handling precautions, as described in the following paragraphs.

**12.6.1 Acid.** Liquid acid will be stowed in an acid locker or other designated storage location. An acid locker is a leak-proof lead-lined box, chest, or locker especially designed for stowing bottles or carboys of acid. Acid lockers will be kept in the flammable liquids storeroom, however, acid lockers that contain only medical acids may be kept in a medical storeroom. Corrosive acids are acute

fire hazards and therefore should be stowed separately from oxidizing or flammable materials. Corrosive acids or vapors must not be allowed to come in contact with the skin or eyes. Personnel required to handle such material will wear rubber gloves, rubber aprons, and goggles (as necessary) to protect themselves and their clothing from acid burns.

**12.6.2 Alcohol.** Since most commonly used alcohols have a flash point below 100 degrees Fahrenheit, all alcohol will be stowed in the flammable liquids storeroom. Not all alcohol is readily identifiable by name. For example, many lacquer thinners have methanol (wood alcohol), which is extremely poisonous, as the principal ingredient.

**12.6.3 Ammunition And Small Arms.** Ammunition and small arms form a special category of outfit material and are covered in Chapter 10, paragraph 10.3.3.

**12.6.4 Oxidizing Material.** Many shipboard fires with resultant fatalities have been attributed to improper stowage or handling of oxidizing materials, particularly calcium hypochlorite. Nitric acid, a strong oxidizer, will be stowed in the acid locker (see paragraph 12.6.1). Oxygen and chlorine gases will be stowed in the same manner as calcium hypochlorite (discussed below). All other oxidizers will be stowed in a dry compartment, away from combustible materials. Calcium hypochlorite is a bleaching agent and disinfectant. Onboard vessel it is used for the purification of potable water, sewage treatment and biological and chemical agent decontamination. Calcium hypochlorite itself is noncombustible, however it is a strong oxidizing agent that will generate heat, liberate chlorine, and cause fire when stowed in contact with paints, oils, greases, detergents, acids, alkalies, antifreeze, fabrics and other organic and combustible materials. Calcium hypochlorite will normally be segregated and stored in a locked bin or locker with appropriate labeling. Bins or lockers should be located at least five feet away from any point heat source or surface that may exceed 140 degrees Fahrenheit and are not subject to condensation or water accumulation. The area shall not be used to store paints, oils, greases, or combustible organic materials. Calcium hypochlorite should never be stored in any machinery space. Spills or contaminated calcium hypochlorite may be disposed of into water, flushed to the drain or to the bilge. There is no fire hazard from dissolved calcium hypochlorite even in an oily bilge. Sweepings should be dumped immediately into the water (never in trash can) and the broom or brush rinsed



immediately. Sweepings must not be carried dry for disposal because the dust is dangerous in shipboard drafts. Calcium hypochlorite should not be used as laundry bleach. Organic chlorine laundry bleach is available for shipboard use. While less hazardous than calcium hypochlorite, under conditions of high heat and humidity it can emit fumes that could be hazardous to personnel. Store this bleach in a cool, dry place as far away as possible from conditions of high heat and humidity.

**12.6.5 Compressed Gases.** Compressed gases must be stowed on the weather deck, unless the vessel has below deck stowage spaces specifically designed for such material. Compressed gas cylinders will be stowed vertically and securely (with valve protection caps in place), away from other flammable materials (especially grease and oil). When compressed gases are stowed on the weather deck, the cylinders will be protected from direct rays of the sun, or accumulation of snow and ice. When compressed gases are stowed below deck, any leaking fumes must be prevented from entering ventilation air-intakes leading to working or living spaces. Since there is usually some gas remaining in most cylinders considered to be empty, "empty" cylinders will be stowed and handled with the same precautions as full cylinders. Compressed gases, particularly the flammable and explosive gases, must be handled with extreme care. Some general rules for handling compressed gas cylinders are:

- a. Take every precaution to prevent cylinders from being dropped or forcibly struck against hard surfaces (including other cylinders). Do not tamper with the safety devices in cylinder discharge valves; and when cylinders are not in use, be sure that the valve protection caps always are securely attached. (If the valve of a compressed gas cylinder should be snapped off, the released energy would cause the cylinder to behave as a missile. For example, a cylinder that is pressurized to 2,200 pounds psi can travel 2,600 feet in free flight; and in a confined space, it could be disastrous).
- b. Prevent cylinders from contact with fire, sparks, or electrical circuits (an exploded steel cylinder would have the same destructive effect as an exploded bomb).
- c. Do not drag or slide cylinders required to be moved. Secure and move them in appropriately designed hand trucks, or if hand trucks are not available, tilt the cylinders and carefully roll them on the bottom edge.
- d. Secure cylinders in a cradle, pallet, or rack when they are loaded or off-loaded with a crane or derrick.

Never hoist cylinders with electromagnets, or with hooks or line attached to the valve protection cap.

- e. Do not alter or deface the numbers, colors, or other markings on the cylinders; do not add markings without approval of the Chief Engineer; and do not issue cylinders if their contents can not be identified.

**12.6.5.1 Acetylene.** Acetylene is inherently unstable, and may explode when subjected to heat or shock, or upon contact with chlorine or certain metals such as copper, silver, and mercury. Therefore, acetylene must be stowed separately from oxygen or any other materials with which it forms an explosive compound; the gas must never be allowed to escape into an enclosed area; and the cylinders must be protected from flames, sparks, lightning, and static electricity. Testing for suspected leaks should be done with soapy water. In moderate concentrations, acetylene may act as an intoxicant. In higher concentrations, it will cause unconsciousness, and ultimately asphyxiation. Some grades of acetylene also contain many impurities. Therefore breathing of acetylene in any concentration for any length of time must be avoided. Acetylene in cylinders is dissolved in acetone which has a tendency to flow into the valve if the cylinders are stowed horizontally. For this reason, acetylene must be stowed and used only in an upright position, valve end up. When it is known or suspected that acetylene cylinders have been stowed on their sides, they will not be used until they have been in a vertical position for at least two hours.

**12.6.5.2 Oxygen and Chlorine.** Oxygen and chlorine are oxidizing gases that, because they can burn without air, strongly support combustion (Chlorine is also poisonous). Oxygen and chlorine cylinders must be stowed on the weather deck, or in a separate watertight storeroom that has at least one compartment between it and any space that is used for the stowage of combustibles such as flammable liquids or gases, paint, gasoline, and oil.

**12.6.5.3 Nonflammable Gases.** Helium, nitrogen, carbon dioxide, and argon are nonflammable gases which, because of their inert characteristics, may be stowed with flammable or oxidizing gases. However, since these nonflammable gases will not support respiration (a sufficient quantity in a closed space will cause asphyxiation), they must be stored on the weather deck or in other well ventilated spaces. The same precautions are appropriate for halocarbon liquids because of their high vapor pressure, lack of odor, and tendency to displace air,



causing suffocation. Halocarbon liquids are compounds of carbon containing any of the halogen elements (fluorine, chlorine, bromine, iodine, or astatine), e.g., Monochlorodifluoromethane.

**12.6.5.4 Aerosol Products.** Aerosol products are liquids, solutions, or powders suspended in a gas propellant and contained in dispensers equipped with release valves. Containers of aerosol are used for the dispensing of paints, enamels, lacquers, insecticides, silicones, rust preventives, etc. The aerosol propellants may be low boiling-point halogenated hydrocarbons or other hydrocarbons such as liquified propane or isobutane. Aerosol cylinders will burst if exposed to heat sources in excess of 120 degrees Fahrenheit, and are prone to leakage if subjected to impact. Aerosol products, therefore, should be stowed in a flammable liquids storeroom, or in cabinets away from oxidizing materials; and mechanical ventilation will be used, when necessary, to remove accumulated vapors.

**12.6.6 Flammable or Combustible Material.** Flammable liquids have a flash point of 100 degrees Fahrenheit or below; combustible liquids, greases, and pastes have a flash point of 200 degrees Fahrenheit or below. Items that are flammable and/or combustible include:

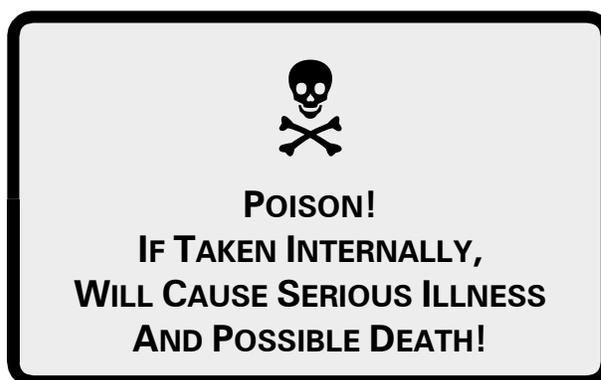
- gasoline, oils, kerosene, and other petroleum products
- chemicals
- stencil paints, marking inks, and printer's ink
- solvents, thinners, primers, compounds, varnishes, and lacquers
- alcohol, acetone, ether, and naphtha
- greases and pastes.

Except for drummed petroleum, flammable liquids and other flammable or combustible material will be stowed in a flammable liquids storeroom.

The flammable liquids storeroom normally will be located at either end of the vessel, below the full load waterline, and will ideally be equipped with an automatic fire alarm and CO<sub>2</sub> system. This storeroom should also have incandescent and explosion proof overhead lights (protected by lamp guards), with the switch outside the compartment; and non-sparking vent fans, with the controllers outside the compartment.

**12.6.7 Radioactive Material.** Radioactive instruments, electron tubes, and certain other items are labeled with the conventional United States Nuclear Regulatory Commission (USNRC) radiation symbol, which must not be removed or obliterated. The radiation levels of radioactive material depend upon the type and concentration of isotopes in each unit and the number of units stowed together. Any area used for stowage of radioactive material (or each bin if there is no designated area) will be conspicuously posted with the standard radiation symbol and the words "**CAUTION - RADIOACTIVE MATERIAL**", and as a minimum, will be monitored when initial or replenishment stocks of radioactive items are stowed. Rubber gloves and extreme caution will be used in handling damaged or broken radioactive instruments, electron tubes, etc. to prevent absorption of dangerous radioactive particles through skin abrasions. Any suspected radiation hazard will be promptly reported to the Ship Master, the cognizant MARAD Marine Surveyor, and the Medical Safety Representative, as applicable.

**12.6.8 Toxic Substances.** A toxic (poisonous) substance may cause discomfort, asphyxiation, and death if ingested or inhaled, or if absorbed through the skin. Therefore, adequate precautions must be taken to prevent such dangers when stowing or issuing toxic materials. Toxic substances will be stowed in a cool, well-ventilated area, separated from acids; and will be protected from fire hazards or impacts which may break seals or damage containers. Each case, carton, and individual container of toxic material must be labeled with a warning such as the following:



It is particularly important to ensure that containers of poisonous liquids such as industrial alcohol are clearly identified and labeled (i.e., to prevent human consumption, which can be fatal).



**12.6.9 Miscellaneous Material.** The categories of material in the following paragraphs require special storage and handling precautions:

**12.6.9.1 Delicate Instruments.** Delicate instruments, which usually are expensive and easily damaged, require especially careful handling and protective stowage. Delicate instruments will be kept in a dry atmosphere, away from magnetron tubes or other magnetic devices; and (when possible), the storeroom temperature should be 70° or below.

**12.6.9.2 Drummed Products.** Whether drummed products onboard are flammable liquids or nonflammable material, the drums will be stowed on end with the bung end up; an adequate identification of the contents will be legibly indicated on the side of each drum; and if stowed on the weather deck, they will be covered with a tarpaulin (when practicable). Drummed products will be inspected at least weekly to ensure that the bungs are tight and that there are no leaks or corrosion.

**12.6.9.3 Electron Tubes.** Electron tubes are very easily broken and therefore must be carefully handled and adequately packaged when being stowed or issued. Electron tubes susceptible to damage from moisture normally are packed in moisture-proof barriers, frequently with a desiccant or other dehydrating agent. Humidity indicator cards or plugs are provided for inspecting the effectiveness of the desiccant. Such indicators turn from blue to pink as moisture is absorbed; and when they become pink, the desiccant must be replaced. The cartons, cushioning, and other protective packing and packaging in which electron tubes were received will not be removed in stowage unless it is absolutely necessary because of space limitations. When an electron tube container must be reduced in size, positive identity of the tube and as much of the packaging as possible will be retained. When space is not a factor, the original pack and packaging of an electron tube will be opened only if it is reasonably certain that the packaged tube is not the one identified by the part number on the container.

- a. Radioactive electron tubes. Instructions for the stowage and handling of radioactive material, including radioactive electron tubes, are provided in paragraph 12.6.7.
- b. Magnetrons. Magnetrons are diode vacuum tubes in which the flow of electrons is controlled by an externally applied magnetic field. Special precautions will be taken to prevent magnetrons with permanently

attached magnets from damaging magnetically sensitive instruments, such as compasses (electronic or mechanical) and wristwatches (which should not be worn when handling magnetrons).

Electron tubes unpacked for any reason except space limitation or use will be repacked in the original carton when possible. The tubes will be repacked with the same packaging and in the same position as that in the original carton. When repacking magnetrons or other tubes with attached magnets, there must be at least four inches between the center of the magnetic field and the outside of the container.

**12.6.9.4 Metals.** Bar stock, sheet metal, angle iron, tubing, pipe and other metals will be kept in racks specifically designed for the stowage of such metals. The racks should be installed fore-and-aft to minimize shifting of the stowed material when the vessel is underway. Polished sheet metal and aluminum tubing are easily scratched and dented and therefore must be carefully handled and secured in the rack. Gloves should always be worn when handling metals, to protect the hands from injury, and to protect certain metals (with polished surfaces) from acid stains which can be caused by perspiration. When practicable, noncorrosive grease-proof material will be used to separate dissimilar metals required to be stowed together, inasmuch as direct contact between different metals may cause corrosion due to electrolysis.

Since any required re-identification of metals by chemical analysis is usually impractical or too costly, many metals that lose their identification markings are likely to become unusable. Positive identification of metals to be used in high pressure steam systems (or other critical shipboard systems) is absolutely necessary. Correct part numbers, specification markings, manufacturer's markings, or other identification must be legibly indicated on each piece of metal in stowage, and on each piece of metal removed from stowage for use.

**12.6.9.5 Motors and Generators.** Motors and generators will be stowed in their original containers, if available. If the original containers are not available, motors and generators will be protected from dust and humidity by enclosing them in a crate or plastic wrap which includes an ample amount of desiccant; or (as a minimum), by coating their exposed shafts with grease and then wrapping the shafts with grease-proof paper.



**12.6.9.6 Liquid Dielectric Capacitors.** Most liquid dielectric capacitors (especially "pyranol" types) are supplied with a piece of fine bus wire, which is attached for the purpose of grounding the capacitor prior to its use in a de-energized or disconnected circuit. This wire must not become detached in stowage, nor will it be removed by anyone other than the technician (when the capacitor is ready for use).

# SECTION III: CONFIGURATION MANAGEMENT PROGRAM

## CHAPTER 13: INTRODUCTION TO CONFIGURATION MANAGEMENT

### 13.1 PROGRAM PURPOSE

The purpose of Configuration Management (CM) is to provide a systematic means for documenting and controlling the configuration of material items so that schedules, operational performance goals, and readiness objectives can be met through effective logistics support. MARAD's CM program was established to provide effective logistics support to ships and their installed equipments.

### 13.2 CONFIGURATION MANAGEMENT DEFINITION

*Configuration Management* refers to the management practices and procedures for a disciplined approach to:

- identifying and documenting the functional and physical characteristics of a material item
- controlling changes to material items and their functional and physical characteristics and configuration identification
- reporting and recording configuration information, including the status of all proposed, approved, and disapproved configuration changes, and the maintenance of the configuration record.

More simply stated, CM is "a management tool which defines the product, and then controls the changes to that definition"<sup>5</sup>.

### 13.3 THE RRF/NDRF CONFIGURATION MANAGEMENT PROGRAM

The discipline of Configuration Management (CM) was originally developed in response to the need to control the configuration of an expanding inventory of increasingly complicated hardware. The RRF/NDRF CM Program shares many elements in common with other CM programs (DoD, commercial industry); however it differs from them in several key respects. Most other programs,

for example, would be largely concerned with the *acquisition* of an item from its conceptual/design phase through operation and deployment. But when MARAD acquires vessels, the vessel's physical configuration has already been established, as has the configuration of each piece of equipment on board. "Defining" the configuration of a RRF or NDRF vessel or equipment therefore means taking an existing vessel or system, and, through physical validations and the help of existing documentation, establish the configuration identification. Except during vessel conversion and upgrade, MARAD has little or no control over the configuration baseline; CM efforts are primarily directed toward *identification* and *control* of the existing baseline.

The primary focus of the RRF/NDRF CM Program is on logistics support considerations, which is where the impact of configuration changes on RRF vessels is felt most keenly. The most prominent aspect of this is spare parts support. Whereas spare parts support is placed outside the scope of CM by other activities, MARAD considers provisioning and related spare parts management policies and procedures to be integral part of the RRF/NDRF CM Program.

The RRF/NDRF CM Program is exclusively concerned with hardware configuration of installed *equipment* and *equipage*. Software CM management elements are not addressed in this manual.

A continuously accurate and complete definition of the configuration of a vessel and its systems is a critical factor in maintaining effective shipboard support. Although the RRF/NDRF CM Program lacks the formal complexity of other CM programs, it is no less important for ensuring the effective support, readiness, and operation of the Reserve Fleet.

The RRF/NDRF Configuration Management Program consists of the following elements:

**13.3.1 Configuration Identification.** The initial action required in CM is the establishment of an accurate configuration baseline for each vessel. This is accomplished by the collection of data through sight

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<sup>5</sup>Daniels, M.A., *Principles of Configuration Management*, © 1985, Advanced Applications Consultants, Inc.



validations and/or configuration reporting. The purpose of configuration identification is to define the functional and physical characteristics of each item of equipment or equipage so that it may be properly supported, maintained, operated, and replaced if required. Configuration Identification is covered in Chapter 14 of this manual.

### **13.3.2 Configuration Change Control.**

Configuration control is the element of CM used for managing changes to a Configuration Item (CI) (i.e., vessel, equipment/equipage) and its configuration identification. Its purpose is to regulate changes to the CI and its configuration identification. Control of changes to the CI and its configuration identification includes a process of documentation, justification, evaluation, approval, and implementation which is described in Chapter 15.

**13.3.3 Configuration Status Accounting.** The purpose of Configuration Status Accounting (CSA) is to record the implementation of changes to the CI and its documentation, such that the current configuration identification is known and traceable to established baselines. The vehicle for performing CSA within MARAD is the RRF Equipment Configuration and Spare Parts Management Information System (RRF-ECSMIS). CSA is discussed in Chapter 16.

### **13.3.4 Spare Parts Provisioning and Management.**

Provisioning is the process of determining the material range (i.e., which different items) and depth (quantity of each item) required to support and maintain an end item for a specified period of operational service. Provisioning includes spare parts, special tools, and outfit items such as test equipment, other support equipment, and consumables such as special lubricants or bulk materials. Configuration management of spare parts involves provisioning; it also includes the identification, removal, and disposition of non-required parts (e.g., for equipment that has been removed from the vessel). All of these topics are addressed in Chapter 17.

## **13.4 KEY TERMS AND DEFINITIONS**

Key CM terms are defined as they are encountered in this manual. Because of the unique aspects of the RRF/NDRF CM Program, some CM terms are employed differently within MARAD and have a slightly different meaning than that provided by their standard (DoD and commercial) definitions. Appendix A contains a complete

listing of terms and their definitions. Acronyms are defined in Appendix B.

## **13.5 PROGRAM SCOPE**

MARAD's CM Program for the Reserve Fleet applies *primarily* to vessels of the RRF, for which CSA is performed on an ongoing basis. The procedures contained in this manual shall also be used whenever it is necessary to apply CM disciplines to NDRF vessels, e.g., during vessel validations, etc. When reference is made to the RRF, the NDRF is included by implication unless specifically stated otherwise.

# CHAPTER 14: CONFIGURATION IDENTIFICATION

Configuration Identification is the logical point of departure for conducting CM. It consists of the following steps, with the ultimate goal of identifying and recording the configuration baseline of each configuration item.

- identification of each configuration item of equipment/equipage
- *physical* and *functional* classification of the item
- establishment of the *configuration baseline* for the item.

## 14.1 CONFIGURATION ITEMS

A *Configuration Item* (CI) is any item selected for configuration management by MARAD. CIs vary in complexity, size, and kind. Generally, a CI is an end item to which the management techniques described in this manual apply. The definition is a flexible one, but for most working purposes with the RRF, a CI is a *validation worthy* item of equipment. All equipment is considered validation worthy unless it is included in the list of *Designated Non-Validation Worthy Equipment* contained in Appendix C. For more on validation, see paragraph 14.4.

The terms *equipment* and *equipage* are used interchangeably for the purposes of CM, although they refer to different types of items; see Appendix A for definitions.

## 14.2 CLASSIFICATION OF CONFIGURATION ITEMS

CM is concerned with *form*, *fit*, and *function*. The *physical* and *functional* classification of a CI enable us to establish or define these parameters. This definition is accomplished in a structured manner using *numbering systems* for both the physical and the functional identity of the CI.

Not surprisingly, there is a certain amount of overlap between the functional and physical identity of many CIs. It is impossible, for example, to describe an anchor physically without implying its function as well. Both classification processes are nonetheless necessary and required for these types of items, so that consistent databases and other management techniques may be uniformly applied.

**14.2.1 Physical Classification.** Physical classification consists of identifying the *type* of object and assigning qualitative and quantitative expressions of its material

features: a pump, a motor, etc. The end result of this classification process is the assignment of a *MARAD Equipment Number* that corresponds to a complete physical description of the item. Physical classification is not concerned with the *application* of the item. For example, a particular type of pump may be part of a feedwater system for a boiler or part of a vessel's fire-fighting system; two entirely different applications for the same item. Physical classification begins merely by identifying the item as a "pump".

**14.2.1.1 MARAD Equipment Number.** The MARAD Equipment Number does not, by itself, tell us everything we need to know about the physical identification and characteristics of an item. Like any numbering system, it is a method of coding that "points" to the full range of classification data contained in the configuration record itself. The MARAD Equipment Number *does* uniquely identify an item of equipment and distinguishes it from other equipment items.

**14.2.1.2 Equipment Group Code Section.** The most basic level of identification for a system or an item of equipment is its *Section*. This is a general pre-defined category, such as pumps, winches, boilers, or refrigeration equipment. Note that some categories apply to major systems, such as "main propulsion" or to general categories such as "hatch covers". Each Section is identified by a two-digit code, e.g. 47 (pumps), 20 (winches), or 51 (boilers). The Section constitutes the first two digits of the MARAD Equipment Number. Sections are listed in Appendix D.

**14.2.1.3 Equipment Group Code Subsection.** Within a general category such as "pumps" there are a variety of subcategories: centrifugal pumps, submersible pumps, etc. MARAD identifies these with a two-digit *Subsection Code*, which constitutes the third and fourth digit of an equipment number.

Figure 3-2 in Chapter 3 shows the relationship between sections and Subsections for two representative equipment types. For example, under "electric propulsion", Subsection 05 designates "main propulsion generator turbine". Note that all Subsections must be referred to their parent Section number to have any meaning. Subsection 05 for "pumps" (Section 47) designates "centrifugal pumps". For this reason, sections and Subsections are normally cited together as a complete four-digit unit, e.g. 4730 (reciprocating pumps) or 6008 (jacking gear). The



Section and Subsection together are collectively referred to as an *Equipment Group Code* (EGC). A complete listing of each Section and Subsection is provided in Appendix D.

**14.2.1.4 Equipment Manufacturer.** The EGC provides a general classification of a CI. Identification of the item's manufacturer provides a further level of definition. Each manufacturer is assigned a code that uniquely identifies that particular manufacturer. Since 1990, MARAD has used the Commercial and Government Entity (CAGE) Codes designated by the Defense Logistics Agency (DLA) to identify manufacturers. This is a five-character code, and it constitutes the 5th through the ninth positions of the MARAD Equipment Number. For example, "93232" is the CAGE Code for Worthington Pump Corporation.

Formerly, MARAD used a two-digit code to identify the manufacturer of an item within an equipment number. This two-digit system suffered from the disadvantage that it did not actually *identify* a manufacturer in the strict sense; it merely distinguished one manufacturer from another (in the same manner that a Subsection Number distinguishes different types of items within a given Section; see paragraph 14.2.1.3). The two-digit system is mentioned here since it may be encountered in older documentation, however, the CAGE Code is now used for all identification purposes. Figure 3-1 in Chapter 3 illustrates a MARAD Equipment Number. Note the difference between the "old" style number with its two-digit manufacturer code, and the "new" number with the CAGE code. These old and new style numbers are usually referred to as "9-digit" and "12-digit" equipment numbers due to the effect of the manufacturer code on the length of the *entire* equipment number.

**14.2.1.5 MARAD Model Number.** Once a manufacturer's CAGE has been assigned, there is only one further step required to ensure that the equipment item has been *uniquely* identified: assignment of a MARAD Model Number.

The MARAD Model Number is *not* the same as the manufacturer's "model number". This is a frequent source of confusion, since the terminology is almost the same. The MARAD Model Number is a three-digit number, sequentially assigned, which ensures that one particular type of item is differentiated from a similar type of item made by the same manufacturer.

In Figure 3-1, the "001" at the end of the new equipment number is the MARAD Model Number. The example in the illustration is a centrifugal pump (Section/Subsection 4705) made by Worthington Pump Corporation; for the sake of argument let's say that this model of pump has a capacity of 500 gallons per minute (GPM). Now, if a 750 G.P.M. centrifugal pump were found on board a vessel, it would be assigned the same Section and Subsection and CAGE, but the MARAD Model Number would be 002 (or whatever number was available and unassigned).

Note that when an old equipment number is converted to a new equipment number, the MARAD Model Number will not necessarily remain the same. In other words, conversion of old equipment numbers to new equipment numbers involve more than simply substituting a CAGE (see paragraph 14.2.1.6).

**14.2.1.6 Master Equipment Index and Equipment Number Assignment.** MARAD equipment numbers are maintained by MAR-614 in the Master Equipment Index (MEI). The MEI is a listing of all known MARAD shipboard equipment, arranged by Section/Subsection, CAGE, and MARAD Model Number. Figure 14-1 is a portion of the MEI.

The process of assigning an equipment number to an existing equipment begins with a full physical description of the equipment (obtained during a validation, at time of procurement, etc.).

First, the equipment is matched to the appropriate Section/Subsection in accordance with its physical description. Next, the manufacturer's CAGE Code is assigned. Finally, the equipment is compared to every other equipment made by the same manufacturer in the same Section/Subsection. If it can be matched to an existing equipment, then there is no need to assign a new equipment number. If, however, the new item can not be matched to an existing equipment, the next available model number is assigned, and the equipment is recorded in the MEI.

For the sake of control, new equipment numbers are assigned *only* by MAR-614, which maintains the most current MEI database on computer.

**14.2.2 Functional Classification.** A second way in that CIs are classified is by their *function*, i.e., the manner in which an item of equipment performs its mission and/or the mission of the system to which the equipment belongs.



Each equipment is assigned a five-character System Application Code (SAC) indicating its functional application (see Figure 14-2). The first three characters of the SAC are letters that indicate the *general* functional area. The last two characters are numerical, and indicate a

figuration baseline *plus* authorized configuration changes *equals* the current configuration.

It is important to understand that the configuration baseline consists of *data*. Normally, this data accurately reflects the actual, physical item it purports to describe, but it is the data alone that is useful to configuration managers. What this means is: if an error were to be made in establishing the configuration baseline, any subsequent corrections to that baseline would constitute a *configuration change*.

SEC	SUB/TITLE	CAGENO/MFR	MOD
59	REFRIGERATION & AIR COND.		
59	15	REFRIGERATION & AIR COND, COMPRESSORS	
	12209	CHRYSLER	
	001	COMPRESSOR, REFRIGERATION, CARGO	
	66935	YORK	
	001	MODEL F-3069-9BE	
	002	MODEL 4PLB	
1/2"	003	TYPE 925S, MODEL 2.5 X 8" X 2-	
	004	MDL E2248SP SER A MFR CODE Y	
	93232	WORTHINGTON PUMP CORP.	
	001	MODEL 3-VC-6	
	002	MODEL 3-VC-8	
	AAC59	NISSIN	
	001	TYPE VB-54, 6 CYLINDER	
	002	TYPE HVE-92	
	S4101	STAL	
	001	TYPE U3	
	002	TYPE V3	
	003	TYPE PK 24K22	
	004	UV3T123R23	
	005	TYPE P24T2ML	
	006	TYPE UD2T83	
	007	TYPE U2	
59	16	REFRIGERATION & AIR COND, PURGE COMPRESSOR	
	10855	CARRIER CORP. SYRACUSE N.Y.	
	001	PURGE COMPRESSOR MODE 'L'	
	002	DWG. #3800E5216-13	

Figure 14-1 MEI Excerpt

subcategory within the general functional area. Appendix E contains the official list of all SACs.

### 14.3 THE CONFIGURATION BASELINE

The *Configuration Baseline* is the functional and physical data documentation gathered *initially* as a result of the configuration identification process. Normally, this process consists of a sight validation (see paragraph 14.4), but a configuration baseline can also be established using technical manuals or other data. It serves as the "jumping off point" for establishing and maintaining the current equipment configuration record. In general: the con-

### 14.4 EQUIPMENT VALIDATION

The term *validation* is used to encompass two distinct processes in the RRF CM Program. Validation is the procedure by which configuration identification is accomplished. It serves two purposes:

- to *establish* an *initial* equipment configuration

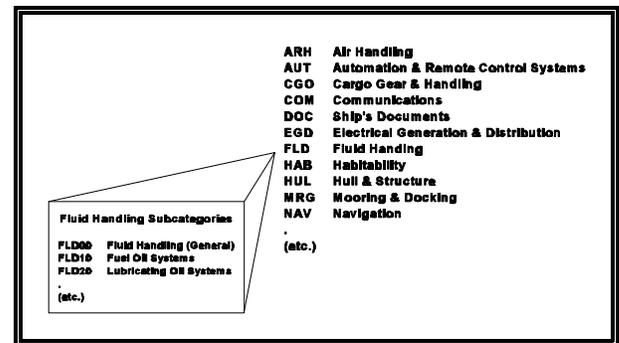


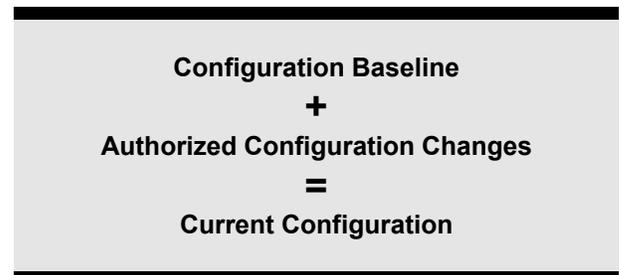
Figure 14-2 System Application Codes

baseline

- to *update* an *existing* configuration record.

Despite the dual purpose of validation, the process is essentially the same. The procedures for conducting validations are addressed in the following paragraphs.

Validation is ordinarily required when a vessel is acquired





by MARAD or when a MARAD-owned vessel undergoes conversion or upgrade. Validations are not required for changes of property custodians.

The performance of a validation requires the coordination of numerous factors to ensure success. These include MARAD resource availability, Region operating schedules, and time available for performance of the validation.

**14.4.1 Scope Of Validation.** The scope of a validation must be established at the outset. Any changes to the scope must be defined in the contract specification and will depend upon the class of vessel and specific purpose of the particular validation. Validations may be for the total vessel, or they may be targeted at specific equipment types or locations aboard a vessel. For example, the validation effort may focus on Hull, Mechanical and Electrical (HM&E) equipment only, or it may include non-installed equipment such as Material Handling Equipment (MHE). Certain systems or equipment are considered "non-validation worthy". These consist of *designated* articles that are used in the normal day-to-day operation of a vessel, but do not support the functioning of the vessel in any critical manner. Some of these items are designated non-validation worthy due to their low failure rate in service, commonality of use, or ease of replacement or repairability. Appendix C contains a list of typical non-validation worthy equipment.

**14.4.2 Validation Tools and Aids.** A variety of tools and information sources will be used for conducting the validation. These include the following:

- Builder's Allowance List (vessels received from commercial sources)
- Coordinated Shipboard Allowance List (COSAL) (vessels received from Navy/MSC sources)
- Shipboard Allowance List
- Vessel drawings
- Operating Instructions
- Technical Manuals
- Information obtained from manufacturers and/or vendors
- Nameplate data affixed to the equipment
- Validation aids generated by MARAD or the contractor for recording validation data (see paragraph 14.4.4).

All available reference information should be used in order to obtain the most accurate and complete validation possible. Whenever possible, these tools should be assembled or produced well in advance of the actual validation.

**14.4.3 Validation Team Assignment.** Validations will be performed by trained personnel (normally contractor personnel) who are familiar with the equipment being validated, or similar equipment. The number of personnel necessary to perform the validation is dependent upon the quantity of systems, equipment, and components to be validated and the length of time allowed to complete the validation. To ensure the most accurate and complete validation possible, these requirements will be established and agreed to by all concerned prior to the start of the validation. Prior to performance of the validation, the MARAD COTR (or their representative) and the Region Inventory Specialist will assist with the validation team's preparation efforts by:

- coordinating with the validation team leader to determine the schedule for performance
- designating working space for the validation team
- participating in a pre-validation briefing that outlines the scope of the validation process and ensures a common understanding of all elements by all participants.

**14.4.4 Validation Procedure.** Validation Aids (Form MA-983), will be distributed for comparison against the actual equipment nameplate data. If a validation aid contains pre-printed data, the data must be verified by comparison with data on the actual equipment and changes/corrections annotated on the validation aids. Data that is not pre-printed will be obtained and written on the validation aids.

A proper validation consists of more than simply sighting and recording nameplate data. Tools such as those listed in paragraph 14.4.2 should be used to obtain correct configuration information. MARAD technical representatives should be prepared to assist the validation team when information is not readily available.

Sight validation is generally not required if the equipment is inaccessible, lagged, requires disassembly, or would create a safety hazard if validation were to be attempted.

A system of colored stickers is used and assigned to each validator by color. Validators will place their initials and



control number (assigned by the validation Team Leader) on the stickers once validation of a specific piece of equipment is completed. Validation aids will be annotated as necessary, signed and dated by the validator.

**14.4.5 Validation Responsibilities.** The following individuals have key responsibilities in the validation process.

**14.4.5.1 COTR (or his representative) and Region Inventory Specialist.** These personnel will assist by:

- providing the validation team, upon their arrival, a list of equipment "off-vessel" (e.g., being repaired at a shipyard, being calibrated, etc.)
- providing technical documentation identified in the contract as Government Furnished Information (GFI)
- acting as the contractor's initial point of contact for arranging escort services, access to spaces and equipment located in security or hazardous areas, operation of equipment, and opening of equipment for alteration status verification
- providing vessel's existing configuration data, as requested, for equipment that can not be validated for some reason
- alerting the validation Team Leader of any equipment that they observe without a color sticker within a space that has been validated. This procedure is particularly necessary to ensure validation of portable equipment, such as test equipment, which may be moved during the validation. Any equipment that is stored in a location that the validation team would not normally validate should also be brought to the attention of the validation Team Leader
- providing working space aboard vessel for the validation team

**14.4.5.2 Contractor Validation Team Leader.** The contractor will appoint a Team Leader for the purpose of liaison between the contractor and the Government. Team Leader functions include the following:

- assigning teams consisting of two members for the sight validation. Two members are required to be assigned for each validation team to ensure safety, accuracy and proper recording of equipment validation data.
- maintaining a list of validators identifying their specific systems and equipment assigned for validation

- monitoring work performed by each validation team to ensure that the validation procedures are being followed
- collecting validation aids as each system is completed
- quality controlling the validation package (see paragraph 14.4.6), signing and dating a locally-developed cover sheet, and submitting the package to the Region Inventory Specialist for his Quality Control (QC) review.

**14.4.6 Validation Quality Control Responsibilities.**

Quality Control (QC) is performed throughout the validation process to ensure the accuracy and completeness of documentation prior to its submission to MARAD or entry into the contractor's equipment record database. No single person can perform all of the functions necessary to ensure a quality validation product. QC responsibilities are as follows:

**14.4.6.1 Ship Operations and Maintenance Officer.** The SOMO shall:

- Ensure compliance with QC procedures
- ensure the Quality Control Report is completed for the overall validation
- ensure upon contractor's arrival, availability of a list of all equipment not on board (e.g., being repaired at a shipyard, calibrated at a laboratory, etc.).

**14.4.6.2 COTR (or his representative).** The COTR is responsible for evaluating the quality of the validation. The COTR shall:

- monitor adherence to QC procedures throughout the validation
- ensure the completeness of the validation package prior to return to the contractor performing the validation
- ensure the Quality Control Report is completed and a narrative report detailing problems or discrepancies is also prepared at the completion of the validation. The COTR shall present the Report and comments to the Region Director
- ensure a statistically relevant random sample is selected for accomplishment in the validation effort
- resolve any data problems discovered during the validation that may interfere with processing of the final validation results
- accept or reject validation results.



**14.4.6.3 Region Inventory Specialist.** The Region Inventory Specialist is responsible for the QC of the working level validation effort. He or she will QC each validation package, recording the results of each validator's performance. Specifically:

- monitor the entire validation process and QC the working level validation effort
- complete the Quality Control Report and a narrative report detailing problems or discrepancies prepared at completion of the validation process and presented to the COTR
- QC each validation package including the results of each validator's performance. Ensure completeness and accuracy prior to returning validation package to the contractor and reject those that are improper. QC checks should be performed on *systems* rather than piecemeal by equipment
- verify a representative number of marked HM&E validation aids that show equipment with no nameplate, lagged or inaccessible
- alert the Validation Team Leader of any equipment that is observed within a space that has been validated without a color sticker. This is especially necessary to ensure validation of portable equipment, such as test equipment that may be moved during the validation
- alert the Validation Team Leader of any equipment that is stored in a location that the Validation Team would not normally validate
- identify and report to the Validation Team Leader the results of individual validating personnel who have repetitive errors in recording data, lost or misplaced validation aids, or who appear to have persistent problems in locating equipment and equipment nameplates
- assist in the final review of all validation materials prior to departure from the vessel
- recommend acceptance or rejection of validation results to the COTR.

**14.4.6.4 Contractor Validation Team Leader.** The Contractor's Validation Team Leader's responsibilities will be identified in the validation contract. Generally, the leader is responsible for monitoring work performed by each validator and for reviewing the validation package for accuracy and completeness. He will examine completed validation aids for accuracy, neatness and

thoroughness, and take action as necessary. The leader will:

- Identify improper or illegible lettering to be redone
- identify soiled, torn, smudged, or otherwise defaced validation aids to be redone
- review validation aids for newly installed equipment to ensure that all available data has been recorded in the proper format
- set aside validation aids indicating equipment with no nameplate, lagged, or inaccessible for later verification.

**14.4.6.5 Contractor Validation Team.** The contractor's validation team is the operational level of the validation process. As with the Team Leader, the team's duties will be spelled out in the validation contract. The team consists of **qualified** personnel who perform the actual sight inspection of systems and equipment to verify or determine the configuration status of the vessel. The QC responsibility of each individual validator is very basic: ensure that validation documents properly represent the actual configuration. This includes efforts to ensure that all changes of, additions to, or deletions from the vessel's configuration are properly recorded on the validation documents. This responsibility includes providing entries that are complete, accurate, legible, and protected against damage or loss before delivery to the Validation Team Leader for review (and ultimately to the Region Inventory Specialist for QC inspection).

**14.4.7 Validation Quality Control Procedures.** The MARAD Inventory Specialist must evaluate a portion of the validation aids from each validation package to determine acceptance or rejection of the validation package results. All errors found must be corrected prior to the validation team leaving the vessel.

"Attributes Measurement" is a sampling technique that judges items in a batch according to one particular feature or attribute. In the QC of validation aids, the accuracy of the data on a given number of completed validation aids is the attribute measured. Using an established sample size for any batch of validation aids, the evaluator verifies the data of each sample item. Within a specific degree of accuracy for the sample, the batch is then either accepted or rejected according to whether or not the number of incorrect validation aids is greater than the number considered acceptable. Appendix F provides a matrix for selecting the sample size depending on the total number of validation aids in a package.



Random sampling will be conducted during the QC effort. If the number of incorrect validation aids is greater than the Acceptable Quality Level (AQL) for the sample size, the evaluator returns the validation aids package for revalidation of the validation aids. If the number of incorrect validation aids is equal to or less than the AQL for the sample size, the erroneous validation aids are returned for correction and when corrected, returned to the validation aids package, and the package is accepted.

Appendix F provides detailed procedures for performing the evaluation task on HM&E equipment.



# CHAPTER 15: CONFIGURATION CHANGE CONTROL

A configuration change occurs whenever an equipment is added to or removed from a vessel. An equipment *changeout* generally refers to both of these processes, i.e., when an old equipment is removed and replaced with a different one, even when there is only an apparently minor change (such as replacement with an identical item with a different serial number). In order to ensure confirmed logistic support, it is critical that such changes be *reported*, and where required by this manual, proposed, evaluated, and approved.

## 15.1 POLICY

Because of the expense and effort involved in changing the configuration of a vessel or equipment, it is MARAD's policy that configuration changes will be kept to a minimum, and that *all* configuration changes will be approved and fully documented in accordance with this manual. Unauthorized configuration changes are prohibited, even when there is apparently little or no cost involved or apparent impact on spare parts support, etc.

## 15.2 CONFIGURATION CHANGE PROPOSALS

A change proposal may be initiated by any of the following personnel/activities:

- Office of Ship Construction (MAR-720)
- Division of Ship Maintenance and Repair (MAR-611)
- Division of Reserve Fleet (MAR-612)
- Division of Operations Support (MAR-613)
- Division of Logistics Support (MAR-614)
- Region Directors
- Ship Managers (via the Region Ship Operations and Maintenance Officer (SOMO) of the affected vessel)
- Appropriate DoD activities

Proposals should be submitted on a Configuration Change Proposal (CCP) (Form MA-986) in accordance with this paragraph. Change proposal initiators must describe the proposed change, the reasons for and impact of accomplishing it in writing. The following elements must be specifically addressed:

**15.2.1 Description of the Proposed Change.** The description of the proposed change is a simple statement of *what* is to be done and *where*. The following information must be included as a minimum:

- vessel(s) to be affected by the proposed change
- shipboard location of the proposed change
- identification of the proposed change as an equipment addition, removal, or combination (i.e., an equipment changeout); or as a change to the configuration of an on-board equipment
- equipment number and/or other identifying data concerning affected equipment

**15.2.2 Need for the Change.** Clearly state why the change is required or desirable. If there are alternatives to the proposed change, these should be addressed. The impact of *not* accomplishing the change should be identified as well.

**15.2.3 Requirements for Accomplishing the Change.** This section of the proposal should identify resources and provide a schedule for accomplishing the change. Resources include personnel, funding, and material procurement, as well as any required contractor support or involvement. *Who* is going to do *what* should be clearly addressed.

**15.2.4 Impact of the Proposed Change.** A detailed statement of the impact of the proposed configuration change must be provided. This should not be a list of benefits to be obtained, but should include an objective account of the full range of engineering and logistic impacts (e.g., if a new item will require more power, require less range and depth of spare parts, etc.).

**15.2.5 Benefits and Disadvantages to be Realized as a Result of the Change.** All benefits to be achieved should be identified, including cost savings, increased efficiency or reliability, improved performance, etc. A specific and quantitative estimate of each factor should be included. Any disadvantageous effects of the change should be identified in a similar manner.

## 15.3 CRITERIA FOR PROPOSING CHANGES

Changes may be proposed for a variety of reasons, such as one or more of those described in the following paragraphs.

**15.3.1 Correction of Errors or Deficiencies.** This is the simplest change criterion. It is used whenever the configuration baseline (or the current baseline) is found to have been incorrectly or incompletely recorded, requiring a change to the configuration record. In this case, there is



no *physical* change to the configuration; however, the *data* contained in the configuration record must be changed in the same manner as if there was an actual physical change.

**15.3.2 Resolution of Non-Availability of Parts and Components.** The age of some RRF vessels and their on-board systems often complicates maintenance and supply support requirements, even when the system is technologically current and sound (or at least adequate). Many spare parts are simply no longer available for these older systems. For small and inexpensive items of equipment, it may be economically sound to replace the item. This constitutes a configuration change. The long-term support requirements for the end item should be considered. However, in most cases, particularly for major systems, a configuration change should not be contemplated. Consideration should first be given to obtaining parts from a NDRF vessel or another RRF vessel, from shore-based spares, by fabrication, or other means if possible.

**15.3.3 To Effect Substantial Life-Cycle Cost Savings.** The addition of a more efficient equipment, or the removal of an unnecessary one is sometimes justifiable on a cost-saving basis alone.

**15.3.4 Prevention of Work Stoppage or Slippage in Schedules.** Generally, this criterion applies when a designated equipment can not be obtained and a substitute item must be installed.

**15.3.5 To Effect Advancements in Technology.** The pace of technological development has been particularly rapid in areas such as radar, computers, and communications. It is often desirable, or even essential that a piece of equipment be upgraded or added to RRF vessels, either during activation or as part of a vessel/fleet upgrade. Given the nature of the RRF, some vessels are relatively old and are particularly susceptible to obsolescence. However, not every advancement in technology requires an equipment changeout. The result must be economically and operationally justifiable.

**15.3.6 To Meet New Operational Needs.** Various situations can result in the need for MARAD RRF vessels to meet operational requirements that they were not originally designed for or that they are no longer capable of meeting. For example, new speed requirements for a particular class of vessel might necessitate a configuration change to the engineering plant, or additional fire-fighting systems might be required in response to new Coast Guard

safety specifications. In some cases, the mission of the vessel may be so different from its original function that a major conversion is necessary. The modifications performed on the Offshore Petroleum Discharge System (OPDS) vessels are a good example.

## 15.4 SUBMISSION AND APPROVAL OF CONFIGURATION CHANGE PROPOSALS

Approval authority to remove or add equipment to MARAD vessels depends upon a combination of factors: who originated the proposal, the operational condition (i.e., activity phase) of the affected vessel (see Chapter 5, Table 5-3); and shipyard planning requirements. The process is described in the following paragraphs.

**15.4.1 MAR-614 Logistics Assessment.** Regardless of who approves a change proposal, MAR-614 must be included in the process so that the logistics impact of the change may be properly assessed. A copy of all CCPs approved at the region level must be forwarded to MAR-614. CCPs requiring headquarters-level approval shall be forwarded to the approving authority *via* MAR-614.

**15.4.2 New Construction and Conversion.** For newly constructed vessels and vessels scheduled for conversion, MAR-720 and MAR-614 shall be responsible for developing specifications detailing the documentation, reporting, and delivery procedures for recording the development and or addition to the vessel's configuration baseline.

**15.4.3 Other Shipyard Periods.** The assigned Marine Surveyor for the vessel shall be responsible for ensuring that the yard work package includes provisions for reporting all equipment additions, deletions, and changeouts.

**15.4.4 Change Proposals Initiated by a MARAD Region.** The Region Ship Operations and Maintenance Officer (SOMO) or designated Region LMO may approve change proposals initiated at their respective regions or by ship managers, with the exception of the following cases:

- if shipyard assistance is required, proposals must be forwarded to MAR-611 for approval, via MAR-614
- if the configuration change requirement occurs incident to vessel acquisition, conversion, upgrade, or sealift enhancement (Phases I, II, or VI), proposals



must be forwarded to MAR-610, via MAR-614 for approval.

Ship managers of ships in Phase IV should prepare a CCP and forward it to the Region LMO. If the vessel is in Phase V or Phase O, the vessel manager may submit a verbal or written request to the Region LMO, who shall prepare the CCP.

**15.4.5 Change Proposals Initiated by Other than a MARAD Region.** All change proposals from headquarters offices or non-MARAD activities should be submitted on a CCP to MAR-614. MAR-610, when initiating change proposals for which it has approval authority, should nonetheless document the proposal on a CCP and route a copy to MAR-614 in order that the latter may conduct a logistics assessment of the change.

### 15.5 CHANGE PROPOSAL EVALUATION

Change proposals shall be evaluated according to the following standard criteria:

- ✓ Is the change desirable and necessary?
- ✓ Has the change proposal been carefully assembled in accordance with MARAD policy and instructions (i.e., this manual)?
- ✓ Can/should the objectives of the configuration change be accomplished by another means?
- ✓ Must the change be performed *now* or should it wait for other circumstances, funding, etc.?
- ✓ Are funding and material resources adequate for accomplishing the change, and can these resources be committed without compromising other necessary projects?
- ✓ What are the short- and long-term impacts of the change?
- ✓ What are the operational plans for the affected vessel? Is the vessel scheduled for disposal in the near future?
- ✓ What other configuration changes are already under consideration for this vessel?
- ✓ Is this configuration change proposal consistent with actions being taken fleet-wide? Should the proposed change be applied to other vessels in the same class?
- ✓ Are the benefits to be realized as a result of the change worth the investment in time, labor, funding, etc.?

Reviewers shall apply any other criteria that they consider appropriate.

### 15.6 CHANGE IMPLEMENTATION AND DOCUMENTATION

When a configuration change is implemented, it is essential that it be documented and that ECSMIS be updated to reflect the change. ECSMIS update procedures are discussed in Chapter 16. The documentation provides an audit trail and serves as a source document for updating ECSMIS. The Property Custodian (Ship Manager) is responsible for ensuring that documentation is prepared and submitted, and that ECSMIS is updated as prescribed in this manual. This function shall be monitored by the Region LMO.

**15.6.1 Configuration Change Report.** A Configuration Change Report (CCR) (Form MA-985) will be filled out by the ship manager or other party performing the removal or installation of equipment and forwarded to the Ship Manager so that the Configuration Record can be updated. A completed MARAD Validation Aid (Form MA-983) shall also be completed and submitted with each CCR. A copy of the report will be forwarded to the appropriate MARAD SOMO. A copy of the report will be kept on file, by vessel, by the Ship Manager until recalled by MARAD at the end of contract or agreement period, or upon special request. In certain unusual instances, the Fleet Superintendent may, as Property Custodian of the vessel, be required to effect a configuration change. In such cases, the Fleet Superintendent shall prepare the CCR and update the ECSMIS database.

The following paragraphs pertain to the completion and submission of the report:

**15.6.1.1 Basic Ship and Equipment Data.** A separate report will be prepared for each equipment item removed or installed. The equipment and vessel must be clearly identified, including the MARAD equipment number (if assigned), serial number, and System Application Code. The accompanying validation form (Form MA-983) must be submitted even when the equipment comes from another MARAD vessel or shore-based spares, in order to verify (validate) the existing data. Equipment changeouts will involve preparation of *two* reports, one to document the equipment being removed and another to document the equipment being installed.



**15.6.1.2 Disposition of Equipment.** Check *one* of the three boxes in this section. Indicate whether the equipment came from (or is being transferred to) another RRF vessel, Shore-based Spares, or "other". Finally, cite the authority for the transfer by name, or reference the correspondence authorizing the specific disposition being accomplished in connection with the configuration change.

**15.6.1.3 Status of Spare parts.** Spare parts will normally accompany an equipment being removed or installed. Check the first box in this section to indicate this, and *attach a listing of the spare parts and quantities of each part*. Such a listing may be obtained from PC-SAL or ECSMIS. A copy of a SAL page is sufficient, if one exists (on-hand quantities should be verified by circling the appropriate quantity on the SAL page). For equipment installations, the spare parts box number and stowage location should also be provided. Configuration management of spare parts is addressed in greater detail in Chapter 17.

If the equipment has no spare parts (i.e., the equipment is always repaired by replacing the equipment, for example, an emergency eductor), check the second block ("No parts support exists for this equipment"). If the equipment has no spare parts with it but *should*, check the third box, indicating that provisioning is required. For any other situation, check "Other" and explain. Continue in the remarks block, or attach a separate sheet if necessary. It is important that the status of spare parts be accounted for. The following are examples of less common situations requiring further explanation or action:

- A SAL Page is received with an equipment and the SAL Page indicates allowed quantities (i.e., the equipment has been provisioned), but the parts themselves are deficient or absent altogether. The required parts should be listed separately and procured in accordance with Chapter .7
- Spare parts that support a removed equipment are being retained on board. This sometimes occurs when the parts are required to support a replacement item of equipment, or, less often, when the parts are needed to support other equipments. All parts must be listed, indicating the equipment to which they apply.

**15.6.1.4 Status of Technical Documentation.** Check the appropriate box(es) and include document numbers. If manuals or drawings do not accompany their respective equipment, explain why in the remarks block

(does not exist, retained on board to support similar equipment, etc.).

**15.6.1.5 Parent/Accessory Equipment(s).** Some equipment is itself a part of another equipment, e.g., a motor belonging to a pump. In such a case, the pump is the "parent" of the motor, while the motor is an accessory equipment to the pump. If a parent or an accessory equipment is removed or installed, *a separate CCR must be prepared for the parent or accessory equipment, and each CCR must list its respective parent and/or accessory equipment(s)*.

**15.6.1.6 Additional Configuration Change Data.** Any additional change data should be placed in the remarks block, with a separate sheet of paper attached if necessary. The party responsible for performing the configuration change shall *print* (rather than sign) his or her name at the bottom of the form. The purpose of clearly identifying the preparer is to provide a trace should further information be required by MAR-614.

# CHAPTER 16: CONFIGURATION STATUS ACCOUNTING

Configuration Status Accounting (CSA) encompasses

- the recording of configuration data from the original configuration *identification* process
- the recording of data received from the configuration *change reporting* process

CSA serves as the foundation for building ECSMIS, PC-SAL, and Shipboard Allowance Lists. These systems preserve the configuration record and are the basis for performing all supply management functions.

## 16.1 THE CONFIGURATION RECORD

The term *Configuration Record* has two definitions. RRF-ECSMIS, as the official repository of configuration data for the RRF, is by definition the *official* Configuration Record for the RRF. This is the most important meaning of "Configuration Record."

The term "Configuration Record" is also sometimes used to refer to the individual data "record" for a configuration item of equipment/equipage. Each equipment data record contains all of the relevant available data for that equipment, including such information as nomenclature, equipment number, size, horsepower, location, quantity, etc.

In addition to equipment, ECSMIS contains records for spares and spare parts, technical manuals, vessel drawings, etc. Technically speaking, these are not part of the official "Configuration Record", since the presence or absence of these items has no effect on the configuration of an individual equipment or on the vessel as a whole. However, bona fide configuration changes may have a profound impact on spares allowances; therefore it is necessary to include the management of spare parts under the discipline of CM. Chapter 17 addresses this topic in detail.

## 16.2 RRF-ECSMIS AND CSA

RRF-ECSMIS is described in Chapter 4. ECSMIS provides the data and means for conducting all types of supply management functions. As noted above, ECSMIS also contains the official RRF Configuration Record and provides a vehicle for recording and reporting configuration changes and current configuration status.

Although ECSMIS contains the Configuration Record, not all information in ECSMIS is configuration-related. Similarly, not every transaction or change to ECSMIS data has a configuration impact, even when the transaction involves equipment or spare parts. A configuration change occurs when any of the following take place:

- equipment is installed or removed
- equipment is replaced or modified
- equipment is transferred to or from another vessel or Shore-based Spares
- spare parts allowance quantities are changed

All of the above actions require that entries be made in ECSMIS to accomplish CSA. However, CSA is required even when no physical changes have been made aboard a vessel. CSA is the end result of initial data gathering efforts such as equipment validations, including corrections input at any time (e.g., a corrected equipment serial number).

Configuration Status Accounting is *not* concerned with

- receipt or issue of spare parts
- changes to general descriptive data
- changes to on-hand quantities
- any data relating to outfit material or technical documentation

Although some supply transactions do not affect configuration, CSA *always* has an impact on the performance of supply management functions. It is impossible to record the receipt or issue of parts, or to know what parts are on hand or where they are, if the equipment to which they belong is not represented in ECSMIS. Timely and accurate CSA is *critical*.

## 16.3 THE CSA PROCESS AND CYCLE

- a. The CSA process begins with initial data gathering and input to ECSMIS. Sources of input may include (but are not limited to)
  - equipment validations
  - spare parts inventories
  - data records received from other sources (e.g., as part of a ship acquisition package)



- b. Once the data has been entered into ECSMIS, it can be used to acquire, locate, issue, and replenish parts, to obtain equipment technical information, and perform the entire range of supply management functions. It can also be used to print a hardcopy SAL and to generate a PC-SAL system, if necessary.
- c. CSA continues as configuration changes occur. Normally, these changes are documented by a CCR, however, certain minor changes (such as corrected equipment specification data) may be submitted less formally.
- d. CSA is not just a process, but a cycle. The SAL and PC-SAL, originally generated by CSA, are used in the continuing update of the configuration record. In addition, validation and inventory aids can be produced from ECSMIS to serve as a basis for comparing the configuration record with the actual physical configuration. The process, or cycle, is thereby self-sustaining.

# CHAPTER 17: CONFIGURATION MANAGEMENT OF SPARE PARTS

One of the areas where a configuration change can have a very significant impact is spare parts support. It is MARAD's policy to include spare parts support and provisioning under the scope of Configuration Management.

## 17.1 EQUIPMENT CONFIGURATION CHANGE IMPACT ON SPARE PARTS SUPPORT

Installation of new equipment normally requires additional spare parts; conversely, removal of an equipment requires that its supporting spares be removed from the vessel. Equipment changeout involves both of these processes (removal of spares supporting the old equipment *and* addition of new required spares) to be accomplished in a coordinated manner. Equipment modification may require major or minor changes to spare parts allowance support.

**17.1.1 Equipment Installation.** Newly installed equipment will normally come with spare parts support, meaning a listing of recommended spares (an allowance) and the actual spares themselves. A listing of the spare parts should be provided to MAR-614 along with the CCR documenting the installation (see paragraph 15.6.1.3).

If there are no spares, the first question that must be asked is whether this equipment *should* have spares support or not. If not, no provisioning is necessary, but the appropriate box should be checked on the CCR in accordance with paragraph 15.6.1.3.

If some or all of the spares are missing, then it is necessary to procure the parts in accordance with Chapter 7. If the equipment has already been provisioned, allowance quantities will be shown in ECSMIS (this would apply to equipment received by transfer from another RRF vessel). If the equipment is new or spare parts allowances have not been developed, then provisioning is required in accordance with this chapter.

**17.1.2 Equipment Removal.** Removal of equipment presents fewer complications than installation. *All* spare parts shall be removed with the equipment, unless they support other equipments and MAR-614 authorizes retention on board. A listing of removed parts must be provided to MAR-614 with the CCR.

**17.1.3 Equipment Changeout.** Equipment changeout is simply a combination of removal and installation. When a new equipment is installed without required spare parts, parts may be retained from the old equipment *if they are applicable to the new equipment* and if approved by MAR-614.

**17.1.4 Equipment Modification.** Details concerning any equipment modification that has an impact on spare parts allowances shall be provided to MAR-614 by the cognizant Region LMO, marine surveyor, or inventory specialist. This may ordinarily be accomplished using an Allowance Change Request (see paragraph 17.4.1).

## 17.2 PROVISIONING POLICY

*Provisioning* is the process of establishing the range and depth of spare parts allowances for equipment aboard MARAD vessels. Within the RRF, this definition is expanded to include the maintenance of spare parts allowance quantities throughout the life cycle of a supported equipment. Maintenance of actual physical inventory quantities, including procurement, inventories, use of parts, etc., is addressed in Section II. MAR-614 is responsible for all aspects of MARAD provisioning, including the provisioning method to be employed and actual allowance quantity decisions.

**17.2.1 Vessels Received from Commercial Sources.** It is MARAD's policy to set *initial* spare parts allowances for RRF vessels received from commercial (i.e., non-Navy) sources at the levels recommended by the equipment manufacturer, as reflected in the Builder's Allowance List (BAL) and the equipment technical manuals and/or drawings. When such documentation is not available, allowance quantities will be based upon best engineering estimates and documented experience with the equipment.

**17.2.1.1 Builder's Allowance List (BAL).** Vessels received from commercial sources will normally be accompanied by a BAL, which will contain recommended spare parts allowance levels. The BAL allowance figures will be used as the baseline for developing a MARAD SAL. Any subsequent allowance recommendations developed by the former commercial operator will be considered when setting the allowance baseline.



**17.2.1.2 Technical Documentation.** When a BAL is not available, unacceptable, or unusable, manufacturer's recommended spares will be used for baseline allowance levels, as reflected in the equipment technical manual. If no technical manual is available on board, an attempt will be made to obtain a copy of the manual from the manufacturer. It may also be possible to obtain a copy of the technical manual from another RRF or NDRF vessel with identical equipment (MAR-614 is able to search ECSMIS to locate such a vessel). As a last resort, a technical manual for a *similar* piece of equipment may be used to determine allowance quantities. In such a case, a parts list should first be developed using the vessel drawings for the equipment, or if necessary, a physical examination of the equipment itself.

**17.2.2 Vessels Received from the U.S. Navy.** Vessels received from the U.S. Navy (usually from MSC) present a special case. Normally, these vessels have *consolidated* allowances for spare parts; i.e., spare parts allowance quantities are determined on the basis of *vessel-wide* application rather than for an individual equipment. Provisioning will be accomplished as directed by MAR-614 on a case-by-case basis.

**17.2.3 Fleet-wide Consistency.** Although SAL allowances will normally be based on existing documentation aboard each vessel, a degree of consistency among identical or similar equipments is expected. Whenever experience proves equipment allowances to be inadequate or excessive, similar equipments aboard other RRF vessels shall serve as a guide for adjusting allowances up or down.

**17.2.4 On-Hand Undocumented Inventory.** In many cases, spare parts are discovered on board during initial inventory that are either not listed in existing technical or allowance documentation, or are listed without any authorized allowance. Also, in certain rare cases, there may be an inventory of parts on hand for an equipment for which no documentation whatsoever is readily available. In these circumstances, the on-hand inventory will be entered in the SAL *as* the authorized allowance quantity, with a special note or indicator.

### 17.3 AVAILABILITY OF SPARE PARTS

Spare parts may be unavailable or difficult to obtain for a variety of reasons. These include age, obsolescence, or foreign origin of equipment. The following actions will be taken concurrently to resolve non-availability of parts:

- An assessment will be made of parts availability in ECSMIS. Other vessel and equipment assets, such as NDRF vessels, will be surveyed for possible cannibalization (at the discretion of MAR-610).
- Spares may be available within the Federal Supply System. For equipment with serious parts availability problems, it may be necessary to propose a configuration change to procure new equipment (see paragraph 15.3.2), if economically advantageous.
- MAR-614 will attempt to locate substitute parts from commercial sources. If the original part(s) listed in ECSMIS have been or can be replaced with substitutes, then ECSMIS will be updated to reflect the change.

### 17.4 ADJUSTMENTS TO ALLOWANCE QUANTITIES

Once initial allowance quantities have been determined, subsequent adjustments may be made with the approval of MAR-614. Reasons for increasing or decreasing an allowance quantity include (but are not limited to) the following:

- increased range and/or depth for equipment additions
- decreased range and/or depth for equipment removal
- endurance loading for special vessel missions
- existing support is insufficient or excessive
- equipment becomes supported (previously listed with no spare parts support)
- equipment modification
- correction of erroneous part information (e.g., wrong part listed on SAL Page)



### 17.4.1 Allowance Change Request (ACR).

Allowance change requests shall be initiated on an Allowance Change Request (ACR) (Form MA-984). *Anyone* may submit an ACR. Ship Manager will use completed forms MA-971 (see Chapter 7) as the basis for increasing depth for parts or adding allowance support for new items. An example of a completed ACR is provided in Figure 17-1.

ACRs will be forwarded to MAR-614 via the cognizant Region.

### 17.4.2 Recording Allowance Changes.

MAR-614 will retain the original ACR and will update RRF-ECSMIS to reflect changes, if any, to spare parts allowances. A copy of the ACR will be forwarded to the originator via the cognizant Region(s). The Region or Ship Manager, as appropriate, will update their SALs to reflect any changes.

From: <b>Acme Shipping, Inc.</b>		Ship Name: <b>Mission Cape MARAD State</b>			Date of Request: <b>May 24, 1995</b>	
To: <b>MARAD (MAR-614)</b>		Request Type:				
Via: <b>MARAD South Atlantic Region</b>		<input checked="" type="checkbox"/> Allowance Increase <input type="checkbox"/> Item Addition <input checked="" type="checkbox"/> Item Currently On Board <input type="checkbox"/> Allowance Decrease <input type="checkbox"/> Item Deletion <input type="checkbox"/> Item Not Carried On Board				
Equipment Nomenclature and Number	Repair Part(s) Description, Manufacturer, Part Number	Unit of Issue	Unit Price	Present Quantity Allowed	Recommended Quantity	Extended Value of Change
<b>Emergency Diesel Generator 4020-9G654-009</b>	<b>Filter, Feed Pressure Westerbeke Corp. P/N 2G/3526-001</b>	<b>EA</b>	<b>6.66</b>	<b>4</b>	<b>8</b>	<b>26.64</b>
Justification (Mandatory):  <p><b>Four feed pressure filters are installed in each of the ship's two emergency diesel generators. Since these generators are run simultaneously, all eight filters usually are required to be replaced at the same time. Therefor, an allowance of eight filters is necessary.</b></p> <div style="text-align: right; margin-top: 10px;">           _____            Signature and Title         </div>						
<b>MAR-614 Action:</b> Remarks: <div style="margin-top: 10px;"> <input type="checkbox"/> Approved  <input type="checkbox"/> Disapproved  <input type="checkbox"/> Other (Specify)         </div> <div style="text-align: right; margin-top: 10px;">           _____            Signature and Title         </div>						

Figure 17-1 Example of an ACR for an Allowance Increase



# SECTION IV: THE SHORE-BASED SPARES PROGRAM

## CHAPTER 18: INVENTORY MANAGEMENT OF SHORE-BASED SPARES

The primary objective of the SBS Program is to maintain and supply insurance items, i.e., equipment that is critical to RRF readiness but that is not readily available on the open market. The SBS program also provides a means for storing other types of material in support of various MARAD programs, as well as a means for properly managing excess material.

The Shore-Based Spares (SBS) Program encompasses the storage and management of material ashore, primarily in support of RRF vessels. The material is normally stored in warehouses, under the control of Region SOMOs, and managed by Region inventory specialists. Items sent out of the warehouse for repair, testing, or on loan, are still accountable as Shore-based Spares.

### 18.1 SBS INVENTORY

Shore-based Spares generally consists of the same type of material found aboard ship. This material is managed as shore-based inventory in the ECSMIS Shore-based Spares Module. (The SBS Module is the part of ECSMIS that comprises the programming to accommodate the various SBS-unique functions, such as specific SBS data, SBS transactions, and SBS reports. A complete description of the ECSMIS SBS Module and corresponding functionality is found in the ECSMIS SBS User Handbook.) Consistent with the general ECSMIS format, the SBS inventory is broken down into several data categories. Thus, all MARAD accountable SBS material must fit into these categories:

- Equipment.
- Spare Parts
- Controlled Material
- Technical Documentation
- Lashing (outfitting) Gear

With the exception of technical documentation, all categories are financially accountable; that is, corresponding items will be assigned a value based on condition and estimated market value (Technical

documentation is not financially accountable, and will not be assigned a value.)

### 18.2 RRF-ECSMIS AND THE SHORE-BASED SPARES MODULE

Although part of ECSMIS, the SBS Module has several features that make it unique. These features conform to the unique requirements of the SBS program, including:

- a. SBS-unique "general" equipment numbers. These numbers specify type and manufacturer only, with the last three digits zero filled, and are used as a means to relate SBS parts to RRF equipment applications. As such, SBS general equipment number on-hand quantities will always be zero.
- b. SBS-unique data fields
- c. SBS-unique transaction and report capabilities
- d. SBS-unique detail and zoom screens

**18.2.1 ECSMIS Scopes (Ships versus Warehouses).** SBS warehouses are identified separately in ECSMIS; each warehouse being the functional equivalent of a single ship. Warehouses may be individually selected and viewed, or seen together as highlighted items when viewing the ECSMIS database (scope "all").

**18.2.2 Material Accounts.** All SBS material must be assigned to an "account" for financial accounting purposes. The following accounts are currently in use:

- a. Operating Account. This account consists of MARAD material in support of all MARAD programs, other than special projects.
- b. Contractor Material Account. This account consists of all contractor-owned material in MARAD custody.
- c. Special Projects Account. This account consists of MARAD material that has been designated for a specific project, such as an upgrade, conversion, exercise, etc.



## Inventory Management of Shore-based Spares

- d. Excess Account. This account consists of MARAD material that has been designated as excess, obsolete, or beyond economic repair.
- e. Unassigned. Special temporary account(s) for material not fitting into one of the other established accounts.

MAR-614 may establish or eliminate SBS accounts as requirements dictate.

**18.2.3 Material Status.** All SBS items must be assigned to an owning region warehouse. The material, however, may not actually be physically located in that warehouse. Frequently, material can be out on loan, out on test or repair, in transit, or possibly temporary or permanently staged off site. Status codes have been designated to indicate the following:

<u>Code</u>	<u>Description</u>	<u>Code</u>	<u>Description</u>
11	in warehouse	MF	Chesapeake*
21	out on loan	SS	Hunters Pt.*
22	out for testing	TK	Nederland*
23	out for repair	SW	New Orleans*

\* In-transit codes indicates the warehouse from which the item was shipped.

**18.2.4 Material Value.** With the exception of technical manuals, all SBS line items must be assigned a value representing the commercial market dollar value of the item in its current condition. Values are generally assigned to individual line items; however, for equipment, separate serial numbers will have unique value assignments, based on condition and possibly other factors. Values will be periodically reviewed (at least once every three years) to ensure accuracy in light of commercial market dynamics.

**18.2.5 Testing Requirements.** The SBS Module contains a field that must indicate whether the corresponding item requires periodic testing to maintain any relevant certifications. As such, ECSMIS contains fields to indicate (a) whether an item requires testing, and (b) the date on which the item was last tested.

**18.2.6 Weight and Cube.** The SBS Module contains fields for weight and cube of items, for storage and shipping purposes. This field may be left blank for items of insignificant weight and cube.

**18.2.7 MARAD-Controlled Material.** The SBS Module contains a field that must indicate whether the

corresponding item is controlled centrally by MAR-614. (In this sense, controlled is not to be confused with controlled equipment or material). In these instances, MAR-614 approval is required before any controlled item may be issued or transferred from the warehouse.

**18.2.8 Repairable Items.** The SBS Module contains a field that must indicate whether the corresponding item is economically repairable.

**18.2.9 Ship Application.** The SBS Module contains a field that must indicate the relevant application(s) of the corresponding item. In this context, application relates to specific ship(s) or class(es) of ships aboard which the item has an application. The SBS Module provides the complete selection of these Ship Application Codes, which are also listed in Appendix I of this manual.

**18.2.10 Location and Serial Number.** The SBS Module contains a field that must indicate a designation that relates to a corresponding physical location. These location designations are required for each equipment serial number and other line items. Locations should be designated systematically, and should be logical and specific enough to allow quick physical sighting, even by individuals not familiar with the material or layout of the warehouse.

**18.2.11 Material Condition.** The SBS Module contains a field that must indicate the condition of the corresponding item, by assigning a condition code of "A" or "F". "A" is used when a corresponding item can be placed in service "as is"; whereas "F" implies that some degree of repair or maintenance would be required.

**18.2.12 Material Source.** The SBS Module contains a field that must indicate the source of the corresponding item. Corresponding source codes are as follows:

<u>Code</u>	<u>Description</u>
P	MARAD Procurement
R	Refurbished Salvage
M	Transfer from MSC
S	Salvage from MARAD Source
C	Contractor-owned
D	Donation
A	Ship Acquisition Program
G	Transfer from other U.S. Government Agency
L	Loan or Lease to MARAD
X	Other



### 18.3 MORE ABOUT THE SBS MODULE

The ECSMIS SBS Module is MARAD's official SBS inventory control system. (Various manual inventory control measures may be used concurrently, but are not considered official.) The SBS module is primarily designed to: provide to ECSMIS users visibility over all SBS material; identify SBS material applicability; promote standards and accuracy in material identification; identify SBS material usage and source history; identify critical specifications and standards; provide accounting and financial data; and compile data for relevant management reports. In this regard, the system provides benefits to engineers and logisticians at all organizational levels.

The SBS module is also designed to allow the Warehouse Manager to manage the SBS inventory using on-line ECSMIS SBS transactions. Since the SBS module records this transaction data in a transaction history file, no corresponding transaction documentation is generated or maintained. This eliminates unnecessary paper flow. (Documentation supporting physical custody transfers is maintained separately.)

### 18.4 TRANSFER OF SHORE-BASED SPARES

Transfers of SBS items require (a) an appropriate SBS transaction in the ECSMIS SBS module, and (b) appropriate supporting documentation, or Property Transfer Notice (PTN) (Form MA-10). The PTN is a 6-part multi-carbon form used to document the transfer of custody of material. Types of transfers requiring a PTN include the following:

- transfer from shore-based spares to a RRF ship
- transfer from a RRF ship to shore-based spares
- transfer from shore-based spares to any other activity including warehouses in other regions, disposal yards, property on loan, etc.

Transfer will be directed or approved by the Region Supervisory Marine Surveyor or the Region SOMO. The approving official may direct the transfer by completing the PTN and signing the "TRANSFER APPROVED" block. Alternatively, the approving official may direct the transfer by a separate memorandum, in which case the PTN will be prepared by the Warehouse Manager or the Property Custodian, as appropriate.

**18.4.1 Preparation of the PTN.** The PTN will be prepared by the owning region (or transferring agent). For

property being transferred from a ship to shore-based spares, the ship's Property Custodian will prepare the PTN. The PTN will be completed in accordance with the instructions on the reverse of the form.

**18.4.2 Distribution of the PTN.** The original PTN will be retained by the owning region (or transferring agent) to document the authority for the transfer. Copies will be distributed as follows: sent with the material being transferred to the consignee (or receiving agent); forwarded as an advance/suspense copy to the consignee (or receiving agent); and used for other region purposes as appropriate.

**18.4.3 Receipt of Transferred Material.** Upon receipt of the material, the Warehouse Manager or Property Custodian (as appropriate) will examine the shipment to ensure that all property has been received in the indicated condition and quantity. A copy of the accompanying PTN (or similar documentation) will be annotated with any corresponding discrepancies, and used to update ECSMIS SBS records. If there are significant discrepancies, an additional annotated copy will be forwarded to MAR-614 and the transferring Region's APO for investigation.

### 18.5 REQUIRED FILES

The following document files will be maintained by the Region for five (5) years from the date of the correspondence. All files will be maintained by the Region LMO or the Warehouse Manager. Documents concerning the same SBS transaction should be affixed and filed together.

- a. **Issues and receipts.** All corresponding documents (MA 949s, PTNs, 1348-1s, manifests, etc.) will be filed in chronological order.
- b. **Expenditures.** All expenditure documents will be filed in chronological order.
- c. **Report files.** Various ECSMIS SBS reports (due-in, financial, etc.) filed chronologically.
- d. **Inventory files.** Listings and aids that support and document all inventory actions (spot, cyclic, wall-to-wall inventories, etc.)
- e. **Miscellaneous material status files.** Documentation relating to material status or condition, to include certificates, test results, repair specifications, etc., will be maintained in equipment number sequence, until expiration or until invalid.



# CHAPTER 19: ACQUISITION OF SHORE-BASED SPARES

This chapter addresses acquisition of material to be held in the shore-based inventory (see Chapter 18).

Acquisition of SBS material is accomplished to generate and maintain shore-based inventories at a level to support MARAD program requirements. The Division of Logistics Support (MAR-614) is responsible for all SBS material acquisition, through various material acquisition programs, or through the approval of specific acquisition actions at the region level. Although MARAD does not establish allowances for SBS material, MAR-614 will provide general recommendations regarding stockage levels for specific SBS material. A corresponding list of various recommended shore-based spares is periodically published by MAR-614, and will serve as a guide for planning SBS material acquisition activities (however, MAR-614 will approve any such acquisition that is sufficiently justified).

## 19.1 SOURCES OF SUPPLY

MARAD SBS material has a variety of sources, including:

- a. NDRF vessels and fleet scrap sources
- b. excess or salvage from RRF vessels
- c. transfer from other government agencies
- d. procurement from commercial or federal supply sources
- e. other MARAD programs

At times, manufacturers, vessel owners, or others will offer or donate to the Government items important to the RRF. Such material will be screened by MAR-614 and processed in accordance with MAO 440-2.

## 19.2 MARAD REUTILIZATION PROGRAM (MRP)

NDRF vessels can serve as a source for SBS material. Regions will coordinate efforts to remove and distribute applicable material from these vessels prior to their disposition from the NDRF. Material from these sources is referred to as MARAD Reutilized Material (MRM).

**19.2.1 Equipment.** Specific equipment will be removed and salvaged from scrap candidate vessels when no other feasible government source of supply exists. However, the NDRF also includes vessels designated "On Hold for Spare Equipment" to serve as long term

equipment salvage sources. Thus, removal and salvage efforts will be limited to that satisfying immediate or otherwise critical RRF requirements. Since equipment removal and salvage activities are resource intensive, they must be fully justified and coordinated with MAR-611, MAR-612, and MAR-614 in advance.

**19.2.2 Spare Parts.** Generally, spare parts will be removed from all scrap candidate NDRF vessels and processed as MRM. Subsequently, MRP efforts will determine final disposition of the material. Only material with RRF-ECSMIS application, or other sufficient justification, will be carried as SBS inventory in ECSMIS. These activities will be coordinated with MAR-614.

**19.2.3 Other Material.** Other applicable material to include: lashing material, various MHE, controlled equipment, selected C&E material, and other selected outfitting material, will be removed from scrap candidate NDRF vessels for further MARAD use. Only material with RRF-ECSMIS application, or other sufficient justification, will be carried as SBS inventory in ECSMIS. Regions will coordinate activities involving SBS material with MAR-614.

## 19.3 RRF-ECSMIS SBS INTERFACE

The SBS module is used to determine the RRF application of SBS material by providing an interface, or a means for matching corresponding equipment and part numbers. This interface is critical when making decisions regarding SBS material usage, retention, and/or disposition. Thus, corresponding ECSMIS data for SBS material must be kept accurate and complete. Regions will be responsible for ensuring the accuracy and completeness of this data is maintained. On occasions, MAR-614 may direct Regions to confirm or provide additional descriptive data for specific SBS line items in order to clarify application.

MAR-614 will also evaluate SBS data to determine those line items for which RRF application cannot be directly ascertained through the use of ECSMIS. In such cases, regions will be required to provide sufficient written justification for retention of that specific item or material in SBS. This justification will be forwarded to MAR-614 for review, and subsequently referenced in the corresponding SBS line item record data in ECSMIS. MAR-614 will issue disposition instructions for all SBS material lacking a current RRF application or otherwise sufficient justification for retention in SBS.



SBS material will be considered the *first source of supply* for filling all shipboard deficiencies. In this regard, regions will ensure that appropriate emphasis is placed the maintenance of the SBS inventory records in ECSMIS.

### **19.4 PROCUREMENT OF SHORE-BASED SPARES**

All procurement of SBS material will be approved by MAR-614 in advance. MAR-614 will review all such procurement to determine feasibility in light of program objectives. Generally, MARAD will not purchase material for SBS that is readily available on the open market.

Additionally, all commercial procurement activities must be coordinated with the appropriate government contracting officials to ensure that requirements promulgated in the Federal Acquisition Regulations (FAR), Transportation Acquisition Regulation (TAR), and the Maritime Administration Acquisition Procedures (MAAP) are met.

# CHAPTER 20: REPAIRABLE AND TESTING PROGRAM

Repairables are defined as components, parts, assemblies, subassemblies or equipment which can be economically restored to perform their required functions by corrective maintenance. Items in the Repairable Program are so-identified in ECSMIS.

The Repairable Program is executed locally at the Region level. Funding and budgeting for this program is controlled at the Headquarters level.

## 20.1 LIMITATIONS ON ITEMS TO BE REPAIRED

Dollar limitations have been placed on items to be repaired to ensure funds will be available for priority and emergency repairs. Threshold limitations are based on repair costs as a percentage of price, ship application, and total fixed dollar value of repairs. MAR-614 approval is required for repairs that exceed these restrictions.

When approval at the Region level is indicated, such approval will be granted by the Region Director. This authority may be delegated to the SOMO or Supervisory Marine Surveyor.

### 20.1.1 Limitations Based on Percentage of Price.

Unless approved in writing by MAR-614, Regions shall not begin repair of any item for which the total cost of repair (parts, labor, and transportation) exceeds 60% of the item's estimated replacement cost.

### 20.1.2 Limitations Based on Ship Application.

When repairables are identified exclusively to one ship class, the Region will ensure, prior to initiating any repair action, that there are no known plans to remove the ship class from the RRF.

### 20.1.3 Limitations Based on Fixed Dollar Amount.

When the repair to an item is estimated to be \$5,000 or less, the Region may have the item repaired at its discretion, providing the other conditions stated herein have been met.

When repairs on an item are estimated to exceed \$5,000, the Region may still approve the repairs, however, a Tear Down and Evaluation (TD&E) Report must first be prepared. The TD&E will consist of the following information:

- a. nomenclature, part number and stock number

- b. ship class (if the item which is to be repaired has multiple ship applications, so state)
- c. description of the proposed repair, including post-repair testing
- d. estimated cost of repair or refurbishment, including post-repair testing and transportation costs
- e. schedule for repair and return of the repaired item

Repairs that are determined to exceed \$10,000 shall have a TD&E Report and be approved by MAR-614, prior to proceeding with the repair contract.

## 20.2 REPAIR TRANSACTIONS

A Purchase Order will be prepared by the Region to establish the contractual relationship and to allocate/approve funding. Upon issuance of the Purchase Order, a Property Transfer Notice (Form MA-10) will be prepared in accordance with paragraph 18.4.1 to document the physical transfer of the item to be repaired. Corresponding SBS transaction(s) will be posted to ECSMIS. For items subsequently determined to be beyond economic repair, a survey will be prepared in accordance with MAO 330-14 to support the resulting SBS transaction.

## 20.3 TESTING PROGRAM

Testable items are defined as items, which if installed aboard an RRF ship, would require inspections and surveys under various standards of the United States Coast Guard (USCG), the American Bureau of Shipping (ABS), and (excluding former USN and USNS ships) the Federal Communications Commission (FCC). Items in the Testing Program will be determined by inspection and survey standards. The intervals for testing shall be the same as if the items were aboard an RRF ship. Items requiring testing will be indicated as such in ECSMIS.

Each Region will be responsible for the execution of the Testing Program. Funding and budgeting will be controlled at the Headquarters level.

**20.3.1 Inspection and Survey Standards.** The certification of testable items is based on inspection and survey standards applied in the following precedence:

- a. International Convention for the Safety of Life at Sea (SOLAS), London 1960



- b. other international conventions to which the United States is a party, such as International Radio Regulations, Geneva
- c. U.S. Statutes (U.S.C.) and Regulations (CFR), for example 46 U.S.C. Subtitle II Safety of Life and Property at Sea, and 33 CFR 151-159 Pollution Control of the Marine Environment
- d. United States Coast Guard Regulations
- e. American Bureau of Shipping Rules and Standards
- f. FCC (Excluding former USN and USNS ships), Communications Act (47 U.S.C. 351 et seq.), Title III, Parts II and III; FCC Rules (47 CFR 83.441 et seq., and 47 CFR 83.725)
- g. Department of Labor Registry of Cargo Gear (These requirements are generally covered under USCG Rules and ABS Rules and Standards).

**20.3.2 Types of Items Tested.** The types of items inspected and surveyed include life saving, fire fighting, safety, and navigational equipment, emergency generators, propulsion systems, hull integrity, and cargo handling equipment (MHE).

**20.3.3 Document Processing for Testing.** When a testable item must be sent outside the warehouse for testing, a Purchase Order will be prepared to establish the contractual relationship and to allocate/approve funding. Upon issuance of the Purchase Order, a Property Transfer Notice (Form MA-10) will be prepared in accordance with paragraph to document the physical transfer of the item to be tested. The appropriate ECSMIS SBS transactions will be effected. Items failing tests may be repaired in accordance with this chapter or otherwise disposed of in accordance with Chapter 22.

# CHAPTER 21: PHYSICAL INVENTORIES OF SHORE-BASED SPARES

The primary objective of conducting physical inventories is to determine and reconcile any differences between physical counts and record quantities, maintained in ECSMIS. Inventories can also be used to validate various record data, examine and/or update record of physical condition, and to ensure that material is properly labeled, packaged and stored.

A thorough discussion of shipboard physical inventories is contained in Chapter 11. This chapter addresses those aspects which apply specifically or uniquely to inventories of shore-based spares, with reference to Chapter 11 when appropriate.

## 21.1 TYPES OF PHYSICAL INVENTORIES

Shore-based physical inventories include the following types:

**21.1.1 Wall to Wall Inventories.** A wall-to-wall inventory requires a physical count of all items within the warehouse or within a specific storeroom or other storage area. Wall-to-wall inventories of MARAD shore-based warehouses are conducted by an outside agency generally every three years, or more frequently if deemed necessary.

**21.1.2 Specific Commodity and Special Material Inventories.** A specific commodity/material inventory requires the physical count of all items comprising a generic or specific segment of material, e.g. all pumps or all items associated with a specific class of vessel. A specific commodity/material inventory may be directed by MAR-614 or the Region.

**21.1.3 Spot (Specific Item) Inventories.** A spot inventory is an unscheduled physical inventory taken by the Warehouse Manager for a variety of reasons. Usually, it is taken when there is evidence to support on-hand quantity imbalances, or other record inconsistencies.

**21.1.4 Cyclic Inventories.** A cyclic inventory is a scheduled physical inventory taken by the Warehouse Manager covering a selected segment of inventory. It is "cyclic" in that the limited scope of the inventory (selected segment) is cycled through the entire scope of the inventory over a period of time. It can take the place of a wall-to-wall inventory in certain cases.

**21.1.5 Random (Statistical Sampling) Inventories.** This type of inventory is a quick and efficient means for

determining the inventory accuracy of a large scope (population) of inventory, by statistical analysis. It is also used as a quality assurance and procedural compliance measure. The greater the sample size, the more representative the sample will be to the overall population in question.

For a full discussion of this type of inventory, refer to Chapter 11

## 21.2 PREPARATION FOR INVENTORY

The Region Warehouse Manager is responsible for all necessary preparations for conducting a physical inventory. The Warehouse Manager must ensure that all corresponding SBS transactions are reflected in ECSMIS at the time the inventory is conducted. Additionally, items comprising the stock segment to be inventoried should be prepared to ensure that:

- loose units of small items are packaged in standard block lots
- whenever possible, identical items are stored in the same location whenever possible
- all items are properly marked, labeled, tagged, or otherwise clearly identified
- cartons and other containers are stowed with labels or other identity information plainly visible
- uniformly sized packages of identical units are stacked in rows and tiers to expedite counting
- containers with broken seals and full counts of originally packaged quantities are resealed
- material such as items held in the "Contractor Material Account" and " Excess Account" are separated and clearly marked.

Additional inventory preparation guidance is contained in Chapter 11.

## 21.3 INVENTORY COUNT PROCEDURES

When performing an inventory, personnel may need to break open containers for item identification and/or quantity verification. However, personnel will ensure that material preservation and packaging is not unnecessarily compromised. After material identification and counts have been completed, and externally marked on each



container, all opened containers will be resealed. The Warehouse Manager will ensure that inventory personnel proceed in a logical sequence, and additionally ensure that:

- a. material is identified by equipment number and serial number, or part number
- b. material condition is updated whenever necessary
- c. material quantity is accurately counted
- d. units of issue are confirmed and appropriate
- e. inventory quantity and date of count is documented
- f. locations are confirmed or update
- g. record data is complete
- h. labels or tags are accurate and legible

### 21.4 INVENTORY AIDS

The Warehouse Manager will use the ECSMIS SBS Module to generate inventory aids. See the ECSMIS SBS Module User's Guide for corresponding procedures.

### 21.5 RECONCILIATION OF INVENTORY AIDS AND STOCK RECORD CARDS

It is the responsibility of the Warehouse Manager to ensure that all corresponding inventory aids are controlled during the actual inventory performance. As inventory aids are completed, they will be reviewed by the Region Warehouse Manager to ensure that:

- all items scheduled for inventory have been inventoried
- aids are properly and legibly annotated wherever necessary
- data is complete and standardized for all "added" items
- any remarks are relevant, consistent, and concise
- inventory aids are dated and initialed
- counts are totaled properly by line item
- all hand written entries are legible
- errors, omissions, or inconsistencies are reconciled immediately by the responsible inventory personnel

After the inventory aids are reviewed, and completed to the satisfaction of the Warehouse Manager, they will be compared, item by item, with the ECSMIS records to determine whether or not differences exist.

**21.5.1 Quantity Differences.** When a quantity difference exists between the physical count of an item and the record quantity in ECSMIS, research and reconciliation is required. Warehouse personnel shall review ECSMIS history for possible errors, such as:

- duplicate or erroneous entries or transactions
- inconsistencies with regard to quantities, condition, or units of issue
- transfer documentation without corresponding SBS transactions

If administrative explanations for the imbalance are discovered, the record balance will be corrected in ECSMIS using a SBS administrative gain or loss transaction, and the inventory aid will be processed as a matched count.

Where imbalances remain, a second count will be performed. If the recount completely resolves the imbalance, the inventory aid will be processed as a matched count. If the recount does not resolve the imbalance, an inventory gain or loss transaction will be processed in ECSMIS. DOT Form 4410.1 "Report of Survey" will be used to document all losses in accordance with MAO 330-14.

**21.5.2 Location Differences.** Confirming correct record locations for items of inventory will be accomplished concurrently with the performance of the inventory. Where differences or inconsistencies are confirmed, corresponding ECSMIS edits will be performed to correct the record locations. The Warehouse Manager also has the option of physically relocating inventory to resolve differences, or to establish a more manageable location scheme or layout.

#### 21.5.3 Differences in Other ECSMIS Data.

Differences or inconsistencies discovered in any other ECSMIS record data (e.g., equipment number, serial number, part number, nomenclature, units of issue, description, etc.) must also be resolved during the inventory. The Warehouse Manager may chose to review the latest receipts or other documentation to confirm correct data. Upon confirmation, the corresponding ECSMIS records will be edited accordingly. Such ECSMIS data edits are not considered inventory errors, as quantity and location is correct. In these cases, the inventory aid will be processed as any other matched count document.



### **21.5.4 Incomplete or non-standard ECSMIS Data.**

An inventory must also address instances where required ECSMIS data such as model number, serial number, part number, nomenclature, description, etc. is incomplete or inconsistent with MARAD standards. Appropriate ECSMIS edits will be effected to resolve these situations.



## **Physical Inventories of Shore-based Spares**

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# CHAPTER 22: SBS ITEMS THAT ARE EXCESS, OBSOLETE, OR BEYOND ECONOMIC REPAIR

*Excess items* are that portion of the SBS inventory that is unneeded, or otherwise cannot be sufficiently justified for retention. *Obsolete items* are those that no longer have an application to any MARAD program. Shore-based inventory equipment or systems which are repairable but for which repairs would not be economically feasible are *beyond economic repair*. These three categories of inventory are grouped together as “excess” and appropriately held as inventory in the Excess Account prior to ultimate disposition. This chapter collectively refers to this material as “excess”.

Items become excess as a result of MARAD engineering and operational decisions, or possibly logistics policy changes. These determinations can be made at either the Region and Headquarters level. MAR-614 will periodically evaluate inventory on-hand levels to determine excess beyond MARAD requirements. Inventory deemed excess will be processed for disposal at the first opportunity.

Excess material generated as the result of repairs or overhauls should be processed for disposal under the terms and conditions of the corresponding repair contract, *in lieu of* being transferred to a MARAD warehouse. Any excess or scrap material transferred to a MARAD warehouse must be reported to the General Services Administration for disposal, which is a lengthy process.

## 22.1 SCREENING OF EXCESS ITEMS

The Region is responsible for indicating to MAR-614 all SBS items excess to Region needs. MAR-614 may also designate any MARAD item “excess” when: (1) no RRF application exists, and there is otherwise insufficient justification for the item’s retention; or (2) RRF application exists but inventory levels are beyond that which is deemed appropriate. For these items of excess, a Report of Excess Personal Property (SF-120 or MARAD’s Automated Report of Excess Personal Property) must be completed. Contact MAR-614 on use of the automated SF-120.

After completion of the Report of Excess Personal Property, the APO will forward the form to MAR-614 for disposal instructions.

The following guidelines are provided for reporting property as excess:

- a. prepare either the SF-120 form or the automated SF-120 form
- b. a Report of Survey is not required to report property excess to MAR-614.
- c. a Report of Survey is also not required for the loss, damage, or destruction of equipment having a unit acquisition cost of *less than* \$1,000, except for SENSITIVE items where the threshold is \$100
- d. use DOT Form 4410.1 “Report of Survey” to report the loss, damage, or destruction of equipment having a *unit acquisition cost of \$1,000 or more and SENSITIVE items with an acquisition cost of \$100 or more*

*Sensitive items include:*

- accounting machines, calculating machines, and typewriters
- Federal Data Processing (FIP) equipment
- photographic equipment (cameras and film processing equipment)
- portable communications and telecommunications equipment
- recorders, televisions, radios, phonographs, and other audio-visual equipment
- test equipment and optical instruments
- binoculars
- weapons (firearms) and ammunition

## 22.2 REPORT OF EXCESS PERSONAL PROPERTY

Complete the SF-120 as follows:

Block #1 (Report No.) — Enter the serial number of the report provided by the Region.

Block #2 (Date Mailed) — Enter the date the report is mailed (not the date on which it was prepared).

Block #3 (Total Cost) — Total acquisition cost of the items on the report. If actual cost is not known, the Region’s best estimate will be placed in this block.

Block #4 (Type of Report) — Check the appropriate block.

Block #5 (To) — Leave blank (send to: MAR-614 (RRF/NDRF shipboard equipment/parts)).



## **SBS Items that are Excess, Obsolete, or Beyond Economic Repair**

Block #6 (Approp. of Fund to Be Reimbursed) — Fill in only if known.

Block #7 (From) — Leave blank.

Block #8 (Report Approved by) — Name and title of approving official, and Region.

Block #9 (For Further Information Contact) — Name, address, and telephone number of the Property Custodian.

Block #10 (Agency Approval) — Leave blank.

Block #11 (Send Purchase Orders or Disposal Instructions to) — Leave blank.

Block #12 (GSA Control No.) — Leave blank.

Block #13 (FSC Group No.) — Enter the Federal Supply Class (FSC) of the equipment.

Block #14 Location of Property Physical location of property.

Block #15 (REIM/REQD) — Leave blank.

Block #16 (Agency Control No.) — Leave blank.

Block #17 (Surplus Release Date) — Leave blank.

Block #18 (Excess Property List) — Complete items (a) through (g):

- a. (Item No.) Enter consecutive numbers for all line items in the report
- b. (Description) Provide all available descriptive data.
- c. (Condition Code) Enter the appropriate code from Appendix J
- d. (Unit) Enter the Unit of Issue from Appendix H
- e. (Number of Units) Enter the quantity of each line item in terms of the Unit of Issue
- f. (Acquisition Cost) Purchase or estimated cost per line item
- g. (Total Cost) Extended cost of each line item (e times f)
- h. (Fair Value) Leave Blank

### **22.3 MAR-614 SCREENING OF EXCESS ITEMS**

MAR-614 will review the excess items reported by the Region to determine overall MARAD applicability. The Report of Excess Personal Property will be routed through MAR-611 to ensure concurrence as to material status. If the excess status is confirmed, MAR-614 will provide the Region with disposal instructions. The Region will transfer

those affected items to the Excess Account using the appropriate ECSMIS SBS transaction.

### **22.4 DISPOSAL OF ITEMS**

Upon receiving disposition instructions, the Region will make arrangements to transfer or issue the corresponding items out through the appropriate channels. In conjunction with the physical transfer, an SBS transaction will be executed that will remove the affected items from the inventory records in ECSMIS. Corresponding documentation will be retained and filed appropriately.

### **22.5 DISPOSAL OF VARIOUS NON-SBS ITEMS**

Excess shipboard material will be reported to MAR-614 using the procedures specified for reporting excess SBS material. Excess administrative property (e.g., office and warehouse support items), should be reported to MAR-313.

# CHAPTER 23: PACKAGING, HANDLING, STORAGE, AND TRANSPORTATION (PHS&T) OF SBS

This chapter addresses the resources, procedures, and methods by which SBS material is packaged, handled, stored, transported, and preserved. Packaging, packing, and preservation refer to processes for ensuring protection of material. Handling includes activities involving material movement within a facility. Storage is the warehousing function ashore. Transportation refers to the material movement between facilities.

## 23.1 GENERAL WAREHOUSE REQUIREMENTS FOR PHS&T

Although most items received in SBS are adequately packaged, packed, and preserved prior to shipment, Regions should generally follow these guidelines regarding PHS&T:

- retain items in their original packaging until issued
- repackage only items inadequately or improperly protected when received
- document all cases of unsatisfactory preservation or packaging
- provide the necessary protection for items leaving the warehouses
- always report unsafe or unsatisfactory warehouse conditions
- comply with environmental and other applicable regulations
- always exercise safety and care for Government property
- always properly mark and label material

## 23.2 PRESERVATION

All SBS material will be afforded the degree of protection required to prevent further deterioration or damage. The degree of preservation is based on relative factors such as distribution and storage conditions, length of storage, and material condition required, etc.

Items requiring internal preservation will be sloshed, sprayed, or dipped, as applicable, with a preservative. Preservative will be carefully applied to ensure complete and proper coverage of internal and external surfaces, as required. Generally, openings will be sealed with caps, plugs, closures, or other barrier material.

## 23.3 PACKING AND PACKAGING

Packing and packaging of SBS material will generally be to commercial standards employed for long-term storage under adverse conditions. The conditions to be considered include, but are not limited to:

- multiple handling during transportation and in transit storage from point of origin to user
- shock, vibration and static loading during shipment
- environmental exposure during shipment or transit.

Accessory parts, such as nuts, bolts, washers, etc. accompanying the basic item will be preserved, bagged or otherwise consolidated, properly identified, and secured to the item. Large/outsize items will be skid mounted, preserved, and covered to prevent water damage. Peripheral equipment, e.g., power panels, controllers, etc., will be marked, packaged, and carefully secured to the main unit.

Containers will generally be wooden, and constructed to provide a compact balanced load. Critically machined components and surfaces of low tolerance specifications, e.g., turbine rotors/blades, impellers and shafts, etc. will be properly treated.

Multiple components will be fastened to the wooden pallets/skids securely and arranged to prevent shifting. Oversized loads will be provided with pallets/skids. Oversized loads are:

- a gross weight of 250 pounds or greater
- length and width dimensions of 48 x 24 inches or more and weighing more than 100 pounds.

Pallets/Skids will be constructed in such a manner as to accommodate the use of lifting devices and material handling equipment for all applicable scenarios.

## 23.4 MATERIAL IDENTIFICATION

Identification marking will be accomplished by use of labels, tags, or name plates. Minimum identification markings include the following data:

- equipment number and serial number (if equipment)



- part number (if part)
- nomenclature
- quantity and unit of issue
- gross weight and cube (if known)

### 23.5 MARKING

Markings will be legible and should withstand deterioration and fading under adverse conditions.

All surfaces to be marked will be clean, dry, and free of contaminants. Any marks not applicable to the material will be removed or sufficiently covered. Unless otherwise specified, the color of all markings will be black. When black is not legible, the color used will provide a definite contrast with the background.

Lettering for all marking will be capital letters of equal height and proportional to the available marking space of the container. Stenciled letters for identification will not be less than one-half of an inch in height. For labels, the lettering will be not less than 0.125 inch (approximately one-eighth of an inch). On tags, marking will be not less than three-sixteenths of an inch. The required markings will be placed so that they are not obscured by strapping or cleats. Additionally, markings will be appear on the front facing vertical surface of all containers, and at least one other vertical surface.

**23.5.1 Barrels, Drums, and Other Cylindrical Containers.** Identification will be applied on the upper one-third of pails, barrels, kegs, drums, and reusable metal containers, and on the tops of all unopened drums. Labels or tags may be used when the container is too small to allow any other method of marking. No marking will be placed within 6 inches of the centerline.

**23.5.2 Miscellaneous Items.** Marking for rods, pipe, coils, spools, etc., as well as other odd bulk stock material, will be applied on a label or tag securely attached to the article, container, or vicinity.

**23.5.3 Assorted Items.** When unrelated items of one general application (that can not be referred to as one SBS line item) are packed together in a container, a complete description of the contents will be marked on the container, and the word "MULTIPACK" shall be applied. When related, but not identical, items are packed together, the unit of issue "assortment" may be used and a general

material description applied and appropriately marked on the container.

A set, kit, or assembly, having unlike items identified as a single line item shall have a packing list identifying all items of a complete unit. The packing list will be attached near the identification marking and applied in a sealed, water-resistant envelope. Miscellaneous parts or accessories shall be identified by part number, and/or item nomenclature. Phrases such as "one bag/box miscellaneous hardware" will not be used.

**23.5.4 Labels.** Labels will be highly adhesive to all applicable surfaces, and resistant to deterioration under adverse conditions. If not inherently waterproofed, labels will be treated by coating the entire outer surface with a waterproof varnish, clear acrylic coating compound, or clear pressure-sensitive tape.

**23.5.5 Tags.** A metal, cloth, plastic, or paper tag will be used to mark items when container markings are not practical. All tags will be durable and resistant to deterioration under adverse conditions. Tags will be carefully attached in such a way to not damage the material or come free during shipment and handling. Tags will be appropriately marked per guidance herein.

**23.5.6 Name Plates.** When a name plate does not exist for a specific item, a name plate may be created and affixed to the item. The name plate will be made of a metallic or other suitable substance. Markings will be per the guidance herein.

### 23.6 STORAGE

Shelves, racks, bins, pallets, containers and other such functional storage accessories will be installed and used in the warehouse in a logical and safe manner. Material requirements will dictate the specific warehouse accessories to be employed. Material such as bar stock, sheet metal, angle iron, tubing, pipe, and other metals will be kept in appropriately designed storage racks. Material requiring surface protection will be appropriately handled using gloves if necessary. When practicable, dissimilar metals will come in direct contact to prevent corrosion due to electrolysis.



### **23.7 TRANSPORTATION**

Transportation of SBS material will be documented in accordance with procedures delineated herein using a Property Transfer Notice (Form MA-10). Transportation will be accomplished in accordance with instructions from the Office of Management Services (MAR-310). MAR-313 has cognizance over transportation matters within MARAD.

Although efforts will be made to strategically position SBS material when practical, first destination shipping charges will be considered for any initial acquisition. As a rule, all efforts will be taken to reduce the costs associated with necessary transportation; to include various government "space available" opportunities, and bulk-rate consolidated shipments.



## **Packaging, Handling, Storage, and Transportation (PHS&T) of SBS**

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# APPENDICES

## Appendix A: Logistics Management Terms and Definitions

**Allowance Item** This term refers to items that appear in an authorized allowance document (i.e. SAL, BAL, or COSAL) with an allowed quantity of 1 or more.

**Artifact** an Item of value with unique or historic characteristics, such as engine order telegraphs, bells, wheels, and selected works of art; other marine related items of value that may be commercially marketable, such as clocks, sextants, and other navigational aids; or items of considerable value such as silver.

**Assembly** A number of parts or subassemblies, or any combination thereof, joined together to perform a specific function and are capable of disassembly. The distinction between an assembly and a subassembly is made by individual applications, i.e., an assembly in one instance may be a subassembly in another when it forms a portion of a higher level assembly.

**Builder's Allowance List (BAL)** The BAL is a document produced by the original builder of a ship that lists the equipment and components installed in the ship to perform its operational mission; the spare parts and special tools required for their operation, overhaul and repair; and allowance quantities. It is used only when a Shipboard Allowance List (SAL) is not available.

**Configuration Management** The management practices and procedures that include Configuration Identification, Configuration Change Control, Configuration Status Accounting, and provisioning.

**Configuration Record** The official repository of configuration data for the RRF. The term also refers to the individual data record for a configuration item of equipment/equipage.

**Configuration Status Accounting** The recording of configuration data from the configuration identification and configuration change control processes.

**Configuration** The functional and physical characteristics of material as described in technical documents and achieved in a product.

**Configuration Item** Any item selected for configuration management, generally a vessel or a validation-worthy equipment item.

**Configuration Identification** The selection of the documents, the documents, the data contained in the documents, supply and catalog identifiers, and the labeling affixed to the item. The documents identify and define the item's functional and physical characteristics in the form of specifications, drawings, associated lists, logic diagrams, flow charts, technical manuals, interface control documents, test and evaluation plans and reports, and documents referenced therein. The baseline, plus approved changes from that baseline, constitute the current configuration identification.

**Configuration Baseline** A configuration identification document or a set of such documents formally designated by the Government and fixed at a specific time. The configuration baseline, plus approved changes from that baseline, constitute the current configuration identification.

**Configuration Change** A general term that signifies that the configuration of an item has been or will be changed through the configuration control process. It is the product of an approved change proposal or request for deviation or waiver that affects the configuration of an item.

**Configuration Control** The systematic justification, preparation, submission, coordination, evaluation, approval or disapproval of a proposed change, and the implementation of a configuration change after formal establishment of an item's configuration identification.

**Controlled Equipage** Controlled Equipage is part of the ship's nonexpendable outfit category which is considered highly pilferable, and therefore requires special attention in order to ensure positive control over the inventory. Appendix K contains a generic, but not all-inclusive list of Controlled Equipage items. Controlled Equipage is subject to signature control during all RRF phases, and each item is identified by nomenclature and serial number (if one exists).

**Consumables** Consumables include those articles, commodities and supplies required in the maintenance and operation of the ship and the living and berthing of passengers, officers and crew, including:

- articles and commodities that are consumed in their initial use ;
- articles and commodities whose term of usage or life is so short that after initial use, such items can not be recovered for re-issue, or are practically valueless for sale or transfer; and
- articles and commodities of general use which after installation, lose their identity and become part of a system or a part of a larger piece of equipment.

**Coordinated Shipboard Allowance List** The COSAL is a document produced by the U.S. Navy that lists the equipment and components installed in a ship to perform its operational mission, the spare parts and special tools required for their operation, overhaul and repair, and allowance quantities. It is used only when a SAL is not available.

**Critical Item** A "critical item" is a spare part that has been so-designated to denote its essentiality to the function of the parent equipment.

**Equipage** This term refers to those non-installed and relatively durable items that are located in operating spaces or other designated areas to support recurring operational, maintenance, or administrative functions, or to provide for the health, comfort, or safety of the crew. Equipage does not encompass installed mechanical, electrical, or electronic equipment, components, or systems. Within MARAD, equipage falls into the category of Nonexpendables and/or Controlled Equipage.

**Equipment** The term "Equipment" refers to any functional unit of hull, mechanical, electrical, or electronic type material that is operated singly or as a component of a system and which appears in the SAL Equipment Index.

**Expendables** Those articles that are portable, semi-portable, and detachable and are used in the normal day-to-day operation and maintenance of the ship. Such items are subject to casual or gradual deterioration and replacement, but are not readily consumed by usage and are not subject to economical repair. Examples include: hawsers, towing and mooring wire cables, hand tools and certain portable power tools, certain inexpensive test equipment, shackles, slings, cargo securing gear, linens, silverware, crockery, draperies and curtains, desks, chairs, etc. See paragraph 10.1.2.

**Form, Fit, and Function** A collective term that describes the configuration comprising the physical and functional characteristics of an item as an entity. The description does not include any characteristics or details of the internal parts making up the item.

*Form* refers to a defined configuration for satisfying mission needs.

*Fit* refers to the ability for an item to interface with or be an integral part of another item.

*Function* refers to the manner in which an item performs its mission, e.g., a vessel that is designed to carry containerized cargo.

**General Agent** Party to a General Agency (Services) Agreement. References to Ship Manager throughout this manual include General Agent.

**High-Value Items** Outfit items with an acquisition cost of \$1,000 or greater.

**Insurance Item** Equipment, normally stored in Shore-based Spares, that is critical for RRF readiness and that is not normally or readily available from commercial sources (open market).

**Item** A non-specific term used to denote any product. See also *Configuration Item*.

**Non-expendables** Those articles and equipage that are required for the maintenance and operation of the ship but are subject to special controls or to economical repair when no longer serviceable, rather than being disposed of and replaced. Included in this category are Controlled Equipage items such as binoculars, chronometers, sextants, etc. Other examples of nonexpendable outfit items include forklift trucks or other self-propelled Material Handling Equipment (MHE), certain communications equipment, certain highly technical test equipment, etc.

**Not-carried Items** This term refers to items that do not appear in an authorized allowance list (SAL, BAL, or COSAL).

**Not in Stock Items** This term refers to allowance items that have an onboard stock balance of zero.

**Outfit Material** This term refers to all non-installed equipment and supplies, less the spare parts identified in the SAL. Outfit items include, but are not limited to maintenance and mission essential material and all items required by the U.S. Coast Guard and the American Bureau of Shipping (ABS), and any other regulatory body. See Chapter 10, also the definitions for Consumables, Expendables, Non-Expendables, and Controlled Equipage.

**Part** One or more pieces joined together that are not normally subject to disassembly without destruction.

**Repairables** components, modules, assemblies, subassemblies or equipment that can be economically restored to perform their required functions by corrective maintenance.

**Ship Manager** Party to a Ship Manager Contract. References to Ship Manager throughout this manual include "General Agent".

**Shipboard Allowance List (SAL)** The SAL is the authoritative document aboard RRF ships that lists the equipment and components installed in a ship to perform its operational mission and the allowed spare parts and special tools required for their operation, overhaul and repair.

**Spares** This term refers to any item or items, including modules and consumable-type materials that have an equipment application and which appear in a Shipboard Allowance List (SAL).

**Spare Parts** This term refers to any item or items, including modules and consumable-type materials that have an equipment application and which appear in a Shipboard Allowance List (SAL). In this manual, the terms "Spares", "Repair Parts", and "Spares and Repair Parts" are used interchangeably.

**Stock** This term refers to spare parts located in shipboard storage (as distinct from parts installed in an equipment).

**Validation** The process of determining (or verifying) the physical characteristics of an equipment configuration item for the purpose of configuration identification.



## Appendix B: Acronyms

ABS	American Bureau of Shipping	MAAP	Maritime Administration Acquisition Procedures
ACOTR	Assistant Contracting Officer's Technical Representative	MAO	Maritime Administrative Order
ACR	Allowance Change Request	MARAD	Maritime Administration
ADP	Automated Data Processing	MCRL	Master Cross Reference List
AEL	Allowance Equipage List	MEI	Master Equipment Index
APL	Allowance Parts List	MHE	Material Handling Equipment
APO	Accountable Property Officer	MICN	MARAD Item Control Number
AQL	Acceptable Quality Level	MIS	Management Information System
BAL	Builder's Allowance List	MRM	MARAD Reutilized Material
CAGE	Commercial and Government Entity	MRU	Minimum Replacement Unit
CCB	Configuration Control Board	MSC	Military Sealift Command
CCP	Configuration Change Proposal	NCB	National Codification Bureau
CCR	Configuration Change Report	NDRF	National Defense Reserve Fleet
CFP	Contractor-Furnished Property	NIIN	National Item Identification Number
CFR	Code of Federal Regulations	NSN	National Stock Number
CI	Configuration Item	OPDS	Offshore Petroleum Discharge System
CM	Configuration Management	PC-SAL	PC Shipboard Allowance List
COSAL	Coordinated Shipboard Allowance List	PHS&T	Packaging, Handling, Storage, and Transportation
COTR	Contracting Officer's Technical Representative	PTN	Property Transfer Notice
CSA	Configuration Status Accounting	QA	Quality Assurance
DAASO	Defense Automatic Addressing System Office	QC	Quality Control
DAMES	Defense Automated Message Exchange System	RECSMIS	Remote ECSMIS
DLA	Defense Logistics Agency	ROS	Reduced Operating Status
DLSC	Defense Logistics Services Center	RRF	Ready Reserve Force
DOD	Department of Defense	RSO	Region Ship Operations Officer
DOT	Department of Transportation	SAC	System Application Code
ECR	Equipment Configuration Record	SAL	Shipboard Allowance List
ECSMIS	Equipment Configuration and Spare Parts Management Information System	SBS	Shore-based Spares System
EGC	Equipment Group Code	SEF	Sealift Enhancement Features
FAR	Federal Acquisition Regulations	SNSL	Stock Number Sequence List
FCC	Federal Communications Commission	SOL	Shipboard Outfit List
FPMR	Federal Property Management Regulations	SOLAS	International Convention for the Safety of Life at Sea
FSC	Federal Supply Classification	SOMO	Ship Operations and Maintenance officer
FSCM	Federal Supply Code for Manufacturers	SOW	Statement of Work
GFI	Government Furnished Information	TAR	Transportation Acquisition Regulations
GFM	Government Furnished Material	TD&E	Tear Down and Evaluation
GSA	General Services Administration	UI	Unit of Issue
HM&E	Hull, Mechanical, and Electrical	USCG	United States Coast Guard
IOL	Initial Outfitting List	USN	United States Navy
LMO	Logistics Management Officer	USNRC	United States Nuclear Regulatory Commission
LSS	Logistics Support System	USNS	United States Naval Ship



## Appendix C: Designated Non-Validation Worthy Equipment

The following equipments and components are designated non-validation worthy due to their non-critical nature (to a vessel's primary mission), low failure rate in service, commonality of use, or ease of replacement and repairability. This list is not all-inclusive or limiting, and recommendations for additions, deletions or changes to the list may be submitted to MAR-614. Recommended changes should include a statement as to the applicability fleet-wide or vessel class only basis.

- Access closures - manually operated (doors, hatches and scuttles)
- Accumulators, receivers, flasks, for air, refrigerant, and other fluids
- Battery chargers, unless installed
- Batteries, portable
- Circuit breakers, less than 100 amps
- Connectors
- Controlled Material items
- Cooling coils, air duct type
- Couplings, with the exception of those that are part of the main propulsion shafting, main turbines, generators, and diesel engines
- Cylinders for watertight doors
- Dial telephone sets
- Dimmers/rheostats - controlling status board lights
- Distribution boxes
- Expansion joints and flexible pipe couplings
- Fans and brackets, open-bladed, bulkhead mounted, and portable
- Filters
- Fuse boxes
- Gauges and meters
- Header assemblies
- Heaters for habitability spaces
- Household type washers and dryers
- Indicators, sight liquid
- Interconnecting boxes
- Junction boxes
- Lighting, with the exception of navigation, aircraft facility, special cargo installations, and searchlights
- Nozzles, firehose type
- Panels, with the exception of control and monitoring panels for critical systems such as vessel's whistle, fire fighting systems, main engine controls, boiler controls, salinity indicating systems, and alarm panels
- Plotting boards - other than tactical display
- Plumbing fixtures
- Portable galley equipment
- Portable equipment, with the exception of materials handling equipment such as forklifts
- Relay and relay arms - other than reverse current (type CON and CRN)
- Shop equipment
- Solenoid, valve
- Sprinkler heads
- Strainers
- Stuffing boxes
- Switch boxes
- Switches
- Tanks, miscellaneous
- Tank level indicators
- Terminal boxes
- Thermometers
- Transformers - other than power distribution and lighting
- Traps
- Urinals/water closets/lavatories
- Valves less than four inches, except fuel oil emergency shut-off valves, boiler safety valves, and blow-off valves
- Ventilation motors under 3 horsepower, and associated fans, controllers, and heat exchangers, except those installed to ventilate engine rooms, machinery spaces, cargo spaces, flammables storage, battery storage, and charging rooms, and other hazardous spaces



# Appendix D: Equipment Group Codes

## SECTION: 01 MAINTENANCE AND REPAIR SUMMARY

### SUB-SECTION & DESCRIPTION

07 TANK CLEANING C-3

## SECTION: 07 DRYDOCKING AND SURVEYS

### SUB-SECTION & DESCRIPTION

45 LIFESAVING EQUIPMENT

## SECTION: 10 GENERAL TECHNICAL INFORMATION

## SECTION: 11 STRUCTURAL

### SUB-SECTION & DESCRIPTION

04 SIDE SHELL  
25 RIVETED SEAMS  
28 STRUCTURAL CASTINGS & FORGINGS  
57 FUEL OIL SETTLERS

## SECTION: 12 HULL FITTINGS AND OUTFIT

### SUB-SECTION & DESCRIPTION

02 MOORING BITTS & FOUNDATIONS  
06 CHAIN STOPPERS  
21 AIRPORTS & FIXED LIGHTS  
23 WINDOWS  
40 SECURING DEVICES  
55 SPECIAL FITTINGS & OUTFIT  
59 WIRE REELS  
61 DOCKING PLUGS

## SECTION: 13 RUDDER

### SUB-SECTION & DESCRIPTION

01 RUDDER  
04 PLUGS  
10 PINTLE & GUDGEON  
12 GUDGEON & BUSHING  
18 STOCK  
30 TOOLS

## SECTION: 14 DECK COVERING

### SUB-SECTION & DESCRIPTION

30 DECK TREADS

## SECTION: 16 ACCESS

### SUB-SECTION & DESCRIPTION

01 WATERTIGHT DOORS  
02 WATERTIGHT MANHOLES  
04 W/TIGHT HATCHES-NON CARGO HAND  
05 W/TIGHT DOORS-HYD ACTUATED  
06 WATERTIGHT DOOR OPERATORS  
07 CONS WTRTIGHT/NONWTRTIGHT DOOR  
08 COUNTER BALANCE VALVE  
10 SIDEPORTS-MANUALLY OPERATED  
11 SIDEPORTS-ELECT OPERATED  
12 SIDEPORTS-HYD OPERATED  
15 NON WATERTIGHT DOORS  
19 EXPANDED METAL DOORS  
20 SCREEN DOORS  
21 CARGO DOORS  
22 CASING DOORS  
25 BULKHEAD DOORS, RO/RO  
26 SUEZ CANAL LIGHT ACCESS DOOR  
30 REFRIGERATION DOORS  
31 PILOT LADDERS  
35 ACCOMMODATION LADDERS  
65 ACCESS PLATES & COVERS  
68 RAMP, MOVABLE ACCESS  
70 STERN DOORS  
71 STERN RAMP  
72 RAMP COVERS  
75 TOOLS - RO/RO EQUIPMENT

## SECTION: 17 MASTS AND BOOMS

### SUB-SECTION & DESCRIPTION

07 GOOSENECK ASSEMBLIES  
08 SEA ENHANCEMENT SYSTEM  
15 BOOMS  
17 HEAVY LIFT BOOMS  
19 UTILITY DAVITS

## SECTION: 18 RIGGING, ABS CERTIFIED/INSTALLED

### SUB-SECTION & DESCRIPTION

01 RIGGING  
03 FALLS  
10 BLOCKS  
11 CARGO BLOCKS  
12 SNATCH BLOCKS  
13 FAIRLEADS  
25 SLINGS  
31 CARGO HOOKS  
32 SWIVELS  
55 BOATSWAIN'S STORES  
56 RIGGING TOOLS

**SECTION: 19 PORTABLE WEIGHT HANDLING EQUIPMENT**

**SECTION: 20 WINCHES**

SUB-SECTION & DESCRIPTION

- 01 WINCHES
- 02 STERN RAMP WINCHES
- 05 CARGO WINCHES
- 06 CARGO WINCH DRIVES
- 07 CARGO WINCH BRAKES
- 08 BRAKE, MAGNETIC
- 10 TOPPING LIFT WINCHES
- 11 TOPPING LIFT WINCH DRIVES
- 12 TOPPING & VANG
- 15 VANG WINCHES
- 16 VANG WINCH DRIVES
- 17 VANG & SCHOONER
- 20 SCHOONER VANG WINCHES
- 21 SCHOONER VANG WINCH DRIVES
- 25 BOAT WINCHES
- 26 BOAT WINCH DRIVES
- 30 ACCOMM./PILOT LADDER WINCHES
- 31 ACCOMM LADDER WINCH DRIVES
- 50 HEAVY LIFT
- 70 HAND WINCHES

**SECTION: 22 STEERING GEAR**

SUB-SECTION & DESCRIPTION

- 01 STEERING GEAR
- 05 HYDRAULIC SYSTEM
- 06 RAMS & CYLINDERS
- 07 CROSS HEAD & CROSS HEAD DRIVE
- 08 FOLLOW-UP MECHANISM
- 09 STEERING STANDS & TRICK WHEELS
- 10 LUBRICATION
- 15 PNEUMATIC CONTROL SYSTEM

**SECTION: 23 STABILIZERS**

SUB-SECTION & DESCRIPTION

- 01 STABILIZERS
- 05 RETRACTABLE ACTIVATED FIN TYPE
- 06 FINS & FIN SHAFTS
- 07 OUTBOARD BEARINGS
- 08 INBOARD BEARINGS & LUBRICATION
- 09 ELECTRO-HYDRAULIC DRIVE SYSTEM
- 10 AUTOMATIC SERVO-CONTROL SYSTEM
- 11 GYRO SENSING UNIT
- 12 TILTING MECHANISM
- 13 FIN BOXES AND SEA GLAND
- 14 BRIDGE CONSOLE
- 15 APPARATUS Bd & INSTRUMENTATION
- 40 LIST CONTROL SYSTEM

**SECTION: 24 HATCH COVERS**

SUB-SECTION & DESCRIPTION

- 01 HATCH COVERS
- 07 PONTOON FILLERS

- 20 FOLDG/HINGED TYPE (ELECTRO-HYD)
- 22 FOLD/HING TYPE (HYD CYL ACT)
- 23 CYL ACTUATION HYD DRIVE
- 29 VANE MOTOR ACTUATN HYD DRIVE

**SECTION: 25 ELEVATORS, CONVEYORS & VEHICLES**

SUB-SECTION & DESCRIPTION

- 03 PASSENGER ELEVATORS
- 04 STORES ELEVATORS
- 05 DUMBWAITERS
- 10 CARGO ELEVATORS & EQUIP.
- 13 ELEVATOR RIGGING
- 23 SHIP'S STORES CONVEYORS
- 30 CARGO CONVEYORS
- 44 POWER SWEEPERS
- 46 PERSONNEL CARRIERS
- 50 CONVEYORS (NON-POWERED)
- 70 FORKLIFTS/PALLET TRUCKS

**SECTION: 26 MOORING EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 MOORING EQUIPMENT
- 05 ANCHOR WINDLASS (ELECTRO-HYD.)
- 06 HYDRAULIC SYSTEM
- 08 CONTROLS
- 10 ANCHOR WINDLASS (ELECTRO-MECH.)
- 14 MOORING WINCHES
- 15 AUTO. MOOR WINCHES (ELEC-MECH.)
- 16 MECHANICAL DRIVE TRAIN
- 17 CONTROL FEATURES
- 20 CAPSTANS
- 21 MECHANICAL DRIVE TRAIN
- 25 WARPING WINCH
- 50 ANCHORS
- 55 ANCHOR CHAIN
- 60 MOORING LINES, SBS
- 61 TOWING CABLE, SBS
- 65 ANCHOR WINDLASS (STEAM DRIVEN)

**SECTION: 27 CRANES**

SUB-SECTION & DESCRIPTION

- 01 CRANES
- 05 REVOLVING CRANES
- 07 RIGGING
- 08 MACHINERY
- 09 HOIST MACHINERY
- 10 SLEW MACHINERY
- 11 LUFF MACHINERY
- 12 WINDOW WIPERS/HEATERS
- 13 SIREN
- 30 OVERDECK GANTRY CRANES
- 33 GANTRY
- 37 TROLLEY
- 40 MACHINERY TROLLEY/CRANE DRIVE
- 43 OPERATOR CAB
- 48 POWER TRANSFER COMPONENTS
- 60 UNDERDECK GANTRY CRANES
- 64 SPREADER
- 65 HOIST MACHINERY

**SECTION: 29 LASHING GEAR**

SUB-SECTION & DESCRIPTION

- 01 LASHING GEAR
- 15 SHACKLES - LASHING GEAR
- 20 STACKERS
- 30 LASHINGS
- 35 TURNBUCKLES - LASHING GEAR
- 70 MISCELLANEOUS

**SECTION: 32 OFFICE EQUIPMENT (NOT C & E ITEMS)**

SUB-SECTION & DESCRIPTION

- 01 COPYING MACHINES
- 02 MICROFILM READER PRINTER

**SECTION: 33 JOINERY**

SUB-SECTION & DESCRIPTION

- 01 JOINERY
- 05 STOREROOMS AND LOCKERS
- 10 OFFICE SPACES
- 16 TOILET AND SHOWER SPACES
- 30 NAMEPLATES, NOTICES & MARKINGS

**SECTION: 34 COMMISSARY AND LAUNDRY**

SUB-SECTION & DESCRIPTION

- 01 COMMISSARY EQUIP. MISC.
- 02 MIXERS
- 03 VEGETABLE & MEAT PROCESSING
- 04 KETTLES/EGG BLRS&TMRS/FD WMRS
- 05 RANGE, OVER, BROILER, GRIDDLE
- 06 GARBAGE DISPOSALS/COMPACTOR
- 07 REFRIG/ICE CUBE MKR/DRINKG WTR
- 08 DISHWASHER
- 09 TOASTERS & COFFEE MAKERS
- 11 LAUNDRY EQUIPMENT
- 12 WASHING MACHINES
- 13 DRYERS
- 15 COMM. EQUIP. (O/THAN COMM. SP.)
- 16 DISPENSERS, BEVERAGE/CLEANSERS
- 20 FILTERS
- 21 LAUNDRY EXTRACTORS
- 22 SANITIZER, SINK
- 38 VENTILATION HOODS

**SECTION: 35 MEDICAL EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 STERILIZERS

**SECTION: 37 CARGO HOLD DEHUMIDIFICATION**

SUB-SECTION & DESCRIPTION

- 01 CARGO HOLD DEHUMIDIFICATION
- 05 CARGOCAIRE (SOLID DESIC. TYPE)
- 06 CONTROL EQUIPMENT

- 07 INSTRUMENTATION
- 15 KATHABAR (LIQUID DESIC. TYPE)
- 75 FILTER

**SECTION: 38 HEATING, VENTILATING & AIR COND.**

SUB-SECTION & DESCRIPTION

- 01 HEATING, VENT. AND AIR CONT.
- 03 HEATERS
- 04 STEAM OR HOT WATER HEATERS
- 05 HEATING, VENT. & AIR COND., ELECTRIC HEATERS
- 06 CARGO COIL HOT WATER HEATER
- 10 INDUCTION UNITS
- 11 AIR MIXING UNITS
- 15 PREHEATERS
- 16 HEATING, VENT.& AIR COND., REHEATERS
- 17 COOLERS
- 22 MUSHROOMS
- 23 GOOSENECKS
- 25 ACCOMMODATION AIR CONDITIONING
- 31 DAMPERS
- 32 FILTERS
- 40 THERMOSTATIC & HUMIDITY CONTRL.
- 41 PNEUMATIC TEMPERATURE CONTROLS
- 42 TEMPERATURE CONTROL SYSTEM
- 45 ACCOMMODATIONS A.C. UNITS
- 50 A/C WATER CHILLERS
- 70 GOLD VENTILATION

**SECTION: 40 DIESEL ENGINES**

SUB-SECTION & DESCRIPTION

- 01 DIESEL ENGINES
- 05 MAIN PROPULSION DIESEL ENGINE
- 06 MAIN GEAR
- 07 GOVERNING SYSTEM
- 08 INTEGRAL COOLING SVS
- 09 TURNING GEAR
- 10 TOOLS
- 11 INTEGRAL FUEL SYSTEM
- 12 INTEGRAL LUBRICATING SYSTEM
- 13 AIR INTAKE & EXHAUST SYSTEMS
- 14 INTEGRAL STARTING SYSTEM
- 15 CHARGING AIR SYSTEM
- 16 CONTROLS
- 17 INTEGRAL LUBRICATING SYSTEM
- 18 INTEGRAL FUEL SYSTEM
- 19 INTEGRAL STARTING SYSTEM
- 20 EMERG. DIESEL GENERATOR ENG.
- 22 INTEGRAL F. W. COOL. SYSTEM
- 23 INTEGRAL DIESEL OIL SYSTEM
- 24 INTEGRAL LUBE OIL SYSTEM
- 25 INSTRUMENTATION
- 26 INTEGRAL STARTING MECHANISM
- 27 GOVERNING SYSTEM
- 28 AIR INTAKE & EXHAUST SYSTEMS
- 35 AUXILIARY DIESEL ENGINES
- 37 INTEGRAL F. W. COOLING SYSTEM
- 38 INTEGRAL FUEL OIL SYSTEM
- 39 INTEGRAL LUBE OIL SYSTEM
- 40 INSTRUMENTATION & CONTROLS
- 41 INTEGRAL STARTING MECHANISM
- 42 TOOLS - AUX. ENGINE
- 43 GOVERNING SYSTEM
- 60 AIR INTAKE & EXHAUST SYSTEM
- 61 FRAME

- 62 CRANKSHAFT
- 63 POWER CYLINDERS
- 64 CAM SHAFT, VALVE TRAIN
- 66 CYLINDER HEADS
- 67 FLYWHEELS
- 68 FILTERS
- 69 INDICATOR, AHEAD & ASTERN
- 70 COOLING WATER SYSTEM AUX. ENG.
- 80 LIFEBOAT DIESEL ENGINES
- 85 LIFEBOAT GASOLINE ENGINES

**SECTION: 41 MAIN PROPULSION TURBINES**

SUB-SECTION & DESCRIPTION

- 01 MAIN PROPULSION TURBINES
- 10 CROSS-COMPOUNDED TURBINES
- 11 HIGH PRESSURE TURBINE
- 12 INLET STEAM CONTROL MECHANISM
- 13 LOW PRESSURE TURBINE
- 30 INTEGRAL GLAND SEAL REG. SYS
- 31 INTEGRAL LUBRICATION SYSTEM
- 32 MANEUVERING VALVES
- 33 GOVERNING SYSTEM
- 34 JACKING GEAR
- 40 LIFTING GEAR & SPECIAL TOOLS

**SECTION: 42 MAIN PROPULSION GEARS**

SUB-SECTION & DESCRIPTION

- 01 MAIN PROPULSION GEARS
- 02 INTEGRAL LUBRICATION SYSTEM
- 10 TOOLS

**SECTION: 43 SHAFTING AND BEARINGS**

SUB-SECTION & DESCRIPTION

- 01 SHAFTING AND BEARINGS
- 05 SHAFTING
- 06 PROPELLER SHAFT
- 07 LINE SHAFTING
- 08 THRUST SHAFT
- 09 THRUST BEARING
- 10 PROP SHAFTING & CPLGS & BRGS
- 11 LINE SHAFT BEARINGS
- 15 STERN TUBE ASS.-OIL LUB. TYPE
- 16 STERN TUBE ASSEMBLY-STAVE TYPE
- 17 STERN TUBE SEALS
- 18 STERN TUBE AND BEARING ASSY.
- 19 STERN TUBE BEARINGS
- 30 TOOLS

**SECTION: 44 PROPELLERS**

SUB-SECTION & DESCRIPTION

- 01 PROPELLERS
- 05 SOLID TYPE
- 10 CONTROLLABLE PITCH TYPE
- 20 PROPELLER ASSEMBLY FITTINGS
- 21 FAIRWATER CAPS
- 22 ROPE GUARDS
- 23 PILGRIM NUT
- 60 BOW/STERN THRUSTERS

- 65 CONTROLLABLE PITCH TYPE
- 66 PROPELLER
- 70 CONTROL MECHANISM
- 80 TOOLS

**SECTION: 45 GAS TURBINES**

SUB-SECTION & DESCRIPTION

- 01 GAS TURBINES
- 05 MAIN PROPULSION GAS TURBINES
- 20 SHIP'S SERV. GEN. GAS TURBINES
- 40 EMERGENCY GEN. GAS TURBINES

**SECTION: 46 VACUUM EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 VACUUM EQUIPMENT
- 05 MAIN CONDENSER
- 10 AUXILIARY CONDENSER
- 15 MAIN AIR EJECTOR & CONDENSERS
- 20 AUXILIARY AIR EJECTORS & COND.
- 21 EJECTORS
- 25 GLAND EXHAUST CONDENSER
- 30 MAIN & AUX. AIR EJECTORS
- 40 CONTAM ATMOSPHERIC CONDENSER

**SECTION: 47 PUMPS**

SUB-SECTION & DESCRIPTION

- 01 PUMPS
- 05 CENTRIFUGAL PUMPS
- 10 ROTARY PUMPS
- 11 ROTATING ELEMENT
- 15 HYDRAULIC PUMPS
- 17 CONTROL MECHANISM
- 20 HYDRAULIC PUMPS
- 21 DRIVE ELEMENTS
- 30 RECIPROCATING PUMPS
- 31 DRIVE ASSEMBLY
- 32 PUMPING ASSEMBLY
- 33 CONTROL MECHANISM
- 40 PUMP & TANK UNITS
- 50 HAND PUMPS

**SECTION: 48 PIPING AND FITTINGS**

SUB-SECTION & DESCRIPTION

- 01 PIPING AND FITTINGS
- 03 ACTUATORS, ELECT./HYDRA./PNEU.
- 05 PIPING & PLUMBING SUPPLIES
- 06 EXPANSION JOINTS
- 15 PIPE FITTINGS
- 16 HYDRAULIC HOSES & FITTINGS
- 17 CARGO OIL HOSES & FITTINGS
- 18 STEAM HOSES
- 19 MISCELLANEOUS HOSES
- 20 VALVES
- 21 STOP VALVES
- 22 CHECK VALVES
- 23 STOP-CHECK VALVES
- 24 RELIEF VALVES
- 25 REGULATING VALVES

- 26 THERMOSTATIC VALVES
- 27 MOTOR OPERATED VALVES
- 28 AIR OPERATED VALVES
- 29 SENTINEL VALVES
- 30 SAFETY VALVES
- 33 MANIFOLDS
- 35 SYS FTTGS (STRNR,FLTR,TRAPS,ET)
- 36 GAUGE GLASSES & ASSEMBLIES
- 40 WHISTLE
- 51 SEA VALVES
- 52 SEA STRAINERS (IN PIPING)
- 60 EDUCTORS

## **SECTION: 49 COMPRESSORS**

### SUB-SECTION & DESCRIPTION

- 01 COMPRESSORS
- 05 AIR COMPRESSORS
- 06 PISTON TYPE
- 07 CENTRIFUGAL TYPE
- 10 AUTO AIR COMPRESSOR CONTROLS
- 16 PISTON TYPE
- 25 VALVE CYLINDER OPERATORS
- 30 FILTERS/DRYERS
- 50 RECEIVERS
- 70 COOLERS
- 80 LUBRICATORS

## **SECTION: 50 AUXILIARY STEAM TURB AND GEARS**

### SUB-SECTION & DESCRIPTION

- 01 AUX. STEAM TURBINE & GEARS
- 05 SHIP'S SERVICE GENERATOR TURB
- 08 REDUCTION GEAR ASSEMBLY
- 09 GOVERNING SYSTEM
- 15 PUMP TURBINES
- 16 INTEGRAL LUBRICATION SYSTEM
- 17 GOVERNING SYSTEM
- 18 CARGO OIL PUMP REDUCTION GEARS
- 25 COMPRESSOR TURBINES
- 27 GOVERNING SYSTEM
- 35 FORCED DRAFT FAN TURBINE

## **SECTION: 51 BOILERS**

### SUB-SECTION & DESCRIPTION

- 01 BOILERS
- 05 BOILER DRUMS AND INTERNALS
- 06 INTEGRAL PIPING
- 10 BOILER TUBES
- 11 WATERWALLS
- 12 SUPERHEATERS
- 13 FLOORS
- 14 GENERATING TUBES
- 15 TUBE CLEANING EQUIPMENT
- 20 ECONOMIZERS
- 27 AIR HEATERS
- 30 BOILER CASING
- 31 BRICKWORK AND REFRACTORY
- 35 IGNITORS
- 36 FUEL OIL BURNERS
- 37 AIR REGISTERS
- 40 SOOT BLOWERS
- 41 STACK VIBRATORS

- 42 FLOW RECORDER/VISCOSITY CONTRL
- 43 BOILER MOUNTINGS
- 44 BOILER VALVES
- 45 SAFETY VALVES
- 46 FEED WATER REGULATORS
- 47 DRAFT GAUGES
- 48 SMOKE INDICATORS/UPTAKE PARASCOPIES
- 49 BOILER WTR LEVEL INDIC/SIGHT GL/TRANSDUCERS
- 50 FEED INJECTOR
- 55 COMBUSTION CONTROL
- 56 BURNER FLAME SCANNING SYSTEM
- 57 PYROMETERS
- 60 BOILER WATER TESTING
- 61 FLUE GAS ANALYSIS
- 65 BOILER CONTROLS
- 70 BOILER TOOLS
- 75 PRESSURE GAGES

## **SECTION: 52 MECHANICAL - MISCELLANEOUS**

### SUB-SECTION & DESCRIPTION

- 01 MISCELLANEOUS, CONSOLIDATED SPARES
- 05 MISCELLANEOUS, O-RINGS
- 10 MISCELLANEOUS, V-BELTS
- 15 MISCELLANEOUS, SPRINGS
- 20 MISCELLANEOUS, PACKING

## **SECTION: 53 BLOWERS AND FANS**

### SUB-SECTION & DESCRIPTION

- 01 BLOWERS AND FANS
- 05 VENTILATION FANS
- 06 ROTATING ELEMENTS
- 08 PORTABLE BLOWERS & FANS
- 10 FORCED DRAFT BLOWERS
- 11 ROTATING ELEMENTS
- 15 GLAND EXHAUSTERS
- 20 BRACKET FANS
- 25 CEILING FANS
- 30 FAN CONTROLS

## **SECTION: 54 UNFIRED PRESSURE VESSELS/NON STRUCT. TANKS**

### SUB-SECTION & DESCRIPTION

- 06 AIR RECEIVERS
- 07 FREON RECEIVERS
- 08 WATER COMPRESSION
- 09 HYDRAULIC ACCUMULATORS
- 16 PRIMING VACUM TANKS
- 21 STORAGE TANKS
- 22 SETTLING TANKS
- 23 GRAVITY TANKS
- 24 SUMP TANKS
- 25 SLUDGE TANKS
- 26 MIXING TANKS
- 27 EXPANSION TANKS
- 28 DRAIN TANKS
- 29 SANITARY TANKS
- 35 MISCELLANEOUS SMALL TANKS

## SECTION: 55 HEAT EXCHANGERS

### SUB-SECTION & DESCRIPTION

01	HEAT EXCHANGERS
05	HEATERS
06	COOLERS
09	HIGH PRESSURE FEED WATER HTR
10	LOW PRESSURE FEED WATER HEATER
11	DEAERATING F.W./VENT CONDENSER
12	THIRD STAGE FEED WATER HEATER
13	FOURTH STAGE FEED WATER HEATER
15	BOILER WATER SAMPLE COOLER
20	MAIN PROPULSION L.O. COOLER
21	LUBE OIL PURIFIER HEATER
22	FUEL OIL PURIFIER HEATERS
23	MAIN FEED PUMP LUB OIL COOLERS
24	MAIN GENERATOR LUB OIL COOLERS
30	FUEL OIL HEATERS
40	CARGO OIL TANK HEATING COILS
48	REFRIG LIQ SUCTION HEAT EXCHAN
51	REFRIG COMPARTMENT AIR COOLERS
53	HOT WATER DEFROSTING HEATERS
54	CHILLER SYSTEM WATER HEATERS
55	A/C WATER COOLERS
65	TANK CLEANING HEATER
66	TANK CLEANING DRAIN COOLER
67	TANK HEATERS & DRAIN COOLERS
68	TANK HTR & DRN COOLER INJ PUMP
70	HOT FREST WATER STOR TYPE HEAT
71	INSTANTANEOUS HOT WATER HEATER
72	FRESH WATER HEATER
74	SWIMMING POOL HEATER
75	HEAT EXCHANGER TUBES
80	CONTAMINATED DRAIN COOLERS
95	CLEANING EQUIPMENT

## SECTION: 57 PURIFIERS, DEHYDRATORS, SEPARATORS, DEHUMID., TANK CLEAN.

### SUB-SECTION & DESCRIPTION

01	LUBRICATING OIL PURIFER
02	BLENDING UNITS
05	DIESEL OIL PURIFIER
06	HEAVY OIL PURIFIER
08	PURIRI,DEHYD,SEPA,HUMID,TK CLN, INCINERATORS
10	REDUCT. GEAR CASE DEHUM/PRECIP
15	CHLORINATOR
17	STERILIZER, FRESH WATER
20	SEPARATORS
25	DEHYDRATORS/REFRIGIFILTERS
40	TANK CLEANING MACHINES
70	AUTO. SHOOTING & MONITORING
90	FILTERS

## SECTION: 58 EVAPORATORS

### SUB-SECTION & DESCRIPTION

01	EVAPORATORS
05	LOW PRESSURE FLASH TYPE
10	SINGLE EFFECT
11	EVAPORATOR
12	EDUCTOR
13	SAL INDIC-SOLENOID DUMP VAL
14	GAGE BOARD & INSTRUMENTS
15	INTEGRAL PIPING & FITTINGS

20	MULTIPLE EFFECT
22	AIR EJECTOR & CONDENSER
24	GAGE BOARD & INSTRUMENTS
25	INTEGRAL PIPING & FITTINGS
30	LOW PRESS SUBMERGED TUBE TYPE
31	SINGLE EFFECT
33	AIR EJECTOR & CONDENSER
34	SAL INDICAT/SOLENOID DUMP VAL
36	INTEGRAL PIPING & FITTINGS
40	MULTIPLE EFFECT
42	AIR EJECTOR & CONDENSER
43	SAL INDICAT/SOLENOID DUMP VAL
50	THIN FILM TYPE
53	SAL INDICAT/SOLENOID DUMP VAL
70	CONTAMINATED STEAM GENERATORS
75	SPECIAL TOOLS
90	AUTOMATION

## SECTION: 59 REFRIGERATION & AIR COND.

### SUB-SECTION & DESCRIPTION

01	REFRIGERATION SYSTEM
02	CARGO CONDITIONING PLANT
03	A.C. SYSTEM
05	COMPRESSORS - S/S
10	COMPRESSORS - CARGO
15	COMPRESSORS - AIR COND
16	PURGE COMPRESSOR
17	COMPRESSOR, CO2 TANKS
20	SYSTEM SPARES - S/S
25	SYSTEM SPARES - CARGO
30	SYSTEM SPARES - AIR COND
31	SYSTEM SPARES (CONSOLIDATED)
35	SYSTEM ELEC SPARES - S/S
40	SYSTEM ELEC SPARES - CARGO
45	SYSTEM ELEC SPARES - AIR COND
50	DIFFUSERS/FANS - ELECTRICAL
55	DIFFUSERS/FANS - MECHANICAL
60	SYS SP A/C, Ss CARGO CONS
65	CONDENSERS - S/S
70	CONDENSERS - CARGO
75	CONDENSERS - A/C
79	CONDENSERS, CO2 COOLING
80	CONDENSERS/HEATEXCHANGERS
84	DEFROSTING SYSTEM
85	CONTAINERS
86	BARGE REFRIGERATION SYSTEM
90	RECEIVERS
95	EVAPORATORS/CHILLERS
96	OZONE SYSTEMS
97	FILTER SYSTEMS

## SECTION: 60 ELECTRIC PROPULSION

### SUB-SECTION & DESCRIPTION

01	MAIN PROPULSION GENERATOR
02	MAIN PROPULSION MOTOR
03	MAIN PROPULSION MOTOR CONTROL
04	EXCITER GEN. FOR MN PROPULSION
05	MAIN PROPULSION GEN. TURBINE
08	JACKING GEAR

## SECTION: 61 ELECTRIC GENERATORS

### SUB-SECTION & DESCRIPTION

01	ELECTRIC GENERATORS
05	SHIP'S SERVICE GENERATORS
06	SHIP'S SERVICE GENERATOR EXCIT
07	SHIP'S SVC GENERATOR A/COOLER
09	GENERATOR CONTROLS
15	EMERGENCY GENERATOR
16	EMERGENCY GENERATOR EXCITER
17	EMERGENCY GENERATOR SET
20	COUPLING SHAFTING
30	GEARS/GEAR SHAFT
35	REMOTE CONTROLS (GEN COUPLING)

## SECTION: 62 ELECTRIC POWER DISTRIBUTION

### SUB-SECTION & DESCRIPTION

01	ELECTRIC POWER DISTRIBUTION
05	SHIP SVC GENERATOR SWITCHBOARD
06	INSTRUMENTATION
07	MAIN/EMERGENCY SWITCHBOARD
08	INDICATING LAMPS/PANELS
10	EMERGENCY GENERATOR SWBD
11	INSTRUMENTATION
15	TEST PANEL
16	INSTRUMENTATION
18	REMOTE CONTROL MAIN ENG.
20	DISTRIBUTION PANELS
21	SHORE CONNECTION BOX
25	VOLTAGE REGULATORS
30	TRANSFORMERS
31	RECTIFIERS
34	FIRE SCREEN DOOR DISTRIBUTION
35	BATTERIES
36	BATTERY CHARGERS
45	CONSOLIDATED SPARES

## SECTION: 63 ELECTRIC MOTORS & BRAKES

### SUB-SECTION & DESCRIPTION

01	ELECTRIC MOTORS
02	MOTOR & BRAKES-CONS
03	TOOLS
05	PUMP MOTORS
10	PURIFIER MOTORS
11	AIR HEATER MOTORS
12	JACKING GEAR MOTORS
13	COMBUSTION CONTROL MOTORS
14	POWER OPERATION VALVE MOTORS
15	SOOT BLOWER MOTORS
35	WORKSHOP EQUIPMENT MOTORS
36	LIFTING GEAR MOTORS
39	DIFFUSER FAN (REFRIG, A/C)
40	REFRIG COMPRESSOR/AC MOTORS
41	AIR COMPRESSOR MOTORS
45	FAN AND BLOWER MOTORS
46	GLAND EXHAUST & LEAK OFF MOTOR
47	GARGO HOLD DEHUMIDIFICATION
50	DECK MACHINERY MOTORS
52	HOIST (ELECTRIC)
55	CARGO WINCH MOTORS & BRAKES
56	TOPPING WINCH MOTORS & BRAKES
57	VANG WINCH MOTORS & BRAKES
58	SCHOONER VANG WINCH MTR./BRAKE

59	BOAT WINCH MOTORS
60	ACCOM. LADDER MOTORS & BRAKES
61	REVOLVING CRANE MOTORS
62	OVERDECK GANTRY CRANE MOTORS
64	ANCHOR WINDLASS MOTOR
65	AUTOMATIC MOORING WINCH MOTORS
66	CAPSTAN MOTORS
67	WARPING WINCH MOTORS
68	STEERING GEAR MOTORS
70	ELEVATOR MOTORS
72	CONVEYOR MOTORS
73	DUMBWAITER MOTORS
74	BOW & STERN THRUSTER MOTORS
79	STERN RAMP WINCH MOTORS
80	HATCH COVER MOTORS
81	DOOR MOTORS
86	MOORING WINCH M-G SETS
87	CARGO WINCH M-G SETS
88	REVOLVING CRANE M-G SETS
89	ANCHOR WINDLASS M-G SETS
90	MG SETS
97	MISCELLANEOUS SMALL MOTORS
99	SOLENOIDS

## SECTION: 64 ELECTRIC MOTOR CONTROLLERS

### SUB-SECTION & DESCRIPTION

01	ELECTRIC MOTOR CONTROLLERS
02	GROUP CONTROLS
05	PUMP MOTOR CONTROLLERS
09	SEPARATOR CONTROLLERS
10	PURIFIER MOTOR CONTROLLERS
11	AIR HEATER MOTOR CONTROLLERS
12	JACKING GEAR MOTOR CONTROLLERS
13	COMBUST CONTRL MTR CONTROLLERS
14	PWR OPER VALVE MTR CONTROLLERS
15	SOOT BLOWER MOTOR CONTROLLERS
20	I.C. MG SET CONTROLLER
25	LIGHTING MG SET CONTROLLER
35	WORKSHOP EQPT MTR CONTROLLERS
36	LIFTING GEAR MOTOR CONTROLLERS
40	REFRIG COMPRESSOR MTR CONTRLRS
41	AIR COMPRESSOR MTR CONTROLLERS
42	AIR CONDITIONING MTR CONT.
45	FAN & BLOWER MOTOR CONTROLLERS
46	COLD DIFFUSERS (FANS)
47	DEHUMIDIFICATION
50	DECK MACHINERY MTR CONTROLLERS
54	ELECTRIC BRAKES (CONSOLIDATED)
55	CARGO WINCH MOTOR CONTROLLERS
56	TOPPING WINCH MTR CONTROLLERS
57	VANG WINCH MOTOR CONTROLLERS
58	SCHOONR VANG Wnch MTR CONTRLRS
59	BOAT WINCH MOTOR CONTROLLERS
60	ACCOMM LADDER MTR CONTROLLERS
61	REVOLV CRANE MTR CONTROLLERS
62	O/DK GANTRY CRANE MTR CONTRLRS
64	ANCHOR WINDLASS MTR CONTROLLRS
65	AUTO MOORING WINCH MTR CONTRLR
66	CAPSTAN MOTOR CONTROLLERS
67	WARPING WINCH MTR CONTROLLERS
68	STEERING GR MTR CONTROLLERS
69	STABILIZER MTR CONTROLLERS
70	ELEVATOR MOTOR CONTROLLERS
72	ELECTRIC MOTOR CONTROLLERS, CONVEYOR MOTOR CONTROLLERS
73	DUMBWAITER MOTOR CONTROLLERS
74	BOW THRUSTER MOTOR CONTROLLERS
75	STERN THRUSTER

- 80 HATCH COVER MOTOR CONTROLLERS
- 81 DOOR MOTOR CONTROLLERS
- 86 M-G SET CONTROLLERS
- 87 CARGO WINCH M-G SET CONTROLLERS
- 88 REVOLV CRANE M-G SET CONTROLLERS
- 89 ANCHOR WINDLASS M-G SETS
- 90 ELECTRIC MOTOR CONTROLLERS, STORES CRANE
- 95 SYSTEM CONTROLS (INDIVIDUAL)
- 96 MISC. CONTROLLER SPARES
- 97 MISC. SMALL MOTOR CONTROLLERS
- 98 BELOW DECK CONTROLLERS
- 99 ABOVE DECK CONTROLLERS

**SECTION: 65 INTERIOR COMMUNICATIONS**

SUB-SECTION & DESCRIPTION

- 01 INTERIOR COMMUNICATIONS
- 02 MG SETS
- 03 WATCH CALL SYSTEM
- 04 ENGINE ORDER TELEGRAPH/RECORD
- 05 SOUND POWERED TELEPHONE SYSTEM
- 06 AUTOMATIC TELEPHONE SYSTEM
- 07 PUBLIC ADDRESS & DOCKING SYS
- 08 CALL BELL SYSTEM
- 09 DUMBWAITER COMMUNICATIONS SYS
- 11 CARGO & PORTABLE COMMUNICATION
- 15 SHORE SIDE TELEPHONE SYSTEM
- 18 PROPELLER ORDER SYSTEM
- 19 MAIN ENGINE MONITERING SYSTEM
- 20 INTERIOR COMMUNICATIONS, PROP SHAFT REVOLUTION IND  
SYS
- 21 RUDDER ANGLE INDICATOR SYSTEM
- 22 SALINITY IND SYS-FEB-CONDENS
- 23 HORSEPOWER METER SYSTEM
- 25 REFRIG TEMP RECORDING SYSTEMS
- 26 DEHUMIDIFICATION RECORDING SYS
- 27 CARGO OIL TEMP. RECORDING SYS.
- 30 W.T. DOOR INDICATOR PANEL
- 31 MOTOR RUNNING INDICATOR PANNEL
- 32 REEFER EQUIP. INDICATING PANEL
- 40 OIL OVBD. DISCHARGE ALARM
- 50 INDV SYS ALARMS SYS (EXCL SPEC)
- 51 ENGINEERS SIGNAL & ALARMS SYS
- 52 GENERAL ALARM SYSTEM
- 53 WHEELHOUSE ALARM SYSTEM
- 54 BURGLAR ARARM SYSTEM
- 55 COMBUSTION CONTROL ALARMS
- 56 AUDIBLE SPARES FOR ALARM PANEL
- 57 GENERATOR ALARM PANEL
- 58 HIGH & LOW LEVEL ALARMS
- 59 REEFER ALARMS
- 60 VEHICLE EXHAUST WARNING EQUIP.
- 61 FIRE ALARM
- 62 OIL MIST DETECTORS
- 63 MAIN ENGINE ALARM SYSTEM
- 64 MOTOR TEMP. ALARM Sys.
- 65 PUMP PRESS. SENSORS/ALARMS
- 66 POWER FAILURE ALARMS
- 71 MOVIE PROJECTION SYSTEM
- 72 MUSIC ENTERTAINMENT SYSTEM
- 73 TELEVISION SYSTEM
- 74 ENTERTAINMENT RADIOS
- 75 ELECTRIC CLOCK SYSTEM
- 76 AUTOMATIC TIMER
- 77 BROADCAST ANTENNA SYSTEM
- 78 TANK LEVEL INDICATORS

**SECTION: 66 EXTERIOR COMMUNICATIONS**

SUB-SECTION & DESCRIPTION

- 01 EXTERIOR COMMUNICATIONS
- 02 RECEIVERS
- 03 TRANSMITTERS
- 04 TRANSCEIVERS
- 05 RADIO TELEGRAPH EQUIPMENT
- 06 ANTENNA SPARES
- 07 JACK/SWITCHING PANELS/PLUG
- 08 DIGITAL FREQUENCY METER
- 10 RADIO TELETYPE EQUIPMENT
- 15 RADIOTELEPHONE EQUIPMENT
- 20 LIFEBOAT PORTABLE RADIO EQUIP.
- 22 MODULATOR
- 23 FREQ. SHIFT DIVERSITY CONVERT.
- 25 AUTO ALARM
- 26 AUTO KEYERS
- 30 SATELLITE COMMUNICATIONS
- 35 POWER SUPPLY
- 40 AMPLIFIER & FILTERS & EXCITERS

**SECTION: 67 NAVIGATION EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 NAVIGATION EQUIPMENT
- 04 HYD. SYS. F/RETRAC. RADAR MAST
- 05 RADARS AND ASSOCIATED ANTENNAS
- 06 SCANNER
- 07 RUDDER COURSE BOARD
- 08 ECHO SOUNDER EQUIP.
- 14 GYRO PILOT SYSTEM
- 15 GYRO COMPASS SYSTEM
- 16 MASTER GYRO COMPASS
- 17 COURSE RECORDER
- 18 GYRO REPEATERS
- 19 COMPASS SYSTEMS
- 25 MAGNETIC COMPASS
- 30 RADIO DIRECTION FINDER
- 35 LORAN/NAVSAT
- 36 DECCA NAVIGATOR
- 40 ELEC. STEERING-GYRO PILOT SYS.
- 41 WHEELHOUSE CONTROL UNITS
- 42 STEERING GEAR RM CONTROL UNITS
- 45 DOPPLER SPEED LOG
- 46 PIT/SAL LOG
- 50 WEATHER PRINTER
- 51 RADIO RECEIVER
- 52 FACSIMILE RECORDER
- 55 WHISTLE CONTROL
- 56 SIREN
- 57 FOG BELL & GONG SYSTEM
- 60 ANEMOMETER SYSTEM
- 70 WINDOW WIPERS/HEATERS
- 75 PORTABLE NAVIGATION EQUIPMENT
- 80 COLLISION AVOIDANCE SYSTEM
- 84 LOAD CALCULATOR/INDICATOR
- 90 CLINOMETER/INCLINOMETER

**SECTION: 68 LIGHTING & LIGHTING PANELS**

SUB-SECTION & DESCRIPTION

- 01 LIGHTING
- 10 EXTERIOR LIGHTING
- 11 HOUSE LIGHTING

- 12 SIGNAL LIGHTING
- 13 NAVIGATION LIGHTING
- 14 SEARCHLIGHTS
- 30 INTERIOR LIGHTING
- 32 MACHINERY SPACE LIGHTING
- 33 CARGO SPACE LIGHTING
- 34 REFRIGERATION SPACE LIGHTING
- 40 LIGHT DIMMERS
- 42 PORTABLE LIGHTING

**SECTION: 69 CATHODIC PROTECTION/DEGAUSING**

SUB-SECTION & DESCRIPTION

- 01 CATHODIC PROTECTION

**SECTION: 70 GENERAL ELECTRICAL SPARES**

SUB-SECTION & DESCRIPTION

- 01 ELECT./ELECTRONIC SPARES

**SECTION: 75 BEARINGS/COUPLINGS & SLEEVES**

SUB-SECTION & DESCRIPTION

- 01 BEARINGS/COUPLINGS & SLEEVES
- 02 MOTOR BEARINGS
- 03 FAN BEARINGS
- 10 SEALS
- 20 COUPLINGS
- 25 CONSOLIDATED BRGS. COUPS SEALS

**SECTION: 81 FIRE FIGHTING EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 FIRE FIGHTING EQUIPMENT
- 02 FIRE DOORS
- 05 FIRE EXTINGUISHERS
- 06 FIRE DETECTION
- 15 CO2 ROOM EQUIPMENT
- 20 SMOKE DETECTING EQUIPEMENT
- 50 FOAM EQUIPMENT
- 70 GAS DETECTION SYSTEM
- 80 HOSE,NOZZLES,APPLICATE.,AXES,RAKES,
- 90 INERT GAS SYSTEMS, SYSTEM COMPONENTS

**SECTION: 82 LIFE SAVING EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 LIFE SAVING EQUIPMENT
- 05 LIFEBOATS
- 06 LIFEBOAT/RAFT DAVITS
- 10 LIFEBOUYS/RINGS/JACKETS
- 11 BREATHING APPARATUS\*
- 15 LIFE RAFTS, S.B.S.
- 20 LIFEBOAT EQUIPMENT, S.B.S.
- 30 SURVIVAL/EXPOSURE SUITS

**SECTION: 85 WORKSHOP EQUIPMENT**

SUB-SECTION & DESCRIPTION

- 01 WORKSHOP EQUIPMENT
- 05 LATHES
- 06 LATHE ATTACHMENTS
- 10 WORKSHIP EQUIPMENT, SHAPERS
- 15 MILLING MACHINES
- 20 DRILL PRESSES
- 25 GRINDERS
- 30 WELDING EQUIPMENT
- 35 LIFTING GEAR
- 40 SAWS - MOTOR DRIVEN
- 45 POWER DRIVEN PORTABLE TOOLS
- 50 MISCELLANEOUS TOOLS
- 51 MOTOR REWINDING MACHINE
- 55 MISC. MEASURING DEVICES/INSTRUMENTS
- 60 ENGINE TEST STAND
- 80 HIGH PRESSURE CLEANING EQUIP.

**SECTION: 87 INSTRUMENTATION, METERS, GAUGES**

SUB-SECTION & DESCRIPTION

- 01 SYSTEM INSTRUMENTS
- 02 MAIN GAGE BOARD
- 05 SYSTEM INDICATING INSTRUMENTS
- 06 CONS THERMOMETERS/PRESS GAUGES
- 10 SYSTEM RECORDING INSTRUMENTS
- 15 PORTABLE INSTRUMENTS
- 20 RADIOLOGICAL EQUIP.
- 25 INERT GAS SYSTEM

**SECTION: 90 NUCLEAR REACTORS**

**SECTION: 95 AUTOMATION**

SUB-SECTION & DESCRIPTION

- 01 AUTOMATION
- 05 ENGINE ROOM CONSOLE
- 06 BRIDGE CONSOLE
- 08 PANEL, DIESEL ENG. REMOTE CONT
- 10 INFORMATION RECORDERS
- 11 BELL RECORDERS
- 20 VISCOSITY CONTROL EQUIPMENT
- 60 AUXILIARY MACHINERY AUTOMATION
- 62 CONTROLLERS, LIQUID LEVEL
- 63 CONDENSATE LEVEL CONTROL SYS.
- 65 POWER TRANSFER PANELS
- 67 CONTROLLER, WATER COOLER TEMP.
- 70 REMOTE CONTROL STATION, VALVES
- 71 HYD. POWER UNITS FOR VLV. SYS.
- 75 CONTROL PANELS FOR F.O. SYSTEM
- 76 CONTROL PANELS FOR PURIFIERS
- 77 CONTROL PANELS FOR HEATERS
- 78 CONTROL PANELS FOR DUMBWAITERS
- 79 CONTROLS FOR CARGO OIL
- 80 CONTROLS-BILGE, BALLAST & F.O.
- 85 CONTROL PANEL-SEWAGE TREATMENT
- 87 CONTROLS FOR STERN RAMPS
- 90 CONTROLS FOR HYDRAULIC SYSTEMS
- 95 CONT. PANELS F/WINCHES & HOIST

**SECTION: 96 MARINE SANITATION DEVICES**

SUB-SECTION & DESCRIPTION

- 01 MARINE SANITATION DEVICES
- 05 FLOAT SWITCHES

**SECTION: 97 OPDS-OFFSHORE PETROL DISCH. SYS.**

SUB-SECTION & DESCRIPTION

- 05 OPDS-SALM
- 10 OPDS-FLEXIBLE PIPING
- 15 OPDS-TOWING/MOORING SYSTEMS
- 20 OPDS-WARPING TUGS
- 25 OPDS-DEPLOYMENT ANCILLARIES
- 30 OPDS-TOOLS/CONSUMABLES & MISC.

**SECTION: 98 UNREP-UNDERWAY REPLENISH. SYS.**

SUB-SECTION & DESCRIPTION

- 05 UNDERWAY REPLENISHMENT SYSTEM

**SECTION: 99 MISCELLANEOUS**

# Appendix E: System Application Codes

## **ARH00**      **AIR HANDLING (GENERAL)**

ARH10      AIR SYSTEMS COMBUSTION  
ARH20      CHARGE AIR/SCAVENGING AIR SYSTEMS  
ARH30      SHIP'S SERVICE COMPRESSED AIR SYSTEMS  
ARH40      CONTROL AIR SYSTEMS  
ARH50      STARTING AIR SYSTEMS  
ARH60      VACUUM/AIR REMOVING SYSTEMS  
ARH70      ENGINE ROOM VENTILATION SYSTEMS

## **AUT00**      **AUTOMATION AND REMOTE CONTROL SYSTEMS (GENERAL)**

AUT10      THROTTLE CONTROL SYSTEMS  
AUT20      BOILER COMBUSTION CONTROL SYSTEMS  
AUT30      BOILER FEED WATER/DRUM LEVEL CONTROL SYSTEMS  
AUT40      REMOTE TEMPERATURE DETECTION AND ALARM SYSTEMS  
AUT50      REMOTE LEVEL DETECTION AND ALARM SYSTEMS  
AUT60      REMOTE VALVE OPERATING AND POSITION SYSTEMS  
AUT70      REMOTE EQUIPMENT START-UP/SHUT-DOWN SYSTEMS  
AUT80      SHIP'S SERVICE GENERATOR SYNCHRONIZATION SYSTEMS

## **CGO00**      **CARGO GEAR AND HANDLING (GENERAL)**

CGO10      MASTS/BOOMS/KINGPOSTS/RIGGING  
CGO20      WINCHES  
CGO30      CRANES  
CGO40      CARGO CONVEYORS/ELEVATORS  
CGO50      HATCH COVERS/SIDEPORTS/STERN RAMPS/DOORS  
CGO60      CARGO VENTILATION/DEHUMIDIFICATION/REFRIGERATION  
CGO70      LIQUID CARGO HANDLING SYSTEMS  
CGO80      CARGO TANK CLEANING/INERTING SYSTEMS  
CGO90      CARGO GEAR HYDRAULIC SYSTEMS

## **COM00**      **COMMUNICATIONS (GENERAL)**

COM10      EXTERNAL VOICE COMMUNICATIONS  
COM20      EXTERNAL DATA COMMUNICATIONS  
COM30      INTERNAL VOICE COMMUNICATIONS  
COM40      DOCKING ANNOUNCING SYSTEMS  
COM50      GENERAL ALARM SYSTEMS  
COM60      REMOTE INDICATOR AND REPEATER SYSTEMS  
COM70      TANK GAUGING AND LEVEL ALARMS  
COM80      WATCH AND EMERGENCY CALL BELL SYSTEMS

## **DOC00**      **SHIP'S DOCUMENTS (GENERAL)**

DOC10      WATCH/QUARTER/STATION (FIRE FIGHTING) PLANS  
DOC20      SHIP/SYSTEMS DRAWINGS AND PLANS  
DOC30      EQUIPMENT INSTRUCTION BOOKS  
DOC40      SYSTEM OPERATING MANUALS  
DOC50      SPARE PARTS INVENTORY  
DOC60      LOG BOOKS/DECK AND ENGINE RECORDS  
DOC70      ACTIVATION PLANS/SPECIFICATIONS  
DOC80      RETENTION M&R SPECIFICATIONS  
DOC90      DEACTIVATION PLANS/SPECIFICATIONS

## **EGD00**      **ELECTRICAL GENERATION AND DISTRIBUTION (GENERAL)**

EGD10      SHIP'S SERVICE GENERATOR DIESELS  
EGD20      SHIP'S SERVICE GENERATOR TURBINES  
EGD30      SHIP'S SERVICE GENERATOR GEARS  
EGD40      SHIP'S SERVICE GENERATORS  
EGD50      EMERGENCY DIESEL GENERATORS  
EGD60      MAIN AND AUXILIARY SWITCHBOARDS  
EGD70      SHIP'S SERVICE POWER DISTRIBUTION SYSTEMS  
EGD80      LIGHTING DISTRIBUTION SYSTEMS  
EGD90      MOTOR-GENERATOR EQUIPMENT

## **FLD00**      **FLUID HANDLING (GENERAL)**

FLD10 FUEL OIL SYSTEMS  
FLD20 LUBRICATING OIL SYSTEMS  
FLD30 CYLINDER/CAMSHAFT LUBRICATING SYSTEMS  
FLD40 SEA WATER COOLING SYSTEMS  
FLD50 FRESH WATER COOLING SYSTEMS  
FLD60 CONDENSATE SYSTEMS  
FLD70 FEED WATER SYSTEMS  
FLD80 BILGE/BILGE AND BALLAST/BALLAST SYSTEMS  
FLD90 CONTAMINATED DRAIN COLLECTION SYSTEMS

**HAB00**

**HABITABILITY (GENERAL)**

HAB10 COMMISSARY/GALLEY/LAUNDRY/HOUSEKEEPING  
HAB20 SHIP'S SERVICE REFRIGERATION SYSTEMS  
HAB30 HEATING/VENTILATION/AIR CONDITIONING  
HAB40 DUMBWAITERS AND PERSONNEL ELEVATORS  
HAB50 SHIP'S ENTERTAINMENT SYSTEM  
HAB60 HOT/COLD POTABLE WATER SYSTEMS  
HAB70 SANITARY FLUSHING SYSTEMS  
HAB80 SEWAGE TREATMENT SYSTEMS  
HAB90 TRASH COMPACTORS/INCINERATION SYSTEMS

**HUL00**

**HULL AND STRUCTURE (GENERAL)**

HUL10 INTEGRAL PIPING SYSTEMS  
HUL20 SEA CHESTS/SEA VALVES/HULL OPENINGS  
HUL30 CATHODIC PROTECTION SYSTEMS  
HUL40 DECK DRAIN SYSTEMS  
HUL50 STRUCTURE OPENING SEALING SYSTEMS  
HUL60 EXTERIOR COATINGS/PAINTING  
HUL70 INTERIOR COATINGS/PAINTING  
HUL80 TANK COATINGS

**MRG00**

**MOORING AND DOCKING (GENERAL)**

MRG10 ANCHOR HANDLING SYSTEMS  
MRG20 MOORING WINCH SYSTEMS  
MRG30 CAPSTANS  
MRG40 ACCOMMODATION/BOARDING SYSTEMS  
MRG50 BOW/STERN THRUSTERS  
MRG60 MOORING HYDRAULIC SYSTEMS  
MRG70 BITTS/CHOCKS/CLEATS/BOLLARDS  
MRG80 PORTABLE PILOT LADDERS  
MRG90 HAWSERS/MOORING LINES

**NAV00**

**NAVIGATION (GENERAL)**

NAV10 RADARS/PLOTTING AIDS  
NAV20 GYRO AND MAGNETIC COMPASSES  
NAV30 ELECTRONIC NAVIGATION SYSTEMS  
NAV40 GYRO PILOT SYSTEMS  
NAV50 FATHOMETER SYSTEMS  
NAV60 COURSE RECORDING SYSTEMS  
NAV70 SPEED LOG SYSTEMS  
NAV80 RUDDER ANGLE INDICATOR SYSTEMS  
NAV90 MAPS CHARTS AND PUBLICATIONS

**PRP00**

**PROPULSION (GENERAL)**

PRP10 STEAM TURBINES  
PRP20 DIESEL ENGINES  
PRP30 GAS TURBINES  
PRP40 REDUCTION GEARS  
PRP50 COUPLINGS/CLUTCHES  
PRP60 LINE SHAFTING/BEARINGS/SEALS  
PRP70 STERN TUBE LUBE OIL SYSTEMS  
PRP80 TAIL SHAFTS/TORQUE TUBES

**REG00**

**REGULATORY BODY REQUIREMENTS (GENERAL)**

REG10 ADMESUREMENT/LOAD LINES/CANAL  
REG20 HULL GAUGING/DRYDOCKING  
REG30 CARGO GEAR  
REG40 PROPULSION EQUIPMENT SYSTEMS  
REG50 AUTOMATION

REG60 FIRE FIGHTING/LIFE SAVING  
REG70 NAVIGATION/COMMUNICATION SYSTEMS  
REG80 POLLUTION/SOLAS  
REG90 MANNING/HABITABILITY

**SAF00 SAFETY AND SECURITY (GENERAL)**

SAF10 LIFEBOATS/LIFERAFTS  
SAF20 LIFEBOAT LAUNCHING/RETRIEVING SYSTEMS  
SAF30 LIFE SAVING EQUIPMENT  
SAF40 FIRE FIGHTING EQUIPMENT  
SAF50 FIRE MAIN/ABC WASHDOWN SYSTEMS  
SAF60 CO2/HALON FIRE EXTINGUISHING SYSTEMS  
SAF70 FIRE/SMOKE DETECTION AND ALARM SYSTEMS  
SAF80 BILGE LEVEL AND FLOODING DETECTION SYSTEMS  
SAF90 INTRUSION DETECTION AND ALARM SYSTEMS

**SEF00 SEALIFT ENHANCEMENT (GENERAL)**

SEF10 OFFSHORE PETROLEUM DISCHARGE SYSTEMS  
SEF20 ASTERN REFUELING SYSTEMS  
SEF30 MODULAR CARGO/FUEL DELIVERY SYSTEMS  
SEF40 VERTICAL UNDERWAY REPLENISHMENT SYSTEMS  
SEF50 LASHING GEAR AND TIE DOWN FITTINGS  
SEF60 FORKLIFT TRUCKS  
SEF70 BATTERY CHARGING SYSTEMS  
SEF80 SEA SHEDS/CONTAINER SHIP CARGO STOWAGE ADAPTERS  
SEF90 FLATRACKS/CONTAINER ADAPTER FRAMES

**STG00 STEERING AND SEA KEEPING (GENERAL)**

STG10 STEERING ENGINE  
STG20 RUDDER AND PINTLE  
STG30 STEERING HYDRAULIC SYSTEMS  
STG40 PROPELLER  
STG50 PROPELLER HYDRAULIC SYSTEMS  
STG60 FLUME TANKS/ROLL STABILIZATION SYSTEMS

**STM00 STEAM GENERATION AND DISTRIBUTION (GENERAL)**

STM10 BOILERS/STEAM GENERATORS  
STM20 AUXILIARY/WASTE HEAT BOILERS  
STM30 CONTAMINATED EVAPORATORS/FRESH WATER DISTILLERS  
STM40 MAIN STEAM SYSTEMS  
STM50 AUXILIARY BLEED SYSTEMS  
STM60 AUXILIARY EXHAUST SYSTEMS  
STM70 CONTAMINATED STEAM SYSTEMS  
STM80 BOILER FEED WATER SAMPLING/TREATMENT SYSTEMS  
STM90 GLAND LEAK-OFF AND SEAL SYSTEMS

**SUP00 VESSEL SUPPORT (GENERAL)**

SUP10 SHOP EQUIPMENT  
SUP20 PORTABLE ELECTRIC TOOLS  
SUP30 SPECIAL TOOLS  
SUP40 TEST EQUIPMENT  
SUP50 INSTRUMENTATION  
SUP60 OFFICE EQUIPMENT  
SUP70 BRIDGE INSTRUMENTS  
SUP80 MEDICAL EQUIPMENT



## Appendix F: Quality Control Procedures For HM&E Equipment

- 1) The Validator will batch and attach a locally prepared cover sheet to each validation package. He will annotate the cover sheet with any comments or questions that he may have. He will either resolve those questions himself or request assistance from the Inventory Specialist or COTR.
- 2) After the Contractor Team Leader has completed his QC of the package, he will initial the cover sheet and present the package to the Inventory Specialist for the QC check. It is understood that some items may require additional research and may not be completed at this time; e.g., serial number, manufacturer's CAGE, etc. These items will be deferred for later completion.
- 3) The Inventory Specialist will review the package and annotate the cover sheet with any item he perceives may be in error or questions he may have. He will take into consideration the missing data mentioned above.
- 4) The Inventory Specialist will inform the Contractor if re-validation is required. The Contractor Team Leader or the validator will revalidate the equipment and annotate the cover sheet indicating how the questionable data was resolved. The package will be returned to the Inventory Specialist, who will ensure that his questions have, in fact, been resolved.

Table W-1 Sample Sizes and Acceptable Quality Levels  
for Validation of HM&E Equipment

PACKAGE SIZE	SAMPLE	ACCEPTABLE QUALITY LEVEL (AQL)	APPROXIMATE OVERALL SAMPLE %	AQL % OF SAMPLE
0-10	10	0	100.0	100.0
10-50	10	1	20.0	10.0
51-150	15	2	30.0	13.3
151-300	30	3	20.0	10.0
301-500	50	5	17.0	10.0
501-850	65	6	13.0	9.2
851-1200	80	7	9.4	8.8
1201-2200	100	8	8.3	8.0
2201-3200	125	10	5.6	8.0
3201-6500	165	12	5.1	7.3
6501-10000	200	14	3.0	7.0
10001-22000	260	17	2.6	6.5
22001-35000	315	21	1.4	6.6

- 5) The Inventory Specialist will then enter on the Validation Performance Record the vessel being validated, inclusive dates validation accomplished, total number of validation aids selected for validation and the number of validation aids required to be sampled according to the size of the total validation effort as shown in the appropriate column of Table W-1.
- 6) The Inventory Specialist will count the validation aids and equipments completed. Enter the totals in the TOTAL SELECTED FOR VALIDATION columns (Table W-1).
- 7) Refer to Table W-1 and locate the sample size that corresponds to the number of validation aids in the package. Record the number of validation aids in the package. Record the number of validation aids to be sampled and the Acceptable Quality Level (AQL) in the QUALITY CONTROL SAMPLE columns (Table W-1).
- 8) Randomly extract the number of validation aids indicated in the sample size from the validation aids package. Selection of the particular validation aids will be random, unless based on the experience and judgment of the QC inspector, specific validation aids with a history of problem areas will be selected (the total number of validation aids selected for QC should be equal to or greater than the sample size recorded in Step #7). Although selection of validation aids shall be random, it is a good practice to follow through *by system* and to examine the remaining validation aids pertaining to the system to which the randomly-selected validation aid applies.
- 9) Check each validation aid in the sample against the equipment it represents and determine any defects in the recorded data. A major error or a large number of minor errors is considered a **major defect**. Major defects consist of, but are not limited to, the following examples:
  - a. Recorded equipment nomenclature does not match the actual equipment;
  - b. Recorded manufacturer's name does not match the actual equipment's manufacturer;
  - c. Recorded manufacturer's ID/CAT. NO/DWG., SER NO. does not match applicable numbers on actual equipment;
  - d. Recorded model number does not match model number on actual equipment;
  - e. Recorded deletion of an equipment when a unit of the equipment is still physically on board; or
  - f. Recorded "Add" equipment that does not exist on the vessel.
- 10) Any validation aid in the sample containing one or more of the above-listed major defects shall be set aside until the remaining validation aids in the sample have been checked. Validation aids with defects in other data elements shall be considered as **minor defects**. A validation aid will be counted only once as defective, even if it has both major and minor defects. Also, several minor defects on one validation aid may be considered a **major defect**. A validation aid with both major and minor defects will be counted as a **major defect**.
- 11) After all validation aids in the sample have been verified against applicable equipment, total the number of validation aids with defects and enter those totals in the DEFECTS columns on the Validation Performance Record (MINOR OR MAJOR), Table W-1.
- 12) If the number of validation aids with defects in the sample, recorded on the Validation Performance Record under TOTAL DEFECTS, is less than or equal to the AQL number also recorded on the Validation Performance Record, the entire sample shall be considered acceptable. If the number of validation aids with defects in the sample is greater than the AQL number, proceed to Step #13.
- 13) If the number of validation aids with defects determined in Step #12 is greater than the AQL number, the validation aid package will be rejected. Return the total validation aids package for re-validation. These rejected validation aids packages must then be QC'd again after revalidation starting at Step #1. Original

entries pertaining to the rejected validation aids package on the Validation Performance Record are lined out (single, horizontal line) and new data is recorded as the package is QC'd again.



## Appendix G: References

The following references are cited throughout this manual and provide additional guidance on selected topics.

1. Ready Reserve Force (RRF) Operations Management Manual
2. DOT H 4410.4, Equipment Management & Control
3. PC-SAL User Handbook
4. RRF-ECSMIS User Handbook
5. Maritime Administrative Order (MAO) 630-7; READY RESERVE FORCE: LOGISTICS SUPPORT SYSTEM (RRF/LSS) dated June 27, 1989
6. MAO 440-2; GIFTS AND BEQUESTS dated January 5, 1993
7. MAO 330-14; PERSONAL PROPERTY LOSS, DAMAGE, THEFT, CONDEMNATION, AND SACRIFICE dated February 24, 1993
8. MAO 270-8; MARAD SAFETY SHOE PROGRAM dated January 15, 1992.
9. Lashing Gear Field Identification and Inventory Guide



## Appendix H: Unit of Issue Abbreviations

The following unit of issue abbreviations will be used for requisitioning, issuing, and recording of material:

Ampoule . . . . .	AM	Length . . . . .	LG
Assembly . . . . .	AY	Liter . . . . .	LI
Assortment . . . . .	AT	Meal . . . . .	ME
Bag . . . . .	BG	Ounce . . . . .	OZ
Bale . . . . .	BE	Outfit . . . . .	OT
Ball . . . . .	BA	Package . . . . .	PG
Bar . . . . .	BR	Packet . . . . .	PZ
Barrel . . . . .	BL	Pad . . . . .	PD
Board Foot . . . . .	BF	Pair . . . . .	PR
Bolt . . . . .	BO	Pint . . . . .	PT
Book . . . . .	BK	Plate . . . . .	PM
Bottle . . . . .	BT	Pound . . . . .	LB
Box . . . . .	BX	Quart . . . . .	QT
Bundle . . . . .	BD	Ration . . . . .	RA
Cake . . . . .	CK	Ream . . . . .	RM
Can . . . . .	CN	Reel . . . . .	RL
Carboy . . . . .	CB	Roll . . . . .	RO
Cartridge . . . . .	CA	Set . . . . .	SE
Coil . . . . .	CL	Sheet . . . . .	SH
Cone . . . . .	CE	Shot . . . . .	SO
Container . . . . .	CO	Skein . . . . .	SK
Cubic Foot . . . . .	CF	Skid . . . . .	SD
Cubic Yard . . . . .	CD	Spool . . . . .	SL
Cylinder . . . . .	CY	Square Foot . . . . .	SF
Dozen . . . . .	DZ	Square Yard . . . . .	SY
Drum . . . . .	DR	Stick . . . . .	SX
Each . . . . .	EA	Strip . . . . .	SP
Foot . . . . .	FT	Thousand . . . . .	MX
Gallon . . . . .	GL	Thousand Cubic Feet . . . . .	MC
Gross . . . . .	GR	Ton . . . . .	TN
Group . . . . .	GP	Troy Ounce . . . . .	TO
Hank . . . . .	HK	Tube . . . . .	TU
Hundred . . . . .	HD	Vial . . . . .	VI
Jar . . . . .	JR	Yard . . . . .	YD
Kit . . . . .	KT		



## Appendix I:

## Ship Application Codes

The following codes are used to denote ship application in block 15 of the SBS Transaction Sheet. This list is alphabetical by ship name.

ADM. WM. M CALLAGHAN	RO/RO	CAPE TAYLOR	DIESEL/JAPAN
ADVENTURER	C3-S-38a	CAPE TEXAS	DIESEL/JAPAN
AGENT	C3-S-38a	CAPE TRINITY	DIESEL/GER
AIDE	C3-S-38a	CAPE VICTORY	DIESEL
ALATNA	T1-M-24A	CAPE VINCENT	DIESEL
AMBASSADOR	C3-S-38a	CAPE WASHINGTON	DSL/POLISH
AMERICAN EXPLORER	T5-S-RM2a	CAPE WRATH	DSL/POLISH
AMERICAN OSPREY	PVT DES TKER	CHATTAHOOCHEE	T1-M-24A
AUSTRAL LIGHTNING	C8-S-81b	CHESAPEAKE	PVT DES TKER
BANNER	C3-S-46a	COMET	C4-ST-14a
BEAVER STATE	C6-S-MA60D	CORNHUSKER STATE	C5-S-MA73c
BUYER	C3-S-46a	COURIER	C3-S-46b
CAPE ALAVA	C4-S-58a	DEL MONTE	C3-S-76a
CAPE ALEXANDER	C4-S-58a	DEL VALLE	C3-S-76a
CAPE ANN	C4-S-58a	DEL VIENTO	C3-S-76a
CAPE ARCHWAY	C4-S-58a	DIAMOND STATE	C6-S-MA1xb
CAPE AVINOF	C4-S-58a	EQUALITY STATE	C6-S-MA1xb
CAPE BLANCO	C4-S-66a	EMPIRE STATE	S5-S-MA1ua
CAPE BON	C4-S-66a	FLICKERTAIL STATE	C5-S-MA73c
CAPE BORDA	C4-S-66a	GEM STATE	C6-S-MA1qd
CAPE BOVER	C4-S-66a	GOPHER STATE	C5-S-MA73c
CAPE BRETON	C4-S-66a	GRAND CANYON STATE	C6-S-MA1qd
CAPE CANAVERAL	C3-S-37c	GULF BANKER	C3-S-37d
CAPE CANSO	C3-S-37c	GULF FARMER	C3-S-37d
CAPE CARTHAGE	C3-S-37c	GULF MERCHANT	C3-S-37d
CAPE CATAWBA	C3-S-33a	GULF SHIPPER	C3-S-37d
CAPE CATOCHE	C3-S-37c	GULF TRADER	C3-S-37d
CAPE CHALMERS	C3-S-37c	JUPITER	C7-S-95a
CAPE CHARLES	C3-S-37c	KEYSTONE STATE	C6-S-MA1qd
CAPE CLEAR	C3-S-37c	LAKE	C3-S-33a
CAPE COD	C3-S-37c	MAINE	T2-SE-A2-C
CAPE DECISION	RO/RO	METEOR	C4-ST-67a
CAPE DIAMOND	RO/RO	MISSION BUENAVENTURA	PVT DES TKER
CAPE DOMINGO	RO/RO	MISSION CAPISTRANO	PVT DES TKER
CAPE DOUGLAS	RO/RO	MOUNT VERNON	PVT DES TKER
CAPE DUCATO	RO/RO	MOUNT WASHINGTON	PVT DES TKER
CAPE EDMONT	RO/RO	NODAWAY	T1-M-BT2
CAPE FAREWELL	C9-S-81d	NORTHERN LIGHT	C3-S-33a
CAPE FLATTERY	C9-S-81d	PATRIOT STATE	S5-S-MA49c
CAPE FLORIDA	C8-S-81b	PETERSBURG	PVT DES TKER
CAPE GIBSON	C5-S-75a	PIONEER COMMANDER	C4-S-57a
CAPE GIRARDEAU	C5-S-75a	PIONEER CONTRACTOR	C4-S-57a
CAPE HENRY	RO/RO	PIONEER CRUSADER	C4-S-57a
CAPE HORN	RO/RO	POTOMAC	T5-S-12a
CAPE HUDSON	RO/RO	PRIDE	C3-S-33a
CAPE INSCRIPTION	C7-S-95a	SCAN	C3-S-33a
CAPE ISABEL	C7-S-95a	SHOSHONE	T5-S-12a
CAPE JACOB	C4-S-lu	SOUTHERN CROSS	C3-S-33a
CAPE JOHN	C4-S-lu	WASHINGTON	T2-SE-A2-C
CAPE JOHNSON	C4-S-lu		
CAPE JUBY	C4-S-lu		
CAPE LAMBERT	RO/RO		
CAPE LOBOS	RO/RO		
CAPE MAY	C8-S-82a		
CAPE MENDOCINO	C8-S-82a		
CAPE MOHICAN	C8-S-82a		
CAPE NOME	C5-S-78a		
CAPE ORLANDO	DIESEL/FORGN		
CAPE RACE	DIESEL/JAPAN		
CAPE RAY	DIESEL/JAPAN		
CAPE RISE	DIESEL/JAPAN		



# Appendix J:

# Table of Condition Codes

Condition Code	Description		Definition
<b>1</b>	Unused	Good	Unused property that is usable without repairs and interchangeable with new supply items from normal sources.
<b>2</b>		Fair	Unused property that is usable without repairs but is deteriorated or damaged so that use is somewhat impaired.
<b>3</b>		Poor	Unused property that is usable without repairs but which is considerably deteriorated or damaged. Better than salvage.
<b>4</b>	Used	Good	Used property that is usable without repairs and most useful life remains.
<b>5</b>		Fair	Used property that is usable without repairs but which is somewhat worn or deteriorated and may soon require repairs.
<b>6</b>		Poor	Used property that may be used without repairs but is somewhat worn or deteriorated; use is limited and major repairs will be required soon.
<b>7</b>	Repairs Required	Good	Required repairs are minor and should not exceed 15% of original purchase cost.
<b>8</b>		Fair	Required repairs are considerable and range from 16-40% of original purchase cost.
<b>9</b>		Poor	Property is badly damaged, worn or deteriorated; required repairs range from 41-65% of original purchase cost.
<b>X</b>	Salvage		Property has some value in excess of basic material content. Repairs would exceed 65% of original purchase cost.
<b>S</b>	Scrap		Property has no value except for its basic material content.



## Appendix K:

## Controlled Equipage

The following is a list of Outfit items that have been designated as *Controlled Equipage*. For more on controlled equipage, see Section II, Chapter 10.

BAROMETERS, ANEROID & RECORDING	RECORDERS, TAPE OR WIRE
BOATS, LIFE, INFLATABLE	REGULATORS, SCUBA EQUIPMENT
BOXES, FIRST AID	SCUBA GEAR
BUOYS, RING, LIFE SAVING	SETS, DIVING EQUIPMENT, ALL TYPES
CAMERAS, ALL TYPES	SEXTANTS, ALL TYPES
CHRONOMETERS	SIGHTS, NIGHT VISION HAND HELD
CLOCKS, MECHANICAL & QUARTZ (MARINE RELATED ONLY)	SOFTWARE
COMPASSES, WRIST, DIVING	STADIMETERS
COMPUTERS AND ANCILLIARY EQUIPMENT	STRETCHERS, ALL TYPES
COPY MACHINES, ALL TYPES	SUITS, SWIMMERS RESCUE
EMERGENCY POSITION INDICATING RADIO BEACONS (EPIRBs)	TELEPHONES, PORTABLE (CELLULAR)
EXPOSURE SUITS	TELESCOPES, BORESIGHT
FAX MACHINES	TELESCOPIC/OPTICAL EQUIPMENT (BINOCULARS, TELESCOPES, MONOSCOPES, RANGE FINDERS, ETC.)
FLOATS, LIFE	TELESCOPES, SPOTTER
GAUGES, DEPTH, WRIST, DIVING	TELEVISIONS
GUNS, LINE THROWING	TIMERS, STOP (ORDNANCE)
GUNS, ALL TYPES	TRANSCEIVERS, HAND HELD UHF/VHF W/ANCILIARY EQUIPMENT
MACHINES, ADDING	TYPEWRITERS, MANUAL AND ELECTRIC
MACHINES, CALCULATING (ELECTRONIC)	VIDEO CASSETTE RECORDERS
MASKS, GAS, ALL TYPES	WATCH, POCKET, COMPARING
MICROSCOPES	WATCH, POCKET, NAVIGATION TIMING
MOTORS, OUTBOARD, PORTABLE	WATCH, WRIST, CONVENTIONAL
PRESENTATION SILVER	WATCH, STOP
PRESERVERS, LIFE, VEST OR INFLATABLE	WATCH, WRIST, UNDERWATER
PRINTERS	WORD PROCESSORS
RADIOLOGICAL SURVEY & MONITORING EQUIPMENT (READERS, DOSIMETERS, ETC.)	



# Appendix L: Abbreviations For Locations On RRF Ships

The following are listed alphabetically by abbreviation. For definition sequence, see page 8.

A/E	ASSISTANT ENGINEER	CNLV	CENTER LEVEL
ABOV	ABOVE	COMB	COMBUSTIBLE
ACRM	AIR CONDITIONING MACHINERY ROOM	COMP	COMPRESSOR
AEJF	AIR EJECTOR FLAT	COMS	COMMISSARY
AFPK	AFTER PEAK	CORM	CO2 ROOM
AFST	AFTER STEERING	CPCL	CAPTAIN'S CLOSET
AFT	AFT	CPOF	CAPTAIN'S OFFICE
ALTR	ALTERNATOR	CPRM	CAPTAIN'S ROOM
APSR	AFTER PORT STOREROOM	CPST	CAPSTAN ROOM
ATHW	ATHWARTSHIP	CPSH	CARPENTER SHOP
AURM	AUXILIARY ROOM	CPWY	COMPANIONWAY
AUTO	AUTOMATION	CRBS	CRANE BASE
AWRM	ANCHOR WINDLASS ROOM	CRDK	CREW DECK
		CREW	CREW'S
BARG	BARGWINCH MTD	CRGO	CARGO
BARM	BATTERY ROOM	CRHS	CRANE HOUSE
BEBX	BEARING BOX	CRNR	CORNER
BELK	BEARING LOCKER	CRTE	CRATE
BELO	BELOW	CTN	CARTON
BGCR	BARGE CRANE	CTRM	CONTROL ROOM
BGRM	BAGGAGE ROOM	CULK	CUSTOM'S LOCKER
BHND	BEHIND	CVRM	CANVAS ROOM
BIN	BIN		
BKHD	BULKHEAD	DC	DAMAGE CONTROL
BKST	BULK STORES	DESK	DESK
BLRM	BOILER ROOM	DK	DECK
BLST	BALLAST	DKHS	DECK HOUSE
BOND	BONDED	DKLK	DECK LOCKER
BOSN	BOSUN'S	DKSR	DECK STOREROOM
BOSR	BOSUN'S STOREROOM	DNSL	DINING SALON
BOX	BOX	DRST	DRY STORES
BRDG	BRIDGE	DRW	DRAWER
BRDK	BRIDGE DECK	DSRM	DIESEL ROOM
BTDK	BOAT DECK		
BULK	BULK	EERM	ELECTRICAL EQUIPMENT ROOM
		EGEN	EMERGENCY GENERATOR
CAB	CABINET	EGGR	EMERGENCY GEAR
CABN	CABIN	EGRM	EMERGENCY GENERATOR ROC
CAFT	CENTERLINE AFT	EGSR	ENGINEER'S STOREROOM
CAGE	CAGE	ELECWKSP	ELECTRIC WORKSHOP
CCRM	CARGO CONTROL ROOM	ELEV	ELEVATOR
CELK	CHIEF ENGINEER'S LOCKER	ELLK	ELECTRICAL/IAN'S LOCKER
CENT	CENTRAL STORES	ELRM	ELECTRIC ROOM
CEOF	CHIEF ENGINEER'S OFFICE	ELSH	ELECTRICAL SHOP
CERM	CHIEF ENGINEER'S ROOM	ELSR	ELECTRICAL STOREROOM
CESR	CHIEF ENGINEER'S STOREROOM	ENGR	ENGINEER
CFWD	CENTERLINE FORWARD	ENGR LKR	ENGINEER'S LOCKER
CGHD	CARGO HOLD	ENRM	ENGINE ROOM
CGLK	CLEANING GEAR LOCKER	ENSH	ENGINE SHOP
CHBX	CHILL BOX OR CHILL ROOM	ENSR	ENGINE ROOM STOREROOM
CHCK	CHIEF COOK	EQSR	EQUIPMENT STOREROOM
CHEL	CHIEF ELECTRICIAN	EVFT	EVAPORATOR FLAT
CHLK	CHECKER'S LOCKER	EVSH	ELEVATOR SHOP
CHMT	CHIEF MATE	EXSR	ELECTRONICS SPARES ROOM
CHRM	CHART ROOM		
CKLK	CROCKERY LOCKER	FAFN	FALSE FUNNEL
CLOS	CLOSET	FARM	FAN ROOM
CLRM	COOL ROOM	FCSL	FO'C'SLE
CMID	CENTERLINE AMIDSHIPS	FDN	FORCED DRAFT FAN ROOM
CMPT	COMPARTMENT	FDLY	FIDLEY
CMRM	AIR COMPRESSOR ROOM	FICB	FILE CABINET
CNCL	CENTERLINE	FKSP	FORKLIFT SHOP
CNDK	CABIN DECK	FLAT	FLAT

FMRM	FOAM ROOM	MUVF	MANEUVERING FLAT
FOPK	FORE PEAK	NBC	NUCLEAR, BIOLOGICAL, CHEMICAL
FPLK	FOREIGN PURCHASE LOCKER	NBDK	NAVIGATIONAL BRIDGE DECK
FR	FRAME	NOCB	NON-COMBUSTIBLE
FRST	FIRE STATION	NTMT	NIGHT MATE'S ROOM
FWD	FORWARD		
FZLK	FREEZER LOCKER		
		OFFC	OFFICE
GALY	GALLEY	OFFS	OFFICER
GBRM	GARBAGE ROOM	OHRM	OVERHAUL ROOM
GENF	GENERATOR FLAT	OLSR	OIL STOREROOM
GENR	GENERATOR ROOM	OSLK	OIL SKIN LOCKER
GKBD	GASKET BOARD	OTBD	OUTBOARD
GLLK	GALLERY LOCKER	OTSD	OUTSIDE
GLRY	GALLERY	OULK	OUTSIDE LOCKER
GLSR	GALLEY STOREROOM	OVHD	OVERHEAD
GNCR	GANTRY CRANE		
GNLK	GUN LOCKER	PAFT	PORT AFT
GOLK	GOLD LOCKER	PASS	PASSENGER
GPSR	GENERAL PROVISIONS STOREROOM	PFWD	PORT FORWARD
GWAY	GANGWAY	PKBD	PACKING BOARD
GYRM	GYRO ROOM	PLAT	PLATFORM
		PMID	PORT MIDSHIPS
HARR	HARRIS	POOP	POOP
HLGR	HIGH-LINE GEAR LOCKER	PORM	POWER UNIT ROOM
HNRM	HANDLING ROOM	PORT	PORT
HOLD	HOLD	PPDK	POOP DECK
HOSP	HOSPITAL	PROF	PURSER'S OFFICE
HOUS	HOUSE	PSDK	PASSENGER DECK
HTCH	HATCH	PSGY	PASSAGEWAY
HYMT	HYDRAULIC MOTOR ROOM	PTLK	PAINT LOCKER
HYRM	HYDRAULIC EQUIPMENT ROOM	PTNL	PIPE TUNNEL
		PTRY	PANTRY
ICRM	INTERIOR COMMUNICATIONS ROOM	PURF	PURIFIER ROOM
INBD	INBOARD	PURM	PUMP ROOM
INRM	INCINERATOR ROOM	PYRO	PYROTECHNIC
KATH	KATHABAR ROOM	RAOF	RADIO OFFICER
		RASR	RADIO STOREROOM
LAUN	LAUNDRY	RCK	RACK
LKR	LOCKER	RDSR	RADAR STOREROOM
LL	LOWER LEVEL	REEF	REFRIGERATION FLAT
LNGE	LOUNGE	REFR	REEFER
LNLK	LINEN LOCKER	REOF	RELIEF OFFICE
LNSR	LINEN STOREROOM	RERM	REFRIGERATION ROOM
LOTW	LOWER TWEEN DECK	RFLK	REFUELING LOCKER
LPLK	LAMP LOCKER	RM	ROOM
LSE	LOOSE	ROLK	ROPE LOCKER
LTLK	LINE THROWING EQUIPMENT LOCKER	RPLK	REPAIR LOCKER
LVL	LEVEL	RR	RADIO ROOM
		RSLK	RADIO SPARES LOCKER
MACH	MACHINERY	RTRM	RESISTOR ROOM
MN	MAIN		
MASH	MACHINE SHOP	SAEX	SALES EXCHANGE
MASP	MACHINERY SPACE ROOM	SAFT	STARBOARD AFT
MASR	MACHINERY STORE	SALY	SHAFT ALLEY
MCRM	MAIN CONTROL ROOM	SARM	STATE ROOM
MDLV	MAIN DECK LEVEL	SEAC	SEA CABIN
MGHS	MOTOR GENERATOR HOUSE	SECT	SECTION
MGRM	MAIN GENERATING ROOM	SERM	SEWAGE TREATMENT ROOM
MIDS	MIDSHIP	SFWD	STARBOARD FORWARD
ML	MID LEVEL	SGRM	STEERING GEAR ROOM
MMFL	MAIN MOTOR FLAT	SHDK	SHELTER DECK
MMRM	MOORING MACHINERY ROOM	SHF	SHELF
MNDK	MAIN DECK	SHOF	SHIP'S OFFICE
MNSB	MAIN SWITCHBOARD	SKD	SKID
MNSR	MAIN STOREROOM	SMID	STARBOARD MIDSHIPS
MSRM	MESS ROOM	SMKDETRRM	SMOKE DETECTOR ROOM
MTD	MOUNTED	SNDY	SUNDRY
MTRM	MEAT ROOM	SOIL	SOILED
MTSF	MASTER'S SAFE	SPBX	SPARE BOX

SPCG	SPARE PARTS CAGE
SPCH	SLOP CHEST
SRMR	STERN RAMP MACHINERY ROOM
SSRM	STEWARDS STOREROOM
SSTG	SHIP'S SERVICE TURBO-GENERATORS
STAC	STACK
STBD	STARBOARD
STBK	STEWARD/BAKER ROOM
STRM	STOREROOM
STRP	STERN RAMP
STWD	STEWARD
STWL	STAIRWELL
STZR	STABILIZER ROOM
SUFR	SURGE DECK FAN ROOM
SWBD	SWITCHBOARD
TFRM	TRANSFORMER ROOM
THRM	THAW ROOM
TKCL	TANK CLEANING
TLRM	TOOL ROOM
TPHS	TOP HOUSE
TPPL	TOP PLATFORM
TRLR	TRAILER
TRNK	TRUNK
TRRM	TRANSFER ROOM
TRSP	TRUCK REPAIR SPACE
TUNL	TUNNEL
TURB	TURBINE
TWDK	TWEEN DECK
UL	UPPER LEVEL
UPDK	UPPER DECK
UPTW	UPPER TWEEN DECK
VLBD	VALVE BOARD
VLKR	VALVE LOCKER
WDLK	WIND DECK LOCKER
WEAT	WEATHERS
WEDK	WEATHER DECK
WKBE	WORKBENCH
WKSP	WORKSHOP
WLHS	WHEELHOUSE
XALY	CROSS ALLEY



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