



CONFIGURATION DATA MANAGEMENT PROGRAM MANUAL



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DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
WASHINGTON NAVY YARD BLDG 210
901 M STREET SE
WASHINGTON DC 20398-5540

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COMSC INSTRUCTION 4790.3B

Subj: EQUIPMENT CONFIGURATION DATA MANAGEMENT AND LOGISTIC
SUPPORT FOR SHIPS OF THE MILITARY SEALIFT COMMAND

Ref: (a) COMSCINST 4700.2F (NOTAL)

1. Purpose. To provide the policies and procedures necessary to maintain an accurate equipment configuration data baseline, define the mission and functions of the MSC Configuration Data Manager (*CDM*) and conduct MSC ships' Integrated Logistic Reviews. This instruction is a complete revision and should be read in its entirety.

2. Cancellation. COMSCINST 4790.3A. Retain binder and use with this instruction.

3. Background

a. Reference (a) established administrative procedures for the alteration, maintenance and repair of MSC ships. MSC's ability to effectively perform shipboard maintenance, plan alterations and provide necessary logistics support is directly dependent upon efficient control of and ready access to the configuration logistics data for its ships, systems and equipments. To achieve fleet readiness goals, these data, maintained as completely and accurately as possible, must be available to managers at Headquarters, Area Commands and supporting logistic and engineering activities.

b. COMSC initiated the Configuration Management Improvement Program (*CMIP*) in 1986 to improve the configuration and logistics management and control process. The MSC fleet was incorporated into the Navy's Ship Equipment Configuration Accounting System (*SECAS*) and Integrated Logistic Overhaul (*ILO*) programs. Since then, COMSC has gained valuable expertise in configuration data management and was able to enhance shipboard logistic support through equipment spare parts provisioning and standardizing supply procedures.

c. The Navy's Ships Configuration and Logistic Support Information System (*SCLISIS*), the successor to *SECAS*, and *ILOs* support ships that are, to a great degree, standardized and operate in an environment of infrequent but lengthy (*four to six months*) industrial availabilities. In contrast, MSC ships' operations typically entail frequent industrial availabilities of relatively short duration (*30 - 45 days*). Furthermore, the predominantly commercial, contractor furnished

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and non Navy-standard nature of MSC shipboard equipments makes the task of maintaining accurate configuration information much more difficult. Accordingly, COMSC has modified its configuration accounting procedures to respond to these needs without levying an unacceptable burden on shipboard recordkeeping. Similarly, MSC-tailored Integrated Logistic Reviews (*ILRs*) are replacing the ILOs, which were patterned on the Navy's concept of operations. The MSC ILR is a continuous process which achieves the ILO objectives but conforms more closely to MSC fleet maintenance cycles and operating schedules.

d. One of the lessons learned from the SECAS and ILO operations during the past five years was that clear lines of accountability had not been established over the Configuration Status Accounting (*CSA*) process to ensure that only the most current and accurate information becomes resident in the fleet's database. Applying the concepts of Total Quality Leadership (*TQL*) makes it evident that a single activity must be designated as the sole authority over data input and effecting change to the configuration file; this activity becomes the CDM. To gain this additional *CSA* discipline, the COMSC Logistics Director (*N4*) has been designated to be the CDM for the MSC fleet, charged with establishing and administering the MSC CDMP.

4. Program Objectives. The CDMP has three principal objectives:

- a. Develop and maintain an accurate fleet configuration baseline.
- b. Achieve measurable improvement in fleet logistic support.
- c. Attain the required level of operational readiness.

5. Scope. The policies and procedures contained herein and in the MSC CDMP Manual apply to all ships of the MSC fleet. This instruction does not change configuration management responsibilities for contract-operated ships; ship reporting procedures will continue to be governed by their existing contract.

6. Discussion. The CDMP integrates ship *CSA* and logistics elements under the MSC CDM to support the MSC fleet's operational requirements. The CDM detailed responsibilities are more specifically defined in this manual, but it is useful to establish definitions here of frequently used terms.

a. Configuration. The description of a specific ship in terms of its systems/equipments/components and their relative arrangements with each other, as set forth in technical documentation, such as drawings and ship's specifications.

b. Logistics Support. Includes maintenance, training, technical manuals, drawings, test equipment and spare parts. If any hardware item on a ship requires one or more of these logistic support items, it is considered "configuration worthy" and must be included in the configuration record of the ship.

c. Weapon System File (WSF). The Navy's central configuration database repository, located at the Ships Parts Control Center (SPCC). It contains the technical characteristics and logistics data on all equipments in the Navy's inventory (*including the MSC fleet*) as well as the maintenance worthy repair parts and equipage associated with that equipment.

d. Configuration and Logistics Information Program (CLIP). CLIP is the data processing program used by COMSC N4 to integrate the CDM and logistic support functions. As the integrated source of MSC ship configuration data, it is the tool to eliminate database format and content inconsistencies. A shipboard version of CLIP is being implemented on MSC ships as microcomputer resources become available. The shipboard version SHIPCLIP will interface with other shipboard applications (*i.e., the Shipboard Automated Maintenance Management (SAMM) and Operation and Maintenance (O&M) modules*) to identify and maintain the technical and logistic data required to operate, maintain, repair and overhaul shipboard equipment. Finally, CLIP is MSC's interface with the SPCC WSF, through magnetic tape transfer of configuration and logistic support records.

e. Lead Allowance Parts List (LAPL). The COMSC Engineering Director (N7) establishes the maintenance policy for MSC ships and equipments. This policy is reflected in the LAPL, developed and maintained by N7, which lists the types of items determined to be maintenance significant. The LAPL provides a generic list of these parts, as well as the item's maintenance level, repairability and recoverability.

7. Action. COMSC has the primary responsibility to implement a configuration management program for the MSC fleet. To carry out this responsibility and provide day-to-day oversight and administration, the following specific responsibilities are assigned:

a. COMSC Logistics Director (N4). The Logistics Director is designated the CDM for the MSC fleet. The CDM shall:

(1) Develop and promulgate the Military Sealift Command CDMP Manual, which establishes the detailed policies and procedures for MSC's CSA and ILR Programs.

(2) Provide additional policy and procedural guidance to the MSC fleet, as required, to implement a sound CDMP.

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(3) Manage, fund and provide direction to the MSC Validation, ILR and Logistic Support teams who collectively implement the CDMP.

(4) Coordinate with the MSC Configuration Manager (*N7*) to ensure proper logistics support is in place for equipment installed on MSC ships.

(5) Include MSC CDMP requirements in specifications for all repair contracts and provide copies of applicable contractor deliverables to CDMP representatives.

(6) Execute the specific tasks contained in the CDMP Manual.

b. Engineering Directors/Port Engineers. The MSC Headquarters, MSC Central Technical Activity (*MSCCENTACT*), Area Command Engineering staffs (*N7*), Port Engineers and other shore support activities must coordinate with the CDM on all actions that will impact the configuration baseline of MSC ships. The COMSC Engineering Director is responsible for MSC's Configuration Management Program and the development of MSC LAPLs. Collectively referred to as Logistic Element Support Activities (*LESAs*), they shall:

(1) Provide logistic support data on equipment alterations/modifications, including proposed and approved TRANSALT data and provisioning technical data for newly installed equipment, as specified in reference (a).

(2) Coordinate ILS requirements for equipment/alterations with the Logistics Director.

(3) Provide planning data on scheduled availabilities to *MSCCENTACT* and Area Command CDMP representatives.

(4) Provide complete work package information for all MSC ship industrial availabilities.

(5) Document equipment configuration changes completed during all industrial availabilities.

(6) Coordinate the establishment of policies to assure adequate and timely logistic support with the CDM.

c. Contracting Directors. The MSC Headquarters, *MSCCENTACT* and Area Command Contracting Directors support the MSC ship maintenance effort by executing commercial yard availability contracts. Contracting representatives assist the Port Engineer in completing repair requirements to meet each ship's operational commitments. Contracting Directors shall provide contract data for all commercial shipyard repair contracts to *MSCCENTACT* and Area Command CDMP representatives, including RFPs, contracts and their respective amendments.

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d. Area Commanders. Under the direction of COMSC, the MSC Area Commanders provide support and oversight of shipboard configuration management and readiness support programs through the life cycle of MSC ships assigned to them. Area Commanders shall:

(1) Maintain a staff section to coordinate configuration data management policy and procedures with COMSC.

(2) Promote support for and implement a strong CDMP in the MSC fleet.

(3) Coordinate shipboard Validation Team and Readiness Support Group visit schedules with the CDM.

(4) Monitor the quality of configuration status accounting data in the force.

(5) Execute the specific tasks assigned in the CDMP Manual.

e. Masters of MSC Ships. Every MSC ship shall have a shipboard Configuration Manager, designated by and reporting to the Chief Engineer. The Area Commanders, through the port/ashore engineer, will provide assistance to the Configuration Manager as necessary. Masters shall:

(1) Report all configuration changes as they occur.

(2) Promptly review feedback from CDM and correct errors on configuration change reports.

(3) Provide assistance and support to the Validation and ILR Teams and the MSC Readiness Support Groups during the performance of their tasks on the ship.

(4) Execute the specific tasks assigned in the CDMP Manual.

f. Ships Parts Control Center (SPCC). While not directly in the MSC administrative chain of command, SPCC is designated as a support activity for MSC under the COMSC/COMNAVSUPSYSCOM Program Support Agreement (PSA). As the custodian and operator of the WSF/SCLISIS ship configuration data base, SPCC is responsible for:

(1) Receiving configuration change information from the CDM and entering the approved data in the SCLISIS/WSF database.

(2) Timely identification or development of Allowance Parts Lists (APL), using MSC LAPLs for those records requiring APL research and assignment throughout the ship/activity life cycle.

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(3) Producing COSALs and associated products for MSC ships/activities as requested by the CDM.

g. Fitting Out Supply Support Assistance Center (FOSSAC). FOSSAC's mission statement to provide waterfront logistic support for MSC ships has been modified to include the responsibility for performing quality assurance audits on MSC validations. As the validation quality assurance representative, FOSSAC is tasked to conduct an on-site review of all contractor performed sight validations and report findings to the MSC CDM and the responsible Area Commander.

h. Addressees will familiarize themselves with the CDMP Manual and comply with the processes and procedures contained therein. Shore CDMP support activities and ships will transition to CLIP automated systems and change request/reporting processes. CLIP automated processes will still comply with the procedures contained in this manual. Until transitioned, addressees will use manual forms and recordkeeping requirements identified in the CDMP.

Distribution:

COMSCINST 5000.19

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MILITARY SEALIFT COMMAND

CONFIGURATION DATA MANAGEMENT PROGRAM MANUAL

FOREWORD

This manual will provide MSC ships and Area Commanders a basic familiarity with the MSC Configuration Data Management and the Integrated Logistic Review (*ILR*) Programs. This guidance is applicable only to ships and units of the Military Sealift Command. The manual provides MSC policy on maintaining accurate and timely configuration accounting and conducting effective ILRs. It leads the reader logically through the applicable procedures, outlining the background, objectives and organizational responsibilities of these programs.

On subjects or areas of interest that may require additional procedural detail, appropriate appendices are provided. More specific direction is available in NAVSUP P-485, NAVSEA TECH SPEC 9090-700A and the current editions of the seven volumes of the standard Navy ILO Policy and Procedures Manual, NAVSEA SL105-AA-PRO- (#010 to #070). While these documents go into much greater detail than most users will require, they are the primary references and the source of the basic procedures contained herein.

As major procedural changes occur, COMSC will issue changes or revisions to this manual. Feedback from users of this manual is encouraged; recommendations should be sent to Commanding Officer, MSC Central Technical Activity, Code N41, Washington, DC, 20398-5050, or to the cognizant MSC Area Command N4.

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CHAPTER 1

OVERVIEW OF THE CDMP

1.1 INTRODUCTION

a. Commander, Military Sealift Command is responsible for ensuring the material readiness of its ships throughout their active lives. To a great degree, COMSC's ability to successfully execute this responsibility is dependent on sound Configuration Management. Configuration Management is composed of the following interrelated elements:

(1) Configuration Identification. Identifying a Configuration Item (CI) (e.g., a motor or a pump), and selecting the documents and processes that define, test and establish its functional and physical characteristics.

(2) Configuration Control. Controlling changes to a baseline of a CI and its associated configuration identification documents.

(3) Configuration Status Accounting. Recording and reporting of proposed and implemented changes to a CI and its associated configuration identification documents.

(4) Configuration Audits. Checking a CI for compliance with its configuration identification.

(5) Technical Reviews. Evaluating and monitoring the configuration during design, development, construction or production and modernization.

b. Configuration Management is an important tool to ensure that changes to the ship's equipment arrangements, replacements or additions are justifiable and supportable. Controlling the configuration of machinery, systems and equipments improves their supportability by providing commonality of support requirements, specifically required repair parts and other logistic elements. Configuration Management processes also ensure adequate technical documentation exists to support future operations and engineering requirements. In the MSC organization, the COMSC Engineering Director (N7) is the Configuration Manager (CM) charged with executing the Configuration Control function. This responsibility includes Configuration Identification and the performance of Configuration Technical Reviews. The Configuration Auditing and Configuration Status Accounting mission is assigned to the Logistics Director (N4), and is accomplished through the MSC Configuration Data Management Program (CDMP). The CDMP additionally incorporates all action required to ensure that ship logistic support elements match the configuration of equipment installed.

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c. Since the logistics support for equipment alterations is an integral part of Configuration Control, the Headquarters and Area Command Logistics Directors must coordinate closely with the Engineering Directors. In this regard, they have been assigned the responsibility to implement an MSC Configuration Status Accounting Program, including the establishment of an accurate and current fleet configuration database.

d. On MSC ships, the Chief Engineer, assisted by a designated ship's Configuration Manager, has the accountability for the ship's configuration. Ship personnel must report configuration changes discovered or completed during the operating phase.

1.2 CMIP/CDMP EVOLUTION

a. During the initial phases of the MSC Configuration Management Improvement Program, the Navy's Ship Equipment Configuration Accounting System (*SECAS*) and Integrated Logistics Overhaul (*ILO*) program were adopted to establish the necessary procedures and disciplines in the MSC fleet. While *SECAS* and *ILOs* have provided MSC a solid foundation for configuration accounting and improved logistic support, they were primarily paper driven, labor intensive efforts, that did not provide the necessary flexibility to support MSC's unique needs.

b. Subsequently, as *SECAS* evolved to support changes in Navy maintenance and configuration management policies, it became evident to COMSC that the nature of the MSC environment required a fresh approach to solve its logistic readiness shortfalls. COMSC reviewed its practices and processes for ship's configuration identification and status accounting and applied the lessons learned from 5 years of *SECAS* reporting to establish a configuration data management system that is adaptable to advances in data processing, establishes a structured methodology for data exchange and tightens controls. This combination forms a basis for the MSC CDMP. The CDMP, while closely tied to Navy configuration management processes and procedures, accommodates the unique requirements of the MSC operating environment. The key to its success is the establishment and maintenance of a responsive, quality assured and tightly controlled configuration status accounting database. This database identifies all equipment which must be maintained and operated by MSC ships. The CDMP additionally aligns logistics support elements (*planned maintenance, technical manuals, tools, test equipment and spare parts*) with the configuration status accounting database through a continuous ILR process.

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1.3 THE CONFIGURATION DATA MANAGER (CDM)

To ensure that only accurate information is resident in the ships' configuration database, a single activity must be designated as the authority for configuration data input and effecting changes to the file; this activity is the CDM. COMSC Logistics Director (N4) is the designated CDM for the MSC fleet, charged with establishing the MSC configuration accounting program.

1.4 THE MSC ILR CONCEPT

The Navy has made evolutionary changes to its ILO procedures, but too many differences between the Navy and MSC in maintenance philosophy remained for ILOs to be successful in MSC; new procedures were needed to support MSC fleet operational and maintenance schedules. Unlike the Navy's three tiered maintenance concept (*organizational, intermediate and depot*), the MSC maintenance policy includes only organizational and depot level repair. MSC ships' intermediate and "*depot*" level type maintenance is performed in short, but frequent, maintenance availabilities. The typical Navy ILO and each of its elements cannot be effectively utilized because it presumes the availability of the ship will last 4-6 months. Therefore, MSC has adopted a unique Integrated Logistics Review (*ILR*) process, which completes all essential elements of the ILO, but is tailored to the MSC environment. MSC's ILR process is "*continuous*" during each ship's operating phase. It utilizes the data from the configuration status accounting database to align support elements and continuously review each ships logistics support posture.

1.5 SUMMARY

In short, the CDMP addresses the needs of MSC's unique operating schedules, maintenance philosophy and ship manning levels. It complies with all directives from higher authority on configuration status accounting and logistic management and remains compatible with (*and complements*) existing Navy systems and procedures. The CDMP pulls all logistic elements into a single program for MSC fleet ships to follow. Figure 1-1 provides a simplified block diagram of the closed loop configuration data flow, from the ship to the database and back under this concept of Configuration Data Management.

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SHIP CONFIGURATION DATA FLOW

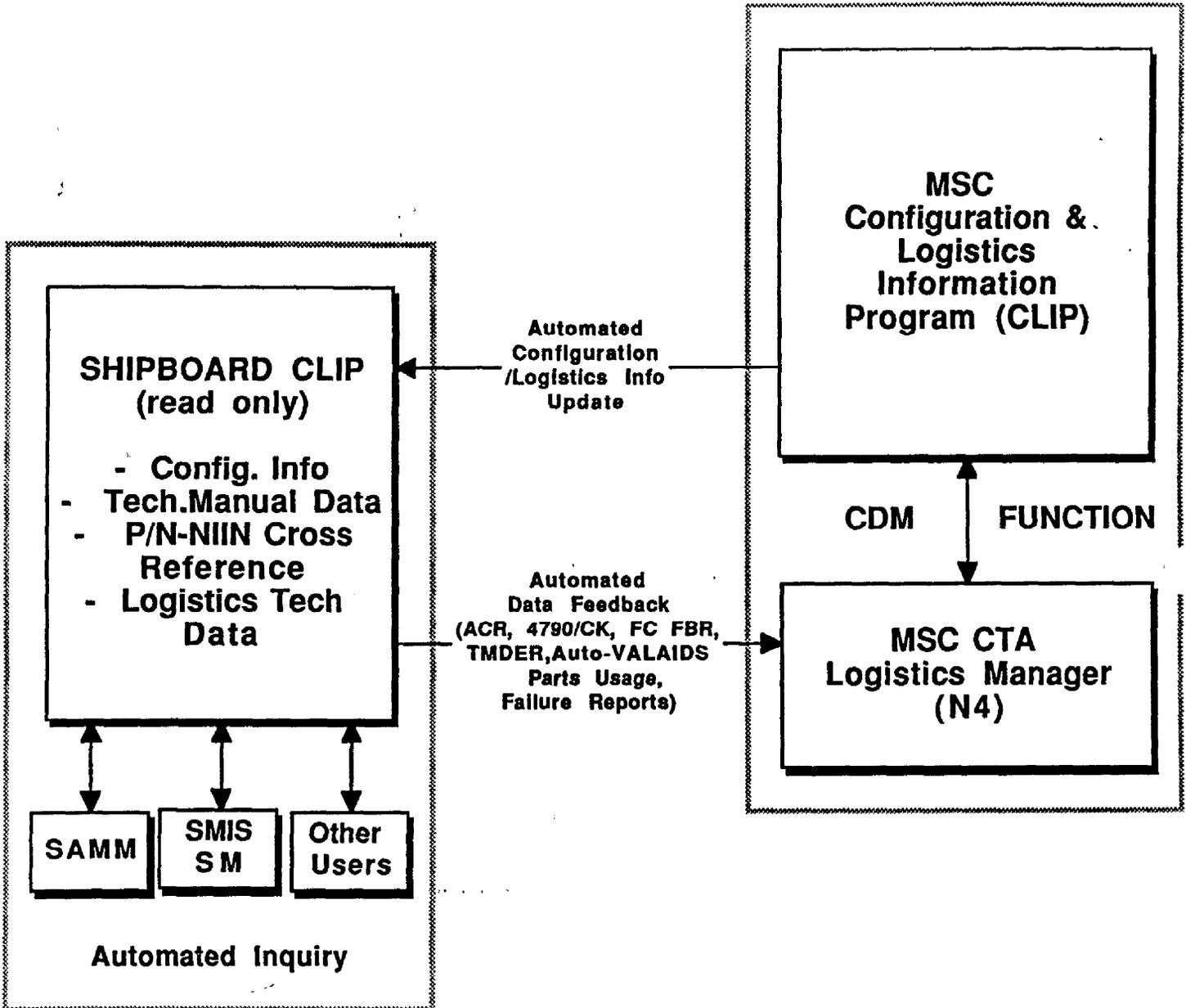


FIGURE 1-1, SHIP CONFIGURATION DATA FLOW

CHAPTER 2

CONFIGURATION CHANGE REPORTING

2.1 INTRODUCTION

Timely reporting of configuration changes is the key to maintaining an accurate, up-to-date configuration data file. The ship's force personnel can contribute significantly to these efforts through dedicated configuration change reporting.

2.2 SHIP'S CONFIGURATION MANAGER

a. The Ship's Chief Engineer establishes the necessary shipboard policy and assumes overall responsibility for the accomplishment of shipboard configuration management.

b. To ensure accomplishment of these requirements, the Chief Engineer will designate, in writing, a licensed engineer as the ship's Configuration Manager (*CM*). The CM is specifically responsible for reporting all configuration changes, including those accomplished by other than ship's force personnel. It is imperative that the CM obtain all data necessary to accomplish configuration change reporting from any maintenance activity. The CM is also responsible for coordinating shipboard efforts to correct discrepancies that may later be identified by the MSC Configuration Data Manager (*CDM*).

2.3 SUPPLY DEPARTMENT

Supply Department personnel will assist the CM in filling out and submitting the Configuration Change Request (*CCR*). They must complete the required logistic data and validate existing entries in Section III of the CCR. Additionally, supply personnel must take the appropriate action to ensure that the ship's COSAL or SHIPCLIP data base is updated, and repair parts, technical manuals, tools and/or test equipment changes are obtained expeditiously for CDM approved configuration changes.

2.4 CONFIGURATION CHANGE

A configuration change occurs whenever any system, equipment, component or unit is installed, removed, modified or relocated by any agent.

2.4.1 Configuration Change Reporting System

a. The configuration change reporting system will accomplish this updating requirement. Basic features of this system are:

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(1) A capability to rapidly process the configuration change data and generate appropriate logistic support changes for the ship.

(2) A single point to which change data can be reported and by which the data can be verified, made available to the appropriate logistic managers and processed for entry into the central file.

(3) A single form (OPNAV 4790/CK) that provides all the required configuration change data.

b. Appendix A contains detailed instructions and responsibilities for reporting configuration changes using the MSC Configuration Change Reporting System. MSC's automated configuration data management and status accounting systems integrate configuration change reporting capability. CLIP and SHIPCLIP users must comply with the responsibilities and change reporting requirements identified in Appendix A.

2.5 IMPACT OF CONFIGURATION CHANGE REPORTING

The importance of reporting configuration changes cannot be over-emphasized. The quality and currency of information recorded in the ship equipment configuration database (*in MSC CLIP and the WSF*), directly determines the quality of support to the Force. If configuration changes are not reported, vital support elements will not be on hand when needed. Although MSC provides off ship assistance, **THE ULTIMATE RESPONSIBILITY FOR IDENTIFYING AND DOCUMENTING CONFIGURATION CHANGES RESTS WITH THE SHIP.**

CHAPTER 3

ALLOWANCE CHANGES AND FLEET COSAL FEEDBACK REPORTS

3.1 INTRODUCTION

One of the primary objectives of the CDMP is continuous improvement in fleet logistics support and operational readiness of the MSC fleet. Attainment of these CDMP objectives is dependent upon accurate and timely feedback from fleet units to the CDM on ships repair part allowances and technical information about installed equipment.

3.2 COORDINATED SHIPBOARD ALLOWANCE LISTS (*COSALS*)

a. Logistics support for MSC ships is enhanced through generation and use of *COSALS*. The *COSAL* provides technical and supply information which makes it an Integrated Logistics Support (*ILS*) document. It is a technical document to the extent that equipment/component/part nomenclatures, operating characteristics, technical manuals, etc., are described in Allowance Parts Lists (*APLs*) or Allowance Equipage Lists (*AEs*). It is a supply document inasmuch as it lists the items required to achieve maximum, self supporting capability for an extended period of time. Authorized ship allowances for repair parts, tools, test equipment and maintenance related materials are published in the *COSAL*, reflecting the OPNAV and MSC ship's allowance policy. It includes allowance lists of repair parts, special tools and other support items required for the operation, overhaul, maintenance or repair of installed equipments and components. These lists are computed, modified, adjusted or republished at varying intervals based upon changes of installed equipment or components, maintenance policies, failure rates or operating conditions.

b. It is the technician's responsibility to ensure the *COSAL* supports all equipments for which he has maintenance responsibility. It is the supply department's responsibility to ensure errors detected by the technician are corrected and the necessary repair parts documented in the *COSAL* and procured for shipboard stock. Documentation of errors or deficiencies is extremely important. The *COSAL* is the bridge by which the part number identified in the ship's drawing or technical manual is linked to a part carried by the supply department. Procuring parts without concurrently updating references to the item in the *COSAL* shatters the bridge and results in a situation in which parts are available but cannot be identified by the technician.

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c. SHIPCLIP is an automated system which includes all of the logistics and technical information in the COSAL. When fully implemented, SHIPCLIP will replace the paper COSAL for ships which have installed SHIPCLIP microcomputers. Ships which have transitioned to automated COSALs will use SHIPCLIP data to ensure that the ship's equipment is accurately recorded and supported.

3.3 ALLOWANCE CHANGE REQUESTS

a. Interim revisions to allowances are sometimes required in order for shipboard systems to be properly supported. Because of MSC operating environments, allowances for both repair parts and equipments frequently require additional review and revision.

b. Actual failure rates may exceed those initially estimated. Varying operating conditions may require different levels of support. Mission assignments may require the approval of additional equipment or support systems and improved technology may offer additional capabilities. These and other circumstances dictate that requests for changes to allowances must be submitted when recognized and must be promptly reviewed by an appropriate authority.

c. Specific procedures are to be used for requesting allowance changes. These include the Allowance Change Request (*ACR*) and the Allowance Change Request-Fixed (*ACR-F*). Specific instructions and responsibilities for completion of change requests are provided in Appendix B. MSC's automated configuration data management and status accounting systems integrate capabilities to request allowance changes. CLIP and SHIPCLIP users must still comply with the policies, procedures and responsibilities in Appendix B.

3.4 FLEET COSAL FEEDBACK REPORTS

a. The APL is a vital link in the chain that leads from part number, to equipment, to technical manual and finally to the repair part support allowed in the COSAL. The technician's ability to identify, interpret and apply the APL cannot be overemphasized. He must be able to tie the technical manual and APL or the equipment and APL together, and they must give him THE SAME parts information. These documents are different in format and data content, but they are similar in that both should contain all the parts to the applicable equipment. However, there are numerous reasons for APL deficiencies which cause the technical and supply personnel problems. Some of the most common are:

(1) The part or item is not listed on the APL or AEL but is considered to be a "*maintenance significant*" item.

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(2) Suspected error in code assignments (*Source, Maintenance and Recoverability Code, Allowance Note Code, etc.*).

(3) Non-allowed part required for planned maintenance.

(4) Part number in technical manual does not agree with APL.

(5) Allowed quantity insufficient for planned maintenance requirements.

(6) APL incomplete; (*missing characteristics data, technical manual, etc.*).

(7) APL technical problem, such as incorrect Minimum Replace Unit (*MRU*) assignment.

(8) Incorrect part or item listed in APL or AEL.

b. Many of the technical codes are assigned by machine or on the basis of onetime technical decisions. These codes should be correct in most situations. If the technician believes the technical code for an individual item or the overall maintenance policy reflected by all of the codes on an APL are wrong, submit an FCFBR to initiate a correction to the problem. Detailed instructions and responsibilities for completion of the FCFBR are provided in Appendix B. MSC's automated configuration data management systems and status accounting integrate FCFBR submission capabilities. CLIP and SHIPCLIP users must still comply with the policies, procedures and responsibilities in Appendix B.

CHAPTER 4

CONFIGURATION DATA MANAGEMENT

4.1 CONFIGURATION DATA MANAGER'S ROLE

a. As the Military Sealift Command's CDM, the Logistics Director maintains the accuracy and completeness of all configuration and logistic support information in its database. Even though many other activities, such as the Engineering Director (*N7*), Area Commands, Port Engineers, commercial shipyards, ILR Teams or ships may originate configuration change inputs, the CDM retains sole responsibility for properly updating the configuration information in the file. The CDM must maintain close working relationships with these activities to ensure that it obtains and loads correct and complete data in time to provide proper maintenance and logistic support for the newly installed modified equipments.

b. Since the CDM is responsible for coordinating all matters regarding the configuration data management process, it is the only activity authorized to add, delete or change configuration and logistic support data in the file. Therefore, if the CDM suspects erroneous information or if it has received conflicting data, it must initiate and track the correcting action. The MSC configuration status accounting process is a closed loop system between the equipment installing activity and the configuration data base, with the CDM acting as the gate keeper and quality inspector. It is not a complicated process to establish and maintain, but requires a high degree of discipline and oversight to ensure maintenance of its accuracy. Figure 4-1 summarizes the flow of data in this process.

4.2 CONFIGURATION DATA MANAGEMENT

a. Since the CDM's primary responsibility is the life cycle management of configuration data, he must undertake a number of unique actions. Initially, all ships will have to undergo a transitional phase, which "*transitions*" a unit from the "*old*" way of configuration status accounting to the new CDM procedures. Thereafter, MSC ship's configuration status accounting will use these revised policies, including an increased emphasis on designated logistic availabilities, where additional attention will be given to configuration maintenance and quality assurance. To accomplish these tasks, the CDM uses the MSC Configuration and Logistics Information Program (*CLIP*) as his primary tool. *CLIP* operates as the working file to collect, control and upload configuration information to the Weapon System File.

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MSC CONFIGURATION STATUS DATA FLOW

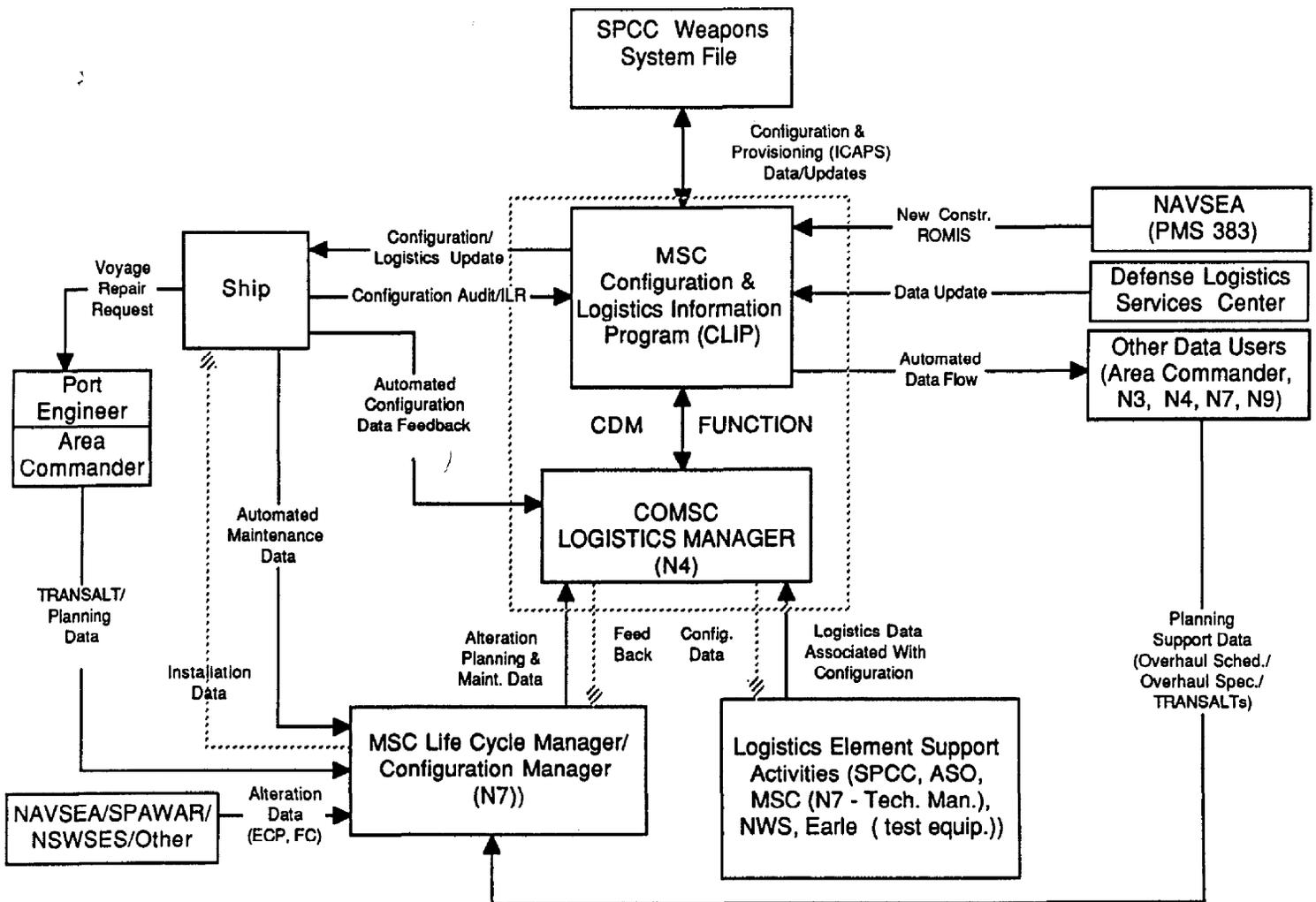


FIGURE 4-1, MSC CONFIGURATION STATUS DATA FLOW

b. Generally, ships are phased into CLIP by class, although single ships may be phased in if merited. COMSC is introducing configuration data management under CLIP on the T-AO 187 Class Fleet Oilers, followed by the T-ATF and T-AFS ship classes. When a class or ship is phased in, one ship in the class undergoes the Initialization and Baseline Validation process (*described in Appendix C*) to establish the Class Standard Data Base (CSDB). When the CSDB is verified, it is applied to the other ships of the class as they are brought into CLIP. Maintenance audits and selective validations, during ILR and other shipboard visits, correct and refine the CSDB to accurately reflect the configuration variances of each ship of the class.

4.3 CDM AND LOGISTICS SUPPORT REQUIREMENTS

Through the CDMP, the CDM is also tasked to continuously review logistic support requirements for equipment installed on MSC ships. This task is accomplished through a continuous ILR process, which verifies the accuracy of and uses the CDM's configuration status accounting database as the key to identifying required logistics support elements. MSC's ILR process is described in Chapter 5 and Appendix D.

4.4 CDM FOCUS

The CDM's effort is focused to provide the most cost and time effective return for the resources expended. The program:

a. Enhances configuration data quality. The key to providing solutions to logistic support problems is to promote strict control and accountability for shipboard equipment configuration changes, establish a credible fleet configuration database and maintain the integrity of this system through continuous quality control and monitoring.

b. Concentrates maximum effort on identifying and resolving logistic deficiencies on critical equipments. Place management's attention on the 10% of systems that produce 90% of the problems rather than attacking all problems simultaneously.

c. Intensely manages maintenance significant equipment. In conjunction with b, ensures that systems requiring shipboard preventive maintenance have the required parts, tools, manuals and other support available when needed.

4.5 SUMMARY

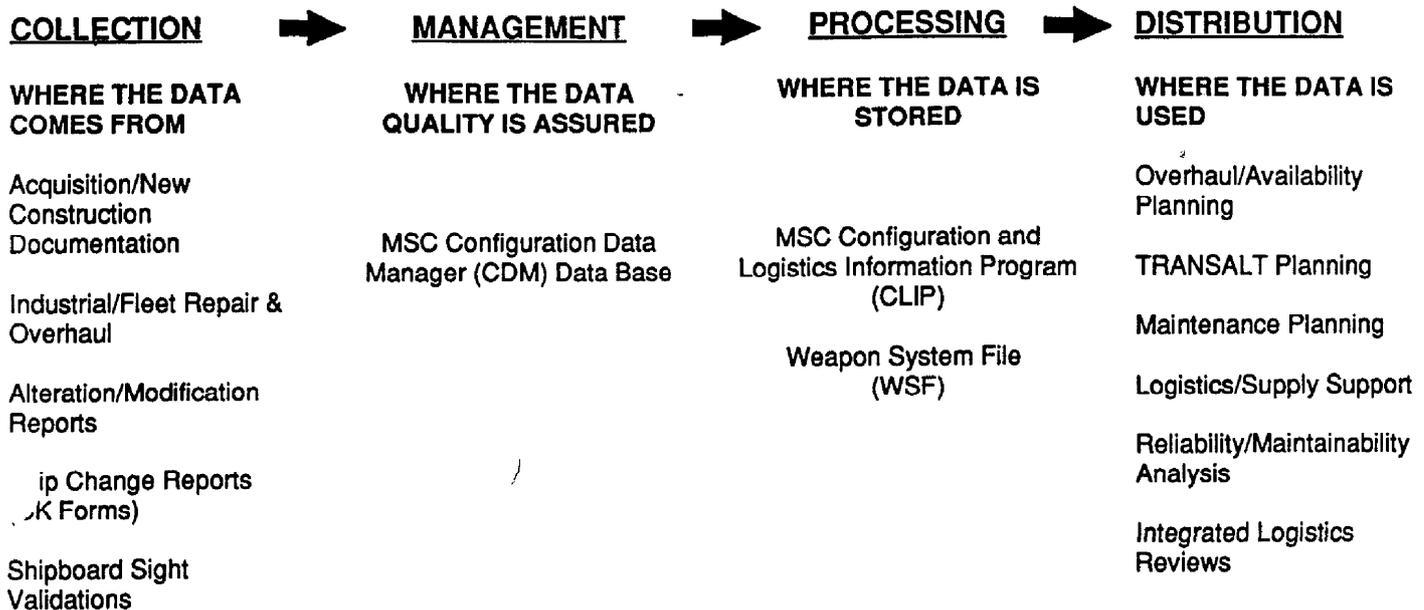
Figure 4-2 depicts the CDM functional relationships, from source data collection, through data quality assurance and processing to the distribution of the products. The operation of the CDM function will generally be transparent to the MSC fleet. CDM data processing, technical research and final quality assurance will be done at the

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MSCCENTACT level. As Area Commands and ships become automated, electronic data transmission will expedite the configuration status accounting and the feedback process. Establishing the CDM function at this time will allow MSC to transition to a "*paperless*" environment methodically, with significant benefits gained in timeliness and accuracy. Appendix C to this manual explains the specific CDM actions in greater detail, and should be used as a reference if additional information is required by the reader.

BASIC CONFIGURATION DATA MANAGEMENT FUNCTIONS



Provides ship configuration products with structured content to satisfy user requirements

FIGURE 4-2, BASIC CONFIGURATION DATA MANAGEMENT FUNCTIONS

CHAPTER 5

INTEGRATED LOGISTIC REVIEWS

5.1 INTRODUCTION

Complementing the CDM function, is the MSC ILR process. As the major component of the waterfront logistic support function, the ILR process closes the loop of accurate and timely configuration status accounting and applies enhanced logistic management techniques to the shipboard environment. It is a vital link in providing the CDM feedback of the CDM's impact on operational readiness.

5.2 THE ILR CONCEPT

a. As the MSC CDM, COMSC N4 also directs the oversight and management of the ILR process. To ensure efforts are coordinated and phased properly to complete all ILR elements, the CDM has established a disciplined, structured approach to update ship configuration data, align all logistic support elements with each ship's configuration and enhance shipboard support for critical equipment. MSC's concept to maintain the best possible configuration and logistics support posture is to conduct "*continuous*" ILRs. This continuous ILR process is planned, funded and monitored by the CDM, in close cooperation with the Headquarters/MSCCENTACT Engineering staff, Area Commanders and the ships.

b. The MSC ILR focuses on verification of the ship's equipment configuration profile through sight validations, accurate configuration status accounting and a process that ensures appropriate repair parts support and technical documentation are provided to the ship during its operating cycle. This effort is patterned on existing NAVSEA ILO organizations, functions and procedures as contained in the NAVSEA ILO POLICY AND PROCEDURES MANUAL, NAVSEA SL 105-AA-PR0-010 through 070. The elements of the MSC continuous ILR include: planned alteration documentation, pre-availability assessments, configuration verification and analysis, COSAL production, technical manual analysis, repair parts analysis and COSAL use and COSAL maintenance training. In this continuous ILR process, these analyses may be split and accomplished in coordinated steps or stages, but will always be structured to deal with the most current ship's needs and operational logistic support requirements. As CLIP and SHIPCLIP are implemented, ILR processes and training efforts will adjust to meet the needs of automated configuration and logistics data bases and reporting methods. Other logistic assistance, complementing the ILR, will be scheduled for accomplishment during all availabilities. These include Availability Support (AS), Validation (VAL) and Fleet Assist (FA) visits, described in Appendix D.

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c. Throughout the ship's operating cycle the CDM will continuously review the status of its logistic support capability, based upon inputs from the ship, Area Command and the Engineering Type Desk. As Figure 5-1 indicates, the continuous ILR will be driven by the configuration audit and verification process, augmented by operational experience and the latest historical support posture for the ship's designated critical equipment. As a result of the ILR, necessary configuration and logistic support documentation will be generated and forwarded to the CDM, for updating the MSC CLIP Configuration Data base and the SPCC Weapons System File (*WSF*) with the most current configuration and initiating the appropriate logistic support requirements.

d. Finally, an overriding concern of the MSC ILR process is Total Quality Leadership (*TQL*). Using a statistical process controls methodology, as outlined in MILSTD 105, configuration data will be checked and reviewed before loading into the database. MSC Area Commanders and other designated MSC representatives will execute their TQL responsibilities in the accomplishment of the ILRs, as prescribed in Appendix F of this manual. In addition, MSC has assigned FOSSAC as its shipboard validation quality control representative, to ensure that baseline validations are complete and accurate.

5.3 FACTORS AFFECTING THE MSC LOGISTICS REVIEWS

a. To a large extent, the scope of the ILR effort for a given ship is determined by its maintenance and also be influenced by the following considerations:

- (1) Status of equipment validations
- (2) Status of ship's COSAL
- (3) Ships operating record
- (4) Ships schedule and length of the availability
- (5) Number and type of configuration changes planned for each availability
- (6) Personnel support resources
- (7) Funding
- (8) Physical location of ship during the availability

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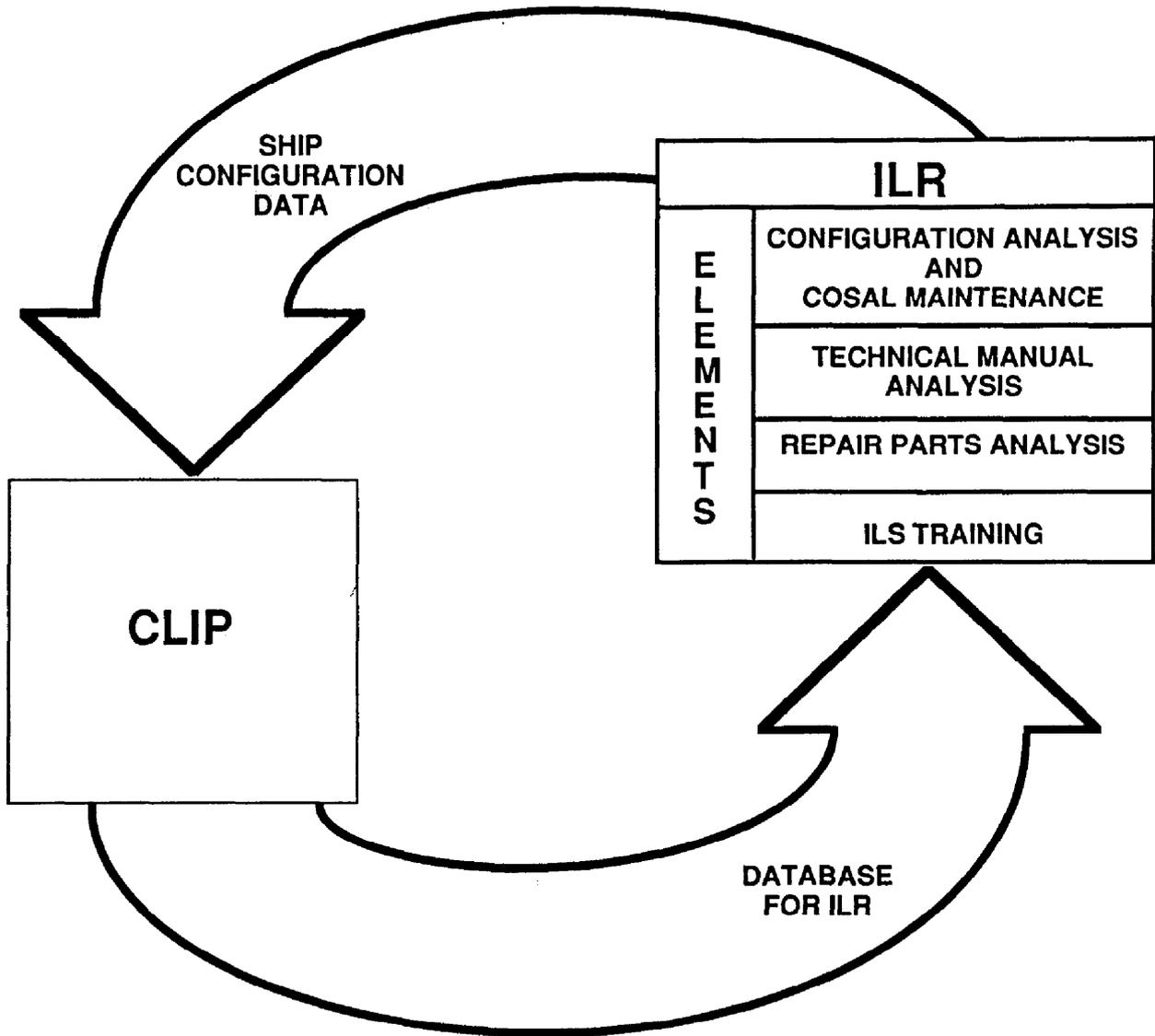


FIGURE 5-1, CLIP-ILR RELATIONSHIP

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b. The procedures for conducting an MSC ILR are, by necessity, flexible. Changes to one aspect of the process may result in further changes to other aspects of the process. The key to success of MSC's continuous ILR is the quality of the database, proper coordination of shorebased assistance and a focus on ships operational equipment support capability. The following paragraphs briefly highlight the elements of an ILR and the critical actions included in each.

5.4 PRE-AVAILABILITY WORK PACKAGE REVIEW

For each industrial maintenance availability, the planned equipment additions and deletions will be identified by performing a Pre-Availability Work Package review. The review will be conducted prior to the availability period, using the latest work package specifications generated for the availability. Planned alteration and schedule information will be obtained from the Engineering Type Desk, Ship's Port Engineer and other sources. Upon completing the review, a Planned Equipment Addition/Deletion report which identifies all configuration worthy equipment additions, deletions or modifications planned for the next availability, is generated.

5.5 PRELIMINARY LOGISTICS READINESS ASSESSMENT

To determine the ship's most urgent needs, and to provide the most effective focus for the MSC ILR, an assessment of the ship's logistics support posture is required. This assessment will be conducted prior to each availability, at designated times within the ILR cycle. Portions of this assessment are performed onboard the ship by the Area Command CDM representative (*with contractor support*) before the start of the next scheduled repair availability. Symptoms of configuration errors and inadequate logistics support can be discovered by analyzing a host of information sources, such as: equipment sight validation results, historical repair part demand data, MSC maintenance feedback reports, supply effectiveness reports, CASREP files, the stock record battery, storeroom inventory validity, status of pending Configuration and Allowance Change Requests, COSAL maintenance action and previous inspection reports. This analysis can be completed with minimum disruption of the ship's routine; yet it ensures that the MSC ILR will concentrate on the ship's most apparent needs.

5.6 CONFIGURATION VERIFICATION, CONFIGURATION ANALYSIS AND COSAL PRODUCTION

The Configuration Verification and Analysis portion of the MSC continuous ILR is the key element in MSC's initiative to improve configuration status accounting. Within MSC, Configuration Verification for a ship begins with a complete "*stem-to-stern*" sight equipment validation, scheduled by the CDM, in concert with the Area Commanders. Completion of the stem-to-stern validation, after quality assurance checks, establishes the

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baseline for MSC CDM's ship configuration status accounting, COSAL production and inclusion in the MSC continuous ILR "cycle" under the MSC CDMP. Due to the anticipated effectiveness of the MSC configuration status accounting process, subsequent stem-to-stern validations will no longer be required. However, at the CDM's discretion, total ship validations may still be directed on a case-by-case basis, if conditions warrant, or as quality control measure of the program. After the initial validation, most MSC ships transition into the CLIP system for configuration status accounting, permitting the CDM to maintain continuous, closed loop control over all future configuration transactions. For those ships not initially brought into the CLIP system, the CDM will act as the interface with the SPCC WSF, transmitting and monitoring ship generated configuration data records and providing periodic status updates.

5.6.1 Configuration Verification. Configuration Verification is the process of confirming nameplate data through sight validations of the equipments installed onboard MSC ships during the operational cycle. The scope of the configuration verification process of an ILR may vary, depending upon the status of the ship's stem-to-stern equipment validation, any "fallout" (*incomplete or unidentifiable*) validation records or provisioning backlog. If scheduled, an actual stem-to-stern sight equipment validation may be completed during a repair availability in conjunction with other ILR efforts. Initially, the results of complete validations will not be immediately available for use during a concurrent configuration analysis effort.

5.6.2 Configuration Analysis

a. Configuration Analysis is the process of comparing data collected in the configuration verification process with existing configuration records such as the ship's COSAL, the MSC CLIP data base or the SPCC Weapons Systems File. Before the Start of Availability (SOA), the CDM will obtain or develop a SOA configuration output document, which reflects the latest configuration data for the ship. In some cases, particularly if a long period of time has passed since the last COSAL production, a complete COSAL, including Parts I, II and III, will also be produced. The CDM will coordinate production of COSALs or SHIPCLIP data base updates as the needs of each ship dictate. In most cases, the MSC Configuration Analysis will commence before the ship actually enters the availability, a technique that can extend the limited time available to complete the MSC ILR. Prior to SOA, work package review will provide the ILR Team with an initial listing of planned equipment additions and deletions to be accomplished during the availability. In some cases, such as Navy sponsored electronics alterations, planned equipment additions and deletions may already have been entered in the ships configuration data files before the above products are generated.

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b. Using the latest configuration products and information provided by the ship, e.g., the old, annotated COSAL, test equipment inventory or selected COSAL records, the ILR staff members, with the assistance of ship's force personnel, perform analyses to review the ship's configuration data. Based on this analysis and the changes processed, the CDM will have updated COSAL products produced and provided to the ship shortly after the end of the availability.

5.6.3 COSAL Production. COSAL production will be tailored to each ship's requirements. Within MSC, the CDM will integrate COSAL production into the configuration data planning schedule. Ship's COSAL production will be based on the date and status of the last stem-to-stern sight equipment validation, number of validation "*fallouts*," effectiveness of the ships local COSAL maintenance actions, date of the last COSAL and number of equipment configuration changes since the last COSAL was produced. The CDM will coordinate COSAL production with Area Commanders to ensure that Area Command and ship concerns and requirements have been addressed. As ships transition to SHIPCLIP, COSALs will still be periodically produced and provided in "*automated*" media.

5.7 REPAIR PARTS ANALYSIS

The principal focus of repair parts analysis is to provide support for equipment installed during the availability and to previously non-supported equipments verified during the sight equipment validation process. Using the listing of planned equipment additions and deletions and the ship's latest Integrated Stock List (*ISL*), the ILR Team will identify repair part allowance deficiencies and excesses. Frequently, new equipments furnished and installed by the availability contractor will include associated repair parts as a contract requirement. The ILR Team must coordinate closely with the MSCCENTACT/Area Commander/Port Engineer to identify these parts, ensure their receipt, integrate them into the ISL and initiate any required allowance documentation. Particular care must be exercised to ensure that these contractor furnished parts are turned over to the Supply Officer/YN/SK, since they represent the initial support allowance for the new equipment. In many cases, configuration analyses will also reveal installed equipments not supported in the COSAL; the ILR Team will include requisitions for the appropriate repair part support for these equipments in the shortage listing. The ILR Team will also review the historical demand file and other files/reports to ensure that parts not carried, but eligible for stocking based on frequency of demand, are processed in accordance with the NAVSUP P485 SIM criteria. The ILR Team will provide a tailored listing of repair parts shortages to the ship for review. The ship's Engineer, Configuration Manager and Supply Officer will review the repair parts shortage listing, clearly identifying any item which is not recommended for shipboard stock. The ILR Team will then submit the shortage listing directly to the Area Commander for approval and block processing upon completion of the analysis. Area Commanders will coordinate delivery of ILR repair parts

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shortages with the ship and supporting Supply Center. The goal is to avoid an influx of extraordinary workload on the ship. Excess spare parts are also identified in the process, but not offloaded until it is confirmed that the supported equipments have been physically removed from the ship and the offload is approved by the Area Commander. Inherent to the MSC ILR process, is the recognition that accurate repair part inventory records and storeroom location validity are required to support logistics readiness. However, due to time constraints and lack of proper facilities, the MSC ILR will not incorporate a repair parts offload as a method to correct inventory validity problems. The preliminary assessment includes procedures for measuring inventory validity. Problems noted during the assessment will be made known to the Area Commander, who will determine the necessary remedial action when the inventory validity is not within minimum standards.

5.8 TECHNICAL MANUAL ANALYSIS

This analysis will ensure that the ship's equipment configuration is adequately supported by accurate, up-to-date technical documentation. The technical manual analysis will generally follow the standard Navy ILO procedures, if time and resources are available. An alternative methodology, outlined in Appendix D, may be more appropriate during limited scope assist visits. In contrast to standard ILO procedures, technical manuals will remain aboard the ship throughout the MSC ILR. Contractor personnel inventory the technical manuals either prior to or at the start of the availability, and then focus on updating the ship's current technical manuals and providing support for incorrectly supported/previously installed unsupported equipment, newly installed equipment, critical systems and other problem equipment.

5.9 COSAL USE AND MAINTENANCE TRAINING

During the course of the availability, the ILR Team will conduct COSAL use and maintenance training for key personnel. The staff will instruct both maintenance and supply personnel on proper maintenance of the ship's configuration records and associated logistics support documentation. As ships transition to SHIPCLIP, the ILR Team will conduct training on the use of SHIPCLIP as an automated COSAL, including use and maintenance of the SHIPCLIP configuration and logistics support data base. In this manner, the improved degree of logistics readiness achieved by the MSC ILR can be perpetuated by ship's force personnel throughout the ship's operating cycle.

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5.10 AVAILABILITY SUPPORT

Typically, MSC ships have frequent, but brief availabilities, where voyage repairs or equipment replacement will drive changes to the ship's equipment configuration. In the past, the reporting of these changes, as well as the acquisition of supporting logistic information, was often done on a hit-or-miss basis. To correct this condition and to provide additional logistic support for ships in short industrial availabilities, the Availability Support (AS) Assist was developed. The AS compliments the ILR and applies continuous attention to configuration changes occurring during the ship operating phase. The following are minimum objectives of the AS.

a. Ensure that the ship is provided the required logistic elements (*i.e., technical manuals, tools and repair parts*) to allow maintenance and support of equipments added or replaced during the availability.

b. Update the ship's logistic references (*i.e., SMIS O&M, COSAL*) to accurately reflect the End of Availability (EOA) configuration.

c. Ensure all industrial work, which results in a configuration change, is accurately reported to the CDM.

d. Provide a means to verify, analyze and correct support problems of critical or mission supporting equipments, identified by the CDM, the Area Commander or the ship.

5.11 FLEET ASSISTS (FA)

In recognition of the challenges presented by the increased operating tempo of the MSC fleet and to complement the CDM's continuous ILR, COMSC has established the Fleet Assist Program to improve ship's logistics readiness. These brief, shipboard logistic assists will ensure that the MSC CDMP/ILR concept of maximum shorebased support for fleet units remains viable and a logistic presence is available on the waterfront in the form of the FA performed by the MSC Readiness Support Group (RSG). The FA will provide shipboard supply and maintenance personnel with tailored assistance in solving specific logistic support problems (*e.g., poor inventory validity, recordkeeping problems, identification of material, training*) as identified by the cognizant Area Commander.

5.12 SUMMARY

As evident in this brief introduction, the MSC CDMP is a comprehensive and ambitious program that promises a high value payoff in logistic enhancements and operational readiness. It requires a great deal of cooperation, coordination and attention to detail from many interested parties to meet the program's objectives. The procedures

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contained in Appendix D will provide necessary direction to the members of the MSC CDMP Team to perform their assigned responsibilities. As the program is implemented and matures, experience and common sense will drive changes and modifications. The CDMP is designed as a dynamic and responsive entity; success will only be achieved if feedback is provided from the participants. Appendix G contains a brief, bulletized list of responsibilities, sorted by each activity, to guide the user.

APPENDIX A

CONFIGURATION CHANGE REPORTING

A.1 INTRODUCTION

a. Timely reporting of configuration changes is the key to maintaining an accurate, up-to-date configuration data file. The ship's force personnel can contribute significantly to these efforts through dedicated configuration change reporting.

b. The purpose of this appendix is to establish detailed guidance on reporting shipboard configuration changes and to provide ship's personnel clear step-by-step procedures in completing the OPNAV 4790/CK Configuration Change Form (*Figure A-1*) and its Continuation Page (*Figure A-2*). MSC's automated configuration and status accounting systems, CLIP and SHIPCLIP, integrate capabilities to complete configuration change requests using the same change request forms, in an automated, menu driven process. CLIP and SHIPCLIP users must still comply with these policies and procedures.

c. This appendix provides the procedures to document and report configuration changes to the ship's installed or in-use systems and equipments. In addition to the overview of the configuration change reporting system provided in the CDMP Manual, it describes general responsibilities for the management and performance of configuration change reporting.

A.2 RESPONSIBILITY

The CDMP manual and its appendices address specific responsibilities under the Configuration Data Management Program. Since this appendix addresses the shipboard reporting procedures, the responsibilities of other activities are not included. The specific responsibilities of other agents in the configuration data management process may be found in Appendices C, D, E and F. Shipboard responsibilities are assigned as follows:

A.2.1 Ship's Configuration Manager

a. The ship's Chief Engineer establishes the necessary shipboard policy and assumes overall responsibility for the accomplishment of shipboard configuration management.

b. To ensure accomplishment of these requirements, the Chief Engineer will designate, in writing, a licensed engineer as the ship's Configuration Manager (*CM*). The CM is specifically responsible for reporting all configuration changes, including those accomplished by other than ship's force personnel. It is imperative that the CM obtain all

SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK(5-84)

S/N 0107-LF-047-9001

CONFIG FILE CORR

COMP M/A NO DEFL

COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION		
1 SHIP'S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIPALT FLD CHG ETC)		
A SHIP'S NAME		8 HULL NUMBER		5 EIC	4 ACT TKN
7 EQUIPMENT NOUN NAME			9 SF MTRS EXP	9 ACT MAINT TIME	10 COMP DATE
				11 M/R	

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME			14 QUANTITY	15 CA
16 COMPONENT IDENTIFICATION		17 COMPONENT SERIAL NUMBER		
18 COMPONENT APL/AEL		19 LOCATION (DECK/FRAME/SIDE)		20 EIC
21 NEXT HIGHER ASSEMBLY			22 S A C	23 WORK CENTER
24 NAMEPLATE DATA				
25 MIP				
26 EOSS				
27 TM				

SECTION IV SPECIAL PURPOSE

28 RIN	29 AKSW	30 SECAS OFFICE USE
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—INSTRUCTIONS—

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II			LEGEND		
		PAGE 1	CONT	PAGE	IA IF AVAILABLE	O OPTIONAL	
13	JOB CONTROL NUMBER	M		M	IA IF AVAILABLE	O OPTIONAL	
4	ALTERATION IDENTIFICATION	IP		IP	IP IF APPLICABLE	NR NOT REQUIRED	
5	EQUIPMENT IDENTIFICATION CODE	M		NR	M MANDATORY		
6	ACTION TAKEN	M		NR			
7	EQUIPMENT NOUN NAME	M		NR			
8	SHIP'S FORCE MANHOURS EXPENDED	M		NR	SECTION I BLOCK 6 ACTION TAKEN	SECTION III BLOCK 15 COMPONENT ACTION	
9	ACTIVE MAINTENANCE TIME	M		NR			
10	COMPLETION DATE	M		NR			
11	METER READING	IP		NR			
12	JOB DESCRIPTION (REMARKS)	O		NR			
13	COMPONENT NOUN NAME	M	M	M	SA — PARTIALLY COMPLETED ALTERATION	R — REMOVED EQUIPMENT	
14	QUANTITY	M	M	M	SB — FULLY COMPLETED ALTERATION	I — INSTALLED EQUIPMENT	
15	COMPONENT ACTION	M	M	M	SC — FULLY COMPLETED EQUIVALENT TO ALTERATION	M — MODIFIED EQUIPMENT	
16	COMPONENT IDENTIFICATION	IP	IP	IP	SD — ALTERATION DIRECTIVE NOT APPLICABLE	CONFIG FILE CORR NO MAINTENANCE ACTION	
17	COMPONENT SERIAL NUMBER	IA	IA	IA	1 — MAINTENANCE ACTION COMPLETED PARTS DRAWN FROM SUPPLY	A — ADDITION OF RECORD	
18	COMPONENT APL/AEL	M	IA	IA	2 — MAINTENANCE ACTION COMPLETED REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE, PRE EXPENDED BINS)	D — DELETION OF RECORD	
19	LOCATION	M	M	M	3 — MAINTENANCE ACTION COMPLETED NO PARTS REQUIRED	C — CORRECT/CHANGE EXISTING RECORD	
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR			
21	NEXT HIGHER ASSEMBLY	IP	IP	IP			
22	SERVICE APPLICATION CODE	IA	IA	IA			
23	WORK CENTER	NR	M	NR			
24	NAMEPLATE DATA	NR	M	NR			
25	MAINTENANCE INDEX PAGE	IA	IA	IA			
26	EOSS	IP	IP	IP			
27	TECH MANUAL NUMBER	IA	IA	IA			
WORK CENTER SUPERVISOR		DIVISION OFF		SUPPLY DEPT		3 M COORDINATOR	
						SHIP SEQUENCE NUMBER	
						PAGE _____ OF _____	

FIGURE A-1, CONFIGURATION CHANGE REQUEST FORM (OPNAV 4790/CK)

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OPNAV 4790/CK(C)

SHIP'S CONFIGURATION CHANGE FORM CONTINUATION PAGE
(REV 5-84) S/N 0107-LF 047-8010

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 S1H EXCEPT		PAGE _____ OF _____	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SH/PA/LT, P, D, CHG, ETC.)	13 COMPONENT NOUN NAME	14 QUANTITY	15 CA	
				16 COMPONENT IDENTIFICATION	17 COMPONENT SERIAL NUMBER		
				18 COMPONENT APL/AEL	19 LOCATION (DECK/FRAME/SIDE)		20 EIC
				21 NEXT HIGHER ASSEMBLY		22 B A C	23 WORK CENTER
24 NAMEPLATE DATA							
				25 MIP	26 EOSE		
27 TM							
28 RIN		29 AILSIN		30 BECAS OFFICE USE			
JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 S1H EXCEPT		PAGE _____ OF _____	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SH/PA/LT, P, D, CHG, ETC.)	13 COMPONENT NOUN NAME	14 QUANTITY	15 CA	
				16 COMPONENT IDENTIFICATION	17 COMPONENT SERIAL NUMBER		
				18 COMPONENT APL/AEL	19 LOCATION (DECK/FRAME/SIDE)		20 EIC
				21 NEXT HIGHER ASSEMBLY		22 B A C	23 WORK CENTER
24 NAMEPLATE DATA							
				25 MIP	26 EOSE		
27 TM							
28 RIN		29 AILSIN		30 BECAS OFFICE USE			
JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 S1H EXCEPT		PAGE _____ OF _____	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SH/PA/LT, P, D, CHG, ETC.)	13 COMPONENT NOUN NAME	14 QUANTITY	15 CA	
				16 COMPONENT IDENTIFICATION	17 COMPONENT SERIAL NUMBER		
				18 COMPONENT APL/AEL	19 LOCATION (DECK/FRAME/SIDE)		20 EIC
				21 NEXT HIGHER ASSEMBLY		22 B A C	23 WORK CENTER
24 NAMEPLATE DATA							
				25 MIP	26 EOSE		
27 TM							
28 RIN		29 AILSIN		30 BECAS OFFICE USE			
JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 S1H EXCEPT		PAGE _____ OF _____	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SH/PA/LT, P, D, CHG, ETC.)	13 COMPONENT NOUN NAME	14 QUANTITY	15 CA	
				16 COMPONENT IDENTIFICATION	17 COMPONENT SERIAL NUMBER		
				18 COMPONENT APL/AEL	19 LOCATION (DECK/FRAME/SIDE)		20 EIC
				21 NEXT HIGHER ASSEMBLY		22 B A C	23 WORK CENTER
24 NAMEPLATE DATA							
				25 MIP	26 EOSE		
27 TM							
28 RIN		29 AILSIN		30 BECAS OFFICE USE			

91 S. Government Printing, Office: 1990-70-119/2015 2-1

FIGURE A-2, CONFIGURATION CHANGE REQUEST FORM CONTINUATION PAGE
(OPNAV 4790/CK(C))

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data necessary to accomplish configuration change reporting from any maintenance activity. The CM is also responsible for coordinating shipboard efforts to correct discrepancies that may later be identified by the MSC CDM. For all equipment configuration changes, the CM will also ensure that ships planned maintenance requirements, required tools and test equipment are obtained.

A.2.2 Supply Department. Supply Department personnel will assist the CM in filling out and submitting the Configuration Change Form (*CCF*). They must complete the required logistic data and validate existing entries in Section III of the *CCF*. Additionally, supply personnel must take the appropriate action to ensure that the ship's COSAL or SHIPCLIP is updated, and repair parts, technical manuals, tools and/or test equipment are obtained expeditiously for CDM approved configuration changes. See Appendix D for specific action required.

A.3 CONFIGURATION CHANGE

A configuration change occurs whenever any system, equipment, component or unit is installed, removed, modified or relocated by any agent. Examples of events that cause configuration changes are:

- a. the substitution of an installed or on-use equipment/component with its onboard spare components;
- b. the receipt or turn-in of an electronic test equipment;
- c. the replacement of a unit/component with a different part number, particularly if either is serialized;
- d. the installation of any new equipment or component either as a separate unit or as an addition to an existing system;
- e. the relocation of any equipment or component, except portable equipment;
- f. the removal or withdrawal from service of any installed or in-use equipment, including test equipment;
- g. the turn-in of an equipment or component to a repair activity for which a different equipment or component is received (*e.g., different manufacturer, model number, serial number*); or

h. the modification of an installed or in-use equipment as a result of repairs, operating deficiencies, etc., when the modification changes the logistic support requirements of the equipment.

A.3.1 Configuration Change Reporting System. The CDM's baseline validation establishes the ship's system/equipment configuration in CLIP, the MSC configuration database. However, a central database without an adequate and efficient process to record updates, as changes occur, will result in a stagnant file with little useful purpose. The configuration change reporting system will accomplish this updating requirement. Basic features of this system are:

a. A capability to rapidly process the configuration change data and generate appropriate logistic support changes for the ship.

b. A single point to which change data can be reported and by which the data can be verified, made available to the appropriate logistic managers, and processed for entry into the central file.

c. A single form (*OPNAV 4790/CK*) that provides all the required configuration change data.

A.3.2 Impact of Configuration Change Reporting. The importance of reporting configuration changes cannot be over-emphasized. The quality and currency of information recorded in the database (*in MSC CLIP and the WSF*), directly determines the quality of support to the Force. If configuration changes are not reported, vital support elements will not be on hand when needed. Without such support, the material readiness of a ship is adversely affected. Considering their impact on shipboard support systems, all configuration changes must be as promptly and accurately reported as possible. Although MSC provides off ship assistance, **THE ULTIMATE RESPONSIBILITY FOR IDENTIFYING AND DOCUMENTING CONFIGURATION CHANGES RESTS WITH THE SHIP.** Figure A-3 depicts this process.

A.4 DEFINITIONS

The following definitions and sources for terms and codes used in completing the *OPNAV 4790/CK*, are provided in alphabetical order.

A.4.1 Allowance Equipage List (AEL). Allowance Equipage Lists are prepared using information found in the *SPCC/WSF*. Part II, Section C of a *COSAL* contains all of the AELs associated with a ship. The *SHIPCLIP* data base also includes all of the AELs in the ship's configuration. AELs describe a system, such as damage control, that is supported by a range of Operating Space Items (*OSI*), with the required allowances. This

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material falls into the general category of tools and equipage which are retained in the custody of the user department. Some OSIs, such as repair parts which are intended to be kept in the same compartment with the installed equipment (*e.g., Maintenance Assist Modules (MAMs)*), are found in APLs instead of AELs.

A.4.2 Allowance Parts List (APL). Allowance Parts Lists are prepared using information obtained from technical data and loaded in the WSF. Part II, Section A of a COSAL contains all of the APLs associated with a ship. The SHIPCLIP data base also includes all of the APLs in the ship's configuration. APLs list both the technical characteristics of a particular piece of equipment and its logistic information. APLs also specify the maintenance significant repair parts associated with the equipment. Each listed repair part on the APL is expected to fail during normal ship's operation and is therefore a potential allowance item, but only those parts with sufficiently high predicted failure or actual replacements rates will normally be authorized as On Board Repair Parts (*OBRPs*). Items critical to safety of the ship's personnel/ship's mission may also be added as "*overrides*."

A.4.3 Bald Allowance Parts List (Bald APL). Sometimes, a decision as to what or how many repair parts are required to support a new equipment has not yet been made. This equipment will only have a "*Bald APL*" which contains the equipment known Logistic Support Status Code (*LSSC*) but does not contain a repair parts list or allowances quantities.

A.4.4 Commercial and Government Entity (CAGE). Formerly the Federal Supply Code for Manufacturers (*FSCM*), the CAGE is a five digit code which identifies the manufacturer of an equipment/component. In many cases, the parent manufacturer has several distinct divisions/subsidiaries which have a CAGE different from that of the parent company. Therefore, care should be taken to determine the CAGE that identifies the specific division of the parent company that manufactured the equipment/component. CAGEs are listed in Federal cataloging handbooks which provide a name to code, code to name and addresses of the manufacturers. If the CAGE is unknown, the name and address of the manufacturer, as stamped on the nameplate, will be provided.

A.4.5 Configuration Sequence Number (CSN). A four character control number assigned sequentially for MSC ships by the ship's CM. The CSN is used by MSC in lieu of the Job Sequence Number (*JSN*) in Block 3 of the 4790/CK. A Configuration Sequence Number Log will be maintained by the ship's CM.

A.4.6 Deck/Frame/Side (Location). The deck/frame/side notation is normally used to identify the location of a system/equipment onboard a surface ship. Location is developed as follows.

CONFIGURATION CHANGE FORM (4790/CK)

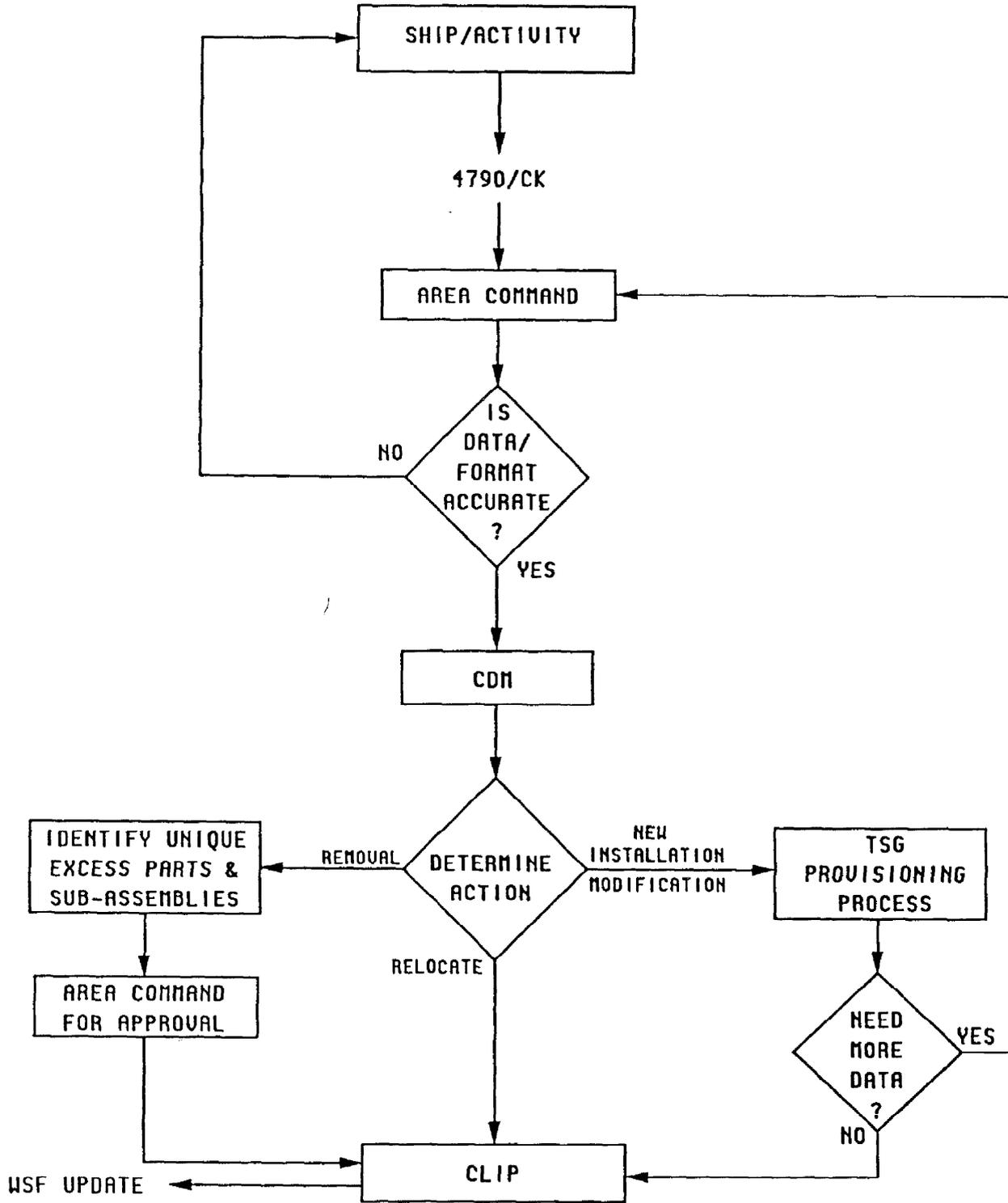


FIGURE A-3, CONFIGURATION CHANGE FORM PROCESSING FLOW

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a. The "*Deck*" entry should identify the deck level on which the system/equipment is located; e.g., 2, 1, 01, 02.

b. The "*Frame*" entry identifies the frame within the compartment where the system/equipment is located; e.g., 116, 103.

c. The "*Side*" entry identifies the side of the ship or compartment where the system/equipment is located; i.e., "1" for Starboard, "2" for Port, and "0" when the system/equipment is on the Center Line.

For example, if the deck/frame/side notation for a switchboard is 01-116-1, then it is located on the 01 level, within the 116th frame of the ship and is on the starboard side.

A.4.7 Equipment Identification Code (EIC). The EIC identifies the functional location of an item or assembly within a system, subsystem or other assembly. The EICs are provided on validation aids, in Part I, Sections C and D of the COSAL or the COSAL section of SHIPCLIP, in the Configuration Data Sheet provided with the equipment alterations or obtained from the EIC Master Index (*NAMSO 4790.E2579*).

A.4.8 Job Control Number (JCN). The JCN is the key identification number for configuration change reporting and related supply documents. It is also the link for consolidating all reporting of an action when more than one activity is involved. The JCN used by MSC consists of the ship's UIC, a work center code/department code and a CSN. Normally, these elements will be assigned by the reporting ship. Section A.6.3.1 addresses assignment of JCNs in detail.

A.4.9 Job Sequence Number (JSN). A four character control number assigned sequentially by Navy ships. In MSC, the CSN is used in lieu of the JSN.

A.4.10 Julian Date (JD). The Julian Date consists of two elements, the last digit of the calendar year and numeric consecutive day of the calendar year (*i.e., Julian Date 9245 represents 2 September 1989*).

A.4.11 Local Identification Number. The identification number assigned to equipments by an activity for its own use. For example, the local identification number for a boiler could be 1A. Local identification numbers can be found on shipboard stock records, storeroom bin tags and in records of the responsible work center.

A.4.12 Record Identification Number (RIN). The RIN is a five character alphanumeric code used to identify a specific entry in CLIP and the WSF. Normally assigned by SPCC during the WSF data loading process, the RIN may be found in Part 1, Section C of the COSAL Index or the COSAL section of SHIPCLIP.

A.4.13 Service Application Code (SAC). The SAC is a code used to identify the "service" or major shipboard function in which the equipment/component/equipage operates or performs a service. SACs may be found in Part 1, Section B of the COSAL Index or the COSAL section of SHIPCLIP.

A.4.14 Unit Identification Code (UIC). The UIC is a unique five character code which identifies an individual command or activity. UICs are listed in Navy Comptroller Manual, Volume 2, Chapter 5.

A.5 FORMS AND FORMAT FOR REQUESTING SHIP'S CONFIGURATION CHANGES

The ship's Configuration Change Form (CCF) (OPNAV 4790/CK (Figure A-1)) and the Ship's Configuration Change Form Continuation Page (OPNAV 4790/CK(C) (Figure A-2)) are used to document and report all actions involving a completed configuration change. Specifically, the forms will be used to report the:

- a. addition/installation of any new equipment;
- b. deletion/removal of any installed or in-use equipment;
- c. replacement/exchange of any installed or in-use equipment;
- d. modification of any installed or in-use equipment;
- e. relocation of any installed equipment;
- f. accomplishment of any alteration directive (e.g., TRANSALT, BOATALT, etc.); and (Note: These may not always result in a configuration change.)
- g. correction to erroneous data found in the COSAL, SHIPCLIP, CLIP or the WSF.

The above actions must be reported by the ship, using the OPNAV 4790/CK, as they are accomplished. CLIP and SHIPCLIP users may complete automated configuration change requests. CLIP and SHIPCLIP change requests use the same format and procedures as the paper form. Details for completing and distributing this form are contained in the following paragraphs.

A.6 INSTRUCTIONS FOR COMPLETING THE SHIP'S CONFIGURATION CHANGE FORM (OPNAV 4790/CK)

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The following instructions and examples explain, in detail, how to complete the 4790/CK. To attain consistency and accuracy in configuration reporting, they must be strictly followed. CLIP and SHIPCLIP users will enter information on an automated form but must comply with the same procedures in completing the form. The definitions and sources of codes used in completing the form are provided in Section A-4.

A.6.1 Character and Data Entry Standards. The 4790/CK is used by the CDM and SPCC as the primary data source to maintain CLIP and the WSF, therefore, the legibility of information on the form is extremely important. Special style numbers and letters have been developed to differentiate between similar characters, as illustrated in Figure A-4. This exact style shall be used to fill out the form. Using a black pencil or ballpoint pen, enter each character, in one position or tick mark, on the form. If an entry error is made, draw a single line through the incorrect entry and enter the correct data above the lined-out one. Enter characters such as "E," "I" and "L" so that the bottom (*horizontal*) line of the letter is clearly visible and does not blend with the preprinted lines on the form. The bottom of characters such as "O," "Q" and "U" must be obviously rounded. The information submitted on the CCF will be entered into CLIP and the WSF exactly as it is printed on the form. To simplify the entry process, standard procedures for recording data on the 4790/CK are necessary.

- a. Use phrases, not sentences, in the appropriate sections of the form.
- b. Where space does not permit completing a word or combination of numbers on the line it was begun, enter as many letters/numbers as possible. Enter the remaining letters/numbers on the next line, starting with the first position. Do not hyphenate words or split number combinations with hyphens.
- c. When a word or number combination is completed using the last position of a line, leave the first position of the next line blank to denote a space.
- d. Separate words, number combinations and phrases with one blank position to denote a space.
- e. Use periods only after common abbreviations (*e.g., Inc., Co.*). Other forms of punctuation are not required.
- f. Use only commonly recognized symbols, if required, such as the symbol for the word "and" (&), the slash (/) or the hyphen (-). Each of these symbols will occupy a space on the form. Ensure that the "slash" cannot be mistaken for the number "1."

A.6.2 OPNAV 4790/CK Overview. Section I, **JOB IDENTIFICATION**, and Section II, **JOB DESCRIPTION/REMARKS**, of the 4790/CK form (*Figure A-1*), will be completed to

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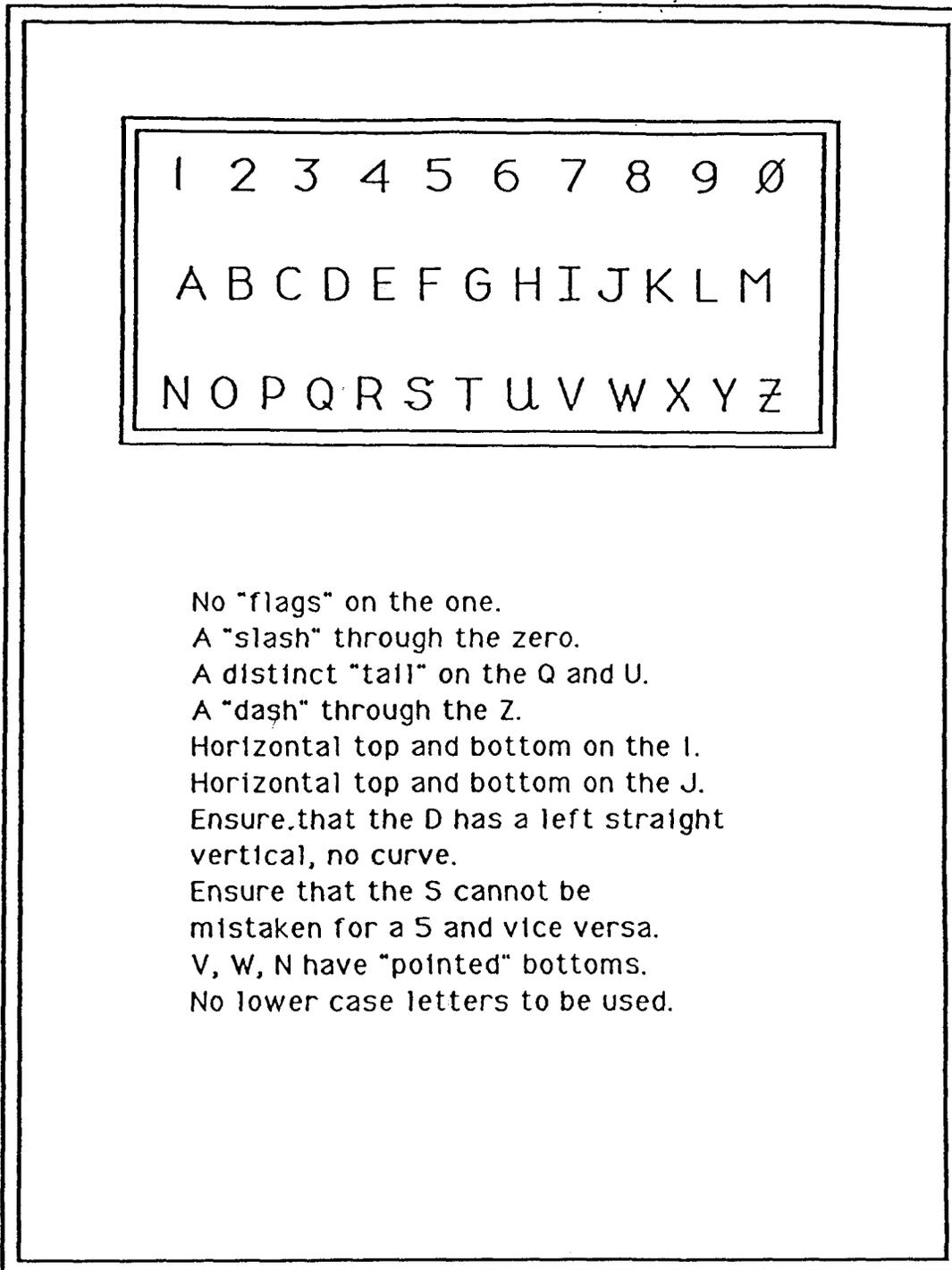


FIGURE A-4, STANDARD CHARACTERS FOR OPNAV 4790/CK

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identify the configuration change. Section III, **COMPONENT CONFIGURATION CHANGE IDENTIFICATION**, will be completed to identify the equipment to which the configuration change was made. Most of Section IV, **SPECIAL PURPOSE**, will normally not be completed aboard ship. Specifically, shipboard personnel need only enter the Record Identification Number (*RIN*) in Block 28 for a change or delete action. (*The RIN may be found in the COSAL Index, Part 1 Section C or the COSAL section of SHIPCLIP.*) Instructions are included on the lower portion of the form to assist in proper completion. Blocks are provided on the bottom for recording the initials of shipboard personnel who review the completed 4790/CK. Space is also provided to identify the number of pages of information provided for each action documented. If a configuration change results from the removal of an existing system or equipment and the installation of a replacement equipment, the 4790/CK(C) form (*see Figure A-2*) is used to report the second part of the action; i.e., Page 1 (*4790/CK*) to report the removal of the existing system, and Page 2 (*4790/CK(C)*) to report the installation of the replacement equipment.

A.6.3 Completing The Configuration Change Form. Specific instructions for filling out the OPNAV 4790/CK and 4790/CK(C) to report configuration changes are provided in Sections A.6.3.1 through A.6.5. Instructions for completing the form to correct errors in ship's configuration baseline are provided in Section A.7.

A.6.3.1 Instructions for Completing Section I of OPNAV 4790/CK-JOB IDENTIFICATION. The following paragraphs and Figure A-5 provide the sequence of steps to complete Section I.

a. Place an "X" in the configuration file correction (**CONFIG FILE CORR**) block. This block is used to report configuration adds, deletes and file corrections. Do not put an "X" in **COMP M/A NO DEFL** or **COMP DEFL**; these do not apply to MSC ships.

b. Block A - **SHIP'S NAME**: Enter the name of the ship.

c. Block B - **HULL NUMBER**: Enter "T," ship type and hull number (*e.g., T-AO 187*).

d. Blocks 1-3 - **JOB CONTROL NUMBER (JCN)**: Enter the ship's UIC in Block 1; enter and of the following department codes in Block 2: "ENGI," "MDET," "SUPP," "DECK" and enter the Configuration Sequence Number (CSN) in Block 3. Additional information on the JCN, UIC, JSN and CSN is provided in Section A.4.

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e. Block 4 - **ALTERATION IDENTIFICATION**: For any type of alteration, enter the prefix from the list below in the two left-most positions and identify the alteration directive in the remaining positions:

Boat Alteration = (BOATALT) = BA
COMSC Directive = CI
Engineering Change = EC
Field Change = FC
Habitability = HI
TRANSALT = TA
Area Command Directive = TY

Example:

T A A T F 1 1 2 4 5

If the configuration change is not an alteration, leave block 4 blank.

f. Block 5 - **EIC**: Enter the EIC (*left-justified*) that best describes the equipment. The EIC and its sources are further discussed in Section A.4. For deletions, removals or modifications of existing equipment, enter the EIC of the equipment, found in Part 1, Section C of the COSAL or the COSAL section of SHIPCLIP.

g. Block 6 - **ACTION TAKEN**: If the configuration change being reported is the accomplishment of an alteration, enter the code from the list below that best describes the status of the configuration change:

5A = Partially Completed Alteration
5B = Fully Completed Alteration
5C = Fully Completed Equivalent To Alteration
5D = Alteration Directive Not Applicable

In all other cases, enter the code from the following list that best describes the configuration change in the left-most position.

1 = Maintenance Action Completed: Parts Drawn From Supply
2 = Maintenance Action Completed: Required Parts Not Drawn From Supply (*Local Manufacture, Pre-expended Bins*)
3 = Maintenance Action Completed: No Parts Required

Both sets of codes for Block 6 are also shown in the Instructions section of the 4790/CK.

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h. Block 7 - **EQUIPMENT NOUN NAME:** If the maintenance action being reported is the accomplishment of an alteration (*e.g.*, *TA*, *BOATALT*) enter the noun name from the alteration record. Otherwise, enter the equipment nomenclature/description of the equipment or system on which the action was performed. If the action being performed affects several components or a system, enter the name/designator of the highest assembly being affected by the configuration change as indicated in (1) and (2) below. (*Note that components, subunits, etc., shall subsequently be identified a continuation page in the component noun name block, or in Block 13 of page 1, to provide more detailed configuration information.*)

(1) For Hull, Mechanical and Electrical (*HM&E*) equipment, enter the noun name. Abbreviate only to the extent necessary due to space limitations.

Example:

HP AIR COMPRESSOR

(2) For electronic (*ELEX*) equipment, enter the Army/Navy type designator (*i.e.*, *AN/URC-32B*, *CV-2091/U*) or commercial model number (*i.e.*, *MP200*, *LN66*).

Examples:

Joint Army/Navy

Type Designator -

AN/URC-32B

Commercial Model Number -

HP200

i. Block 8 - **SHIP'S FORCE MAN-HOURS EXPENDED:** Enter the total number of man-hours, to the nearest whole hour, expended by ship's Force personnel or an off-ship installation team to complete the configuration change. For example, if it took four people 2 hours, enter "**0008.**" Documentation time should not exceed 1 hour.

j. Block 9 - **ACTIVE MAINTENANCE TIME:** Enter the total number of clock hours (*to the nearest whole hour*) that the configuration change took to perform. For example, if the action took four people 2 hours, the entry would be "**0002.**"

k. Block 10 - **COMPLETION DATE:** Enter the Julian Date on which the configuration change was completed.

l. Block 11 - **METER READING:** Enter an "**X**" if the equipment has a time meter installed.

A.6.3.2 Instructions for Completing Section II of OPNAV 4790/CK-JOB DESCRIPTION/REMARKS. In Block 12, enter any desired records relating to the accomplishment of the configuration change being reported. In some cases, an alteration

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directive will specify that certain information be documented. If an "X" is entered in Block 11, enter the Meter Reading (*M/R*) and precede the reading with "M/R." If there is more than one meter, identify each meter and enter the reading for each.

A.6.3.3 Instructions for Completing Section III of OPNAV 4790/CK-COMPONENT CONFIGURATION CHANGE IDENTIFICATION

a. General comments pertinent to proper completion of Section III are as follows.

(1) For configuration change reporting purposes, an HM&E component is the lowest level of equipment that has its own configuration identity (*such as a model number, APL, part number*). For ELEX equipment, if the configuration change being reported is the accomplishment of an alteration, "*component*" is defined as the equipment level addressed in the alteration directive, usually the major equipment or system level.

(2) The APL for HM&E equipment must be the APL of the component identified in the noun name. For ELEX equipment, the serial number entered must be the serial number (*SN*) of the component identified in the noun name, and the nomenclature and serial number of the next higher assembly must be provided in Block 21.

(3) Only three component configuration change actions can occur as a result of the accomplishment of a maintenance action:

- (a) the removal of an installed equipment;
- (b) the installation of a new equipment; or
- (c) the modification of an existing equipment.

(4) A star (*) to the left of each block number listed below, indicates an element of information that is identified on the ELEX validation aids. The number symbol (#) identifies information found in Part 1, Section C of the COSAL Index/SHIPCLIP COSAL. The use of these documents will greatly reduce the effort required to complete Section III of the 4790/CK.

b. The sequence of specific steps required to complete Section III are detailed in the following paragraphs, Figure A-6 for HM&E equipment and Figure A-7 for ELEX equipment.

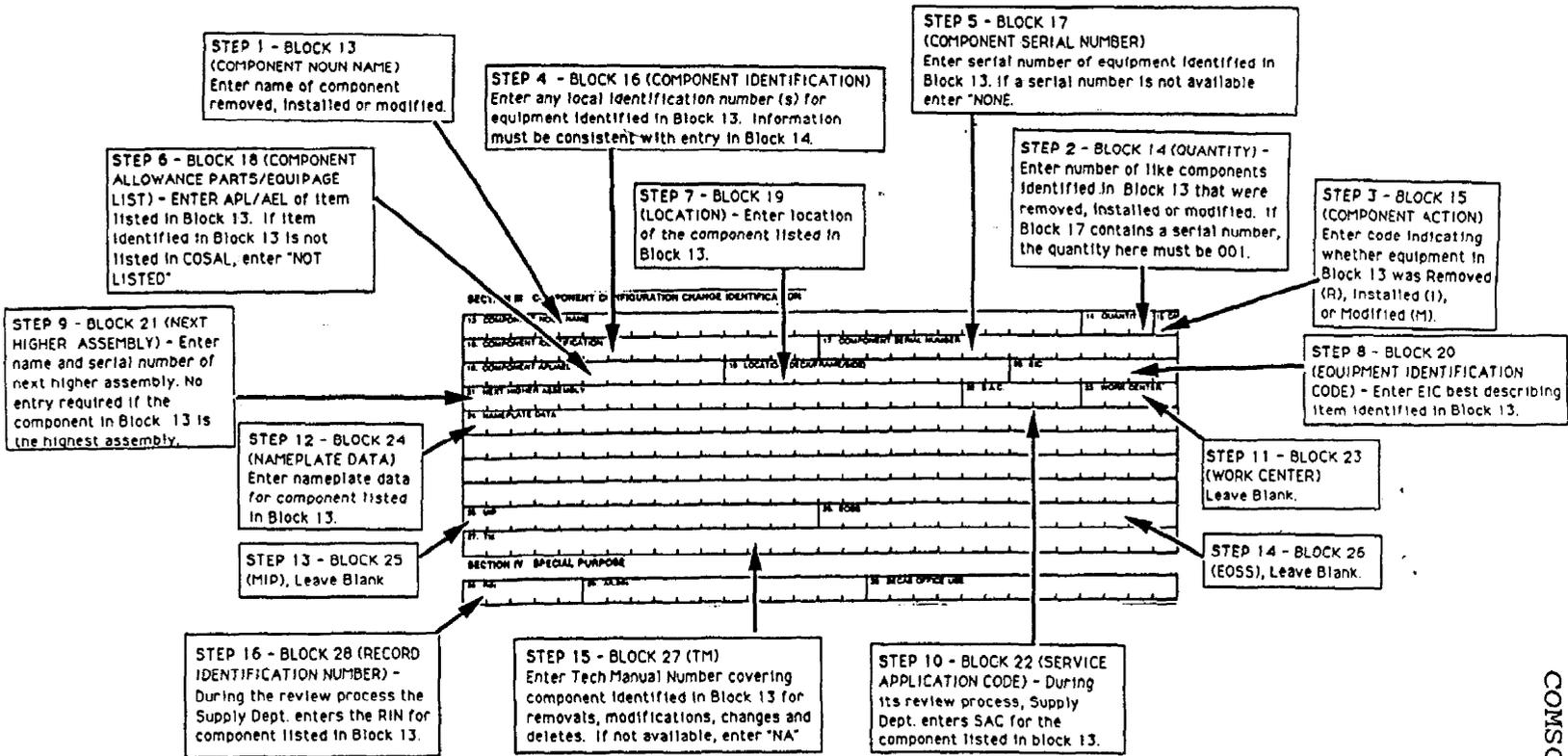
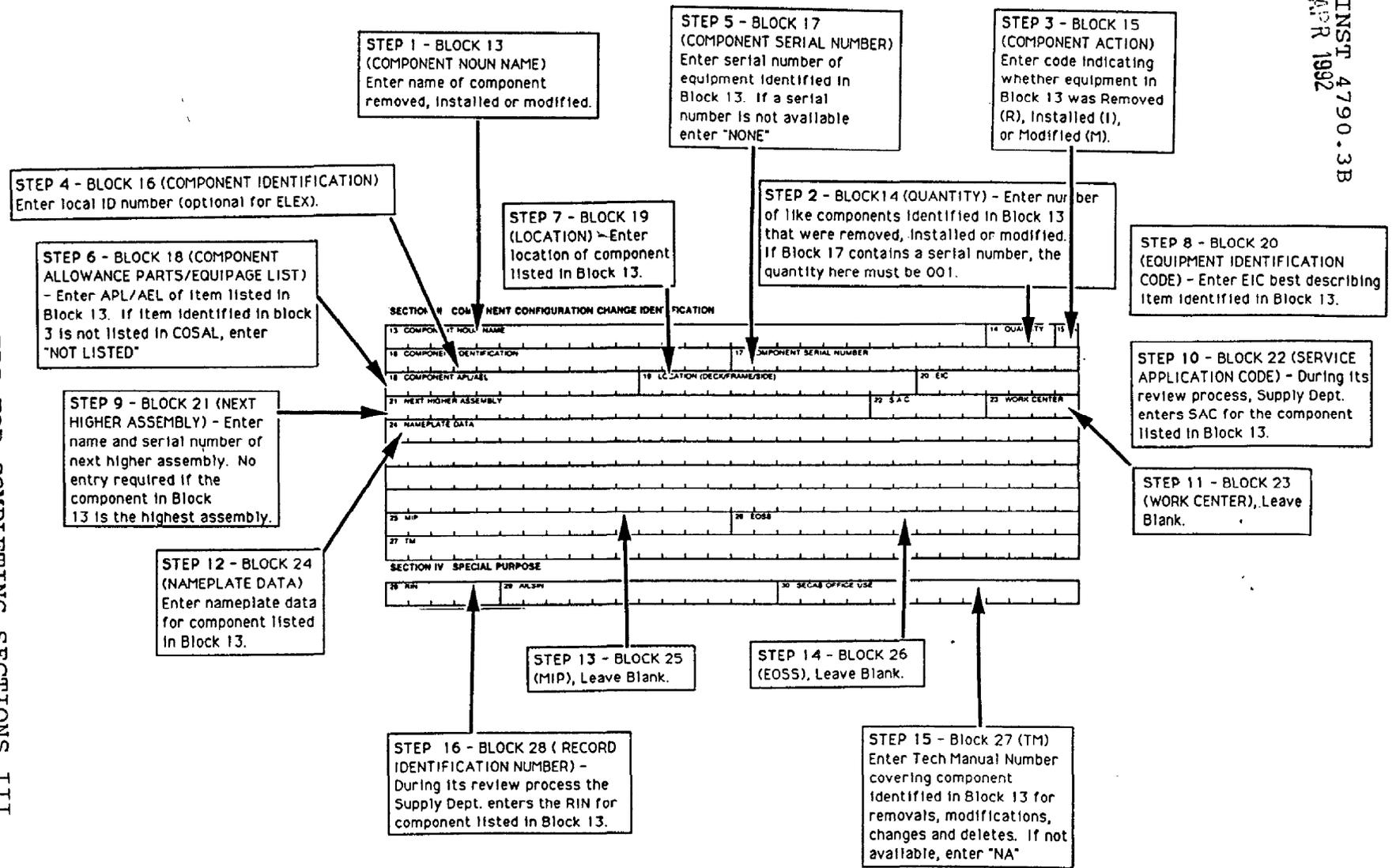


FIGURE A-6, STEPS FOR COMPLETING SECTIONS III AND IV FOR AN HM&E COMPONENT

FIGURE A-7, STEPS FOR COMPLETING SECTIONS III AND IV FOR AN ELECTRONICS COMPONENT



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(1) #* Block 13 - **COMPONENT NOUN NAME**: For HM&E components, enter the noun name of the component removed, installed or modified as a result of accomplishing the configuration change. For ELEX components, enter the type designator (*i.e.*, AN/URC-32, CV-2091/U). If there is no type designator, enter the commercial model number only (*i.e.*, HP200, LN66). Do not enter the Manufacturer's Designating Symbols (MDS) assigned to a manufacturer, (*i.e.*, CAQI).

(2) #* Block 14 - **QUANTITY**: Enter the number of like components identified in Block 13 that were removed, installed or modified as a result of accomplishing the configuration change. If a serial number is entered in Block 17, the quantity "1" must be entered. If the configuration change is made to more than one like component, but with different serial numbers, complete a separate OPNAV 4790/CK (*as prescribed in Section 3.9.2*) for each component.

(3) Block 15 - **COMPONENT ACTION**: Enter the code from the Instructions section at the bottom of the 4790/CK form that indicates whether the component was removed (R), installed (I) or modified (M).

(4) Block 16 - **COMPONENT IDENTIFICATION**: For HM&E equipments, if the equipment or component entered in block 13 has a local identification number, such as a station number (*e.g.*, #1 A.C. Unit) or Valve Mark (*e.g.*, ASW25) enter the number in block 16. For ELEX equipment, an entry in this block is optional if a serial number is entered in block 17; otherwise enter the local identification. The information entered in this block must be consistent with the quantity entered in block 14.

(5) #* Block 17 - **COMPONENT SERIAL NUMBER**: Enter the serial number of the component. For equipment with no serial number and quantity of 1, enter "NONE" in the four left-most positions. For equipment that has a quantity of more than one in Block 14, enter "NA" (*not applicable*) in the two left-most positions.

(6) #* Block 18 - **COMPONENT ALLOWANCE PARTS LIST/ALLOWANCE EQUIPAGE LIST (APL/AEL)**: Enter the APL/AEL of the component identified in Block 13. If the component is not listed in the COSAL/SHIPCLIP, enter "NOT LISTED."

(7) #* Block 19 - **LOCATION**: Enter the location of the component by using one of the methods listed below:

(a) Compartment - Enter the compartment number identified on the compartment check-off list.

(b) Deck/Frame/Side - Enter the deck, frame and side notation that best describes the location of the component. See Section A.4.

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(c) If neither the compartment nor the deck/frame/side notation is appropriate, enter the name of the location (*e.g., Fantail, Flight Deck, etc.*). Abbreviations, if necessary, are permitted.

(8) #* Block 20 - **EQUIPMENT IDENTIFICATION CODE (EIC)**: Enter the EIC that best describes the component. The EIC and its sources are discussed in Section A.4.

(9) Block 21 - **NEXT HIGHER ASSEMBLY (NHA)**: Enter the nomenclature and serial number, if available, for the NHA of the component. The NHA is not required when the equipment is the highest assembly. If no serial number for the NHA is available, enter its local identification number.

(10) Block 22 - **SERVICE APPLICATION CODE (SAC)**: Leave blank for ELEX equipment. Supply Department personnel will assist in determining the correct SAC for HM&E equipment. If a SAC cannot be identified, describe the service application of the equipment in Block 24. The SAC and its source are discussed in Section A.4.

(11) #*Block 23 - **WORK CENTER (WC)**: Leave blank.

(12) Block 24 - **NAMEPLATE DATA**: Enter the total nameplate data from the equipment when:

(a) The equipment is ELEX and neither an APL/AEL number nor a serial number appears in Block 18 or Block 17, respectively; however, if Block 13 contains a commercial electronic equipment, the manufacturer's name and address or the Commercial and Government Entity (*CAGE*) must be entered in Block 24, regardless if an APL/AEL or serial number appears in Block 18 or Block 17. The *CAGE* and its source are discussed in Section A.4.

(b) The equipment is HM&E and an APL/AEL number does not appear in Block 18. It is extremely important to provide as much information as possible for HM&E equipment when the APL is unknown. Enter all information, such as manufacturer, manufacturer's identification number, drawing number, installation plan number, physical descriptions, contract information and any other information that will assist in the identification of supply support and other logistics documentation.

(c) Block 15 (**COMPONENT ACTION**) contains action code "A" (*addition*).

(d) Nameplate data to be entered in Block 24 is as follows:

1. Contract Number;

2. Part Number;
3. CAGE, if available. Enter the name and address of the manufacturer when no CAGE is available; and
4. any additional information that is available which provides a description of the use or operation of the component.

(16) Block 25 - **MAINTENANCE INDEX PAGE (MIP) NUMBER**: Enter **NA**.

(17) Block 26 - **ENGINEERING OPERATIONAL SEQUENCING SYSTEM (EOSS)**: Enter **NA**.

(18) Block 27 - **TECHNICAL MANUAL (TM) NUMBER**: For like equipment installations (*i.e., exchanges*) enter the TM covering the deleted equipment. For new installations, enter TM number when available including any commercial technical manual; if not available, enter NA.

A.6.4 Section IV Instructions - Special Purpose. The RIN (*Block 28*) must be filled in for changes and deletes (*see Section A.5*). The remainder of this section should be left blank; it is used by the CDM for internal processing. The RIN is identified in post-availability reports for ELEX equipment and in Part I, Section C of the COSAL Index or the COSAL section of SHIPCLIP for HM&E equipment.

A.6.5 Examples of Completed OPNAV 4790/CK. Figure A-8 summarizes the steps required to complete continuation pages for both HM&E and ELEX configuration changes.

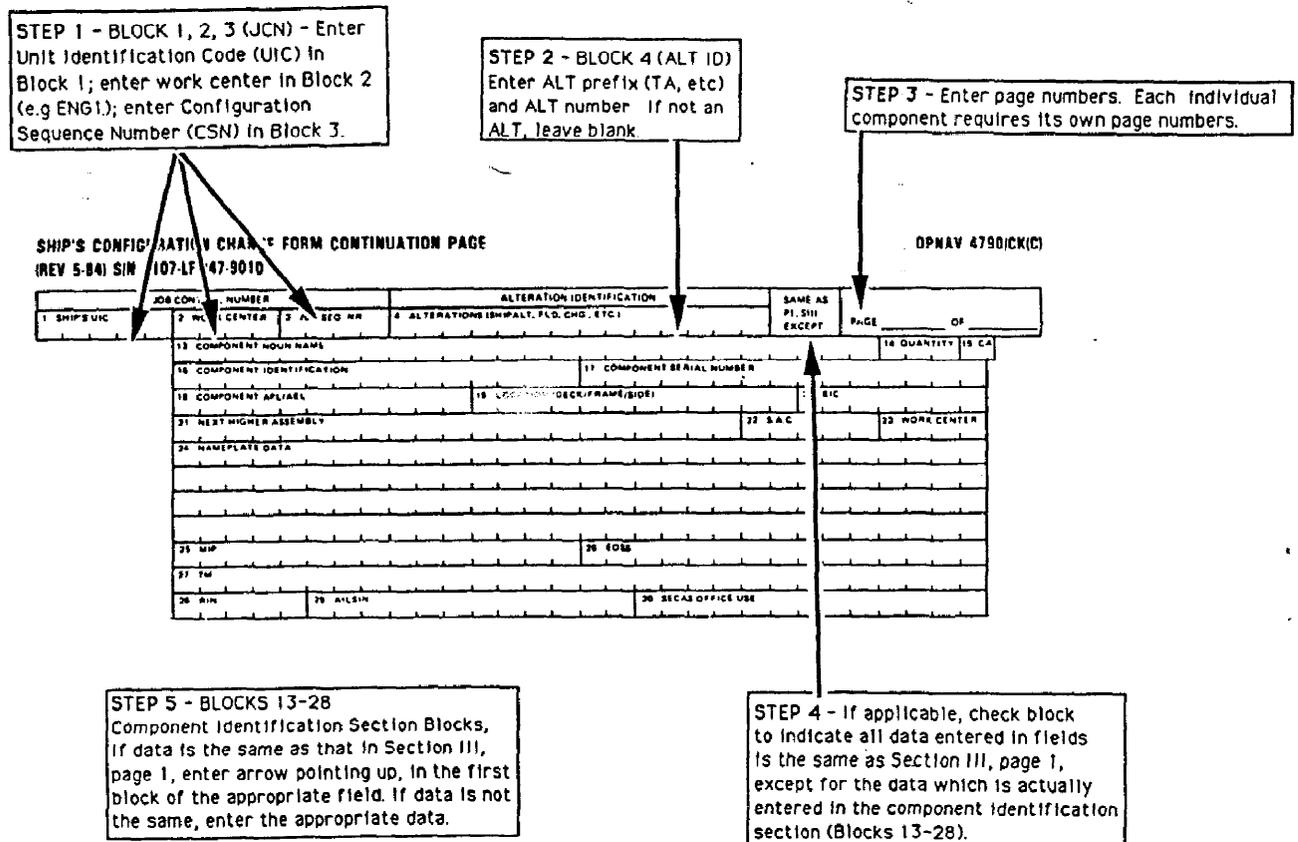
a. Each component reported must include an appropriate entry in the JCN field (*for MSC; the UIC, a dummy work center code (TTTT), and the CSN*), an entry in the page number field listing a different page number (*even though four components may be reported on the same page*), as well as the completion of required component identification data.

b. If applicable, check the block at the top of each component identification section to indicate that all data to be entered is the same as Section III, page 1, except that data which is actually entered in the fields in the component identification section. An arrow pointing up (-) should be placed in the first block of each blank field to indicate that it is the same as that appearing on page 1.

c. For each component reported, the required entry on these continuation pages are those component identification data elements which differ from Section III and IV, page 1. (*Paragraph A.6.3.3 provides detailed guidance for completion of Section III.*)

d. Figures A-9 and A-10 provide examples of properly completed 4790/CKs for configuration changes to HM&E components. Figures A-11 through A-13 provide examples of properly completed 4790/CKs for configuration changes to ELEX equipment.

FIGURE A-8, STEPS FOR COMPLETING CONFIGURATION CHANGE FORM CONTINUATION PAGE FOR HM&E COMPONENTS



SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK (5 84)

S/N 0107 LF-047 9001

CORRECTED

COMP MIA
NO DEF

COMP DEF

SECTION I JOB IDENTIFICATION

1 SHIP S UC		2 WORK CENTER		3 JOB SEQ NR		4 ALTERATIONS (SHIPALT FLD CHG ETC)	
04808		ENG10058		TATAO		2124	
5 SHIP NAME		6 HULL NUMBER		7 EIC		8 ACT TAN	
USNS PAWCATUCK		T-AO 108		TF03		58	
9 EQUIPMENT NOUN NAME		10 S/H HRS EXP		11 ACT MAIN		12 COMP DATE	
L.P. ATR COMPRESSOR		0040010		0267			

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS
INSTALLED ATR COMPRESSOR

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME		14 QUANTITY		15 CA	
L.P. ATR COMPRESSOR		0017			
16 COMPONENT IDENTIFICATION		17 COMPONENT SERIAL NUMBER			
1		NONE			
18 COMPONENT APL/AEL		19 LOCATION (DECK/FRAME/SIDE)		20 EIC	
M489990066		3-122-0		TF03	
21 NEXT HIGHER ASSEMBLY		22 S AC		23 WORK CENTER	
COMPRESSED ATR SYSTEM OR A C B					
24 NAMEPLATE DATA		25 MIP		26 EOSS	
		NA		NA	
27 TM		28		29	
9.241-A3-MMO-010					

SECTION IV SPECIAL PURPOSE

26 RIN	29 ALSIN	30 SECAS OFFICE USE

—INSTRUCTIONS—

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II			LEGEND
		PAGE 1	CONT	PAGE	
1-3	JOB CONTROL NUMBER	M			1A IF AVAILABLE 1P IF APPLICABLE M MANDATORY SECTION I BLOCK 6 ACTION TAKEN SECTION III BLOCK 15 COMPONENT ACTION MAINTENANCE ACTIONS R - REMOVED EQUIPMENT I - INSTALLED EQUIPMENT M - MODIFIED EQUIPMENT CONFIG FILE CORR NO MAINTENANCE ACTION A - ADDITION OF RECORD D - DELETION OF RECORD C - CORRECT CHANGE EXISTING RECORD
4	ALTERATION IDENTIFICATION	IP			
5	EQUIPMENT IDENTIFICATION CODE	M			
6	ACTION TAKEN	M			
7	EQUIPMENT NOUN NAME	M			
8	SHIP'S FORCE MANHOURS EXPENDED	M			
9	ACTIVE MAINTENANCE TIME	M			
10	COMPLETION DATE	M			
11	METER READING	IP			
12	JOB DESCRIPTION (REMARKS)	O			
13	COMPONENT NOUN NAME	M	M	M	
14	QUANTITY	M	M	M	
15	COMPONENT ACTION	M	M	M	
16	COMPONENT IDENTIFICATION	IP	IP	IP	
17	COMPONENT SERIAL NUMBER	IA	IA	IA	
18	COMPONENT APL/AEL	M	IA	IA	
19	LOCATION	M	M	M	
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR	
21	NEXT HIGHER ASSEMBLY	IP	IP	IP	
22	SERVICE APPLICATION CODE	IA	IA	IA	
23	WORK CENTER	NR	M	NR	
24	NAMEPLATE DATA	NR	M	NR	
25	MAINTENANCE INDEX PAGE	IA	IA	IA	
26	EOSS	IP	IP	IP	
27	TECH MANUAL NUMBER	IA	IA	IA	
WORK CENTER SUPERVISOR	DIVISION OFF	SUPPLY DEPT	3 M COORDINATOR	SHIP SEQUENCE NUMBER	
		RW	TM	10058	PAGE 1 OF 8

FIGURE A-9, CONFIGURATION CHANGE RESULTING FROM AN HM&E TRANSALT (COMPONENT REMOVAL)

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SHIP'S CONFIGURATION CHANGE FORM CONTINUATION PAGE

(REV 5 84) S/N 0107 LF 047 9010

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		NAME AS PI ACCEPT	PAGE 2 OF 8
1 SHIP'S UIC 04808	2 WORK CENTER ENG10059	3 JOB SEQ. NR TATAO	4 ALTERATIONS (SHIPALT, PLO, CHD, ETC) 2124		
13 COMPONENT HOUR NAME MOTOR AC		17 COMPONENT SERIAL NUMBER E-16311		14 QUANTITY 0011	
15 COMPONENT IDENTIFICATION		18 COMPONENT APL/ALL 174754939		19 LOCATION INDEX/FRAME/SIDEI	
21 NEXT HIGHER ASSEMBLY LP AIR COMPRESSOR		22 BAC		23 WORK CENTER	
24 NAMEPLATE DATA		25 MIP		26 EOSE	
27 RIN		28 AILBIN		29 SECAS OFFICE USE	
20 RIN		20 AILBIN		30 SECAS OFFICE USE	

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		NAME AS PI ACCEPT	PAGE 3 OF 8
1 SHIP'S UIC 04808	2 WORK CENTER ENG10060	3 JOB SEQ. NR TATAO	4 ALTERATIONS (SHIPALT, PLO, CHD, ETC) 2124		
13 COMPONENT HOUR NAME REGULATOR PRESSURE		17 COMPONENT SERIAL NUMBER NONE		14 QUANTITY 0011	
15 COMPONENT IDENTIFICATION		18 COMPONENT APL/ALL 882108002		19 LOCATION INDEX/FRAME/SIDEI	
21 NEXT HIGHER ASSEMBLY LP AIR COMPRESSOR		22 BAC		23 WORK CENTER	
24 NAMEPLATE DATA		25 MIP		26 EOSE	
27 RIN		28 AILBIN		29 SECAS OFFICE USE	
20 RIN		20 AILBIN		30 SECAS OFFICE USE	

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		NAME AS PI ACCEPT	PAGE 4 OF 8
1 SHIP'S UIC 04808	2 WORK CENTER ENG10061	3 JOB SEQ. NR TATAO	4 ALTERATIONS (SHIPALT, PLO, CHD, ETC) 2124		
13 COMPONENT HOUR NAME FILTER ASSEMBLY		17 COMPONENT SERIAL NUMBER NONE		14 QUANTITY 0011	
15 COMPONENT IDENTIFICATION		18 COMPONENT APL/ALL 48210050		19 LOCATION INDEX/FRAME/SIDEI	
21 NEXT HIGHER ASSEMBLY LP AIR COMPRESSOR		22 BAC		23 WORK CENTER	
24 NAMEPLATE DATA		25 MIP		26 EOSE	
27 RIN		28 AILBIN		29 SECAS OFFICE USE	
20 RIN		20 AILBIN		30 SECAS OFFICE USE	

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		NAME AS PI ACCEPT	PAGE 5 OF 8
1 SHIP'S UIC 04608	2 WORK CENTER ENG10062	3 JOB SEQ. NR TATAO	4 ALTERATIONS (SHIPALT, PLO, CHD, ETC) 2124		
13 COMPONENT HOUR NAME DRIER AIR		17 COMPONENT SERIAL NUMBER 0011		14 QUANTITY 0011	
15 COMPONENT IDENTIFICATION		18 COMPONENT APL/ALL M32880360		19 LOCATION INDEX/FRAME/SIDEI	
21 NEXT HIGHER ASSEMBLY LP AIR COMPRESSOR		22 BAC		23 WORK CENTER	
24 NAMEPLATE DATA AD-100		25 MIP		26 EOSE	
27 RIN		28 AILBIN		29 SECAS OFFICE USE	
20 RIN		20 AILBIN		30 SECAS OFFICE USE	

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FIGURE A-10, CONFIGURATION CHANGE RESULTING FROM AN HM&E TRANSALT (COMPONENT REMOVAL) CONTINUATION PAGE

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SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK(5 84)

S/N 0107-LF 047 9001

CONFIG FILE CORR

COMP M/A NO DEFL

COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION			
1 SHIP'S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIPALT FLD CHG ETC)			
21323	MDET	0023	F.C. 128			
5 SHIP'S NAME		6 HULL NUMBER	7 EIC		8 ACT TKN	
USNS ZEUS		T-ARC	7		P404 5.8	
7 EQUIPMENT NOUN NAME			8 SF MHRS EXP	9 ACT MAINT TIME	10 COMP DATE	11 MIR
AN/URT-2A			0001	0.1	11211	

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME			14 QUANTITY		15 CA
AN/URT-2A			001M		
16 COMPONENT IDENTIFICATION			17 COMPONENT SERIAL NUMBER		
			F102		
18 COMPONENT APL/AEL		19 LOCATION (DECK/FRAME/SIDE)		20 EIC	
42640478		01-81-2-0		P404	
21 NEXT HIGHER ASSEMBLY			22 S AC		23 WORK CENTER
24 NAMEPLATE DATA					
25 MIP			26 EOSS		
N.A.			N.A.		
27 TM			0864-LP-604-6211		

SECTION IV SPECIAL PURPOSE

28 RIN	29 AILSIN	30 SECAS OFFICE USE

-INSTRUCTIONS-

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II			LEGEND	
		PAGE 1	CONT	PAGE		
13	JOB CONTROL NUMBER	M		M	IA IF AVAILABLE O OPTIONAL IP IF APPLICABLE NR NOT REQUIRED M MANDATORY	
4	ALTERATION IDENTIFICATION	IP		IP		
5	EQUIPMENT IDENTIFICATION CODE	M		NR		
6	ACTION TAKEN	M		NR		
7	EQUIPMENT NOUN NAME	M		NR		
8	SHIP'S FORCE MANHOURS EXPENDED	M		NR		
9	ACTIVE MAINTENANCE TIME	M		NR		
10	COMPLETION DATE	M		NR		
11	METER READING	IP		NR		
12	JOB DESCRIPTION (REMARKS)	O		NR		
13	COMPONENT NOUN NAME	M		M		SECTION I BLOCK 6 ACTION TAKEN SECTION III BLOCK 15 COMPONENT ACTION MAINTENANCE ACTIONS SA - PARTIALLY COMPLETED ALTERATION SB - FULLY COMPLETED ALTERATION SC - FULLY COMPLETED EQUIVALENT TO ALTERATION SD - ALTERATION DIRECTIVE NOT APPLICABLE 1 - MAINTENANCE ACTION COMPLETED PARTS DRAWN FROM SUPPLY 2 - MAINTENANCE ACTION COMPLETED REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE, PRE EXPENDED BINS) 3 - MAINTENANCE ACTION COMPLETED: NO PARTS REQUIRED R - REMOVED EQUIPMENT I - INSTALLED EQUIPMENT M - MODIFIED EQUIPMENT CORR CONFIG FILE NO MAINTENANCE ACTION A - ADDITION OF RECORD D - DELETION OF RECORD C - CORRECT/CHANGE EXISTING RECORD
14	QUANTITY	M		M		
15	COMPONENT ACTION	M		M		
16	COMPONENT IDENTIFICATION	IP		IP		
17	COMPONENT SERIAL NUMBER	IA		IA		
18	COMPONENT APL/AEL	M		IA		
19	LOCATION	M		M		
20	EQUIPMENT IDENTIFICATION CODE	NR		IA NR		
21	NEXT HIGHER ASSEMBLY	IP		IP		
22	SERVICE APPLICATION CODE	IA		IA		
23	WORK CENTER	NR		M NR		
24	NAMEPLATE DATA	NR		M NR		
25	MAINTENANCE INDEX PAGE	IA		IA		
26	EOSS	IP		IP		
27	TECH MANUAL NUMBER	IA		IA		
WORK CENTER SUPERVISOR	DIVISION OFF	SUPPLY DEPT	J M COORDINATOR	SHIP SEQUENCE NUMBER	PAGE 1 OF 1	
		RW	TM	10023		

FIGURE A-11, ELECTRONIC CONFIGURATION CHANGE RESULTING FROM EQUIPMENT MODIFICATION

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SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK(15 84)

S/N 0107 LF-047-9001

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION		
1 SHIP'S UIC	2 WORK CENTER	3 JOB SEQ. NO.	4 ALTERATIONS INITIAL FLD. CHG. ETC.		
21091	MDET	0008			
A SHIP'S NAME		D FULL NUMBER	E EIC	F ACT. INK.	
USNS APACHE		T-ATF 172	W30Y	3	
7 EQUIPMENT NOUN NAME		8 SH. MHRS. EXP.	9 ACT. MAINT. TIME	10 COMP. DATE	11 M. Y.
AN/URM-144		0001	001	1203	

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS
 REPLACED UNIT SG-823/URM RIN
 01235 ALSO REMOVED

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME		14 QUANTITY		15 CA	
AN/URM-144		001R			
16 COMPONENT IDENTIFICATION		17 COMPONENT SERIAL NUMBER			
		G081			
18 COMPONENT APJ/AEL		19 LOCATION (DECK/FRAME/SIDE)		20 EIC	
S8499397		1-44-1		W30Y	
21 NEXT HIGHER ASSEMBLY		22 S.A.C.		23 WORK CENTER	
24 NAMEPLATE DATA					
25 MIP		26 EOSS			
N.A.		N.A.			
27 TM		0969-1P-158-2020			

SECTION IV SPECIAL PURPOSE

28 RIN	29 ALSN	30 SECAS OFFICE USE
01234		

INSTRUCTIONS

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II PAGE			LEGEND	
		PAGE 1	CONT.	PAGE	IA IF AVAILABLE	O OPTIONAL
1-3	JOB CONTROL NUMBER	M		M	IA IF AVAILABLE	O OPTIONAL
4	ALTERATION IDENTIFICATION	IP		IP	IP IF APPLICABLE	NR NOT REQUIRED
5	EQUIPMENT IDENTIFICATION CODE	M		NR	M MANDATORY	
6	ACTION TAKEN	M		NR		
7	EQUIPMENT NOUN NAME	M		NR		
8	SHIP'S FORCE MANHOURS EXPENDED	M		NR	SECTION I BLOCK 8 ACTION TAKEN	SECTION III BLOCK 15 COMPONENT ACTION
9	ACTIVE MAINTENANCE TIME	M		NR		
10	COMPLETION DATE	M		NR		
11	METER READING	IP		NR		
12	JOB DESCRIPTION (REMARKS)	O		NR		MAINTENANCE ACTIONS
ITEM NUMBER	SECTION III DESCRIPTION	REMOVE (R/D)	INSTALL (I/A)	MODIFY (M/C)		
13	COMPONENT NOUN NAME	M	M	M	5A - PARTIALLY COMPLETED ALTERATION	R - REMOVED EQUIPMENT
14	QUANTITY	M	M	M	5B - FULLY COMPLETED ALTERATION	I - INSTALLED EQUIPMENT
15	COMPONENT ACTION	M	M	M	5C - FULLY COMPLETED EQUIVALENT TO ALTERATION	M - MODIFIED EQUIPMENT
16	COMPONENT IDENTIFICATION	IP	IP	IP	5D - ALTERATION DIRECTIVE NOT APPLICABLE	CONFIG FILE CORR NO MAINTENANCE ACTION
17	COMPONENT SERIAL NUMBER	IA	IA	IA	1 - MAINTENANCE ACTION COMPLETED PARTS DRAWN FROM SUPPLY	A ADDITION OF RECORD
18	COMPONENT APJ/AEL	M	IA	IA	2 - MAINTENANCE ACTION COMPLETED REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE PRE EXPENDED BINS)	D - DELETION OF RECORD
19	LOCATION	M	M	M	3 - MAINTENANCE ACTION COMPLETED NO PARTS REQUIRED	C - CORRECT/CHANGE EXISTING RECORD
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR		
21	NEXT HIGHER ASSEMBLY	IP	IP	IP		
22	SERVICE APPLICATION CODE	IA	IA	IA		
23	WORK CENTER	NR	M	NR		
24	NAMEPLATE DATA	NR	M	NR		
25	MAINTENANCE INDEX PAGE	IA	IA	IA		
26	EOSS	IP	IP	IP		
27	TECH MANUAL NUMBER	IA	IA	IA		
WORK CENTER SUPERVISOR	DIVISION OFF	SUPPLY DEPT	3 M COORDINATOR	SHIP SEQUENCE NUMBER	PAGE 1 OF 3	
		RW	TM	00008		

FIGURE A-12, ELECTRONIC CONFIGURATION CHANGE RESULTING FROM COMPONENT REPLACEMENT

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OPNAV 4790(C)KIC1

SHIP'S CONFIGURATION CHANGE FORM CONTINUATION PAGE
REV 5 84) SIN 0107 LF 047 9010

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 SIN EXCEPT		PAGE 2 OF 3	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIP/PLT PLO CHD ETC)			14 QUANTITY	15 CA
21091	MDET	0009				0017	
13 COMPONENT NOUN NAME		17 COMPONENT SERIAL NUMBER					
ADD URM-144		A010					
16 COMPONENT IDENTIFICATION		18 LOCATION (DECK/FRAME/SIDE)		20 EIC			
↑		↑		↑			
21 NEXT HIGHER ASSEMBLY		23 S A C		23 WORK CENTER			
24 NAMEPLATE DATA							
25 MIP		26 EOSE					
27 TM							
28 RIN		28 AILSIN		30 SECAS OFFICE USE			

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 SIN EXCEPT		PAGE 3 OF 3	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIP/PLT PLO CHD ETC)			14 QUANTITY	15 CA
21091	MDET	0010				0017	
13 COMPONENT NOUN NAME		17 COMPONENT SERIAL NUMBER					
SG-823/URM		38395397 EC					
16 COMPONENT IDENTIFICATION		18 LOCATION (DECK/FRAME/SIDE)		20 EIC			
AN-URM-144		↑		↑			
21 NEXT HIGHER ASSEMBLY		23 S A C		23 WORK CENTER			
24 NAMEPLATE DATA							
25 MIP		26 EOSE					
27 TM							
28 RIN		28 AILSIN		30 SECAS OFFICE USE			

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 SIN EXCEPT		PAGE OF	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIP/PLT PLO CHD ETC)			14 QUANTITY	15 CA
13 COMPONENT NOUN NAME		17 COMPONENT SERIAL NUMBER					
16 COMPONENT IDENTIFICATION		18 LOCATION (DECK/FRAME/SIDE)		20 EIC			
21 NEXT HIGHER ASSEMBLY		23 S A C		23 WORK CENTER			
24 NAMEPLATE DATA							
25 MIP		26 EOSE					
27 TM							
28 RIN		28 AILSIN		30 SECAS OFFICE USE			

JOB CONTROL NUMBER		ALTERATION IDENTIFICATION		SAME AS P1 SIN EXCEPT		PAGE OF	
1 SHIP S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIP/PLT PLO CHD ETC)			14 QUANTITY	15 CA
13 COMPONENT NOUN NAME		17 COMPONENT SERIAL NUMBER					
16 COMPONENT IDENTIFICATION		18 LOCATION (DECK/FRAME/SIDE)		20 EIC			
21 NEXT HIGHER ASSEMBLY		23 S A C		23 WORK CENTER			
24 NAMEPLATE DATA							
25 MIP		26 EOSE					
27 TM							
28 RIN		28 AILSIN		30 SECAS OFFICE USE			

FIGURE A-13, ELECTRONIC CONFIGURATION CHANGE RESULTING FROM COMPONENT REPLACEMENT CONTINUATION PAGE

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A.7 INSTRUCTIONS FOR ACCOMPLISHING CONFIGURATION BASELINE AND OTHER CORRECTIONS

In addition to reporting actual configuration changes, the 4790/CK form may be used to correct errors in the ship's configuration baseline, as stored in the CLIP or WSF, or to add missing data. To correct errors or identify omissions, the block "**CONFIG FILE CORR**" must be marked. Specifically, the 4790/CK will be used to:

- a. correct specific data elements in the existing record of the ship's configuration baseline (*Data Element Error or Omission*);
- b. correct erroneous data submitted on a previous 4790/CK (*Previous Erroneous Submission*);
- c. obtain support for equipment that is onboard but not identified in the COSAL/SHIPCLIP (*Equipment Addition*) and
- d. remove from the COSAL any equipment that is not onboard but is supported by the COSAL/SHIPCLIP (*Equipment Deletion*). Instructions for accomplishing these corrections follow.

A.7.1 Data Element Error, Omission or Erroneous Submission

a. Incident to the review of a post-availability report, an error, omission or erroneous submission in the configuration data for an equipment may be detected in the ship's COSAL/SHIPCLIP (*including Indices*), or any other such document based on the ship's configuration file. Such inaccuracies must immediately be corrected if the ship is to be provided proper logistic support for the applicable equipment. Corrections of this nature require completion of a 4790/CK.

(1) In capital letters, write "**CORRECTION**" at the top of each 4790/CK.

(2) In Section I, complete Blocks 1, 2, 3, A and B.

(3) In Section II, Block 12, enter "**CORRECTION OF PREVIOUS CK.**"

(4) In Section III, Block 13, enter the component Noun Name of the equipment from the nameplate or COSAL Index/SHIPCLIP; in Block 15, enter "**C**" for correction; and either an APL in Block 18 (*for HM&E*) or the serial number in Block 17 (*for ELEX*). If the change applies to a record that is listed in the report with a quantity, the quantity to which the correction applies should be entered in Block 14.

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CORRECTION

SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK (5 84)

S/N 0107 LF-047 9001

DATE OF ENTRY

COMP. M/A
NO DEFL

COMP. DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION		
1 SHIP'S UIC 21282	2 WORK CENTER MDET	3 JOB SEQ NR 0003	4 ALTERATIONS (SHIPALTY FLD CHG, ETC.)		
4 SHIP'S NAME USNS TRIUMPH		5 EQUIPMENT NOUN NAME T-AGOS 4		6 ACT TAKN	7 ETC.
8 SH MHS EXP		9 ACT MANT TIME	10 COMP DATE	11 M/R	

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS
CORRECTION OF PREVIOUS C.K.

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME AN/PRC-92		14 QUANTITY 0010		15 CA	
16 COMPONENT IDENTIFICATION		17 COMPONENT SERIAL NUMBER			
18 COMPONENT AP/LABEL 54678963		19 LOCATION (DECK/FRAME/SIDE) 1-15-0-C		20 ETC. P.D.7N	
21 NEXT HIGHER ASSEMBLY		22 S.A.C.		23 WORK CENTER	
24 NAMEPLATE DATA					
25 M/R					
26 EOSS					
27 TM					

SECTION IV SPECIAL PURPOSE

28 R/W	29 ALSIN	30 SECAS OFFICE USE
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-INSTRUCTIONS-

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II			LEGEND
		PAGE 1	CONT	PAGE	
1	JOB CONTROL NUMBER	M			LA IF AVAILABLE O OPTIONAL MP IF APPLICABLE NR NOT REQUIRED M MANDATORY
4	ALTERATION IDENTIFICATION	MP			
5	EQUIPMENT IDENTIFICATION CODE	M			
8	ACTION TAKEN	M			
7	EQUIPMENT NOUN NAME	M			
8	SHIP'S FORCE MANHOURS EXPENDED	M			
9	ACTIVE MAINTENANCE TIME	M			
10	COMPLETION DATE	M			
11	METER READING	MP			
12	JOB DESCRIPTION (REMARKS)	O			
13	COMPONENT NOUN NAME	M	M	M	
14	QUANTITY	M	M	M	
15	COMPONENT ACTION	M	M	M	
16	COMPONENT IDENTIFICATION	MP	MP	MP	
17	COMPONENT SERIAL NUMBER	LA	LA	LA	
18	COMPONENT AP/LABEL	M	LA	LA	
19	LOCATION	M	M	M	
20	EQUIPMENT IDENTIFICATION CODE	NR	LA	NR	
21	NEXT HIGHER ASSEMBLY	MP	MP	MP	
22	SERVICE APPLICATION CODE	LA	LA	LA	
23	WORK CENTER	NR	M	NR	
24	NAMEPLATE DATA	NR	M	NR	
25	MAINTENANCE INDEX PAGE	LA	LA	LA	
26	EOSS	MP	MP	MP	
27	TECH MANUAL NUMBER	LA	LA	LA	

WORK CENTER SUPERVISOR	DIVISION OFF	SUPPLY DEPT RW	3 M COORDINATOR TM	SHIP SEQUENCE NUMBER 10003	PAGE 1 OF 1
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FIGURE A-14, CORRECTION TO PREVIOUSLY SUBMITTED CCF

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(5) Enter the information to be corrected, changed or added in the appropriate blocks(s) and circle the block.

(6) Enter the applicable RIN in Section IV, Block 28.

(7) Enter the page number at the bottom of the form.

b. Figure A-14 provides examples of properly completed 4790/CKs for the correction of equipment configuration data in CLIP and the WSF.

A.7.2 COSAL Equipment Addition/Deletion The OPNAV 4790/CK will also be used to report equipment which is onboard but not supported by the COSAL/SHIPCLIP, or equipment that is no longer onboard but is COSAL supported. This type of correction requires the completion of a single 4790/CK, as prescribed in Section A.8, with the following exceptions:

A.7.2.1 Additions

- a. In Section I, complete Blocks 1, 2, 3, A and B; also 4, if applicable.
- b. In Block 12, Section II, enter **"ONBOARD-NOT COSAL SUPPORTED."**
- c. In Block 15, Section III of the OPNAV Form 4790/CK, enter action code **"A"** (*addition*).
- d. See Figure A-15.

A.7.2.2 Deletions

- a. In Section I, complete Blocks 1, 2, 3, A and B; also 4, if applicable.
- b. In Block 12, Section II, enter **"NOT ONBOARD-COSAL SUPPORTED."**
- c. In Block 15, Section III of the OPNAV 4790/CK, enter action code **"D"** (*deletion*).
- d. Enter component Noun Name in Block 13 and the APL in Block 18 (*for HM&E*) or the serial number in Block 17 (*for ELEX*). Note: If an item of ELEX which is reported by quantity rather than serial number is being deleted, enter the quantity to be deleted in Block 14.
- e. In Section IV, enter the RIN from the COSAL Index/SHIPCLIP in Block 28.

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SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK (5-84)

S/N 0107 LF-047-9001

CONFIG FILE CORR

COMP M/A NO DEFL

COMP DEFL

SECTION I JOB IDENTIFICATION

1 SHIP'S UIC		2 WORK CENTER		3 JOB SEQ NR		4 ALTERATIONS (SHIPALT FLD CHG ETC)			
21546		ENG1		0045					
A SHIP'S NAME				B HULL NUMBER		5 EIC		6 ACT TKN	
USNS SPICA				T-AFS 9					
7 EQUIPMENT NOUN NAME				8 S/F MHRS EXP		9 ACT MAINT TIME		10 COMP DATE	

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS
ON BOARD - NOT COSAL SUPPORTED

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME		14 QUANTITY		15 CA	
SWITCH ELEMENT		001A			
16 COMPONENT IDENTIFICATION		17 COMPONENT SERIAL NUMBER			
		NONE			
18 COMPONENT APL/AEL		19 LOCATION (DECK/FRAME/SIDE)		20 EIC	
		02-133-2-C		421F	
21 NEXT HIGHER ASSEMBLY		22 S A C		23 WORK CENTER	
FAN VNX1					
24 NAMEPLATE DATA					
SWITCH/ELEMENT PUSH CUTLER HAM					
MER 654975P VENTILATION SYSTEM					
25 MIP					
NA					
26 EOSS					
NA					
27 TM					
1009-LP-026-2211					

SECTION IV SPECIAL PURPOSE

28 RIN	29 AILSIN	30 SECAS OFFICE USE

-INSTRUCTIONS-

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II			LEGEND						
		PAGE 1	CONT	PAGE							
13	JOB CONTROL NUMBER	M		M	1A IF AVAILABLE IP IF APPLICABLE M MANDATORY SECTION I BLOCK 6 ACTION TAKEN SECTION III BLOCK 15 COMPONENT ACTION MAINTENANCE ACTIONS SA - PARTIALLY COMPLETED ALTERATION SB - FULLY COMPLETED ALTERATION SC - FULLY COMPLETED EQUIVALENT TO ALTERATION SD - ALTERATION DRECTIVE NOT APPLICABLE 1 - MAINTENANCE ACTION COMPLETED PARTS DRAWN FROM SUPPLY 2 - MAINTENANCE ACTION COMPLETED REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE, PRE EXPENDED BINS) 3 - MAINTENANCE ACTION COMPLETED NO PARTS REQUIRED R - REMOVED EQUIPMENT I - INSTALLED EQUIPMENT M - MODIFIED EQUIPMENT CONFIG FILE CORR NO MAINTENANCE ACTION A - ADDITION OF RECORD D - DELETION OF RECORD C - CORRECT/CHANGE EXISTING RECORD						
4	ALTERATION IDENTIFICATION	IP		IP							
5	EQUIPMENT IDENTIFICATION CODE	M		NR							
6	ACTION TAKEN	M		NR							
7	EQUIPMENT NOUN NAME	M		NR							
8	SHIP'S FORCE MANHOURS EXPENDED	M		NR							
9	ACTIVE MAINTENANCE TIME	M		NR							
10	COMPLETION DATE	M		NR							
11	METER READING	IP		NR							
12	JOB DESCRIPTION (REMARKS)	O		NR							
13	COMPONENT NOUN NAME	M	M	M							
14	QUANTITY	M	M	M							
15	COMPONENT ACTION	M	M	M							
16	COMPONENT IDENTIFICATION	IP	IP	IP							
17	COMPONENT SERIAL NUMBER	IA	IA	IA							
18	COMPONENT APL/AEL	M	IA	IA							
19	LOCATION	M	M	M							
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR							
21	NEXT HIGHER ASSEMBLY	IP	IP	IP							
22	SERVICE APPLICATION CODE	IA	IA	IA							
23	WORK CENTER	NR	M	NR							
24	NAMEPLATE DATA	NR	M	NR							
25	MAINTENANCE INDEX PAGE	IA	IA	IA							
26	EOSS	IP	IP	IP							
27	TECH MANUAL NUMBER	IA	IA	IA							
WORK CENTER SUPERVISOR		DIVISION OFF		SUPPLY DEPT		3 M COORDINATOR		SHIP SEQUENCE NUMBER		PAGE	
RW				RW		T7		10045		1 OF 1	

FIGURE A-15, CONFIGURATION FILE CORRECTION - COSAL CORRECTION (ADD)

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SHIP'S CONFIGURATION CHANGE FORM

OPNAV 4790/CK(5 84)

S/N 0107-LF-047-9001

CONFIG FILE CORR

COMP MIA NO DEFL

COMP DEFL

SECTION I JOB IDENTIFICATION

JOB CONTROL NUMBER			ALTERATION IDENTIFICATION		
1 SHIP'S UIC	2 WORK CENTER	3 JOB SEQ NR	4 ALTERATIONS (SHIPALT FLD CHG ETC)		
05838 ENG 1		0023			
A SHIP'S NAME		B HULL NUMBER	5 EIC	6 ACT TKN	
USNS KILAUEA		T-AE 26			
7 EQUIPMENT NOUN NAME		8 SIF MTHRS EXP	9 ACT MAINT TIME	10 COMP DATE	11 MTR

SECTION II JOB DESCRIPTION/REMARKS

12 JOB DESCRIPTION/REMARKS
 NOT ON BOARD - COSAL SUPPORTED

SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION

13 COMPONENT NOUN NAME			14 QUANTITY	15 CA
HEATER AIR CIRCULATOR			0010	D
16 COMPONENT IDENTIFICATION		17 COMPONENT SERIAL NUMBER		
18 COMPONENT APL/AEL		19 LOCATION (DECK/FRAME/SIDE)		20 EIC
067654128				
21 NEXT HIGHER ASSEMBLY		22 S A C		23 WORK CENTER
24 NAMEPLATE DATA				
440V				
25 MIP		26 EOSS		
NA		NA		
27 TM				
0287-LP-322-2124				

SECTION IV SPECIAL PURPOSE

28 RIN	29 AILSIN	30 SECAS OFFICE USE
43211		

INSTRUCTIONS

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II			LEGEND	
		PAGE 1	CONT	PAGE		
1-3	JOB CONTROL NUMBER	M		M	IA IF AVAILABLE O OPTIONAL IP IF APPLICABLE NR NOT REQUIRED M MANDATORY	
4	ALTERATION IDENTIFICATION	IP		IP		
5	EQUIPMENT IDENTIFICATION CODE	M		NR		
6	ACTION TAKEN	M		NR		
7	EQUIPMENT NOUN NAME	M		NR		
8	SHIP'S FORCE MANHOURS EXPENDED	M		NR		
9	ACTIVE MAINTENANCE TIME	M		NR		
10	COMPLETION DATE	M		NR		
11	METER READING	IP		NR		
12	JOB DESCRIPTION (REMARKS)	O		NR		
13	COMPONENT NOUN NAME	M	M	M		SECTION I BLOCK 6 ACTION TAKEN SECTION III BLOCK 15 COMPONENT ACTION MAINTENANCE ACTIONS R - REMOVED EQUIPMENT I - INSTALLED EQUIPMENT M - MODIFIED EQUIPMENT CORR FILE CORR NO MAINTENANCE ACTION A - ADDITION OF RECORD D - DELETION OF RECORD C - CORRECT/CHANGE EXISTING RECORD
14	QUANTITY	M	M	M		
15	COMPONENT ACTION	M	M	M		
16	COMPONENT IDENTIFICATION	IP	IP	IP		
17	COMPONENT SERIAL NUMBER	IA	IA	IA		
18	COMPONENT APL/AEL	M	IA	IA		
19	LOCATION	M	M	M		
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR		
21	NEXT HIGHER ASSEMBLY	IP	IP	IP		
22	SERVICE APPLICATION CODE	IA	IA	IA		
23	WORK CENTER	NR	M	NR		
24	NAMEPLATE DATA	NR	M	NR		
25	MAINTENANCE INDEX PAGE	IA	IA	IA		
26	EOSS	IP	IP	IP		
27	TECH MANUAL NUMBER	IA	IA	IA		

SHIP SEQUENCE NUMBER: 10023 PAGE 1 OF 1

FIGURE A-16, CONFIGURATION FILE CORRECTION - COSAL CORRECTION (DELETE)

- f. Complete remainder of form as described in Section A.8 and add a page number.
- g. See Figure A-16.

A.8 "SUPPLY SUPPORT ONLY" ITEMS

In order for the COSAL/SHIPCLIP to include all necessary support for the ship, certain *"non-hardware"* items must be included in the WSF from which the COSAL is produced. Upon receipt of CK Forms from those ships submitting a requirement for support of a *"non-hardware"* item, the CDM will automatically input the additional record to include the *"Supply Support Only"* item in the WSF. These records will show on the post availability reports with Installation Status Code **"L"** and **"M."**

A.9 DISTRIBUTION OF THE OPNAV 4790/CK FORMS

During a ship's operating cycle the following distribution will be made. CLIP and SHIPCLIP users will distribute the *"automated"* change requests to the same activities using menu driven options within each system.

- a. The original will be forwarded to the appropriate MSC Area Commander (*COMSCLANT/PAC (N4)*).
- b. A copy will be retained by the Supply Department as a reference document for accomplishing required COSAL/SHIPCLIP adjustments and as a *"tickler"* to ensure system response. This copy will be filed in the Configuration Change Form File. SHIPCLIP users will print and retain a copy of all change forms transmitted to the Area Commander.

A.10 SHIPBOARD MAINTENANCE OF THE CONFIGURATION CHANGE FORM FILE

The procedures provided in this section are necessary for effective shipboard processing of CCFs and related correspondence. The purpose of these procedures is to provide for:

- a. the accomplishment of required COSAL/SHIPCLIP and other support document update when a configuration change is reported;
- b. an historical file of all configuration change reports processed by the ship to ensure response; and
- c. a reference source for preparing or responding to change report inquiries from the CDM or SPCC.

A.10.1 COSAL and Other Support Document Maintenance Actions

a. Configuration changes may require specific actions to update both the ship's COSAL/SHIPCLIP, Technical Manuals and other logistic support documents. The ship's Configuration Manager must work closely with the Supply Department in accomplishing necessary COSAL/SHIPCLIP maintenance actions and obtaining appropriate technical manuals and other logistic support documents.

Example: **Addition of an APL/AEL for a system/equipment either installed without support or identified as onboard but not COSAL supported.**

Example: **Deletion of an APL/AEL for a system/equipment either removed from the ship or supported by the COSAL but no longer onboard.**

Example: **Adjustment in the range and depth of onboard repair part support.**

b. Detailed discussion is provided in the COSAL Use and Maintenance Manual (*SPCCINST 4441.170*), Chapters 1 and 5, *Afloat Supply Procedures*, NAVSUP P-485 and Appendix F of this manual.

c. CLIP and SHIPCLIP users will be provided with detailed procedures for the proper maintenance of "automated" change request files and COSAL/SHIPCLIP data bases.

A.10.2 Planned Maintenance Requirements Repair Parts Technical Manuals, Tools and Test Equipment for Configuration Changes The ship will monitor the status of OPNAV 4790/CKs in order to ensure the proper support for reported equipment configuration changes is obtained. The supply department will review status reports from the Area Commander and CDM for configuration changes. Ships are encouraged to research configuration change data using shipboard logistics tools available such as NAVLOG and the MIAPL to identify a technical manual or APL for each CCF submitted. **SHIPS WILL NOT REQUISITION REPAIR PARTS FOR CONFIGURATION CHANGES PRIOR TO APPROVAL BY THE CDM.**

A.10.3 Filing Requirements. A copy of each CCF prepared by the ship and all correspondence pertaining to a CCF, with reference the applicable JCN will be maintained in the CCF File. The Configuration Change Form (*CCF*) File serves both as an historical record and reference source for preparing or responding to change report inquiries. Additionally, the file shall be provided to the ILR/Validation Team upon its arrival. The ILR/Validation Team is primarily interested in OPNAV 4790/CKs for which no response has been received. Immediately prior to a validation or assist visit, the ship's Configuration Manager shall group these 4790/CKs together in the CCF File. Additional CCF File maintenance procedures are:

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a. Correspondence pertaining to a CCF (*e.g., the Area Commander, CDM and SPCC response*) should be attached to the 4790/CK to which it pertains. The ship will receive a response from the CDM regarding configuration file update and from SPCC regarding supply support on each 4790/CK submitted.

b. CCFs which are submitted to correct configuration data in the WSF and which cite the same JCN as a previously submitted 4790/CK should be filed with the previous form. All other 4790/CKs submitted to correct the WSF shall be filed in the normal manner.

c. Each CCF shall remain on file until all pertinent updated post-availability reports and logistic support have been received. The CCF may then be discarded.

A.10.4 Follow-Up Action. Follow-up action shall be taken by the ship when the information that is submitted on an OPNAV 4790/CK does not appear in subsequent post-availability reports or no status is received from the CDM. The CDM shall be advised by letter or cc:Mail, if available, via the Area Commander, referencing a copy of the JCN and applicable page numbers.

APPENDIX B

PROCEDURES FOR SUBMISSION AND CONTROL OF ALLOWANCE CHANGE REQUESTS (ACRs), ALLOWANCE CHANGE REQUEST-FIXED (ACR-F) AND FLEET COSAL FEEDBACK REPORTS (FCFBRs)

B.1 INTRODUCTION

a. The success of the MSC CDMP is dependent on accurate and timely feedback from fleet units to the CDM on matters affecting ship's repair part allowances and technical information found in the COSAL. The purpose of this appendix is to issue procedures for submitting, controlling and processing requests for changes to allowances of portable equipment and components, equipage, spares, Depot Level Repairable (DLR) repair parts and other direct support material for MSC ships.

b. These procedures will be used on all requests submitted for:

(1) changes to range (*parts not currently allowed*) or depth (*a greater quantity of parts than currently allowed*) of authorized allowances of portable equipment or components, equipage, spares and "*fixed allowances*" of Depot Level Repairable repair parts, and

(2) changes to technical or supply management data which may impact on the quantity or quality of allowances.

c. These procedures do not apply to Installed Systems, Equipment or Components which are under the control of COMSC N7, the appropriate Hardware Systems Command (HSC) and Area Commanders. Reporting of authorized changes in ship's installed equipment configuration are handled via Configuration Change reporting (OPNAV 4790/CK) (*Appendix A*) or the MSC standard alteration (TRANSALT) procedures, in accordance with COMSCINST 4700.2F.

B.2 COORDINATED SHIPBOARD ALLOWANCE LISTS (COSALs)

a. Authorized ship allowances are published in the COSAL, reflecting the ship's allowance policy of OPNAVINST 4441.12B. The COSAL is both a technical and supply document that includes repair part and maintenance information for all installed equipment and components. It also includes allowance lists of repair parts, special tools and other support items required for the operation, overhaul, maintenance or repair of installed equipments and components. These lists are computed, modified, adjusted or republished at varying intervals based upon changes of installed equipment or components, revised maintenance policies, failure rates or operating conditions.

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b. The COSAL is an overall picture of a ship's support level. As such, it must be maintained actively if the ship is to have sufficient support for its mission. Because the COSAL provides the ship with unique data, and because it is the only source for determining the range and depth of items to be stocked onboard the ship, it is essential that any changes are incorporated quickly and accurately by the ship, MSC and SPCC.

c. The realities of day-to-day shipboard operations may not always be reflected in support documentation. Actual failure rates may or may not equal performance projections, changes in operational tempos may change system and equipment usage rates, or operators may become aware of system upgrades that improve the performance of their equipment before those improvements can be incorporated on a large scale. These, and many other circumstances, may cause the ship's crew to feel that a change (*addition, deletion or modification*) to an existing shipboard allowance is necessary. It is extremely important that the request for any change to shipboard allowance levels be identified and submitted when it is recognized and that the request is promptly reviewed and resolved.

d. The COSAL is a ship specific download of the SPCC WSF database. SHIPCLIP contains all of the technical and logistics information included in the "paper" COSAL. SHIPCLIP will replace the paper COSAL on selected ships based upon the availability of microcomputer assets. Changes to the COSAL/SHIPCLIP database may originate from ships or other sources within the operational and logistic elements of the Military Sealift Command and the Navy, but all are passed through the CDM.

B.2.1 Requests for Changes to Allowances. Requests for changes to the data and allowance content of COSALs and SHIPCLIP may be made by user activities for:

a. Increasing or decreasing the authorized range or depth of "fixed allowances" of repair parts, i.e., DLRs applicable to installed equipment, equipage or portable equipment. (*Note: The provisions of NAVSUP P485 apply for stocking non-DLR repair parts above authorized allowance under Selected Item Management (SIM).*)

b. Increasing or decreasing the quantity of authorized equipage or portable equipment or components.

c. Adding a portable equipment or equipage item which is not currently authorized.

d. Making corrections or additions to the technical and management data contained on Allowance Parts List (APLs) and Allowance Equipage Lists (AELs) included in the COSAL.

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B.2.2 Changes in Portable Equipment or Equipage Allowances. Requests to change the allowance of portable equipment and equipage must be reviewed by the appropriate technical organization to ensure that:

- a. The portable equipment, component, or equipage is approved and suitable for that particular ship and function.
- b. Consideration is given to such factors as safety, engineering and any requirement for additional support systems and materials.
- c. The requested change is reviewed with regard to applicability to other ships.
- d. Required funds have been programmed or can be made available for the procurement of the requested equipment or component.

B.2.3 Changes in Spares or Fixed Repair Part Allowances. Requests for changes in fixed allowances of supporting material for installed equipment and equipage must be reviewed by each level of management and appropriate technical and logistic activities for:

- a. Applicability of the proposed change to other ships of the type or class.
- b. Suitability to the established maintenance plan or requirement for a change thereto.
- c. Availability of technical data upon which to make a decision.
- d. Adequate storage space for additional parts requested.
- e. Required funds have been programmed or can be made available for the procurement of the requested equipment or component.

B.3 RESPONSIBILITIES

The CDMP manual and its appendices address specific responsibilities under the Configuration Data Management Program. Since this appendix addresses the shipboard reporting procedures, the responsibilities of other activities are not included. The specific responsibilities of other agents in the configuration data management process may be found in Appendices C, D, E and F. Shipboard responsibilities are assigned as follows.

B.3.1 Ship Configuration Manager. The ship's Chief Engineer and his designated Configuration Manager have primary responsibility for ensuring that the configuration record for a ship is accurate and current.

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B.3.2 Supply Department. Supply personnel are responsible for ensuring that the ship's COSAL/SHIPCLIP accurately supports mission and maintenance requirements. Consistent with these responsibilities, ships may initiate changes necessary to adjust inadequate allowances or correct improper data published in the COSAL/SHIPCLIP.

B.4 FORMS AND FORMAT FOR REQUESTING COSAL CHANGES

Depending upon the type of change involved, there are specific procedures or methods to be used for requesting COSAL/SHIPCLIP changes. These include the Allowance Change Request (*ACR*), the Allowance Change Request-Fixed (*ACR-F*) and the Fleet COSAL Feedback Report (*FCFBR*). These types of change requests are discussed in the following paragraphs; SPCCINST 4441.170, *Coordinated Shipboard Allowance List Use and Maintenance Manual*, contains additional details, if required. MSC's automated configuration and status accounting system, CLIP and SHIPCLIP, integrate capabilities to complete requests for COSAL changes using the same request forms, in an automated, menu driven process. CLIP and SHIPCLIP users must still comply with these policies and procedures.

B.4.1 Allowance Change Request (ACR). An ACR is submitted using NAVSUP Form 1220-2. The ACR is used to request additions, increases, deletions or decreases to allowances of equipment or portable equipment such as Navigation items, Damage Control items, other ship work center items normally identified in Allowance Equipment Lists (*AEs*), and selected non-DLR repair parts which are impairing maintenance capability. An ACR is also appropriate for requesting a change to allowance for a DLR (*fixed allowance item*) when the change is deemed to apply to all users. Figures B-1 and B-2 provide a sample form, complete with preparation instructions.

B.4.2 Allowance Change Request-Fixed (ACR-F). Depot Level Repairables (*DLRs*) contained in SPCC generated allowance lists are under fixed allowance policies. A fixed allowance is an authorized stocking level for each repairable item as promulgated in the Stock Number Sequence List (*SNSL*) of the COSAL. The ACR-F is used to request range/depth changes to fixed allowances of DLRs with maintenance demand that consistently exceeds the authorized COSAL allowance. ACR-Fs are submitted in either of two formats (*message or letter*), depending upon the circumstances. The message format is the normal method for ships to request changes to a fixed allowance. The batch processing letter is generally used for ships undergoing an ILR, to obtain authorization for the ship to retain demand based DLRs which may not have been included in a new allowance document at a quantity equal to the demand based quantity. Figures B-3 and B-4 provide samples of both the message and batch formats. The NAVSUP Form 1220-2 is not used for requesting changes to the fixed allowances for an individual ship; however, when the change is considered to pertain to all users, the ACR is still appropriate as discussed in subparagraph (*B.4.1*) above.

B.4.3 Ship Allowance Change Procedures

a. Ships will originate an ACR or ACR-F to request a change in COSAL portable equipment, equipage, spares or fixed repair part allowance and forward it to the CDM, via the Area Commander. Each ACR/ACR-F must have the required information to allow the CDM and/or NAVSEALOGCENTER to determine the cognizant processing control point. Incomplete ACRs/ACR-Fs, including those not endorsed for approval by the Area Commander, will be returned for additional information or approval. Forward the ACR to the appropriate Area Commander for review and approval or disapproval.

b. Ships will ensure that turn-in and disposition action is carried out in accordance with COMSC or Area Command directives and applicable instructions, when replacement action or deletion of a portable equipment or component is involved.

c. Upon receipt of the MCMAR or the automated CLIP update from the CDM, ships will take immediate action to update ships allowance documents (*COSAL ISL, SAMM and OM*) and order parts, as appropriate.

d. Steps in the shipboard ACR process

(1) The four steps in the ACR process are listed below:

(a) Identification of the requirement.

(b) Preparation and submission of the ACR package.

(c) Review of the ACR by the approving authority, disapproval/approval and, if necessary, modification of allowance documentation.

(d) Material procurement to satisfy approved requests.

(2) Specific actions occur within each step.

(a) Identification of the requirement

1. The ship's force is responsible for identifying potential allowance change requirements. This requires research to ensure that the requirement is not already covered by the existing COSAL (*including the Allowance Appendix Pages (AAPs)*). Specialized items, such as electronic test equipment, medical allowances, mission support equipment, are covered by their own allowance lists which should be consulted separately.

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2. Remember that ACRs apply to items that are found on an Allowance Parts List (*APL*) (*for repairable items*) or on an Allowance Equipage List (*AEL*) (*for items of equipage*). Requests for changes that affect the ship's configuration (*addition or deletion of an installed system/equipment*) are not requested via an ACR because they require the approval of the ship's CM. These requests should be referred to the ship's CM.

(b) Preparation and submission of the ACR

1. The Master is ultimately responsible for ensuring that ACRs are prepared and submitted to correct allowance deficiencies. ACRs are submitted using the proper form identified in paragraphs B.4.1 or B.4.2 above and providing all supporting technical data (*e.g., APL/AEL number, technical manual data, vendor catalog data*) necessary to justify the proposed change. The following guidance applies to all ACRs.

a. All requested changes to a particular APL/AEL should be included on one ACR. This eases the update of the Weapon System File and APL/AEL at SPCC when the ACR is approved.

b. An ACR should apply to only one system or equipment, if an APL/AEL can be identified. If the APL/AEL cannot be identified, then functional application must be identified. These steps ease the preparation of AAPs and assignment of the HSC/ESWBS/Service Application Code (*SAC*) - two important steps in the update of the COSAL/SHIPCLIP.

c. ACRs should be serialized and tracked in a log to follow approval/disapproval and material procurement. This log should be compared periodically with MSC's log. Serial numbers should be used only once and should consist of the ship's hull number, the fiscal year and a sequentially assigned number (*e.g., T-AGS-51-92-001, T-AGS-51-92-002*). If a change is required to an ACR that has already been submitted, the change should be in the form of a new ACR form (*NAVSUP 1220-2*) annotated as "**Change X**" to the serial number and date of the original ACR.

d. ACRs must be fully justified. All the necessary supporting documentation (*e.g., technical manuals, instructions, vendor data*) should be referenced and supplied as attachments if necessary. Many of these references will not be held by the reviewing activities. If they are provided as reference material, the review and approval process can be dramatically shortened.

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e. It is essential that all requested material be identified as completely as possible. If approved, the ACR will be used to initiate procurement; therefore, such data as the vendor's latest part number(s), the National Stock Number, Federal Supply Code for Manufacturers (*FSCM*) or Commercial and Government Entity (*CAGE*) code and any other identifying data should be provided to ensure that the exact item requested is completely identified. If an item has a part number only, then a source of supply should be identified. If a particular make or model is required, justification needs to be provided explaining why substitutes are not acceptable.

2. The failure to provide full justification for the proposed change or complete documentation to support the request will result in a delay in the review of an ACR and could lead to its disapproval.

NOTE: If a requirement is critical (e.g., lack of material would constitute a safety hazard or generate a CASREP), then the ACR may be submitted in message form with information copies to the appropriate Area Commander.

B.4.4 Fleet COSAL Feedback Report (FCFBR)

a. The FCFBR, NAVSUP Form 1371, will be used to submit a request for correction to a technical problem in a published APL or AEL. It will be used to:

(1) Report errors or omissions such as wrong or missing manufacturer, nomenclature, technical manual number, stock number, etc.

(2) Report discrepancies between part numbers listed in technical manuals and those listed on an APL.

(3) Request that a new repair part be added to the range of repair parts listed on an APL. (*Note: Parts added as a result of an approved FCFBR will appear in a subsequent APL; but, may or may not be included in the allowance section of a revised COSAL publication, depending on the COSAL computational model used, population and replacement rate.*)

(4) Request the deletion of an item incorrectly listed on a APL which is not part of the equipment.

(5) Recommend changes in assigned Source, Maintenance and Recoverability (*SM&R*) codes, notes codes, etc. that are considered to be incorrect.

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FIGURE B-1, ALLOWANCE CHANGE REQUEST FORM

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ALLOWANCE CHANGE REQUEST
 NAVSUP 1220-2 (12-76) S/N 0108-LF-501-2206

					Instructions on Reverse	Please Type or Print		
1. FROM: MASTER, USNS LEROY GRUMMAN (TAO-195) FPO, NEW YORK 09570-4095 TO: COMMANDING OFFICER, MILIARY SEALIFT COMMAND CENTRAL TECHNICAL ACTIVITY WASHINGTON, D.C. 20398-5050 VIA: COMMANDER, MILITARY SEALIFT COMMAND, ATLANTIC (N4) MILITARY OCEAN TERMINAL, BUILDING 42 BAYONNE, N.J. 07002-5399		2. Date/Serial Number 9 SEP1990 TAO-195/0069		3. APL/AEL/RIC Number M 658880040				
		4. Status of Requested/Allowed Item <input checked="" type="checkbox"/> Item Addition <input type="checkbox"/> Item on Board or <input type="checkbox"/> Item Deletion <input checked="" type="checkbox"/> Item Not on Board						
		5. National Stock Number (NSN) or FSCM & Part Number	6. Equipment/Component (E/C) or Item Nomenclature	7. Unit of Issue	8. Unit Price	9. Present Qty. Allowed	10. New Total Qty.	11. Extended Value of Change
9C4540-01-303-1173		ELEMENT, HEATING		EA.	195.49	0	1	195.49
12. Justification (Mandatory) ELEMENT IS A REPLACEABLE PART OF BERGEN GENERATOR, THEREFORE MAINTENANCE SIGNIFICANT. TWO UNITS HAVE FAILED IN THE PAST 18 MONTHS, WITH LONG LEAD TIMES EXPERIENCED FOR RECEIPT OF REQUISITION.								
13. Copy To:					14. Signature:			
15. First Endorsement			<input type="checkbox"/> Approval Recommended		<input type="checkbox"/> Disapproved		<input type="checkbox"/> Other	

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INSTRUCTIONS FOR PREPARING ALLOWANCE
CHANGE REQUEST (ACR)

- Block 1. ADDRESSEE. Complete in the same manner as other official correspondence.
- Block 2. DATE AND SERIAL NUMBER. The serial number will include the ship type/hull number of the ship and a sequential number.
- Block 3. ALLOWANCE PARTS LIST (APL), ALLOWANCE EQUIPAGE LIST (AEL), REPAIRABLE ITEM CODE (RIC) NUMBER (IF AVAILABLE). Enter the APL, AEL, number in this block.
- Block 4. STATUS OF REQUESTED/ALLOWED ITEM. Place an "X" in the appropriate box(es) to show the status of the requested/allowed item(s)
- Block 5. NATIONAL STOCK NUMBER (NSN) OR FEDERAL SUPPLY CODE FOR MANUFACTURERS (FSCM) AND PART NUMBER. Enter the NSN or the FSCM and manufacturer's part number. FSCMs are to be written in accordance with DOD publications H4-1 or H4-2 (Federal Supply Codes for Manufacturers).
- Block 6. EQUIPMENT/COMPONENT (E/C) OR ITEM NOMENCLATURE. Enter nomenclature for each stock number or part number listed in Block 5. Provide nameplate description and all available technical data. If the item listed is a repair part and the APL/AEL/RIC number for the parent equipment/component is not provided in Block 3, give nameplate data, if available, or as a minimum manufacturer's name, item name, drawing or reference number, applicable technical manual and the service application, system or subsystem of the equipment which the repair part supports. (If additional space is required, use Block 12 or separate page.)
- Block 7. UNIT OF ISSUE (U/I). Enter the approved abbreviation for each standard item as listed in the Navy Management Data List (NMDL). For non-standard items, use the manufacturer's parts list for U/I data. If the U/I is unknown, LEAVE THIS BLANK.
- Block 8. UNIT PRICE. Enter the unit price for each item listed.
- Block 9. PRESENT QUANTITY ALLOWED. Enter present quantity allowed (authorized). Cite source and date of allowance document in Block 12.
- Block 10. NEW TOTAL QUANTITY. Enter the total of the present quantity allowed and the additional quantity requested.
- Block 11. EXTENDED VALUE OF CHANGE. New total quantity less present quantity allowed times Unit Price. (Not required for decreases.)
- Block 12. JUSTIFICATION. Indicate authority for present quantity allowed (Block 9) and reason for requesting change. Completion of this block is mandatory.
- Block 13. COPY TO. Enter abbreviated titles and codes. Addresses are not necessary unless they are not available in the SNDL.
- Block 14. SIGNATURE. Sign in the same manner as other official correspondence.
- Block 15. FIRST ENDORSEMENT. TYCOM'S endorsement should include applicability to other ships and such other information which will assist in further consideration of the request.

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S/N 0108 LF 501-2206

FIGURE B-2, INSTRUCTIONS FOR PREPARING ALLOWANCE
CHANGE REQUEST FORM

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JOINT MESSAGEFORM						SECURITY CLASSIFICATION UNCLASSIFIED				
PAGE	DTG/RELEASER TIME			PRECEDENCE		CLASS	SPECAT	LMF	CIC	ORIG/MSG IDENT
	DATE TIME	MONTH	YR	ACT	INFO					
01 OF 01				RR		UUUU				0651500
BOOK	MESSAGE HANDLING INSTRUCTIONS ADMIN									
<p>FROM USNS HENRY J KAISER</p> <p>TO: COMSCLANT BAYONNE NJ//N4//</p> <p>INFO MSCCENTACT WASHINGTON DC//N4//</p> <p>NAVSEALOGCEN MECHANICSBURG PA</p> <p>SPCC MECHANICSBURG PA</p> <p>UNCLAS //N04400//</p> <p>MSGID/GENADMIN/USNS HENRY J KAISER//</p> <p>SUBJ/ALLOWANCE CHANGE REQUEST FIXED//</p> <p>RMKS/1. 7H 2910-01-282-4470</p> <p>2. 22 SEP 91: TAO 187/073</p> <p>3. APL M665360272</p> <p>4. NOZZLE, FUEL INJECTOR</p> <p>5. 20 SEP 91 10 (RECURRING)</p> <p>14 JUL 91 10 (RECURRING)</p> <p>6. TWO</p> <p>7. TEN N21037/1263/4211</p> <p>8. NOZZLES HAVE ONBOARD POP OF TWENTY, TEN PER ENGINE.</p> <p>PMS REQUIRES MANDITORY REPLACEMENT AFTER 1500 HOURS OF USE.</p>										
DISTR										
DRAFTER TYPED NAME TITLE OFFICE SYMBOL PHONE						SPECIAL INSTRUCTIONS				
RELEASER	TYPED NAME TITLE OFFICE SYMBOL AND PHONE					SECURITY CLASSIFICATION UNCLASSIFIED				
	SIGNATURE									

6
5
4
3
2
1
0

FIGURE B-3, ACR-F (MESSAGE FORMAT)

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4400
Ser N4/

From: Commanding Officer, Military Sealift Command Central
Technical Activity
To: Commanding Officer, Naval Sea Logistics Center
5450 Carlisle Pike, P.O. Box 2060,
Mechanicsburg, PA 17055-0795

Subj: BATCH ALLOWANCE CHANGE REQUEST FIXED (ACR-F)
INITIAL/NEGOTIATED ALLOWANCE

Ref: (a) NAVSEAINST 4441.2

Encl: (1) ACR-F (one page per item)

1. Request increase the allowance for items in enclosure (1) for USNS HENRY J. KAISER (T-AO 187). Failure to increase the depth of carried items will result in excessive not in stock status, adversely impacting on the ship's ability to carry out its mission.

J. P. JONES
By direction

copy to: COMSCLANT (N-4)
USNS HENRY J. KAISER (T-AO 187)

FIGURE B-4, ACR-F (LETTER FORMAT)

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USNS HENRY J. KAISER (T-AO 187)
(Ship/Activity Name)

BATCH ALLOWANCE CHANGE REQUEST-FIXED (ACR-F)

1. _____ (DATE: SERIAL NUMBER OF ACR-F)
(Note: Unique number required for each item.)
2. _____ (APL/AEL/RIC AND DATE, if applicable)
_____ (Name Plate data if APL/AEL/RIC is not available or
_____ "multiple" if used in more than one equipment)
3. _____ (NSN/NICN)
4. _____ (ITEM NAME)
5. _____ (LIST PAST 12 MONTHS DEMAND)
_____ • Indicate any CASREPs by a "C" after the quantity
_____ • Indicate if recurring/nonrecurring demand

6. _____ (CURRENT ALLOWED QTY AND AUTHORIZING
_____ ALLOWANCE DOCUMENTS (FIXED
_____ ALLOWANCE)
7. _____ (REQUEST ALLOWANCE INCREASE TO THIS
_____ QTY)
8. _____ (CURRENT ON HAND QUANTITY)
9. _____ (CURRENT ON ORDER QUANTITY) (LIST REQ'N)
(e.g., Increase in demand quantities.)
10. (JUSTIFICATION)

Enclosure (1)

FIGURE B-4, ACR-F (LETTER FORMAT) (CONT'D)

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FLEET COSAL FEEDBACK REPORT (4441)		Please <i>Print or Type</i> all information		NAVSEALOGSUPENGACT SER NO	
FROM MASTER, USNS TENACIOUS, T-AGOS 17 FPO SAN FRANCISCO, CA 96679-4096		APL/AEL NO 00009823		APL DATE 6-15-89	
VIA: COMMANDER, MILITARY SEALIFT COMMAND PACIFIC (N4) OAKLAND, CA 94625-5010		TECHNICAL MANUAL NUMBER TE 217-AJ-MMC-010/7H422		PAGE 6-3	
		REF./CIRCUIT SYMBOL NO		NSN	
TO COMMANDING OFFICER NAVSEA LOGISTICS SUPPORT ENGINEERING ACTIVITY (Code 70) P O BOX 2060 MECHANICSBURG, PA 17055-0795		PART NO AND FSCM SEE TEXT		NAMEPLATE DATA (For Material Handling Equipment Include USN No)	
FULLY DESCRIBE THE TECHNICAL PROBLEM. BE SPECIFIC. INCLUDE PART NUMBERS AND FSCMS, RSNS/CSNS, NSNS, AND ITEM NAME: <i>When practical attach copies of any amplifying document, i.e. copies of Tech manual pages, drawings, schematics, MRC cards, etc. (Attach continuation sheet if needed).</i>					
THE FOLLOWING MAINTENANCE SIGNIFICANT ITEMS, PER TECH MANUAL, ARE MISSING FROM THE APL.					
CAGE	PN	NOMENCLATURE	QTY		
49956	982761-1	PKG. ASSEMBLY	1 AY		
49956	167581-1	THERMOSTAT	1 EA		
49956	982755-1	MAIN HARNESS	1 EA		
SUBMITTED BY: NAME, DATE, WORK CENTER J.C. JONES		TEL NO 415-000-XXXX		REVIEWED BY: WORK CENTER SUPERVISOR	
REVIEWED BY: SUPPLY SUPPORT CENTER SUPERVISOR		DATE 10/22/91		ORIGINATOR'S SERIAL/TRANSMITTAL NO N21611/1238/C021	
REVIEWING ACTIVITY RESPONSE					
NAME				CODE	
				TEL NO	

FIGURE B-5, FCFBR FORM AND FORMAT

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SEE SPCINST 4441.170 FOR DETAILED INFORMATION CONCERNING USE OF THIS FORM

DO NOT USE THIS FORM TO:

- A. Request a change in allowance for repair parts or equipage-use ACR Form (NAVSUP 1220-2).
- B. Report equipment configuration changes-use CCR Form (OPNAV 4790/CK).

CONDITIONS UNDER WHICH THIS FORM SHOULD BE USED:

- A. To add an NSN or Part Number to an APL.
- B. Part Number in technical manual does not agree with APL.
- C. APL is incorrect, missing information (i. e. , Characteristics Data, Technical Manual Number, etc.).
- D. Incorrect Part/Item listed on APL/AEL.
- E. Non-allowed part required for PMS or allowed quantity insufficient for PMS (submission of a FCFBR must be accompanied by a copy of the MRC card).
- F. Suspected error in code assignments (e. g. , SMR Codes, NOTE Code, etc.).

SUGGESTIONS:

- 1. Submit ONLY the original FCFBR to NAVSEALOGSUPENGACT. Additional copies should be retained by the originator and supply officer.
- 2. Before submitting a FCFBR requesting the addition of an NSN or part, check your AELs to determine if the part is included on board as equipage.
- 3. Consolidate requests on one report whenever possible. Example - if multiple NSNs are involved on the same APL, submit one report listing the NSNs. Use your own judgement here.
- 4. Include originators telephone number. This will aid the evaluator if requests for additional information are needed.

FIGURE B-6, FCFBR FORM (REVERSE)



DEPARTMENT OF THE NAVY
NAVY SHIPS PARTS CONTROL CENTER
3450 CARLISLE PIKE
P O BOX 2020
MECHANICSBURG, PA 17055-0788

AREA CODE 717
TWO
AUTOVON 430 6 EXT
FTE 894 6 EXT
WHEN REPLY REFER TO
4441
Ser 05532/060
28 February 1990

From: Commanding Officer, Navy Ships Parts Control Center

Subj: AUTOMATED MONTHLY COSAL/COSBAL/COSMAL/CALMS MAINTENANCE ACTION REPORT
(AUTO-MCMAR) 02-CY-90

Ref: (a) SPCC ltr 4441 Ser 0553/004 of 27 Feb 89
(b) SPCC ltr 4441 Ser 0553/015 of 23 May 89
(c) NAVSEAPUB T9066-AA-MAN-010 (Navy Outfitting Program Policies and Procedures Manual)
(d) SPCCINST 4441.170A (COSAL Use and Maintenance Manual)
(e) NAVSUPINST 4441.28

Encl: (1) Hull Tailored List/Auto-MCMAR Product Format
(2) Auto-MCMAR Support Package
(3) 4790/CK Status Report (if applicable)
(4) SUADPS Tapes or Supply Aids 1114/1348M Card Decks (if applicable)

1. The purpose of this letter is to furnish you with maintenance actions requiring update to your basic allowance document (COSAL, COSBAL, COSMAL, or CALMS). These actions are a result of Weapon Systems File (WSF) maintenance performed during the January/February timeframe and are to be processed in accordance with the information provided with enclosures (1) and (2).

2. The Auto-MCMAR is the primary vehicle for disseminating monthly allowance document updates to registered users of the APLs/AELs contained within those documents. Principal customers include U.S. Navy nonSNAP II ship/shore activities, U. S. Navy Submarine Force (excluding FBM/TRIDENT), U. S. Coast Guard, Military Sealift Command, and the Security Assistance Program. As indicated by references (a) and (b), the Auto-MCMAR consolidates all Pen and Ink Changes, New/Revised APLs/AELs, V09 range adds and quantity changes and 4790/CK APLs/AELs into a single report tailored to your specific maintenance actions and formatted the same as your allowance document. This product also computes OBRP allowances based on your specific maintenance level, protection period, and sparing philosophy (i.e., MODFLSIP, FLSIP 1.0, CONVENTIONAL, etc.).

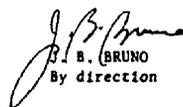
3. Enclosures (1) and (2) contain a format outline, processing instructions, and the Auto-MCMAR package for your review and implementation. Enclosure (1) also includes a Hull Tailored List which provides a cross-reference of all APLs/AELs affected by maintenance for each specific ship/activity within your customer grouping (i.e., U. S. Navy ships/activities; USCG; MSC; etc.). For ships/activities not affected by APL/AEL maintenance during a given cycle, only the Hull Tailored List is provided. These ships/activities will appear in the Hull Tailored List with the letters "NEC".

4. Additionally, status reports from the SPCC 4790/CK Tracking System are included as enclosure (3) if applicable. This report will be forwarded with each Auto-MCMAR unless the tracking file contains no active 4790/CKs in process or completed within the previous 30 day period. Only NM&E/ORD/ELEX equipment adds are tracked by this system and only for those ships/activities which have not been initialized under SCLISIS. For those ships/activities initialized under SCLISIS, status of your 4790/CKs may be obtained by contacting your applicable CDM or through TYCOM assistance.

5. SUADPS tapes and supply aids (1114 and 1348M card decks) will be provided for USN ships as enclosure (4) if applicable. SUADPS tapes are provided for all USN mechanized (SNAP I) ships only if the SNSL line item count exceeds 200 line items. However, if there are less than 200 line items, no tapes will be received. Supply aids are provided for all USN non-mechanized ships to update their existing Stock Record File (SRF) and for requisitioning purposes.

6. Maintenance actions contained within the Auto-MCMAR are derived from Configuration Change Reports (4790/CKs), V09 range adds and quantity changes, the Logistics Readiness Improvement Program (LRIP), Fleet COSAL Feedback Reports (FCFBRs), Allowance Change Requests (ACRs), and SPCC generated APL/AEL maintenance actions. As such, funding for shortage requisitions is to be in accordance with the policy and procedures established by references (c) through (e).

7. SPCC point of contact is Mrs. Cindy Bushman, Code 05532, AUTOVON 430-7087 or Commercial (717) 790-7087.


J. B. BRUNO
By direction

Distribution:
As shown on Enclosure (1)

FIGURE B-7, MCMAR FORWARDING LETTER

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(6) Report errors in Circuit Symbol Number (CSN) (e.g., CSN in the Electronics APL Circuit Symbol Number to Reference Number, COSAL Section IIB, crosses to an incorrect reference number or stock number on the APL in COSAL Section IIA).

b. Figures B-5 and B-6 provide a sample of a completed FCFBR.

c. Originate a FCFBR to identify technical data discrepancies listed in APLs/AELs that require correction. This includes identifying data that should be added to or deleted from APLs/AELs. Forward the FCFBR via the Area Commander (N4) to the CDM for review and action. (Note: The FCFBR is not used to report configuration changes.)

B.5 MONTHLY COSAL MAINTENANCE ACTION REPORTS (MCMAR) (AUTOMATED AND NON-AUTOMATED)

The MCMAR is prepared by SPCC in conjunction with NAVSEALOGCENTER, and distributed monthly by the CDM (COMSC N4), via the Area Commanders to all COSAL holders to provide information affecting fleet wide allowance support. These reports contain changes affecting APLs and AELs resulting from Weapon Systems File (WSF) maintenance actions by SPCC and CLIP maintenance actions by the CDM, including configuration updates, FCFBRs, ACRs and other changes which impact on ships' support. The MCMAR is hull specific. For ships with SHIPCLIP, this update will be automatically accomplished via a monthly automated update transaction. Non-CLIP ships should take immediate processing action upon receipt. Detailed instructions for processing the changes are included in SPCC Instruction 4441.170, *COSAL Use and Maintenance Manual*. The MCMAR package also contains processing directions. Figure B-7 is a sample cover letter for the MCMAR.

B.6 PROCESSING AND CONTROL RESPONSIBILITIES AND PROCEDURES

Responsibilities and procedures for processing and control of COSAL changes submitted by ships, are identified in Appendix C, paragraph C.7.

B.7 SUMMARY

As is evident, the COSAL is a dynamic document, therefore, it is vital that its currency and accuracy is maintained. Through aggressive feedback from users. In this manner, shipboard maintenance and supply personnel will be able to use, analyze and correct the ship's COSAL. This process will ensure that the proper repair parts and operating space items are available to the maintenance technician to maintain the equipment at the optimum operational capability for an extended period of time.

APPENDIX C

CONFIGURATION DATA MANAGEMENT IMPLEMENTATION

C.1 INTRODUCTION

The CDM chapter in the CDMP Manual is a broad layman's view of the CDMP and discusses configuration management conceptually. This appendix provides logistic managers and technical agents with additional details to implement the MSC configuration accounting program, defines basic terms and explains the CDM's role in establishing and maintaining the MSC fleet configuration baseline.

C.1.1 Definitions. CLIP data is used by a variety of managers, ashore and afloat, with different backgrounds. To establish a common frame of reference, the following Configuration Data Management terms are defined:

C.1.1.1 Ship Work Breakdown Structure (SWBS). A three digit functional indenturing system which has been in use for new designs since 1973.

C.1.1.2 Ship Work Authorization Boundary (SWAB). A four digit functional indenturing system which develops boundaries to support the maintenance and repair needs of the industrial availabilities of operational ships.

C.1.1.3 Expanded Ship Work Breakdown Structure (ESWBS). A five digit functional indenturing system based on the three digit SWBS and expanded by two single digit indenture levels to incorporate the SWAB. The ESWBS concept is illustrated on in Figure C-1. The ESWBS is also the first five characters of the twelve character AILSIN.

C.1.1.4 Functional Group Code (FGC). A ten digit maximum number, assigned during construction of for new ships, which consists of the ESWBS (*first five digits*) and up to five additional levels of indenture represented by single alphanumeric characters, used as the common reference point for correlation of all configuration data bases and baselines. The ESWBS/FGC concept is a comprehensive management information system capable of providing planned, current and/or total ship configuration data in a hierarchical breakdown of ship systems, subsystems, equipment and components. Figure C-2 describes the assignment of the FGC.

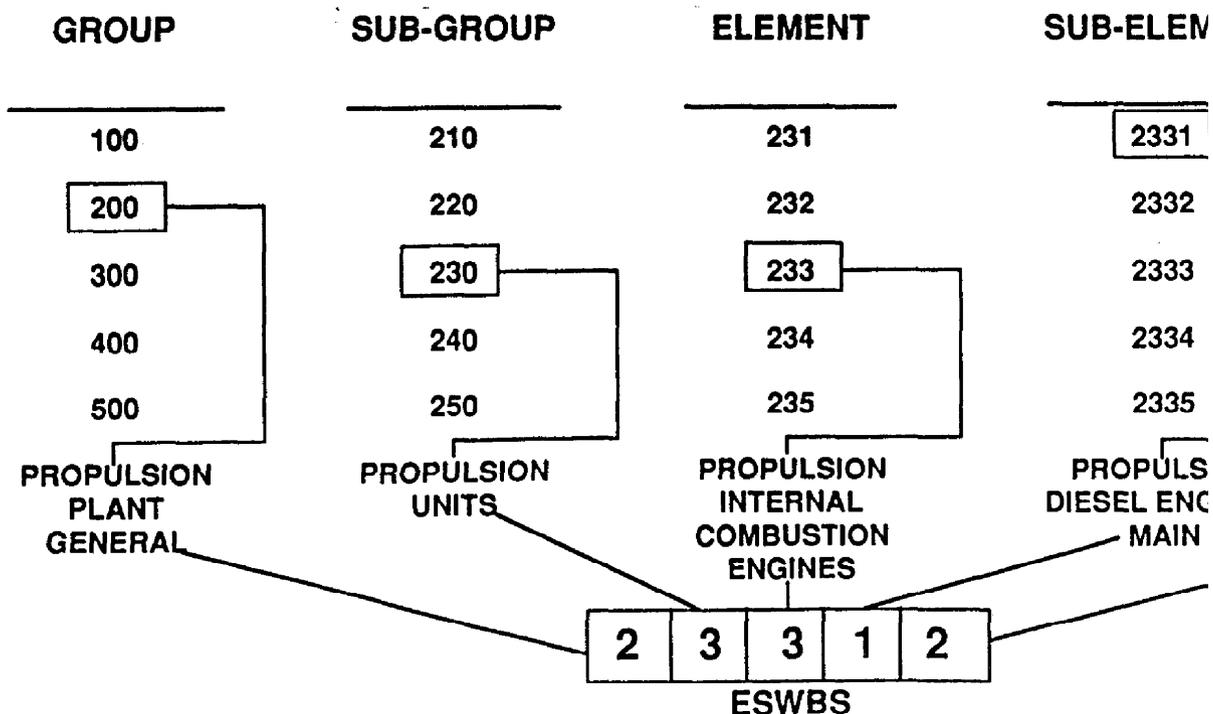
C.1.1.5 Automated Integrated Language System Identification Number (AILSIN). A twelve character code, used in currently operational ships, combining the five character identifying/relating equipment and components by category. An AILSIN was assigned to each system and, within that system, to each subsystem, equipment and component. The AILSIN concept is illustrated in Figures C-3 and C-4.

ALL THE SHIP'S HARDWARE IS SORTED INTO THESE BASIC FUNCTIONA

- | | |
|----------------------------------|--------------|
| 1XXXX - HULL | 5XXXX - AUXI |
| 2XXXX - PROPULSION (NON-NUC) | 6XXXX - OUTF |
| 3XXXX - ELECTRICAL PLANT | 7XXXX - SPOI |
| 4XXXX - COMMUNICATIONS & CONTROL | 8XXXX - MISC |

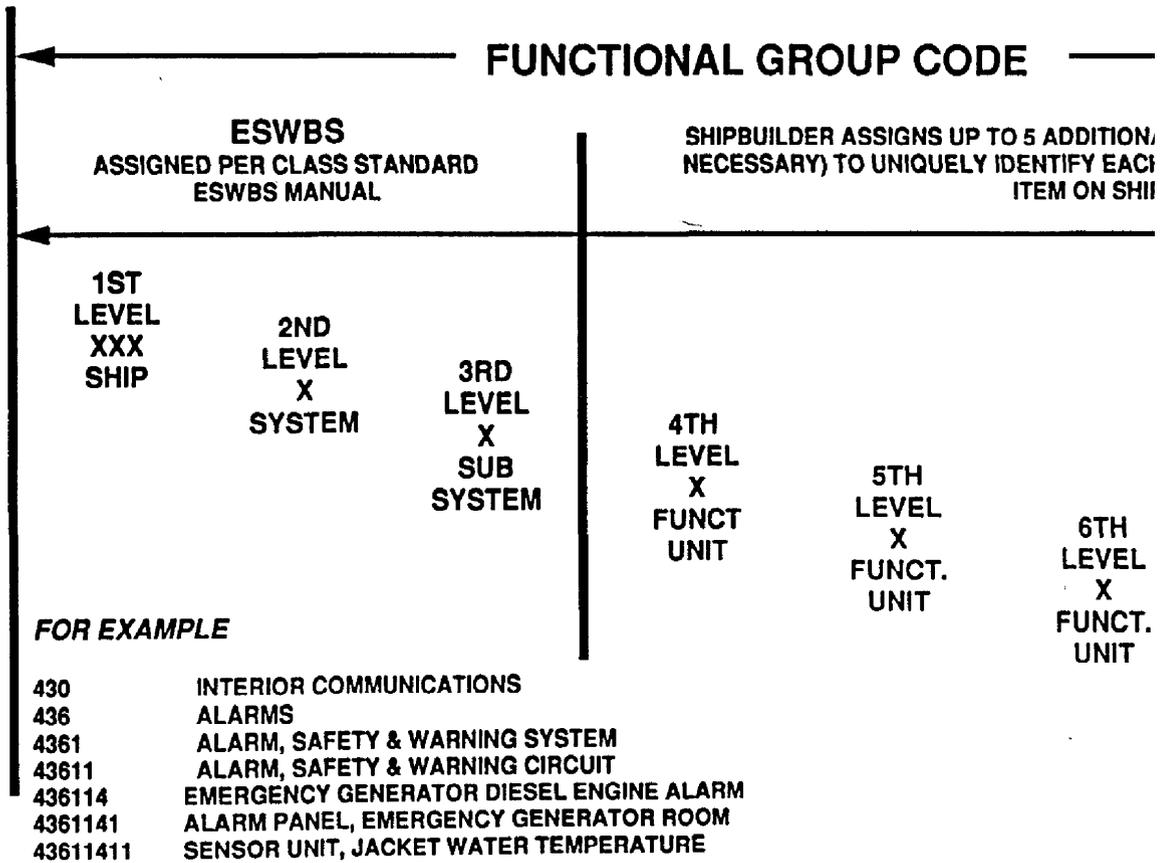
FOR EXAMPLE, ALL PROPULSION PLANT SYSTEMS, EQUIPMENT & COM ASSIGNED TO THE 2XXXX GROUP. THIS 5 - POSITION GROUP IS THE EX BREAKDOWN STRUCTURE (ESWBS). AN EXAMPLE OF A COMPLETE ES BELOW. EACH DIGIT AFTER "1" FURTHER IDENTIFIES A LEVEL OF PROI

FIGURE C-1, THE ESWBS CONCEPT



THE 10-CHARACTER FUNCTIONAL GROUP CODE (FCG) IS USED IN NEW CONSTRUCTION 12-CHARACTER AILSIN. IT IS SIMILAR TO THE AILSIN IN THAT IT ALSO USES THE ESWBS BREAKDOWN STRUCTURE THAT SHOWS EACH FUNCTIONALLY SIGNIFICANT ITEM AND ITS HIGHER/LOWER ELEMENTS OF THE SYSTEM IT IS IN.

FIGURE C-2, FUNCTIONAL GROUP CODE



NOTE: BELOW THIS LEVEL OF INDENTURE, THE SUBCOMPONENTS IN THIS EXAMPLE WOULD NO LONGER BE CONFIGURATION ITEMS, THEY ARE SIMPLY REPLACEABLE PARTS OF THE NEXT HIGHER ASSEMBLY

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C.1.1.6 Functionally Significant Item (FSI). Any shipboard item or component which performs a function and is significant to the performance of a system. A FSI can be a system, subsystem, equipment or component or a summary level of two or more FSIs.

C.1.1.7 Functional Nomenclature/Equipment Functional Description (EFD). The common name or nomenclature which identifies an item as a functional part of the system or equipment it supports. This nomenclature should be similar to that found in technical manuals and design drawings, and should be common use terminology which will be quickly recognized and understood by shipboard and industrial users.

C.1.1.8 Functional Block Diagram. A diagrammatic representation of FSI functional relationships arranged in a hierarchical Top-Down Breakdown (TDBD).

C.1.1.9 Hierarchical Top-Down Breakdown (TDBD). A structured, FSI arrangement which displays the relationship of an FSI to its parent equipment and its subassemblies. Also referred to as Hierarchical Structure, it is depicted in Figure C-5.

C.1.1.10 Hierarchical Structure Code (HSC). The HSC is the top-down breakdown numbering system, such as the AILSIN or FGC, that defines the hierarchical structure of the configuration of the ship and its systems. The HSC is a key reference number used in planning all levels of maintenance, managing logistics support, organizing technical documentation and performing design work throughout the life of the ship. Additional details for HSC creation are contained in the NAVSEA Technical Specification 9090-700A.

C.1.1.11 Functional Configuration Baseline (FCB). A hierarchical TDBD listing of the FSIs on the ship. The FCB is arranged by the FGC and associates the FSI, Functional Nomenclature, the official Functional Nomenclature Abbreviation and the quantity to a unique FGC.

C.2 CONFIGURATION DATA MANAGEMENT CONCEPT

Configuration Data Management under the CDMP can be viewed as a phased process. Three major phases constitute the typical ship profile in this process. First, and most important, since all subsequent effort will depend on it, is the "**Initializing**" phase, which "*initiates*" the ship or class into the program, establishes a baseline configuration and develops the "*closed loop*" reporting system for future changes. Second, is the "**Industrial Availability**" phase, wherein 90-95 driving the configuration status accounting process.

THE BREAKDOWN STRUCTURE MUST BE CAPABLE OF IDENTIFYING THE COMPONENTS OF "PROPULSION, DIESEL ENGINE NO. 2" (PRECEDING P) SERIES OF CODES, EACH PROVIDING A FURTHER BREAKDOWN UNTIL E IDENTIFIED. ONE SUCH BREAKDOWN IS SHOWN BELOW, USING ESWBS

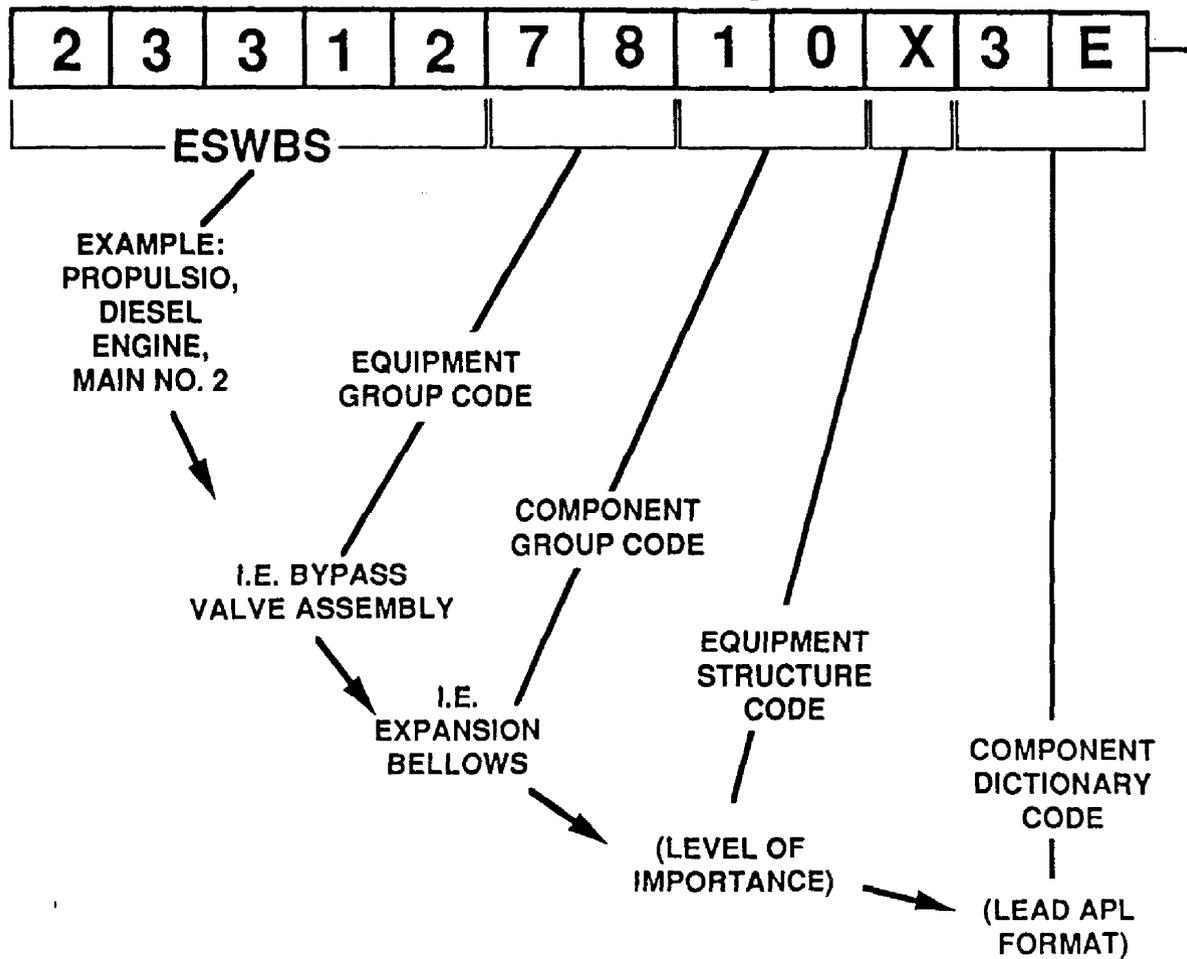


Figure C-3, The AILSIN Concept

AILSIN CONSISTS OF TEN CHARACTERS FOR
STRUCTURING AND A TWO CHARACTER SUFFIX

EXPANDED SHIP WORK BREAKDOWN STRUCTURE
(ESWBS)

TOP-DOWN BREAKDOWN/INDENTURING

EGC - EQUIPMENT GROUP CODE

CGC - COMPONENT GROUP CODE

ESC - EQUIPMENT STRUCTURE CODE

SUFFIX

CDC - COMPONENT DICTIONARY CODE

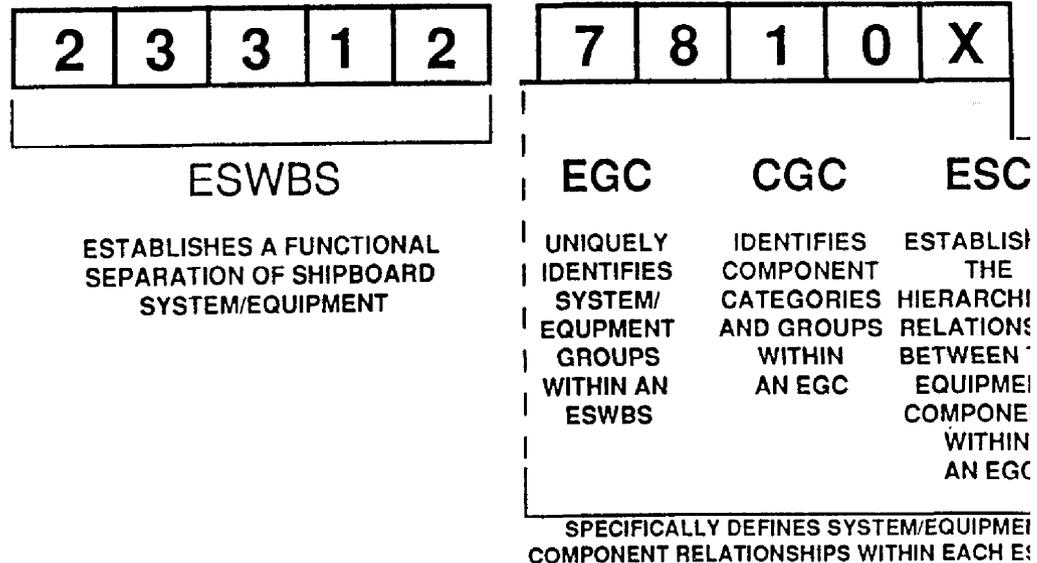


Figure C-4, The AILSIN Structure

- THE ESWBS/AILSIN TIERED LEVEL CODING IDENTIFIES EACH HARDWARE ITEM AND LOWER ELEMENTS OF THE SHIP'S SYSTEM IT IS IN:

HARDWARE	TIERED CODING
SHIP LEVEL	ESWBS/AILSIN
SYSTEM LEVEL	ESWBS/AILSIN
EQUIPMENT LEVEL	ESWBS/AILSIN
COMPONENT LEVEL	ESWBS/AILSIN

- NOMENCLATURE THAT FURTHER IDENTIFIES EACH ITEM AS A FUNCTIONAL PART

HARDWARE	TIERED CODING	FUNCTIONAL NOMENCLATURE
SHIP LEVEL	ESWBS/AILSIN	NOMEN
SYSTEM LEVEL	ESWBS/AILSIN	NOMEN
EQUIPMENT LEVEL	ESWBS/AILSIN	NOMEN
COMPONENT LEVEL	ESWBS/AILSIN	NOMEN

- THE LOGISTIC SUPPORT ITEMS FOR EACH HARDWARE ITEM ARE IDENTIFIED/AC

HARDWARE	TIERED CODING	FUNCTIONAL NOMENCLATURE	LOGISTIC
SHIP LEVEL	ESWBS/AILSIN	NOMEN	TECH MAN.,
SYSTEM LEVEL	ESWBS/AILSIN	NOMEN	TECH MAN
EQUIPMENT LEVEL	ESWBS/AILSIN	NOMEN	TECH MA
COMPONENT LEVEL	ESWBS/AILSIN	NOMEN	TECH

Figure C-5, Hierarchical (Tiered Level) Structure

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Finally, the "**Operational**" phase is the normal day to day employment of the ship, carrying out its mission. Changes during this phase are few, with the exception of voyage repairs or emergency changeout of failed equipments. Nevertheless, documentation submission is frequently accelerated as operational conditions may allow catching-up on paperwork. Under each of these phases the CDM has specific responsibilities for which it must plan and prepare. These tasks are described below.

C.3 INITIALIZATION

a. The CDM will transition ships or classes to CDMP configuration management through Initialization. This procedure will normally be transparent to the ship, since the task is accomplished between the database administrators and the CDM. Initialization's function is to reformat all future configuration change input into compatible data and to establish the administrative actions necessary to clean up the old files and prepare the WSF to accept only CDM originated information. A major component of initialization is the development of the Baseline Configuration, which will become the functional benchmark for future configuration accounting. The CDM also has to coordinate changes in information flow to ensure all configuration data will now flow through him. Finally, the CDM, in concert with the Area Commanders and COMSC Engineering Director (N7), will identify Critical Equipments, which will become the focus of initial verification and data quality assurance.

b. Once the baseline is established, the CDM will load validated equipment hierarchical structure coding into the CLIP system. This code is ESWBS compatible, modified to accept MSC terminology, and provides the common thread that will link all ships of the class into a single recognized configuration baseline. It is at this juncture that the comparison can be made to establish what should be onboard (*functional configuration*) with what is actually installed (*physical configuration*). The CDM can now monitor all future action that will modify the baseline data.

C.4 CDM ACTIONS UNDER THE INITIALIZATION PHASE

a. As previously noted, Initialization is the process that loads the available ship's configuration, alteration and logistics data into the CLIP Data Base. The CDM extracts the initialization data from the SPCC Weapon System File, normally using a "V30" 9 track magnetic tape and downloads to CLIP. Through automated processing, CLIP converts the data into the initialization format specified in NAVSEA Technical Specification 9090-700A. Essentially, this format consists of the following record types:

- (1) Record Type 1 - Ship identification data
- (2) Record Type 2 - Equipment/component configuration data

- (3) Record Type 3 - Logistics data (*when available*)
- (4) Record Type 4 - Alteration data

b. CLIP will also arrange the above configuration data in the tiered level (*hierarchical*) structure described earlier. Initialization is a relatively simple "*paper*" process, a mechanical procedure that converts existing WSF configuration data to a new format. It requires further verification to ensure that the newly initialized database is accurate and complete. Accordingly, the CDM must establish a ship functional profile, match existing configuration information with the profile and then physically verify the existence of that configured item. This verification is called the Baseline Validation. Since the process may vary widely from ship to ship, procedures for the initialization of a specific ship or ship class will be developed internally by the CDM.

C.5 BASELINE VALIDATION

a. Baseline Validation is the second step in phasing a ship or class into CLIP. After the database has been established "*on paper*," this process reviews and corrects the tiered level (*hierarchical*) structure of the initialization file, validates the ship's configuration, and verifies the associated logistics support data. Since initialization creates a file with little or no review and verification, the objectives of Baseline Validation are:

- (1) Review and correct the tiered level (*hierarchical*) structure of the initialization file.
- (2) Validate the configuration of the ship.
- (3) Verify the logistical data supporting the above configuration.

b. The organizational flow of validation documentation is depicted in Figure C-6.

C.5.1 Baseline Validation Procedures. The scope of Baseline Validations will follow the guidelines below, although these may vary at the discretion of the CDM if circumstances dictate. Validation Teams will be utilized to complete the shipboard verification as detailed in Appendix E of this manual. A Baseline Validation normally includes a shipcheck of the configuration of equipment (*including alteration status*) and the research necessary to identify/verify the correct logistic support (*including applicable revisions*) for the equipment. "*Equipment*" includes systems, subsystems, equipment and configuration worthy components ("*configuration worthy*" is defined in paragraph C.5.3).

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DATA FLOW FOR CONFIGURATION VALIDATION

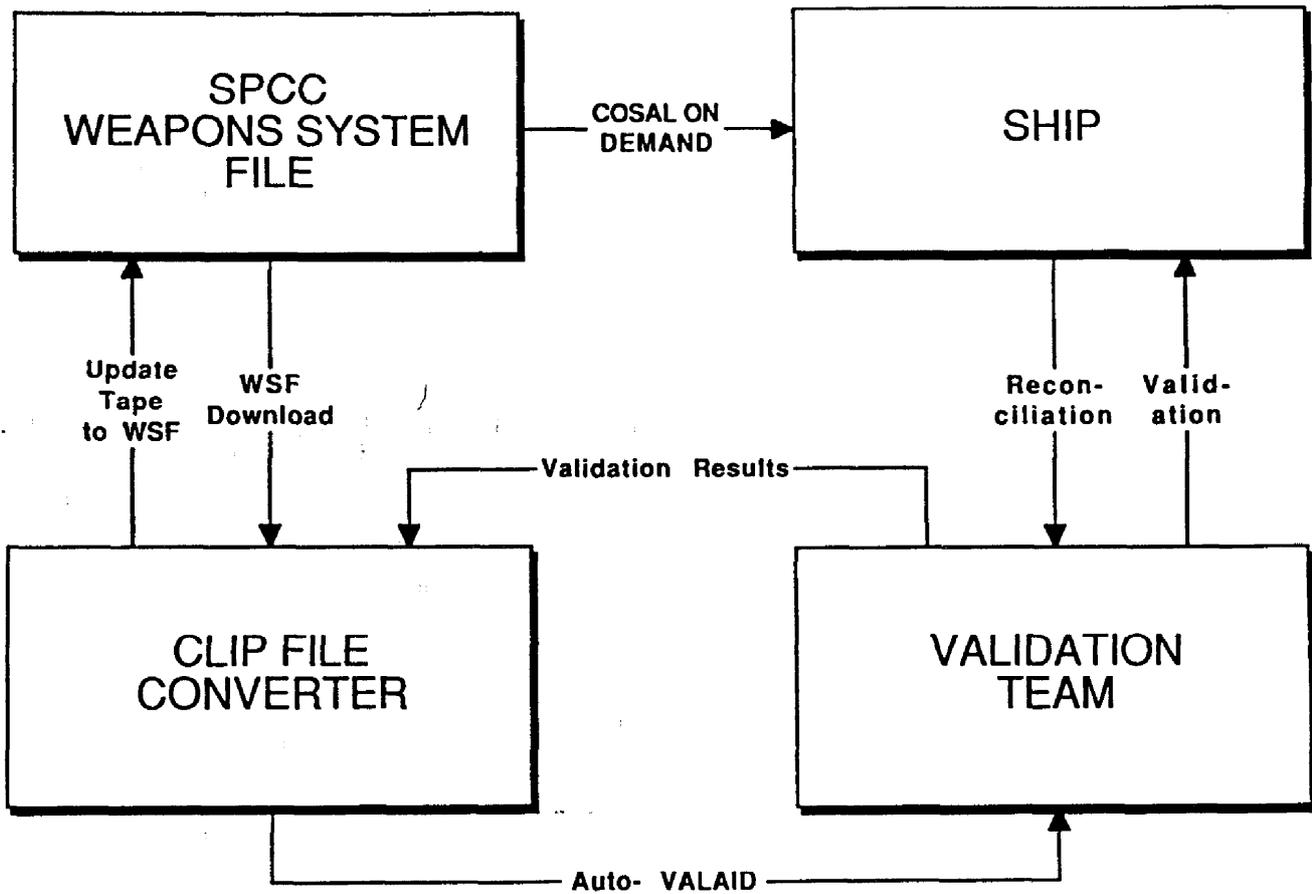


Figure C-6, Data Flow for Configuration Validation

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C.5.2 Priorities. While the objective of the Baseline Validation is to cover all ship configuration and logistic information, constraints on time and resources may necessitate a phased approach. The following priorities are normally followed:

a. First, Baseline Validation will encompass validation of critical equipment and related logistics information.

b. Next is the verification of equipment experiencing CASREPs and related logistics information.

c. Finally, other non-critical, maintenance worthy equipment, as directed by the CDM. The minimum requirement for non-critical equipment is to accomplish a validation whenever there is an indication of inaccurate data in the ship's CLIP Data Base.

C.5.3 Configuration Worthy Items. To be effective, CLIP must include all configuration worthy items on the ship. These are items that are deemed necessary for the operation, maintenance, modernization and support of a ship's systems or equipments. Specifically, an item is configuration worthy if:

a. It requires any one of the following elements of logistic support: supply support, technical manuals, technical repair standards (*TRSs*), maintenance, drawings (*installation drawings, Selected Record Drawings or configuration control drawings*).

b. Configuration information (*e.g., label plate data, technical characteristics data, component drawing*) is required to support the appropriate maintenance level (*organizational, intermediate or depot*) and modernization (*planning and execution of availabilities*).

c. It is needed to fully describe the functional hierarchy (*tiered levels*) of the ship's systems, equipment or components.

C.5.4 Critical Systems and Equipment. The definition of criticality often lies in the eyes of the beholder. The following is a guideline which satisfies the initial goal to provide a working definition; but it may be changed by appropriate technical authorities, (*e.g., COMSC N7*).

C.5.4.1 Critical System Criteria. A system is critical if it meets any of the following criteria:

a. Failure of the system would cause a severe degradation in mobility (*loss of more than 50% of steering or propulsion*).

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- b. Failure of the system would cause a severe degradation (*loss of more than 50%*).
- c. Failure of the system would cause a total loss of a secondary mission capability.
- d. The system is required for survival of the ship (*e.g., damage control, firefighting, self defense*).
- e. Failure of the system would cause an immediate, significant hazard to the safety of the crew.
- f. The system has a history of significant problems.

C.5.4.2 Critical Equipment and Component Criteria. An equipment or component is critical if it meets the following criteria:

- a. It is a piece of "*equipment*" in a critical system. For example, pumps, compressors, dehydrators, generators, switchboards, are pieces of equipment.
- b. Components that are a part of a piece of critical "*equipment*" are also critical. The components that are part of the equipment are generally those that would be removed with the equipment if the equipment were removed from its foundation for shop overhaul.
- c. It is a component (*of a system*) which is vital to the operation of that system (*e.g., main firemain segregation and branch isolation valves*).

C.5.5 Critical System/Component List. COMSC N4, in conjunction with Area Commanders and the COMSC Engineering Director (*N7*), will develop lists of Critical Systems/Equipments for each class of ship. A generic listing, developed by NAVSEASYS COM may be used as a guide. It is included at the end of this appendix at Figure C-9.

C.5.6 Review/Correction of Configuration Data Base. This is the first step in a Baseline Validation. In reviewing and correcting the tiered level (*hierarchical*) structure of the Initialization data base, the CDM will take the following steps:

- a. Assemble updated Selected Record Drawings (*SRDs*), damage control diagrams, system level drawings, label plates, Ship Information Books (*SIBs*), system level technical manuals and other documentation for the ship or class that define functional boundaries.
- b. Ensure that the structure of the data base is consistent with the above documents.
- c. Assign Equipment Functional Descriptions (*EFDs*) which normally requires breaking down configuration records to a quantity of one. (*Exceptions: lights, small*

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circuit breakers, and small potable water valves do not warrant individual description and therefore can be grouped under one EFD); EFDs should be unique for each configuration item and identical on all hulls within a ship class. EFDs should also be consistent with common Fleet usage, avoiding cryptic abbreviations. Plain English should be used by taking full advantage of the 48-character data field allotted for each EFD.

C.5.7 Preparation for Shipboard Validation. After the review/correction of the Initialization file, the Configuration Data Manager, can now schedule the MSC Validation Team and prepare the automated validation aids from the SPCC WSF "V30" tapes. The successful performance of a validation requires the coordination of many factors, including resource availability, ship's operating schedule, time available for performance of the validation and the amount of equipment to be validated. The key to this effort is the assistance provided by shipboard personnel, particularly the Chief Engineer and the ship's Configuration Manager, who must coordinate with the Area Commander, the Validation Team and the on-site MSC representative to determine the optimum schedule for performance.

C.5.8 Preparation of Validation Aids. The Equipment Installation Records, used for validating equipment installations during availabilities, are also used as the aid in the Baseline Validation process. They are referred to as validation aids in these procedures. COMSC employs an automated process to download configuration data to personal computers, thereby enabling the Validation Team to produce tailored, preprinted AUTO-VALAIDS. The data will be provided to the team leader in floppy disk format and can be sorted in one of several sequences at the option of the CDM or Team Leader (*e.g., by location, by Service Application Code*). Detailed instructions and training manuals are provided for the Team Leader's use. An example of the AUTO-VALAID can be found in Figure C-7. A Master Validation Record (*MVR*) is also computer prepared. The MVR is used during the shipcheck to maintain control of the AUTO-VALAIDS and to record the status of the individual validation aid as they are processed. In the post-shipcheck phase, the MVR is used as a basis for analysis and follow-up actions.

C.5.9 Accomplishing the Baseline Validation. At this point the Validation Team is ready to commence its effort. Appendix E of this manual provides the detailed shipboard validation procedures. When the Validation team completes its shipcheck, the resulting documentation will be forwarded to the CDM for review and reconciliation with the data base. Additional coding (*e.g., hierarchical structure, EFD*) will be added and the reconciled AUTO-VALAIDS will be converted into a WSF compatible Transaction Tape and forwarded. Upon acceptance of this initial baseline by the CDM, the Initialization process is complete and the initiation phase has ended.

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PRE-VALIDATION AID

* CNTRL***** RIN***** RIC _____ NOMENCLATURE _____
 * 00002 * A4530 * 251960031 _____

R21419, TAO 1
 SAC : 0AAAG SAD : GYRO COMPASS SYSTEM, HM&E
 ESWS : 12 ESD : TEST FOR 12
 EIC : 0000000 MEC : V

Seq. #	Component Characteristics	New Component Characteristics
1	MFR-ITY TELECOMMUNICATIONS CORP MACKAY DIV RALEIGH, NC	1
2	NHA-NONE	2
3	NSN-NONE	3
4	EIC-NONE	4
5	COMMERCIAL NOMEN-82692-MR-821-2C	5
6	CONTRACT NR-NO CONTRACT	6
7	SOURCE OF APL INFO-PTG	7
8	TECH MANUAL-NONE	8
9	PROV PARTS LIST-NONE	9
10	PDCN-DZDU	10
11	EQP NOM-82692-MR-821-2C, TRUNK, ANTENNA MARINE	11
12		12

CNTRL	SFX	RIN	LOCATION	CODE	QTY	SERIAL/VN	TC	REMARKS
00002		A4530	test		000001			
NHA			NHA SN					

CHECK APPROPRIATE SELECTION :

CONFIRM (VSAC = 'SC')

CHECK-RC	1	MFR ID AND EQUIP ID NO AND MODEL OR TYPE ON EQUIP NAMEPLATE MATCH VALAID.	CHECK-RC	2	EQUIPMENT BREAKOUT. VALAID QUANTITY REDUCTION BUT SUBSEQUENT SIMULAR RECORDS. SEE BREAKOUT SHEET.
----------	---	---	----------	---	---

REVISE (VSAC = 'SR')

DELETE (VSAC = 'SD')

CHECK-RC	1	EQUIP/COMP FUNCTION (INDICATED IN NOMEN.) OR ID NUMBER, OR MFR, OR MODEL, OR TYPE IS DIFF. IN ANY WAY.	CHECK-RD	1	DELETE\ADD SITUATION - SEE COMP. CHAR.
CHECK-RC	2	EQUIPMENT BREAKOUT. VALAID QUANTITY REDUCTION BUT SUBSEQUENT SIMULAR RECORDS. SEE BREAKOUT SHEET.	CHECK-RD	2	EQUIPMENT REMOVED FROM SHIP.
			CHECK-RD	3	CANNOT FIND EQUIPMENT.

NOT VALID (VSAC = 'SN')

CHECK-RNV	1	NON SELECT \ MSC GUIDANCE.	CHECK-RNV	3	EQUIPMENT IS LAGGED.
CHECK-RNV	2	INSUFFICIENT NAMEPLATE DATA.	CHECK-RNV	4	EQUIPMENT IS INACCESSIBLE.

CONFIGURATION REPORTING ACTIVITY : SEACOR

INITIALS : A2ST
 Q/A INITIALS : I

DATE : / /

FIGURE C-7, AUTO-VALAID

C.6 CDM ACTIONS UNDER INDUSTRIAL/LOGISTICS AVAILABILITIES

During ship Overhauls, Availabilities or ILRs, the CDM's oversight function continues, involving a broad range of actions. Coordinating with the COMSC Engineering Director, Area Commanders and ILR teams, as described in the CDMP manual, the CDM will direct and monitor the performance of the MSC CDMP.

C.6.1 Policies. MSC has established criteria for documenting, categorizing and tracking equipment configuration changes. This criteria applies to all equipment configuration changes, including those completed during industrial availabilities, service order periods, by ship's force and any other engineering or maintenance activity performing alterations on MSC ship equipment. This policy does not apply to sponsor equipment configuration changes.

a. All newly reported or installed, unsupported equipment will be identified and categorized concerning maintenance and configuration worthiness.

b. Non-maintenance and configuration worthy items will not be supported with repair parts, but CLIP and SHIPCLIP will retain a marker for the item and records will be retained for reference should a change request be forwarded for the same item on more than one ship or occasion.

c. Non-maintenance and configuration worthy items will be grouped individually, or on special 89000 series APLs, separated by system if possible.

d. Configuration worthy and maintenance worthy items will be identified by a Preliminary Allowance List (*PAL*) or Allowance Appendix Page (*AAP*) using MSC's specified procedures. Whenever possible, the Integrated Configuration and Provisioning System (*ICAPS*) will be used to build PALs and load initial technical data and parts list data for unsupported equipments. All data from ICAPS will be loaded into CLIP to retain Bill of Materials (*BOM*) information provided by manufacturers. CLIP will be loaded with all part numbers and CAGE data from equipment BOM lists, or manufacturer's parts lists, along with any related NSNs or NICNs.

C.6.2 Responsibilities. Under the CDMP, several activities are responsible for accurately documenting configuration changes and verifying equipments changed during industrial availabilities.

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a. CDM

(1) Determines the timing for database downloads and scheduling/availability of COSAL products.

(2) Obtains the list of all equipment configuration changes planned during availabilities (*e.g., TRANSALTs, Voyage Repair Requests, Work Packages, other alteration installation schedules*).

(3) Ensures that input is made to the CLIP data base for all configuration-worthy planned changes in support of the availability planning process.

(4) Performs a preliminary analysis of ship's data records with the WSF database, identifying problem areas and reconciling the differences.

(5) Trains and tasks the MSC on-site representative to monitor the installing activity's performance in preparing and validating installation data and to verify ship's CK transactions that do not involve work under the cognizance of the port engineer. The MSC on-site representative will interface with the ILR and Validation Teams for audit/validation work that is being accomplished by these teams in support of the CDM.

(6) Assists the ILR Team in resolving configuration identification problems.

(7) Directs the ILR team to cross-check planned changes against the completed installation data, including conducting a review of all emergent changes. Unplanned changes will be resolved with the Area Commanders and COMSC (N7).

(8) Reviews all change transactions to be made to the configuration database to ensure the records are complete. (*The installing activity assisted by the ILR team is responsible for providing complete, accurate data to the CDM.*) Completes the Quality Assurance process.

(9) Ensures that the proper Hierarchical Structure Codes (*HSC*), Equipment Functional Descriptions (*EFD*) and other key ship data are assigned to all change transactions.

(10) Transmits input transactions to the SPCC WSF.

b. ILR Team

(1) The ILR Team will obtain a configuration download from the WSF for all uninitialized ships and from CLIP after initialization prior to each maintenance

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availability. Additionally, the ILR Team will review the CLIP change request document tracking data base, all backlogged configuration change requests forwarded by the CDM and local ship change request files.

(2) As a part of Configuration Analysis, during each availability, the ILR Team will accomplish the following tasks: Sight validate all CCFs submitted to the CDM since the previous availability to confirm component characteristics, location, serial number, HSC, etc. Additionally, review local ship files and sight validate all new CCFs in the files that the CDM did not identify. Work off all outstanding validation research requirements for validation fallout and TSG recommended revalidation requests. Attempt to cross reference VALAIDS with any change requests which are on file. The CDM will provide priority for research of unresolved VALAIDS. The resource availability and costs of this effort will be closely monitored. For all repair items in the availability work package and the MSC Planned Equipment Addition/Deletion Report, sight validate all equipment configuration changes. Report on all items in the MSC Planned Equipment Addition/Deletion Report. The MSC Planned Equipment Addition/Deletion Report is described in Appendix D. Conduct selective audits of the functional and physical configuration as directed by the CDM or as required to correct deficiencies in the CDM HSC or logistics support posture.

(3) Provide a monthly status report of all completed actions on change requests. Status reports for ships actually in an availability for the month will not be required.

(4) All Configuration Analysis validations will be completed using the MSC developed AUTO VALAIDS system. This system collects equipment configuration and technical data and loads the data directly into CLIP in a timely, accurate manner. The RSG will conduct an initial review of validation data identifying configuration information which is already loaded/deleted from the target ship data base. The CDM will research the results of validations, convert all approved configuration change data collected using the VALAIDS system to an acceptable transfer media to SPCC.

(5) The ILR Team will generate an AAP or configuration placeholder in the ship's configuration data base for all unrecorded installed maintenance and configuration worthy equipments. AAPs will be generated using ICAPS and loaded in CLIP. The Bill of Materials parts data from ILR Team AAPs will be retained in CLIP.

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(6) The ILR Team will update ship repair part allowance data after every availability and report changes to the CLIP allowance data base. All contractor-furnished spares for unsupported equipments which are placed in supply storerooms will also be recorded and reported.

C.7 CDM ACTIONS DURING SHIPS OPERATING PHASE

a. Throughout normal fleet operations, MSC ships will continue to report configuration changes. In the CDMP's closed loop system, the CDM will receive and process all configuration and logistics change data generated by:

(1) Changes reported by the Fleet or other activities via the automated 4790/CK process.

(2) Changes reported by installing activities after installation of TRANSALTs, Voyage Repairs, Field Changes, etc.

(3) Changes (*not resulting from a configuration change*) to logistics elements, (*e.g., Allowance Change Requests (ACR), Fleet COSAL Feedback Reports (FCFBR)*).

(4) Changes reported by any other authorized source.

b. The CDM has identified specific requirements for reviewing, researching and processing change requests. The review process is designed to accomplish the following objectives.

(1) Request contains sufficient data to process and is using correct type form (*e.g., CCF submitted which really should be a FCFBR*).

(2) Request is for a valid deficiency (*ship configuration records do not reflect the equipment identified*).

(3) For valid deficiencies, the CDM requires specific minimum and maximum research efforts to be completed on each request.

(4) Change requests will always be processed with CDM goals of assigning a configuration record with a quantity of one.

C.7.1 Configuration Change Request Forms (CCFs)

a. Ship CMs will be responsible for reporting all changes to configuration in the operating phase. Area Commanders and the CDM will review change requests, forward

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requests to the ILR Team when the ship is within 90 days of a maintenance availability, forward remainder to SPCC or the CDM supporting Technical Support Group (TSG). Change requests will be reviewed and entered in the CLIP document tracking data base by the Area Commander or CDM. The TSG will research and post changes using the CLIP Configuration Status Accounting module and update SPCC WSF monthly using either V30 or SDIF V09 maintenance processes.

b. MSC policy is to identify equipment changes throughout the operating cycle, and place a configuration "*marker*" in CLIP and the WSF as soon as possible after it is reported and identified. A "*marker*" will be used to ensure items identified by validation or CCR are clearly labelled, avoiding duplication of the same cycle at a later date. For equipment validations and previously initiated efforts, as unsupported equipments are identified and move through the CDMP process, CLIP will allow for review of all items for maintenance significance and configuration worthiness. It will also provide cross reference to what CDMP action initiated the support requirement, along with the related configuration item and identification of the system which requires additional logistics support. CLIP will also provide visibility of pending configuration change requests to Area Commander and MSCCENTACT support staffs.

c. All newly reported or installed, unsupported equipment will be documented and a determination made concerning maintenance/configuration worthiness and functional significance. Non-selected items will not be supported, but CLIP and SHIPCLIP will retain a configuration marker for the item, and records will be retained for reference should a change request be forwarded for the same item on another ship. Non-maintenance worthy items will be grouped individually, or on special 89000 series APLs, separated by system if possible. Configuration and maintenance worthy items will be identified by PAL or AAP using CDMP specified procedures. Whenever possible, ICAPS will be used to load initial technical data and PPL data for unsupported equipments. All data from ICAPS will be loaded into CLIP to retain BOM information provided by manufacturers or loaded by the ILR Team or TSG.

C.7.1.1 Responsibilities. The CDMP integrates configuration and logistics support requirements for MSC ships into one focused process. Both configuration change requests and COSAL change requests are reviewed and processed under the direction of the CDM. The CDM is supported by Area Commanders, the Technical Support Group, ILR Teams and Readiness Support Group in documenting and reviewing configuration change requests and COSAL change requests received from ships in the operating cycle. Priority will be placed upon quickly responding to all ship-generated change requests.

a. CDM

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(1) The CDM will review all change transactions intended for the WSF to ensure that the record is complete; obtain missing data and verify any suspect data from the cognizant reporting activity. (*The installing activity is responsible for providing complete, accurate data to the CDM.*) After ensuring that the proper data quality information, HSC, EFD and other key ship data are correctly assigned to all change transactions, the CDM transmits the input to SPCC to update the WSF. Rejected transactions will be corrected and reprocessed in accordance with the CDMP's schedule. The CDM will continually compare recorded installation data with ship reports and ensure resolution of any discrepancies. If unplanned configuration changes are detected, they will be resolved with the Area Commander and COMSC Engineering Directors. The submitting ship and Area Commander will be provided with status reports on all pending changes.

(2) In general, the CDM need not wait for complete information prior to entering a transaction into the database. Since many activities have a need for timely configuration information, the CDM should enter the transaction when basic configuration information becomes available and is correct. When additional information is received, it should be entered as a change.

b. Technical Support Group (TSG). Using logistics research tools, the TSG will attempt to identify an existing APL for the item. Research references required to properly perform this task include: OPI NAVLOG/FEDLOG, NAVSEALOG HEDRS, MSC LAPL data base and the CLIP data base. In assigning candidate APLs, the TSG will use the following order of precedence: M series APLs, Navy APLs, N series APLs, other APLs.

(1) For all M or N series APLs, determine the LAPL used in provisioning and for MSC LAPLs, determine the effective date, then check the MSC LAPL data base for a revised LAPL.

(2) For CDM initialized ships, the correct HSC and Mission Criticality Code (*MCC*) must be identified for all configuration changes.

(3) All new configuration records will be a quantity of one with an HSC, unique Equipment Functional Description (*FFD*), MCC ship's location and serial number/valve mark if available. All new configuration records also will include cross references to applicable technical manuals and the NAVSEA installation drawing which establishes the configuration identification.

(4) Configuration worthy items which cannot be identified to an APL will be loaded into the ship's configuration using a temporary APL. The ILR Team or TSG must recommend either inclusion on an 89000 series APL or development of a PAL, which

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may or may not be provisioned based upon the MSC (N7) engineering requirements and funding for "initial outfitting" spares. MSCCENTACT (N4) will make the final decision to provision and/or procure interim spares.

c. SPCC. For all change requests received, attempt to match equipment to a valid APL, using the same criteria as the ILR Team/TSG. For equipment which matches an M series APL, change configuration records. For equipment which crossed to a Navy or N series APL or does not cross to any existing APL, forward request along with applicable information to the CDM. The CDM and Engineering Director will jointly determine the requirement for provisioning or converting to an M series APL.

d. Area Commander

(1) Enter CCF into the CLIP document tracking system. For SHIPCLIP generated CCFs, review all requests in CLIP and forward appropriate requests to the CDM through CLIP.

(2) Review CCF for propriety and adequacy of information and completeness of technical descriptive data.

(3) Disapprove CCF which is not considered to be appropriate for further review. If correct, go to paragraph (7).

(4) Return incomplete or incorrect requests to originator.

(5) If equipment can be identified to existing APL, provide recommended APL information to the CDM.

(6) Forward CCF to CDM for processing.

(7) Update CLIP document tracking system. Follow up if no reply received within processing time norms.

(8) Coordinate CCF responses and correspondence from CDM, requesting additional information with originator.

(9) Close out record on document tracking system.

C.7.2 Allowance Change Requests

C.7.2.1 Operating Phase Change Reporting Process

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a. ACR. An ACR is submitted by the originator via the Area Command (*N4*) to the CDM (*MSCCENTACT (N4)*). The Area Commander will establish a suspense file for all ACRs until all action has been completed. Extensive distribution of information copies of ACRs and additional endorsements are not required. The Area Commander is authorized to approve ACRs for non-DLRs that are single ship applicable and have an extended cost of \$25K or less. In those cases only an information copy of the approved ACR will be forwarded to the CDM. In all other cases, the ACR will follow the normal path to the CDM. The CDM has established a TSG to administer, analyze and resolve configuration and allowance related problems. In close cooperation with the Engineering Director, the TSG will adjudicate the ACR and recommend approval/disapproval to the CDM, who has approval authority for MSC unique equipment allowances and is the MSC ACR Administrative Center. The CDM reviews and forwards non-MSC unique ACR/ACR-Fs to NAVSEALOGCENTER, who in turn sends them to the appropriate activity having material cognizance over the item. These activities, called Processing Control Points (*PCPs*) are identified in Figure C-8. PCPs will review the ACRs/ACR-Fs for technical accuracy and collaborate with the appropriate Technical Support Activity (*TSA*) to determine the merits of the request. The PCPs will return ACRs to NAVSEALOGCENTER with recommendations for approval or disapproval. PCPs will also provide justification for all disapproved ACRs. When this review cannot be completed within 60 days, NAVSEALOGCENTER will furnish an interim reply to the CDM with the expected completion date. Action on an ACR will not be considered complete until final approval or disapproval notification has been provided to the originator via the cognizant Area Commander. The flow diagram for ACR submissions is shown in Figure C-9.

b. ACR-F. The process for submitting an ACR-F is essentially identical to ACRs in paragraph C.7.2.1a, except that the Area Commander does not have approval authority. The Area Commander performs an initial technical screening and investigates if the ACR-F should be applicable to other ships if approval is recommended. The ACR-F, with the recommendation, is then forwarded, via the CDM, to NAVSEALOGCENTER for final technical review, coordination and disposition. Area Commanders will establish a suspense file for each ACR until all action is completed. The CLIP document tracking module will support this requirement.

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ALLOWANCE CHANGE REQUEST PROCESSING CONTROL POINTS	
<u>System/Equipment</u>	<u>Processing Control Point</u>
ACR-F	SPCC
Aeronautical Material as Follows:	
Aviation Support Material	NAVAIR (AIR 412)
Air Traffic Control Equipment	NAVAIR (AIR 412)
Aircraft Launch and Recovery Equipment	NAVAIR (AIR 412)
Photographic Material	NAVAIR (AIR 412)
All other Aeronautical Equipment	NAVAIR (AIR 412)
Communications Equipment, Visual and Portable	See OPNAVINST C2300.44D
Electronics (SPAWAR)	NAVSEALOGCEN
HM&E	NAVSESS PHILA
Material Handling Equipment (Repair Parts)	SPCC 036 (See SPCCINST 10490.2 and 10490.3)
Medical	NAVMEDMATSUPO
Meteorological Equipment	SPAWAR (PD 40)
NAVSEA Electronics (Sonar, Radar, etc.)	NAVSEALOGCEN
Night Vision Devices	NAVSEA 62Y21 (See NAVSEAINST 8215.1)
Ordnance Packaging & Handling Equipment	NAVWPNSTA, Earle (NWHC)
Portable Electrical/Electronics Test Equipment	NAVSEA (SEA 04DS)
Radiac	NAVSEA (SEA 04R)

FIGURE C-8, ALLOWANCE CHANGE REQUEST PROCESSING CONTROL POINTS

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ALLOWANCE CHANGE REQUEST (ACR) FLOW

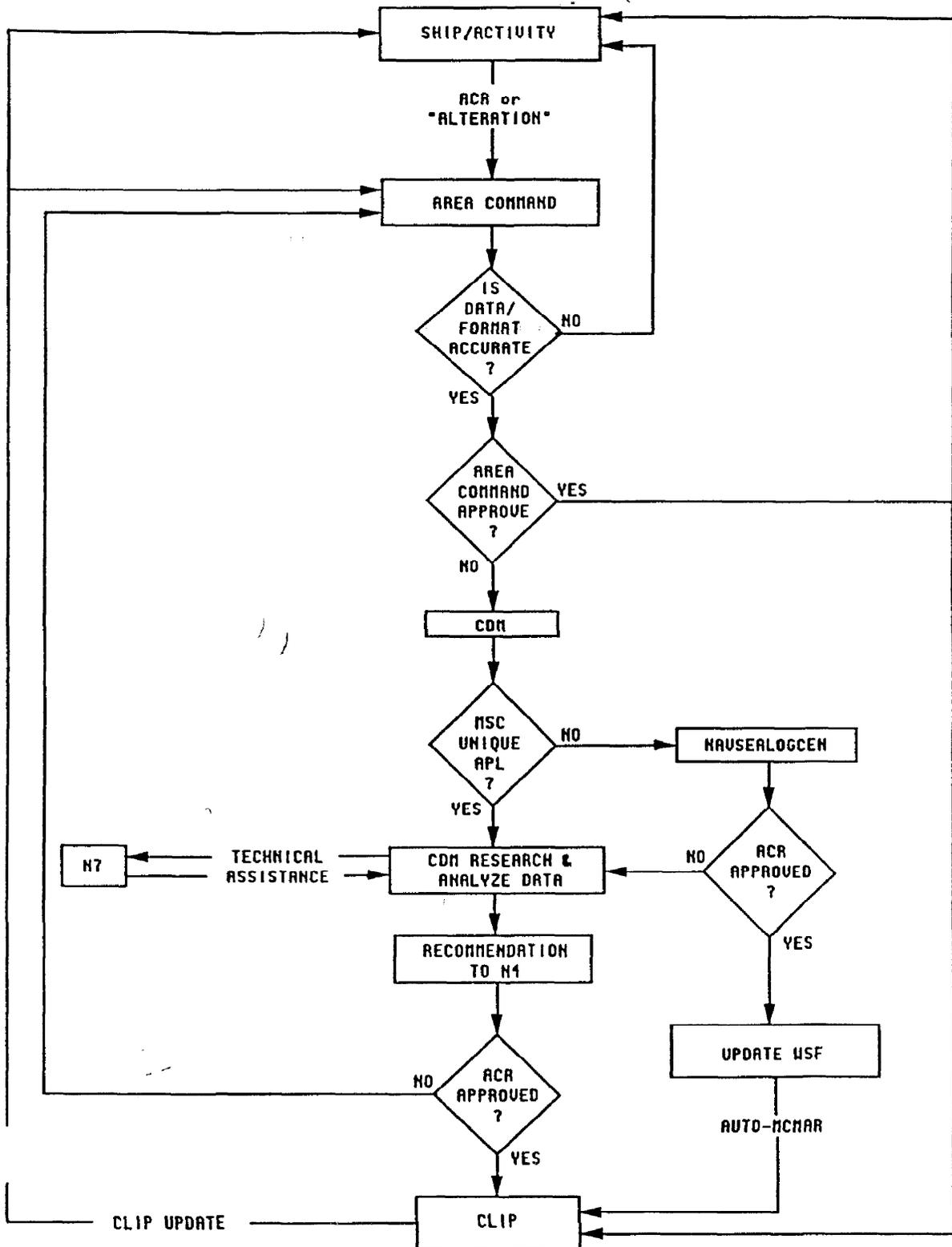


FIGURE C-9, ALLOWANCE CHANGE REQUEST (ACR) FLOW

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FLEET COSAL FEEDBACK REPORT (FCFBR)

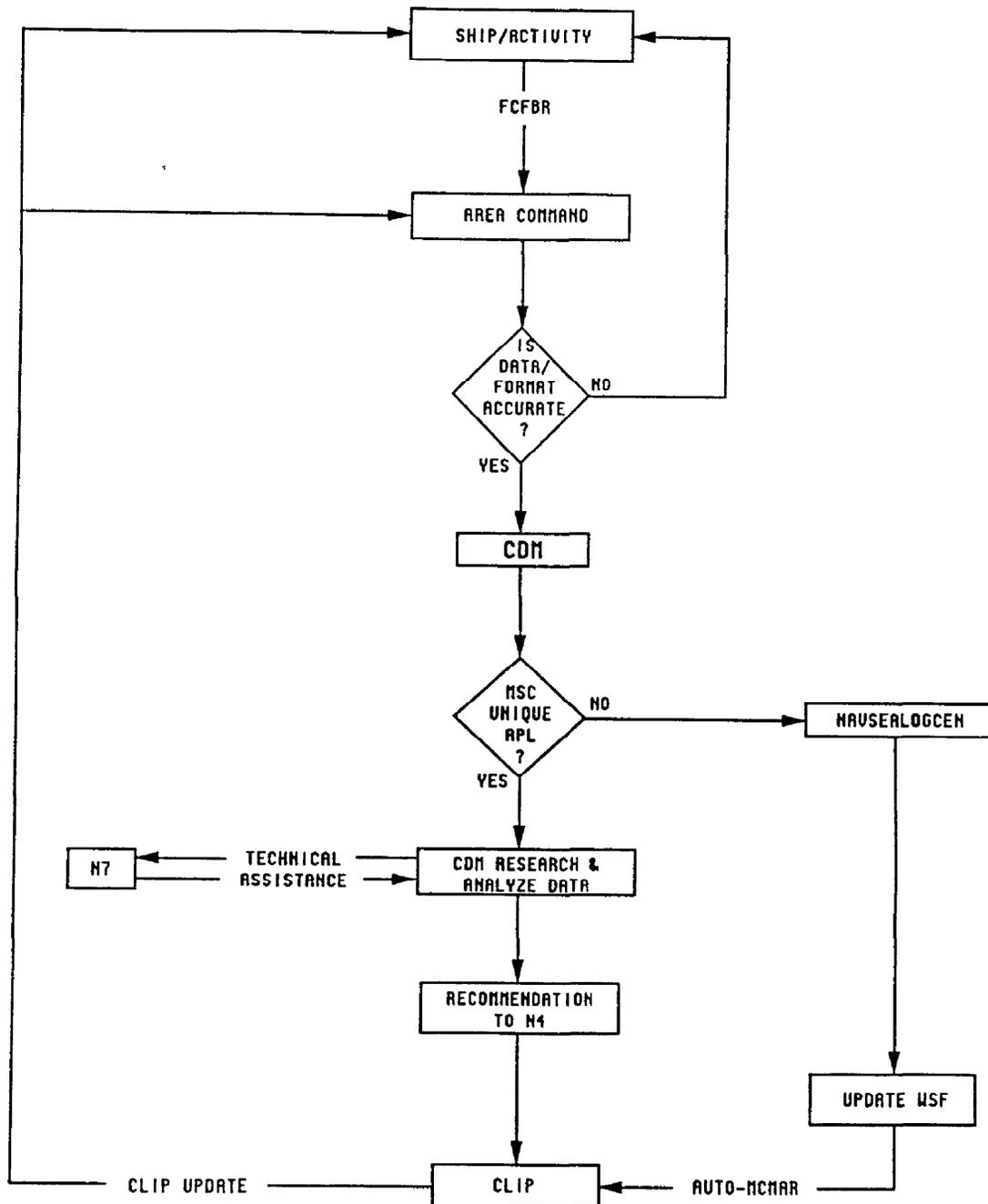


FIGURE C-10, FLEET COSAL FEEDBACK (FCFBR) FLOW

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c. FCFBR. The process flow for FCFBR submission is described in Figure C-10. FCFBRs are submitted by originators to NAVSEALOGCENTER, via Area Commanders and the CDM, for action. Extensive distribution of information copies of FCFBRs is not required. FCFBRs will normally be processed by NAVSEALOGCENTER within 60 days after receipt of request or forwarded immediately to the responsible technical action activity. When the review action cannot be completed within 60 days, an interim reply will be sent to the originator, via the CDM and Area Commanders, acknowledging receipt of the FCFBR and indicating the expected completion date. As with approved ACRs, the actions taken on approved FCFBRs will be included in the SPCC MCMAR or MSC CLIP updates.

C.7.2.2 Responsibilities

a. MSCCENTACT (N4)

(1) COMSC (N4) functions as the CDM and the MSC ACR Administrative Center and will act as the central routing activity for ACRs, FCFBRs and MCMARs. Points of contact will be established with each processing control point or other appropriate command or activity.

(2) Approve MSC unique ACRs. Forward information copies to NAVSEALOGCENTER to complete the process.

(3) Forward non-MSC unique ACRs/ACR-Fs to NAVSEALOGCENTER for further processing at the appropriate PCP.

(4) Maintain a real time data base for all ACRs, ACR-Fs and FCFBRs capable of:

(a) Identifying who is holding and has action on each ACR, ACR-F and FCFBR.

(b) Identifying approval/disapproval action taken on completed ACRs, ACR-Fs and FCFBRs including the date the action was taken.

(5) Act as central point of contact for ACRs, ACR-Fs and FCFBRs submitting activities, PCPs, SPCC and NAVSEALOGCENTER.

(6) Initiate appropriate follow-up on overaged documents.

(7) Receive and review MCMARs or convert them to automated CLIP updates, as appropriate, and forward them to Area Commanders for distribution.

(8) Clear suspense files upon completion of action.

b. Area Commanders

(1) General

(a) Determine validity of change to the form.

(b) Review existing allowance data on CLIP, (*Note: eventually, CLIP will have the latest COSAL Stock Number Sequence List (SNSL) or Integrated Stock List (ISL) data for all ships*), local COSAL copy or ON-line query with CD ROM or WSF. Identify category of equipment or mission support area.

(c) Attempt to identify how the existing allowance was derived, such as LAPL, and verify MSC maintenance capability and SMR code.

(d) MSC's CASREP data base will be reviewed for the items included on the ACR. At a future date, Area Commanders will have access to MSC SMIS SM usage data. The usage data will also be reviewed for all ACRs.

(e) For special areas of interest, such as damage control, HM/HW, test equipment, etc., obtain an input from the N7 or N4 representative. Contact N7 counterpart to clarify response. Document results of research to avoid MSCCENTACT requirement to repeat research.

(f) For non-fixed allowance item changes with total dollar value of less than \$25,000, Area Commander may approve.

(g) Fund all Area Commander approved ACRs.

(h) Track and report total dollar value of approved ACRs by ship. Copy of all ACRs must be sent to MSCCENTACT. MSCCENTACT will update CLIP allowance data for all Area Commander approved ACRs. MSCCENTACT will forward appropriate ACRs to COMNAVSEASYSKOM.

(2) Detailed Area Commander Processing Responsibilities

(a) Enter or review ACR in CLIP tracking system.

(b) Review ACR for propriety and adequacy of information and completeness of technical descriptive data.

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(c) Disapprove ACRs which are not considered to be appropriate for further review or do not meet usage criteria. If correct, go to paragraph (e).

(d) Return incomplete or incorrect reports to originator.

(e) Forward all ACR-Fs and any ACRs which require technical research beyond Area Commander's expertise to MSCCENTACT.

(f) Determine the applicability of the requested change to other ships. If applicable to other ships, go to paragraph (i). If not, continue.

(g) For items applicable to a single ship, approve ACR.

(h) Provide MSCCENTACT an information copy of approved single ship ACRs to update the MSC fleet configuration and allowance data base. Go to paragraph (l).

(i) Forward ACRs and all ACR-Fs recommended for approval to MSCCENTACT.

(j) Update CLIP document tracking system. Follow up if no reply received within processing time norms.

(k) Coordinate ACR responses and/or correspondence from higher authority, requesting additional/clarifying information with originator. Update tracking system.

(l) Close out record on CLIP document tracking system.

(3) Fleet COSAL Feedback Reports

(a) Enter or review FCFBR in CLIP document tracking system.

(b) Review FCFR for propriety and adequacy of information and completeness of technical descriptive data.

(c) Disapprove FCFBR which is not considered to be appropriate for further review. If correct, go to paragraph (e).

(d) Return incomplete or incorrect report to originator.

(e) Forward FCFBR to MSCCENTACT for processing.

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(f) Update document tracking system. Follow up if no reply received within processing time norms.

(g) Coordinate FCFBR responses and/or correspondence from higher authority requesting additional/clarifying information with originator. Update tracking system.

(h) When FCFBR is accepted/rejected, provide the information to originator.

(i) Close out record on document tracking system.

C.8 LOGISTICS SUPPORT FOR CONFIGURATION CHANGES IDENTIFIED DURING THE OPERATING PHASE

The CDM will ensure that the proper logistic support is obtained for configuration changes identified during the ship operating phase. Through the MSC continuous ILR program, the CDM uses the configuration status accounting database to review ship logistic support capabilities and align logistic support elements with the configuration of equipments installed on each MSC ship.

C.9 DATA QUALITY REQUIREMENTS

a. As in any system that depends on accurate information, configuration data quality assurance is a mandatory element. The CDM is responsible for the accuracy of the database at all times. As a minimum, the CDM will:

(1) Review the accuracy of ship configuration data baseline.

(2) Ensure that all planned and installed configuration and logistics changes are entered in the database so that data is available to all users.

(3) Cross check input transactions received against the CLIP database and the CDM working file (*includes other input transactions*), and resolve discrepancies.

(4) Correct all rejected transactions and reprocess within next update cycle after receipt of rejected data transactions from SPCC.

(5) Maintain the status of all change data being processed; monitor the performance of all activities responsible for processing data and identify deficiencies.

(6) Advise Area Commanders of serious or recurring problems with configuration data reporting from ships under their administrative command.

(7) Process backlogs of configuration changes prior to COSAL production.

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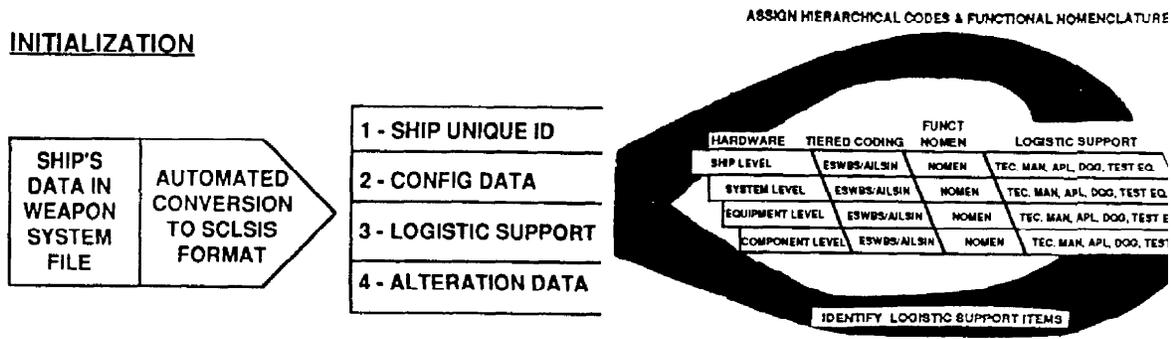
(8) Process, QA and enter CLIP database updates within one update cycle after receipt of incoming data reports. The quality of incoming reports will obviously impact the achievement of this goal, since inaccurate or incomplete inputs require extensive research and manual processing by the CDM.

b. Data quality levels are reviewed through the use of record checks (*checking master configuration/logistic data for the ship against verified record sources*) using statistical sampling techniques, selected configuration maintenance validations (*onboard physical configuration audits*) and customer feedback. Record checks against verified sources will not include the ship's Selected Record Drawing (SRDs) unless or until there is assurance from COMSC N7 that the SRDs have been updated/upgraded to a satisfactory quality level. Periodic selected data maintenance validations, based on N4 developed criteria will be used to target "soft spots" in data quality. Determination of candidates for selected validations will be based on the ship/class problem equipments identified in the ship's data file, supplemented by indication of trouble areas from the ship, Area Commanders or COMSC Engineering Directors and fleet message traffic.

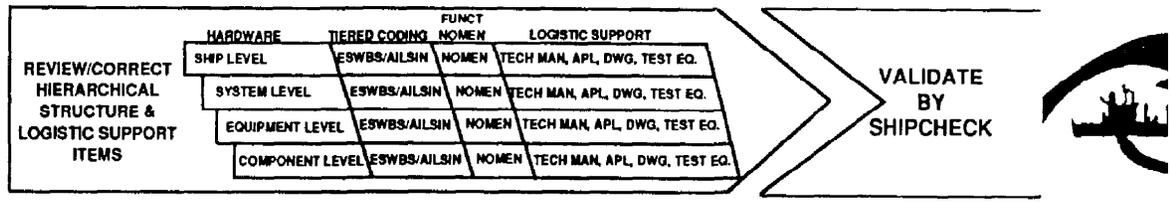
C.10 SUMMARY

The procedures and processes described in this appendix are sufficient to guide the CDM in carrying out its mission. As in any new process, experience will provide feedback on systemic improvements. This feedback will complete the closed loop and is therefore solicited. The basic CLIP processes that support the CDM are summarized in Figure C-11.

INITIALIZATION



BASELINE VALIDATION



MAINTENANCE OF CLIP DATABASE DURING OPERATING CYCLE

MAINTENANCE OF CLIP DURING AVAILABILITIES

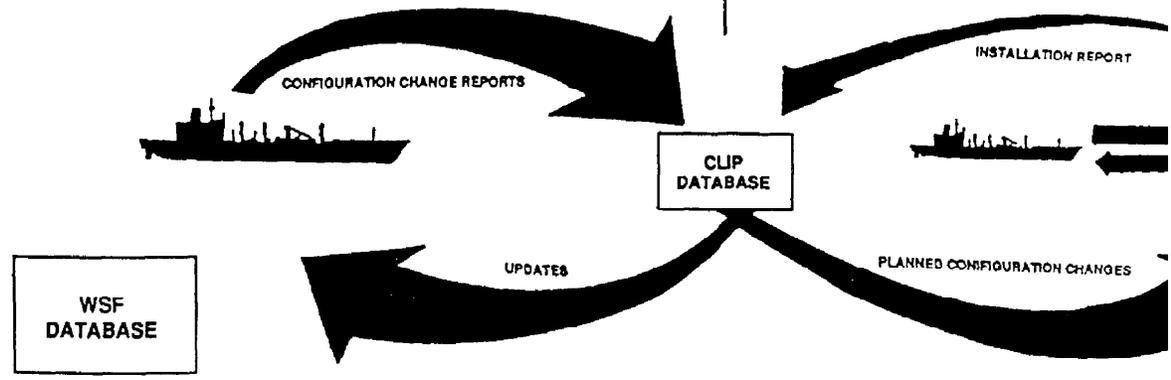


FIGURE C-11, BASIC CLIP PROCEDURES

GENERIC LIST OF SURFACE SHIP CRITICAL HM&E SYSTEMS

COMPRESSORS, AIR
BLEED AIR SYSTEM (PARTIAL)
COMPRESSED GAS SYSTEM, NITROGEN (PARTIAL)
FOG, FOAM AND AFFF SYSTEMS (PARTIAL)
FIRE EXTINGUISHING SYSTEMS, DRY CHEMICAL (PARTIAL)
FIRE EXTINGUISHING SYSTEMS, CO AND HALON (PARTIAL)
FIRE EXTINGUISHING SYSTEMS, STEAM SMOTHERING (PARTIAL)
FIRE EXTINGUISHING SYSTEMS, FRESH WATER (PARTIAL)
FIRE EXTINGUISHING SYSTEMS, DEEP FAT FRYER
FIRE EXTINGUISHING SYSTEMS, TWIN AGENT (PARTIAL)
HYDRAULIC POWER SYSTEM, CENTRAL
STEERING SYSTEM SYSTEM
STABILIZING FINS
STEERING CONTROL THRUSTERS
REPLENISHMENT-AT-SEA RAM-TENSIONING DEVICES
RAŞ TRANSFER HEADS, SLIDING BLOCKS AND SLIDING PADEYES
REPLENISHMENT-AT-SEA BOOMS, RIGGING AND HARDWARE
CONTROL STATIONS, REPLENISHMENT-AT-SEA
ELEVATORS, CARGO HANDLING
CONVEYORS, CARGO
WINCHES, CARGO HANDLING
CARGO BOOMS, RIGGING AND MISCELLANEOUS HARDWARE
ANCHOR HANDLING AND STOWAGE
BOAT HANDLING AND STOWAGE
DOORS AND HATCHES, MECHANICALLY OPERATED
MECHANICALLY OPERATED GATES
MECHANICALLY OPERATED RAMPS
MECHANICALLY OPERATED TURNTABLES
ELEVATORS, AIRCRAFT
HANDLING AND SUPPORT FACILITIES, AIRCRAFT/HELO
(PARTIAL)
CRANES, ROTATING
CRANES AND HOISTS

FIGURE C-12, GENERIC LIST OF SURFACE SHIP CRITICAL HM&E SYSTEMS

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GENERIC LIST OF SURFACE SHIP CRITICAL HM&E SYSTEMS

BOILERS, PROPULSION
BOILER, MANUAL/AUTOMATIC CONTROLS
PROPULSION STEAM TURBINES, MAIN
PROPULSION DIESEL ENGINES, MAIN
PROPULSION GAS TURBINES, MAIN
PROPULSION GENERATORS, MAIN
PROPULSION MOTORS, MAIN
PROPULSION REDUCTION GEARS
PROPULSION CLUTCHES AND COUPLINGS
PROPULSION SJAFTOMG
PROPULSION SHAFT BEARINGS
PROPELLERS AND PROPULSORS
BLOWERS, FORCED DRAFT
BLOWERS, LIGHT OFF
INTAKES, COMBUSTION AIR (PARTIAL)
PROPULSION CONTROL SYSTEM, AUTOMATIC
PIPING, MAIN SYSTEM (PARTIAL)
MAIN CONDENSERS AND AIR EJECTORS
CONDENSERS AND AIR EJECTORS, AUXILIARY
CONDENSERS AND FANS, AUXILIARY GLAND EXHAUST
PIPING AND ACCESSORIES, MAIN AND AUXILIARY
CONDENSER AND AIR EJECTOR (PARTIAL)
PIPING AND ACCESSORIES, MAIN AND AUXILIARY
CONDENSER AND AIR EJECTOR (PARTIAL)
PIPING AND ACCESSORIES, MAIN FEEDWATER (PARTIAL)
PUMPS, MAIN FEED
PUMPS, MAIN FEED BOOSTER, EMERGENCY FEED,
FEED TRANSFER
PIPING AND ACCESSORIES, MAIN AND AUXILIARY
CONDENSATE (PARTIAL)
PUMPS, MAIN CONDENSATE
TANKS, DEAERATING FEED
PIPING, CIRCULATING AND COOLING, SEA WATER
PUMPS, MAIN CIRCULATING
PUMPS, AUXILIARY CIRCULATING
PIPING, FIREMAIN SUPPLIED SEA WATER COOLING
SYSTEM (PARTIAL)

**FIGURE C-12, GENERIC LIST OF SURFACE SHIP CRITICAL
HM&E SYSTEMS (CONT'D)**

PR 1992 GENERIC LIST OF SURFACE SHIP CRITICAL HM&E SYSTEMS

DRAIN SYSTEM, HIGH PRESSURE STEAM (PARTIAL)
 UPTAKES AND BAFFLES, INNER CASING (PARTIAL)
 PIPING & MISCELLANEOUS, FUEL SERVICE (PARTIAL)
 PUMPS, FUEL SERVICE
 PIPING AND ACCESSORIES, MAIN LUBE OIL (PARTIAL)
 PUMPS, MAIN LUBE OIL ATTACHED
 PUMPS, MAIN LUBE OIL, NON-ATTACHED
 LUBE OIL FILL, TRANSFER AND PURIFICATION PIPING
 & HAND PUMPS (PARTIAL)
 PUMPS, LUBE OIL FILL AND TRANSFER
 PURIFIERS, LUBE OIL
 GENERATOR SETS, SHIP SERVICE STEAM TURBINE
 GENERATOR SETS, SHIP SERVICE DIESEL
 GENERATOR SETS, SHIP SERVICE GAS TURBINE
 GENERATOR SETS, EMERGENCY DIESEL
 GENERATOR SETS, EMERGENCY GAS TURBINE
 BATTERIES AND SERVICE FACILITIES
 MOTOR GENERATORS, 60 HZ
 MOTOR GENERATORS, 400 HZ
 POWER CONSERVATION, SPECIAL PURPOSE COMPONENTS
 POWER SUPPLIES, STATIC
 SHIP SERVICE POWER CABLE (PARTIAL)
 EMERGENCY POWER CABLE SYSTEM (PARTIAL)
 CASUALTY POWER CABLE SYSTEM (PARTIAL)
 SWITCHGEAR AND PANELS (PARTIAL)
 LUBE OIL SYSTEMS, SHIP SERVICE TURBINE GENERATOR
 GENERATOR SUPPORT SYSTEMS, SHIP SERVICE DIESEL
 GENERATOR SUPPORT SYSTEMS, EMERGENCY DIESEL
 GENERATOR SUPPORT SYSTEMS, SHIP SERVICE GAS TURBINE
 GENERATOR SUPPORT SYSTEMS, EMERGENCY GAS TURBINE
 GENERATOR SUPPORT SYSTEMS, SPECIAL FREQUENCY TURBINE
 DEGAUSSING
 HEATING SYSTEM (PARTIAL)
 VENTILATION SYSTEM, NON-MACHINERY PROPULSION SPACES
 (PARTIAL)
 VENTILATION SYSTEM, MACHINERY SPACES (PARTIAL)
 WATER, CHILLED, COOLING DISTRIBUTION (PARTIAL)
**FIGURE C-12, GENERIC LIST OF SURFACE SHIP CRITICAL
 HM&E SYSTEMS (CONT'D)**

GENERIC LIST OF SURFACE SHIP CRITICAL HM&E SYSTEMS

AIR CONDITIONING PLANTS
AIR CONDITIONING UNITS, SELF CONTAINED
REFRIGERATION, SHIP SERVICE
REFRIGERATION, CARGO
BOILERS, AUXILIARY
WASTE HEAT SYSTEMS (PARTIAL)
REBOILER (WITHIN MACHINERY SPACES)
PIPING, FIREMAN AND FLUSHING (PARTIAL)
PIPING, FIREMAN AND FLUSHING
PIPING, SPRINKLER SYSTEMS (PARTIAL)
COUNTERMEASURE WASHDOWN SYSTEM (PARTIAL)
AUXILIARY MACHINERY SEA WATER SYSTEM (PARTIAL)
PUMPS, AUXILIARY MACHINERY SEA WATER
PIPING, AMPHIBIOUS SHIPS' BALLASTING AND DEBALLASTING
SYSTEM (PARTIAL)
PUMPS, AMPHIBIOUS SHIPS' BALLASTING AND DEBALLASTING
SYSTEM (PARTIAL)
CONTROL STATIONS, AMPHIBIOUS SHIPS' BALLASTING
AND DEBALLASTING SYSTEM (PARTIAL)
COMPRESSORS, AIR DEBALLAST
DISTILLING PLANT, FLASH TYPE
DISTILLING PLANT, VAPOR COMPRESSION
DISTILLING PLANT, HEAT RECOVERY
COOLING WATER, ELECTRONICS, DW/CW (PARTIAL)
COOLING WATER, ELECTRONICS, DW/SW (PARTIAL)
FUEL AND FUEL COMPENSATING SYSTEM, SHIP'S (PARTIAL)
PUMPS, FUEL TRANSFER
PIPING, AVIATION AND GENERAL PURPOSE FUEL SYSTEM
(PARTIAL)
PUMPS, AVIATION AND GENERAL PURPOSE FUEL
LUBE OIL SYSTEM, AVIATION AND GENERAL PURPOSE (PARTIAL)
LIQUID CARGO HANDLING SYSTEMS (PARTIAL)
PUMPS AND CONTROLLERS, LIQUID CARGO HANDLING
AIR SYSTEMS, HIGH PRESSURE (PARTIAL)
AIR SYSTEMS, LOW AND MEDIUM PRESSURE (PARTIAL)
AIR SYSTEMS, DRY (PARTIAL)

**FIGURE C-12, GENERIC LIST OF SURFACE SHIP CRITICAL
HM&E SYSTEMS (CONT'D)**

APPENDIX D

MSC INTEGRATED LOGISTIC REVIEW

D.1 INTRODUCTION

a. As stated in the CDMP Manual, the establishment of the CDM function expands the responsibility for accurate and up-to-date configuration data management for all MSC ships, especially during maintenance availabilities. Proper execution of the CDM's responsibility demands extensive interaction, cooperation and communication between the ship undergoing an availability, Engineering and Logistics Directors, the Area Commanders, Port Engineers and procurement officers. All of these functional groups play a vital role in the configuration control and documentation process.

b. MSC's approach to ILS and configuration management is driven by the fact that the majority of MSC ships operate under a phased maintenance cycle, consisting of short, but frequent industrial availabilities. This phased maintenance cycle also impacts the ILR and configuration update evolutions, since the window of opportunity to perform the logistics and configuration data reviews necessary to maintain an accurate, up-to-date, logistics and configuration data base is severely limited.

c. MSC has established several key logistics review processes, to improve logistics support and configuration data management for ships undergoing industrial availabilities. Components of a closed loop configuration verification, documentation and tracking system, these processes include Validations, the ILR, Availability Support and Fleet Assists.

D.1.1 Definitions

D.1.1.1 Validation (VAL). A unique event, directly related to the CDM configuration accounting system. Shipboard validations are accomplished by off-ship teams to verify and account for the ship's equipment configuration baseline. The Validation and its processes and procedures are discussed in greater detail in Appendices B and G of this manual.

D.1.1.2 Integrated Logistic Review (ILR)

a. The principal MSC mechanism to provide Integrated Logistic Support (*ILS*) assistance to fleet units. The ILR is a continuous process of analyzing ship's configuration changes and/or deficiencies, reporting them and providing adequate shipboard repair part, technical manual and other support to allow for extended operations. The ILR is composed of phases that cover the ILS spectrum.

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(1) Preparation of the Pre-Availability Planned Equipment Addition/Deletion Report.

(2) Performance of the ship's Preliminary Logistics Assessment.

(3) Verifying and analyzing configuration, technical manuals and repair parts.

(4) Shipboard training.

b. Formal ILRs are generally scheduled for longer in port availabilities (*e.g., 45 days or more*) due to the comprehensive nature of the effort and will usually occur once during the ship's 410 day maintenance cycle. The ILR procedure is described in detail in this appendix.

D.1.1.3 Availability Support (AS). The AS is a mini ILR, designed to perform ILR type functional support for a focused or limited purpose. Typically, an AS will be scheduled to ensure that equipment modifications relating to the availability are identified and supported, or specific problem equipments, as designated by the ship, Area Commander or the CDM, are analyzed and corrected logistically. An AS will be the normal logistics assist during most MSC maintenance availabilities and will be part of the continuous MSC ILR process.

D.1.1.4 Fleet Assist (FA). The FA is the minimal logistic assist visit provided to the MSC fleet. Typically aimed at the short "*window-of-opportunity*" or voyage repair availabilities, the FA does not have a formal logistic analysis or configuration verification as an integral part of its effort. Rather than providing "*scheduled*" assists, the FA will be used by the CDM to support the Area Commander's need for short shipboard visits to assist the crew in solving a pressing logistic support problem. The FA will be requested by the ship and provided by the COMSC Readiness Support Group under the direction of the Area Commander. An FA may provide training, inventory storerooms, correct inventory records or assist any other form of specific problem.

D.2 PRE-AVAILABILITY WORK PACKAGE REVIEW AND PLANNED EQUIPMENT ADDITION/DELETION REPORT DEVELOPMENT

A key part of the ILR process, this review identifies and analyzes all planned equipment additions/deletions for the industrial availability period. It is coordinated by the CDM and conducted with the assistance of the MSC ILR Team.

D.2.1 Objective. The objective of this process is to collect and analyze maintenance planning data and identify the MSC points of contact for each ship undergoing a maintenance availability. Since any equipment addition, deletion or modification will

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impact configuration accounting and logistic support, it is vital that the ILR Team obtain and review the Pre-Availability Work Package. The analysis will culminate in the development of the MSC Planned Equipment Addition/Deletion Report which is the baseline document used in the ILR.

D.2.2 Responsibilities. The following specific organizational responsibilities apply to the Pre-Availability Work Package Review:

D.2.2.1 COMSC. Establishes the Configuration Management and Configuration Status Accounting policies for the MSC fleet.

D.2.2.2 MSCCENTACT. As COMSC's functional agent, the MSCCENTACT implements policies, establishes procedures and provides oversight of operations throughout the Military Sealift Command. This mission is carried out by designated MSCCENTACT directors as follows.

a. MSCCENTACT Logistics Director (N4). The MSC CDM. Establishes the configuration planning schedule for all ships and closely monitors ship availability schedules to plan and effectively execute the "continuous" ILR program. As the CDM, assigns and monitors ILR tasking to support configuration planning requirements and provides scheduling information to Area Commanders and the ILR Team.

b. MSCCENTACT Engineering Director (N7). Provides overhaul planning and scheduling information to the CDM. Coordinates configuration changes and provides the CDM with logistics requirements and technical data to provide the appropriate ILS. The Type Desk will provide planned alteration/Work Packages to the CDM for major overhauls under its cognizance.

D.2.2.3 ILR Team. The ILR Team will obtain the Work Package and conduct the Pre-Availability Review as specified in this chapter. The ILR Team will coordinate with the appropriate MSC points of contact to ensure that the Work Package is complete and that all planned equipment alterations are identified and documented on the Planned Equipment Addition/Deletion Report.

D.2.2.4 Area Commander. Using the CDM's master schedule, the Area Command Logistics Director will provide scheduling and planning data to the affected ships and to the staff maintenance, logistics and configuration managers involved with the process. The Area Commander also provides the ILR Team points of contact and access to the Type Desk and Port Engineer maintenance planning and technical data, a complete copy of all Work Packages and GFE and CFE technical specifications and status. Finally, the Logistics Director will ensure all ILS elements have been included throughout the planning process (*e.g., PTD, technical manuals, repair parts*).

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D.2.2.5 Port Engineer. As the liaison between the ship, Area Commander and the Contractor, the Port Engineer oversees the day-to-day activity of the maintenance availability. When signing off on completed Work Items, the Port Engineer must ensure that equipment changes/modifications have been properly accomplished, including delivery by the contractor of all logistic support items spelled out in the contract specification.

D.2.2.6 Master. The Master will identify an availability coordinator and provide working space to the ILR Team. Access to all ship overhaul planning reports and status review meetings prior to the availability will also be provided.

D.2.3 Overview of the MSC Ship Repair and Maintenance Process. The Military Sealift Command Ship Repair and Maintenance Process is unique. Unlike the Navy, which uses organizational, intermediate and depot levels for maintenance, MSC ships are only supported at the organizational (*shipboard*) and depot (*industrial*) levels (*e.g., voyage repairs, overhauls, MARUPs*). MSC's unique maintenance philosophy is driven by the austere, commercial type manning of its ships, absence of complex weapons or electronics systems, and reliance on commercial repair facilities. For these and other reasons, MSC ships are generally on a 410-day phased maintenance and overhaul cycle, with typically short (*4-6 weeks*) but frequent (*annual or bi-annual*) ship availabilities. MSC industrial availabilities are planned, developed and scheduled by the MSCCENTACT or the ship's Area Command Engineering Director's Type Desks. The execution and coordination of all industrial availabilities is the responsibility of the Area Command Port Engineer, assigned to support a particular ship.

D.2.3.1 MSC Work Package Development

a. All MSC ship equipment repair, removal or additions are governed by the policies of COMSCINST 4700.2F. These actions must be identified on a Headquarters sponsored Work Item or a ship's Repair List, which form the base of a Work Package. Repair Lists are generated from ship's Voyage Repair Requests (*VRR*); these are repair requirements beyond the maintenance capabilities of the ship to accomplish. While each Area Commander has their own administrative procedures for format and layout for Repair Lists, the process is generally similar. Each entry on the ship's Repair List is a potential "*Work Item*" after detailed specifications are developed and added to the *VRR*. After review and approval by the Area Command the *VRRs* on the Repair List become Work Items. A Work Package is a set of Work Items (*which may have been initiated by the MSCCENTACT, the Area Commander or the ship's VRR*), complete with General Technical Requirements (*GTR*). All *GTRs* are identified in COMSCINST 4700.10A, which establishes the format and required information for every Work Item. Additionally, "*Standard*" Work Items, complete with applicable specifications and technical

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documentation have been established for most routine ship availability services and repair actions. Typically, Standard Work Items will not involve equipment alterations, however, every Work Item must be reviewed to confirm that no configuration worthy equipment is added, modified or deleted. The Work Package structure is specified by COMSC and is organized as follows.

- (1) Cover Letter
- (2) Specification Sheet
- (3) Index
- (4) General Requirements
- (5) Hull Structure
- (6) Machinery, Propulsion
- (7) Electrical
- (8) Electronics
- (9) Machinery, Auxiliary Systems
- (10) Outfitting, Furnishings and Habitability
- (11) Heating, Ventilation and Air Conditioning
- (12) Dry-docking
- (13) Unrep Gear
- (14) Drawings
- (15) GFM

b. Figure D-1 provides the description of the data elements of a generic Work Item; Figure D-2 is a typical example of an approved Work Item. (*Note: Figures D-1 through D-6 are found at the end of subparagraph D.2.3.3.*)

c. Ship generated VRRs for equipment additions/deletions must be documented on a TRANSALT. Figure D-3 illustrates the TRANSALT request and Figure D-4 the

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TRANSALT Worksheet. TRANSALTs must be approved and funded by the appropriate authority prior to the Area Commander scheduling its accomplishment during a particular availability. Each TRANSALT also will have a logistic requirement sheet attached, which must be completed prior to approval by MSC. The logistics requirement page is illustrated in Figure D-5. TRANSALTs are forwarded to MSC Headquarters for approval and funding. Area Command and MSC Headquarters' engineering staffs will also generate inputs to the Work Package for 90-day "ROH" availabilities, sponsor generated alterations, class wide alterations or other major equipment additions/deletions. The final Work Package is compiled by the ship's Area Commander (*or MSC MSCCENTACT for MARUPs*). It will contain a collection of Work Items generated by the ship and approved TRANSALTs or other alterations which have been scheduled to be completed during a specified industrial availability. Figure D-6 highlights the functional responsibilities for MSC repair and maintenance processes.

D.2.3.2 MSC Ship Repair and Maintenance Points of Contact. In performing the ILR availability analysis, it is crucial to establish contact and cooperative working relationships with the key ship repair and availability support personnel. The following is a brief list of the key MSC representatives and their roles in support of ship industrial availabilities.

a. Shipboard

(1) Master - Responsible for the overall material condition and operation of the ship. Has the ultimate authority for ship availability repairs.

(2) Engineer - Responsible to the Master for the proper operation, maintenance, preservation and safety of equipment. Inspects maintenance and repair work for all equipment. Approves all ship's VRRs. Ship's Configuration Manager.

(3) Supply Officer/YN/SK - Responsible for ship's logistics support, maintenance of the ship's COSAL and the availability and proper inventory of allowed repair parts. Ship's Configuration Data Manager.

b. Area Command

(1) N7 Engineering Type Desk - Receives, reviews VRRs and forwards TRANSALTs to MSC Headquarters. Performs the functions of the "Planning Yard" by documenting alterations to each ship's configuration baseline.

(2) Engineering Operations/Port Engineering Division (N7) - Develops Work Packages for all ships, including completion of all contract specifications for and scheduling of Work Packages.

(3) Port Engineer - The central figure for each ship's maintenance availability. Acts as ship's availability coordinator. Liaisons with the ship, Area Command Engineering and Contracting support staff and the shipyard conducting the repairs. Verifies all Work Items and contract change orders. Approves all shipyard Work Item completion certifications.

(4) Contracting (N10) - Serves as the Contracting Support Activity for ship availabilities. Documents all contracts and contract modifications to accomplish the required tasks during the availability. Provides contract administration support throughout the availability.

(5) Logistics (N4) - Interfaces with Engineering and Contracting in support of MSC ILR Program. Screens supply system for GFE. Requisitions all GFE for Area Commander's funded Work Items. Ensures PTD and interim logistic support is provided with new equipment installations.

c. MSC Headquarters/MSCCENTACT

(1) Engineering (N7) - Develops policy and procedures for ships maintenance and repairs. Central approving authority for all MSC ship alterations.

(2) N7 Engineering Type Desk - Establishes a class maintenance plan and manages configuration control for ship types.

(3) Logistics (N4) - Develops policies and implements procedures for supply support of MSC ships. Configuration Data Manager (*CDM*) for MSC ships and MSC cognizant equipment. Plans, schedules and manages ILRs for MSC ships.

(4) Contracting (N10) - Establishes policies and procedures to provide contracting support throughout MSC. Oversees and administers all contracts for the operation and maintenance of MSC ships. Serves as the contracting support activity for MARUPs and other Headquarters sponsored overhauls. Procures major end items.

D.2.3.3 Coordination and Communications Requirements. The MSC ship repair and maintenance cycle is a dynamic process which involves extensive coordination and interaction between the ship, the Area Command staff and the Headquarters staff to be effective and economical. As previously emphasized, it is imperative to establish contact and communicate closely with the appropriate engineering, logistics and contract support representatives to effectively execute the pre-availability data analysis. Cooperation and communication between the various functional groups, will result in improving MSC ships configuration reporting and logistics readiness. The rest of this chapter identifies

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(Ship's Name) (Hull Designation)			
(SECTION TITLE) (1)		Specification No. (Date)	
ITEM NO. (2) (7)	Category (3)	(4) / (5) / (6)	
1.0 ABSTRACT			
1.1	(8)		
2.0 REFERENCES			
2.1	(9)		
3.0 ITEM LOCATION/DESCRIPTION			
3.1	Location/quantity (10)		
3.2	Item Description/Manufacturer's Data (11)		
4.0 GOVERNMENT FURNISHED EQUIPMENT/MATERIAL/SERVICES			
4.1	Government Furnished Equipment (GFE) (12)		
4.2	Government Furnished Material (GFM) (12)		
4.3	Government Furnished Services (GFS) (12)		
4.4	Government Furnished Information (GFI) (12)		
5.0 NOTES (13)			
6.0 QUALITY ASSURANCE REQUIREMENTS			
6.1	Material Requirements (14)		
6.2	Qualification/Process Requirements (15)		
6.3	Inspection/Test Requirements (16)		
7.0 STATEMENT OF WORK REQUIRED (17)			
7.1	Arrangement/Outfitting (18)		
7.2	Structural (18)		
7.3	Mechanical/Fluid (18)		
7.4	Electrical (18)		
7.5	Electronics (18)		
7.6	Preparation of Drawings (19)		
7.7	Inspection/Test (20)		
7.8	Painting (21)		
7.9	Marking (22)		
7.10	Manufacturer's Representative (23)		
7.11	Etc. as necessary		
8.0 GENERAL REQUIREMENTS (24)			
(Item No. - Sheet No.)			
Numbers in () refer to notes on following pages			

FIGURE D-1, MSC STANDARD FORMAT FOR WORK ITEMS

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Notes

- (1) Section Title from MSC Standard Work Package Index Sections (e.g., HULL STRUCTURE)
- (2) x01 to x99 of any section; Obtain the x number from the Standard Work Package Index (e.g., HULL STRUCTURE is 100. Pumps are found in Section 500 MACHINERY, AUXILIARY SYSTEMS of the index, etc.).
- (3) Indicate category "A" or "B"
- (4) Preparing Activity (e.g., AME, Raytheon, MSCLANT)
- (5) Preparer's name
- (6) Project/Port Engineer's initials
- (7) Title of discrete task (e.g., Modify Living Spaces 03 Level Relocate Entertainment System (TransAlt T-AO-428), or Repair Main Feed Pump). Indicate, when applicable, TransAlt No., V/R, CASREP, sponsor request, etc. in the title.
- (8) Provide a brief overview of what is to be done, identifying the purpose or objective of the work item. Do not use "intent" in the text.
- (9) List the primary drawings, specifications, manuals and other documents necessary for doing the work (e.g., a. Drawing, T-AO (STD)-570-4840203, "Fueling at Sea Stations - Arr & Dets"). Listed references must be addressed in the body of the item; do not list any reference which is not cited elsewhere in the work item; do not repeat herein references which are cited in the references listed (e.g., the references which are listed on referenced drawing T-AO(STD)-570-4840203, "Fueling at Sea Stations - Arr and Dets," would not be added to the list of references herein). If none, enter "None."
- (10)
 - a. Identify the location in Vessel where the work will be performed (deck, compartment number, frame, port or starboard, etc.)
 - b. Identify the number of units, compartments, extent of system, etc. involved. This is not to be used as a work statement or for a list of CFM. Having an established location for the number involved will assist many people who need to know the extent of the work package without having to search for it.

FIGURE D-1, MSC STANDARD FORMAT FOR WORK ITEMS (CONT'D)

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This section is intended to further identify which equipment is to be repaired/overhauled (e.g., Cargo pumps No. 1, No. 3, No. 4, No. 6). This is not a place to list Contractor Furnished material or specify contractor work.

- (11) Provide any pertinent data to describe the equipment being worked (e.g., MFR, model, size, capacity, CID, etc.). If none, enter "None." The entry is not to be a list of GFM or CFM. This section is not to be used as a bill of material
- (12) List equipment, material, and services to be supplied by the Government. If none, enter "None."
- (13) Include pertinent explanatory information that does not lend itself to inclusion in the General Requirements Section. Notes shall not place a work requirement on the Contractor.

Examples: 5.1 This item should be worked in conjunction with Item No.

5.2 Material specified herein by manufacturer & model number is for description only and is not intended to preclude procurement from other sources of material of equivalent form, fit, function, and performance.

- (14) Specify requirements for certification of material called out in Article 7.0 (e.g., "Contractor shall provide written certification that material used in salt water piping system is 70-30 CuNi.>").
- (15) Specify exceptional requirements for personnel qualifications (e.g., welder's qualifications) which are beyond those detailed in the General Technical Requirement.
- (16) Specify requirements for conducting/reporting inspections and tests; identify and refer to test/inspection procedures/requirements/acceptance criteria established by regulatory bodies (e.g., "Tests shall be conducted in accordance with written procedure previously approved by MSC representative.>").
- (17) All work to be accomplished under this Work Package item must be addressed within Article 7.0 STATEMENT OF WORK. Other sections of the item contain general requirements, performance standards, and notes, but no work statements. Articles 6.0, 7.0 and 8.0 contain Contractor requirements; all other sections contain information and guidance to assist the Contractor is not bound by them.
- (18) Specify work to be accomplished. A normal logical time sequence within the trade or component is to be used.
- (19) List drawings to be deleted, marked up, updated or new drawings to be prepared.

FIGURE D-1, MSC STANDARD FORMAT FOR WORK ITEMS (CONT'D)

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- (20) Specify inspections and tests to be performed, when they are to be performed, who shall be notified to witness, etc.
- (21) Specify any painting to be performed.
- (22) Specify any marking and labeling to be performed.
- (23) Indicate if manufacturer's representative is required, what will be expected from him, who is to pay for his services, etc.
- (24) Since the MSC General Technical Requirements (GTR) are to be invoked in the first work item of every Work Package, this section is to be used only when a technical requirement is not covered in the GTR. Do not repeat requirements identified elsewhere in the work item or conditions addressed in the Master Agreement for Repair and Alterations of Vessels (i.e., firewatch, cleanliness, paint touch-up)

GENERAL NOTES (the following instructions apply for all Work Package items):

- ° All eight (8) categories shall be listed for each Work Package item. Where information or data is not applicable to a particular category, the word, "None" shall be entered under that category.
- ° Information or data for categories 1.0, 3.1, and 7.0, is mandatory for all Work Package items.
- ° The heading, down to and including Item Title, shall be included on each page of the Work Package item.
- ° Pages shall be numbered at the bottom center of the page using item number-sheet number format (e.g., 402-1, 402-2, 402-3, 403-1).

Alternate Format For Work Package

The procedures described above organize the work requirements according to shops or technical areas and will generally be used when developing MSC Work Package items. When developing work items for a repair contract, however, the Preparing Activity may select to organize the work requirements according to a time-phase sequence. The time-phased approach shall not be used for major alterations or installations. Selection of this option (for repair contracts only) will result in the following modifications to the procedures outlined above:

- ° Article 6.0 QUALITY ASSURANCE REQUIREMENTS

These may be incorporated under Article 7.0 of the work item. In this case, "Refer to Article 7.0" should be entered

FIGURE D-1, MSC STANDARD FORMAT FOR WORK ITEMS (CONT'D)

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° Article 7.0 STATEMENT OF WORK REQUIRED

The subsections shall follow the natural order of work to be performed (e.g., 7.1 Disconnect Piping; 7.2 Removal to Shop; 7.3 Inspection; 7.4 Repair; 7.5 Installations; 7.6 Painting; 7.7 Testing). The last two items of Article 7.0 shall be Manufacturer's Representative and Preparation of Drawings; if the repair contract will not require the assistance of a manufacturer's representative or the preparation of drawings, "None" shall be entered under these last two items. Note that the subsections of Article 7.0 are renumbered when using the time-phased approach for repair.

FIGURE D-1, MSC STANDARD FORMAT FOR WORK ITEMS (CONT'D)

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PART I

USNS NEOSHO
(T-AO 143)

300 ELECTRICAL

RFP NO. COMSC 87-02

ITEM NO. 313

CATEGORY "A"

D&P/CURRIER/HVH

INSTALL SOLID STATE MOTOR CONTROLLERS (TRANSALT T-AO 239)1.0 ABSTRACT

1.1 This Item describes the requirements for the replacement of existing Fire Pump No. 1 & No. 2 Motor Controllers with solid state reduced voltage motor controllers.

2.0 REFERENCES/ENCLOSURES

2.1 References

2.1.1 MSC Drawing No. T-AO 143-302-4838590 - Power System One Line Diagram

2.1.2 COMSC 9100.1B Preparation, Maintenance and Distribution of Selected Drawings and Booklets for MSC Ships.

2.2 Enclosure

2.2.1 Sketch, Fire Pump No. 1 Controller location

2.2.2 Sketch, Fire Pump No. 2 Controller location

2.2.3 Sketch, Electrical Block Diagram

3.0 ITEM LOCATION/DESCRIPTION

3.1 Location/Quantity

3.1.1 Location

3.1.1.1 Engine Room (6-88-0-E) 1st Platform, Frame 95

3.1.1.2 Engine Room (6-88-0-E), Power Level, Frame 100

3.1.1.3 Fire Room (6-106-0-E) 1st Platform, Frame 117

3.1.1.4 Fire Room (6-106-0-E), Lower Level, Frame 122

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM

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PART I

USNS NEOSHO
(T-AO 143)

300 ELECTRICAL

RFP NO. COMSC 87-02

ITEM NO. 313

CATEGORY "A"

D&P/CURRIER/HVH

INSTALL SOLID STATE MOTOR CONTROLLERS (TRANSALT T-AO 239)

3.1.2 Quantity

3.1.2.1 Motor Controllers, two (2)

3.1.2.2 Pushbutton Stations, two (2)

3.2 Description

3.2.1 Motor Controller, Combination, Solid State, Reduced Voltage, Non-Reversing, Cutler-Hammer Type A445S0000G, or equal, with the following features: 450 VAC, 3 Phase, 125 Hp; NEMA 12 enclosure; with Adjustable Current Limiting; Integral disconnect switch/circuit breaker; control circuit transformer and fuses; cover mounted Reset Pushbutton and provisions for remote 115 VAC Start-Stop controls.

3.2.2 Pushbutton Station, Two Element, Start-Stop, Watertight, 115VAC, Cutler-Hammer Type 6981, or equal.

4.0 GOVERNMENT FURNISHED EQUIPMENT/MATERIAL/SERVICES

4.1 None

5.0 NOTES

5.1 Material specified herein by manufacturer and model number is for description only and is not intended to preclude procurement from other sources, material of equivalent form, fit, function, and performance.

5.2 Electric cable specified in this Item is Low Smoke (LS) cable in accordance with MIL-C-24643.

6.0 QUALITY ASSURANCE REQUIREMENTS

6.1 Material Requirements

6.1.1 No special requirements

6.2 Qualification/Process Requirements

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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PART I

USNS NEOSHO
(T-AO 143)

300 ELECTRICAL

RFP NO. COMSC 87-02

ITEM NO. 313

CATEGORY "A"

D&P/CURRIER/HVH

INSTALL SOLID STATE MOTOR CONTROLLERS (TRANSALT T-AO 239)

6.2.1 No special requirements

6.3 Inspection/Test Requirements

6.3.1 The Contractor shall conduct operational tests of the new motor controllers in accordance with test procedures previously approved by the MSCREP.

7.0 STATEMENT OF WORK REQUIRED

7.1 Arrangement/Outfitting

7.1.1 Removals

7.1.1.1 None

7.1.2 Modifications

7.1.2.1 None

7.2 Structural

7.2.1 Removals

7.2.1.1 Remove foundation for Fire Pump No. 1 Motor Controller and associated casualty power terminal from Engine Room (6-88-0-E) in the Lower Level, Port side, at Frame 95.

7.2.1.2 Remove foundation for Fire Pump No. 2 Motor Controller and associated casualty power terminal from Fire Room (6-106-0-E) in the Lower Level, Port side, at Frame 122.

7.2.2 Modifications

7.2.2.1 None

7.2.3 Installation

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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PART I

USNS NEOSHO
(T-AO 143)

300 ELECTRICAL

RFP NO. COMSC 87-02

ITEM NO. 313

CATEGORY "A"

D&P/CURRIER/HVH

INSTALL SOLID STATE MOTOR CONTROLLERS (TRANSALT T-AO 239)

7.2.3.1 Fabricate and install a foundation for new Fire Pump No. 1 Motor Controller, in Engine Room (6-88-0-E), 1st Platform, Port side, at Frame 100 (see Note 5.3) as shown in enclosure 2.2.1.

7.2.3.2 Fabricate and install a foundation for new Fire Pump No. 2 Motor Controller, in Fire Room (6-106-0-E), 1st Platform, Port side, in vicinity of the forced draft blower resistor cabinet as shown in enclosure 2.2.2.

7.3 Mechanical/Fluid

7.3.1 Removals

7.3.1.1 None

7.3.2 Modifications

7.3.2.1 None

7.3.3 Installation

7.3.3.1 None

7.4 Electrical

7.4.1 Removals

7.4.1.1 Remove and retain for re-installation, the Fail Safe Insulation Monitor and associated alarm light installed in existing Fire Pump No. 1 Motor Controller.

7.4.1.2 Remove and retain for re-installation, the Fail Safe Insulation Monitor and associated alarm light installed in existing Fire Pump No. 2 Motor Controller.

FIGURE 'D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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USNS NEOSHO
(T-AO 143)

300 ELECTRICAL

RFP NO. COMSC 87-02

ITEM NO. 313

CATEGORY "A"

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INSTALL SOLID STATE MOTOR CONTROLLERS (TRANSALT T-AO 239)

7.4.1.3 Remove Fire Pump No. 1 Motor Controller and associated casualty power terminal installed in Engine Room (6-88-0-E) Lower Level, Port side, at Frame 95. Dispose of the motor controller and casualty power terminal in accordance with MSCREP instructions.

7.4.1.4 Remove Fire Pump No. 2 Motor Controller and associated casualty power terminal installed in Fire Room (6-106-0-E) Lower Level, Port side, at Frame 122. Dispose of the motor controller and casualty power terminal in accordance with MSCREP instructions.

7.4.1.5 Remove approximately 90 feet of TSGA-200 cable installed between Fire Pump No. 1 Motor Controller removed in 7.4.1.3 and ABT 3-94-2 located in Engine Room (6-88-0-E), 2nd Platform, Port side, at Frame 94.

7.4.1.6 Remove approximately 15 feet of TSGA-200 cable installed between Fire Pump No. 1 Motor Controller and Fire Pump No. 1, located in Engine Room (6-88-0-E) Lower Level, Port side, at Frame 95.

7.4.1.7 Remove approximately 30 feet of TSGA-200 cable installed between Fire Pump No. 2 Motor Controller removed in 7.4.1.4 and ABT 3-122-2 located in Fire Room (6-106-0-E), 2nd Platform, Port side, at Frame 122.

7.4.1.8 Remove approximately 15 feet of TSGA-200 cable installed between Fire Pump No. 2 Motor Controller and Fire Pump No. 2, located in Fire Room (6-106-0-E) Lower Level, Port side, at Frame 121.

7.4.2 Modifications

7.4.2.1 Fire Pump No. 1 Motor Controller installed in 7.4.3.1 shall be modified by installing the Fail Safe Insulation Monitor and associated alarm light removed in 7.4.1.1.

7.4.2.2 Fire Pump No. 2 Motor Controller installed in 7.4.3.3 shall be modified by installing the Fail Safe Insulation Monitor and associated alarm light removed in 7.4.1.2.

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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INSTALL SOLID STATE MOTOR CONTROLLERS (TRANSALT T-AO 239)

7.4.3 Installation

7.4.3.1 Install the new solid state motor controller for Fire Pump No. 1, in Engine Room (6-88-0-E), on the 1st Platform, Port side, on the foundation installed in 7.2.3.1.

7.4.3.2 Install a two element pushbutton station for Fire Pump No. 1, in Engine Room (6-88-0-E), Lower Level, Port side, adjacent to the fire pump.

7.4.3.3 Install the new solid state motor controller for Fire Pump No. 2, in Fire Room (6-106-0-E), on the 1st Platform, Port side, on the foundation installed in 7.2.3.3.

7.4.3.4 Install a two element pushbutton station for Fire Pump No. 2, in Fire Room (6-106-0-E), on the 1st Platform, Port side, adjacent to the fire pump.

7.4.3.5 Install approximately 170 feet of LSTSGA-200 cable between ABT 3-94-2, Fire Pump No. 1 Motor Controller and Fire Pump No. 1 motor as shown in enclosure 2.2.3.

7.4.3.6 Install approximately 120 feet of LSTSGA-4 cable between Fire Pump No. 1 Motor Controller installed in 7.4.3.1 and its associated pushbutton station, installed in 7.4.3.2, as shown in enclosure 2.2.3.

7.4.3.7 Install approximately 90 feet of LSTSGA-200 cable between ABT 3-122-2, Fire Pump No. 2 Motor Controller and Fire Pump No. 2 motor as shown in enclosure 2.2.3.

7.4.3.8 Install approximately 80 feet of LSTSGA-4 cable between Fire Pump No. 2 Motor Controller installed in 7.4.3.3 and its associated pushbutton station, installed in 7.4.3.4, as shown in enclosure 2.2.3.

7.5 Electronics

7.5.1 None

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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7.6 Preparation of Drawings

7.6.1 Prepared drawings as per reference 2.1.2

7.7 Inspection/Test

7.7.1 The Contractor shall conduct operational tests of the fire pumps and motor controller to ensure proper operation to the satisfaction of ABS and the MSCREP.

7.8 Painting

7.8.1 All new and disturbed surfaces shall be primed and painted.

7.9 Marking

7.9.1 The Contractor shall provide label plates for all new and relocated equipment.

7.9.2 The Contractor shall provide cable tags for all new and relocated cable installed by this Item.

7.10 Manufacturer's Representative

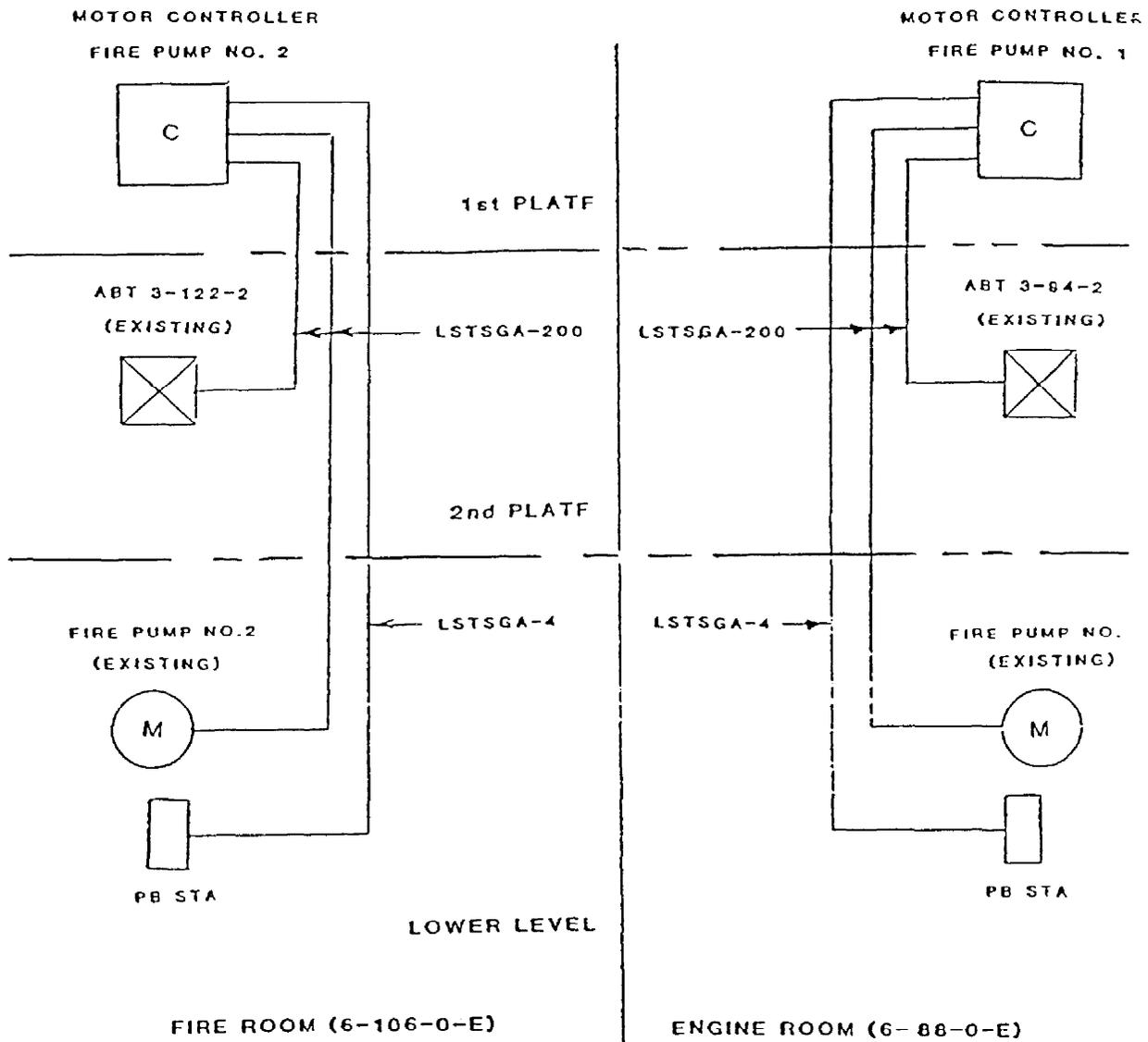
7.10.1 None

8.0 GENERAL REQUIREMENTS

8.1 None additional

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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8HD
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ELECTRICAL BLOCK DIAGRAM

USNS NEOSH0
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ENCLOSURE 2.2.6

FIGURE D-2, EXAMPLE OF TYPICAL WORK ITEM (CONT'D)

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LOGISTIC SUPPORT REQUIREMENTS

TRANSALT REQUEST NO	TRANSALT NO	SWBS NO	ACTION ITEM NO
PREPARED BY REQUESTING ACTIVITY		COMSC HEADQUARTERS CONCURS	COMPLETED
1. DRAWINGS SHIPS DRAWINGS: <input type="checkbox"/> REVISE EXISTING DRAWINGS <input type="checkbox"/> NEW DRAWINGS REQUIRED <input type="checkbox"/> NO DRAWINGS REQUIRED SELECTED RECORD DRAWINGS: <input type="checkbox"/> ARE AFFECTED <input type="checkbox"/> ARE NOT AFFECTED VENDOR DRAWINGS: <input type="checkbox"/> ARE REQUIRED <input type="checkbox"/> ARE NOT REQUIRED		2 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	3 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
4 TECHNICAL MANUALS SHIP SYSTEM TECHNICAL MANUALS: <input type="checkbox"/> NEW MANUALS ARE REQUIRED <input type="checkbox"/> REVISED MANUALS ARE REQUIRED <input type="checkbox"/> ARE NOT AFFECTED EQUIPMENT TECHNICAL MANUALS: <input type="checkbox"/> NEW MANUALS ARE REQUIRED <input type="checkbox"/> REVISED MANUALS ARE REQUIRED <input type="checkbox"/> ARE NOT AFFECTED		5 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	6 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
7 INSTALLATION AND CHECKOUT <input type="checkbox"/> PARTS ARE REQUIRED <input type="checkbox"/> VENDOR SERVICES ARE REQUIRED <input type="checkbox"/> GF <input type="checkbox"/> CF <input type="checkbox"/> SPECIAL TOOLS ARE REQUIRED <input type="checkbox"/> SPECIAL TEST EQUIPMENT IS REQUIRED <input type="checkbox"/> NO SPECIAL REQUIREMENTS		8 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	9 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
10 MAINTENANCE <input type="checkbox"/> ON BOARD SPACE PARTS ARE REQUIRED <input type="checkbox"/> SHORE BASED SPARE PARTS ARE REQUIRED <input type="checkbox"/> NEW SPECIAL TEST EQUIPMENT IS REQUIRED <input type="checkbox"/> NEW SPECIAL TOOLS ARE REQUIRED <input type="checkbox"/> NEW PROCEDURES ARE REQUIRED <input type="checkbox"/> PLANNED MAINTENANCE SYSTEM CHANGES ARE REQUIRED <input type="checkbox"/> IS NOT AFFECTED		11 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	12 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
13 LOGISTICS <input type="checkbox"/> SUPPORTED BY SUPPLY SYSTEM <input type="checkbox"/> PROVISIONING TECHNICAL DOCUMENTATION IS REQUIRED <input type="checkbox"/> CONFIGURATION CHANGE (OPNAV 4790/CK) IS REQUIRED		14 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	15 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
16 TESTS AND INSPECTIONS MANDATORY TESTS AND INSPECTION OF MACHINERY AND EQUIPMENT TO BE PERFORMED BY SHIP'S CREW OF MSC SHIPS IN SERVICE (USNS) (COMSC INSTRUCTION 4700.7) <input type="checkbox"/> IS AFFECTED <input type="checkbox"/> IS NOT AFFECTED		17 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	18 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
19 SHIPBOARD MANNING <input type="checkbox"/> IS INCREASED BY _____ <input type="checkbox"/> IS DECREASED BY _____ <input type="checkbox"/> IS NOT AFFECTED		20 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	21 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
22 CREW TRAINING <input type="checkbox"/> IS REQUIRED ON BOARD <input type="checkbox"/> IS REQUIRED AT VENDOR FACILITY <input type="checkbox"/> IS NOT REQUIRED		23 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:	24 <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS:
25 REMARKS		26 REMARKS	27 REMARKS

FIGURE D-5, LOGISTICS SUPPORT REQUIREMENTS

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Ship - Chief Engineer. operates and maintains ship's equipment, generates maintenance requirements beyond ships organizational capability (VRRs) During availabilities coordinates completion of Work Package with Port Engineer, Area Command and commercial shipyard conducting repairs Designates ship's Configuration Manager responsible for reporting configuration changes.

Area Command (AC) - Ultimately responsible for ship's operational capability, maintenance, repair and logistic support

AC Engineering Type Desk - Reviews/approves VRRs, if applicable generates TRANSALT request, forwards to MSC headquarters for approval/funding Screens all ships of a class for applicability of equipment alterations

AC Engineering Material - Develops Work Package, including all Work Item selection and contract specifications Schedules availability

AC Contracting - Receives Work Package specifications, solicits and awards contract to commercial shipyard, orders Government Furnished Equipment (GFE) for availability

AC Logistics Directorate - Assists in ordering GFE Reviews work package for ILS, screens system stock for GFM, and ensures new equipments are provisioned Oversees ILR prior to/during availability which updates ships configuration and logistics support elements (APLs, Technical Manuals, Spare Parts)

Port Engineer - Assists in development of Work Package, executes availability, acts as MSC liaison with ship/shipyard in coordinating completion of all Work Items in Work Package. Performs QA on all contractor maintenance work

MSC Headquarters/CTA Engineering Directorate - Establishes/promulgates maintenance policies and procedures, reviews/approves/funds TRANSALTs, provides maintenance availability funding to Area Command Schedules/plans/funds/oversees MARUPs

MSC Headquarters/CTA Logistic Directorate - Establishes/promulgates logistic support policies and procedures, MSC Configuration Data Manager Directs and oversees MSC Configuration Data Management Program, maintains MSC central ship's configuration data base (CLIP)

FIGURE D-6, MSC SHIP'S REPAIR AND MAINTENANCE CYCLE
FUNCTIONAL RESPONSIBILITIES

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D.2.4 Collection of Work Package Data

a. The collection of pre-availability equipment alteration data is vital to an effective configuration data management function. The long period of time and large number of MSC support groups involved in the ship's overhaul and availability planning cycle may lead to the subsequent loss of vital equipment modification plans and/or technical documentation. Due to the complex nature of this process, it is extremely important to communicate the requirements for accurate and thorough maintenance planning information to the proper MSC representative. As the CDM function becomes established, the Engineering and Logistics staffs will become accustomed to this vital logistics data exchange.

b. For every MSC ship's availability, COMSC N4 will direct a pre-availability Work Package review and coordinate action to be taken by the appropriate MSC Headquarters, MSCCENTACT and Area Command staff personnel. During this review, it is important that all equipment alteration information for the ship undergoing an availability is made available. All required equipment technical documentation (*engineering drawings, technical specifications, technical drawings, parts lists, etc.*) identified during this process will be documented. The pre-availability review will be conducted by MSCCENTACT N4 CDMP staff and ILR Team.

D.2.4.1 Data Requirements. The following information sources may help in identifying ship equipment alterations. This information will be obtained/reviewed for every ship undergoing an availability to confirm potential alterations:

a. **Ship Organizational Information.** Obtain all available information from the ship concerning equipment additions or deletions, such as pending ship's configuration change requests, Casualty Reports (*CASREPs*) or VRRs from the Shipboard Automated Maintenance Management (*SAMM*) system reports.

b. **Availability Package.** The Availability Package is the most important source of information in the pre-availability logistics analysis process. Obtain the completed package, including all engineering drawings, PTD, manuals, bills of material, parts lists or other technical documentation from the Area Commander.

c. **MSC TRANSALTs.** Determine the applicability of approved TRANSALTs to the specific ship undergoing the availability. TRANSALTs may be correlated with other data such as VRRs or Engineering Administration System (*EASy*) Maintenance and Repair (*M&R*) requirements. The MSC Headquarters Engineering Director maintains the official files for all approved TRANSALTs.

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d. Class Alteration Plan. Type Desks maintain information for class wide TRANSALTs. Determine the applicability of any class wide alterations to the ship from the Type Desk at MSC Headquarters or the Area Command.

e. Sponsor Alterations. These alterations may also be scheduled during the availability, however MSC is not responsible for the logistics support or configuration management of sponsor equipment. Nevertheless, it is useful to be aware of these changes to determine that the appropriate sponsor logistic support is provided.

f. Fleet Modernization Plan (FMP) Alterations. FMP alterations are developed, funded and coordinated by the Navy hardware systems sponsor, primarily the Naval Sea Systems Command (NAVSEASYS COM) and the Naval Space and Warfare Systems Command (SPAWARSYSCOM). FMP alterations are usually assigned MSC TRANSALT numbers, scheduled through the Area Commanders and accomplished in conjunction with MSC depot availabilities.

g. Headquarters/Area Commander Procured Repair Parts and Equipage. Procurement and requisition data for materials to be delivered to a ship scheduled for an availability may provide clues and references to verify planned equipment alterations. Long lead time, high cost equipment for major modifications and upgrades are often centrally funded and procured by Headquarters or the Area Commander. This is sometimes referred to as "pushed" material and is stored at designated Custody Material Receipt (CMR) warehouses until the appropriate availability is scheduled. Headquarters and Area Command procurements are developed and administered using the Government Furnished Equipment Tracking (GFET) automated procurement system. CMR material is also tracked using an automated system. Data from the GFET and CMR systems can be helpful in the analysis to identify planned equipment installations or alterations. The existence of "pushed" spares or equipage is indicative of programmed equipment additions, or major alterations, which will impact configuration status accounting.

D.2.4.2 Unique Area Commander and Port Engineer Procedures. Upon completion of the data collection effort, communication must be established with key Area Command staff personnel, the Port Engineer and ship's Engineering and Logistics representatives. The Work Package data collection effort may differ between Area Commanders and Port Engineers. While they achieve the same end, each Area Commander has their unique procedures to develop ship availability Work Packages, procure material and schedule industrial availabilities.

D.2.5 Pre-Availability Work Package Review. The Pre-Availability Work Package Review organizes the available technical and logistics information to identify planned equipment additions and deletions for the ship during the upcoming availability. To ensure the most efficient use of valuable resources, it is imperative that the information

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entered on the Planned Equipment Addition/Deletion Report (*Figure D-7*) is accurate. Accordingly, this evolution must be conducted methodically and with extreme attention to detail, since the information gathered may be in several different formats and repetitive. The data must be carefully screened and duplicates purged. This section defines the specific data required to draft the Planned Equipment Addition/Deletion Report. The Planned Equipment Addition/Deletion Report will be drafted by the MSCCENTACT N4 CDMP staff. A logical flow diagram is provided as a guide (*Figure D-8*) to serve as a focal reference for the detailed procedures identified in the succeeding sections.

D.2.5.1 The Work Package

a. The Work Package is the key information source for this phase of the logistics review; it is the benchmark to verify and track all planned equipment changes. COMSCINSTs 4700.2F and 4700.10A establish the ships repair functional flow and Work Package input processes, as well as the format and layout of the Work Package.

b. MSC also tracks ship's major equipment additions and deletions using the TRANSALT (*MSC 4720/2*). During the Work Package Review, any references to TRANSALTs should be checked very closely, and key information about the TRANSALT or a copy of the MSC 4720/2 should be obtained.

D.2.5.2 Work Package Completeness

a. Examine the Work Package to determine that all parts and components are present, specifically all modifications, additions/deletions generated during the contracting process, any technical information such as drawings and available specifications.

b. Liaison with the N4 point of contact to resolve any discrepancies.

D.2.5.3 Detailed Work Package Analysis. The Work Package must be thoroughly reviewed to identify all planned equipment alterations/additions/deletions; these will affect the ship's configuration. The Planned Equipment Addition/Deletion Report will be prepared during this phase. When completed, it will form the baseline for the Summary List of Component Changes (*SLCC*) and the follow on analysis which will be conducted during an ILR or AS. Before extracting the data, each item in the Work Package will be reviewed in detail. The format of each Work Item is identical; it will also provide a reference to any approved TRANSALT. All TRANSALT numbers must be documented on the Planned Equipment Addition/Deletion Report. The key sections of each Work Item to be reviewed are:

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**MSC AVAILABILITY PLANNED EQUIPMENT
ADDITION/DELETION REPORT**

SHIP NAME: _____ **HULL #:** _____ **UIC:** _____ **CLASS:** _____

AREA COMMAND: _____

MSC TYPE DESK : _____

AVAILABILITY DATES : _____

LOCATION : _____

VALIDATION DATES : _____

MSC LOGISTIC SUPPORT SERVICES DATES : _____

POINTS OF CONTACT

MSC HQs/CTA:

ENGINEERING : _____

TYPE DESK : _____

LOGISTICS : _____

AREA COMMAND:

PORT ENGINEER : _____

CONTRACTS : _____

LOGISTICS : _____

MSCO:

CONTRACTS : _____

LOGISTICS : _____

SHIP:

MASTER : _____

ENGINEER : _____

SUPPLY : _____

SHIPYARD SUPERVISOR : _____

FIGURE D-7, PLANNED ADDITION/DELETION REPORT

FIGURE D-7, PLANNED ADDITION/DELETION REPORT (CONT'D)

Overhaul Work Package Review									
Work Item	System Description	Equipment Nomenclature	Manufacturer	TRANSALT	Qty	Equipment Location	Work Package Action	Summary Remarks	Technical Manual or Drawing
201	MACHINERY, MAIN PROPULSION	TURBOCHARGER	BROWN BOVERI CO.	NA	4	4-72-1	RW/FP	REMOVE & DISASSEMBLE, SHIP ROTOR TO BROWN BOVERI CO. & BALANCE, REASSEMBLE REPLACING BEARINGS, ALL GASKETS, SEALS, SEALING BUSHING, SCREENS, EXPANSION JOINTS, DAMPING SPRINGS, SCREWS, AND NUTS. (2 PORT AND 2 STARBOARD TURBOCHARGERS)	T/M T9233-AF-MMC-020
301	ELECTRICAL	PTO FANS	FEVI, PARIS, FRANCE	NA	4	ENGINE ROOM 15' LEVEL P/S	OVH	RECONDITION VENTILATION FANS & MOTORS, SQUIRREL CAGE (AC) SERVICE, COMPLETELY DISASSEMBLE MOTOR & FAN, THOROUGHLY CLEAN & EXAMINE ALL PARTS.	
301	ELECTRICAL	PTO MOTORS	UNELEC, FRANCE	NA	4	ENGINE ROOM 15' LEVEL P/S	OVH	RECONDITION VENTILATION FANS & MOTORS, SQUIRREL CAGE (AC) SERVICE, COMPLETELY DISASSEMBLE MOTOR & FAN, THOROUGHLY CLEAN & EXAMINE ALL PARTS.	COMSCINST 5100.17A
302	ELECTRICAL	POWER CIRCUIT FOR MAIN VALVE HONING MACHINE	PALLUHN ELECTRIC & SEA COAST ELECTRIC SUPPLY CO.	T-AO 0578	1	ENGINE ROOM / P/O PURIFIER ROOM 3-04-2	ADD	INSTALL 220V, A/C, 3 PHASE, POWER CIRCUIT FOR MAIN ENGINE HONING MACHINE.	MIL-C-24640
402	COMMUNICATIONS AND NAVIGATIONAL AIDS	DOPPLER SONAR (DSN-450)	RAYTHEON SUBMARINE & SIGNAL DIVISION	T-AO 0813	1	FROM MOTOR CONTROLLER ROOM TO LOWER PUMP ROOM	RELOC	MODIFY DOPPLER SPEED LOG INSTALLATION BY RELOCATING TRANSDUCER ELECTRONICS UNIT (TEU) FROM MOTOR CONTROLLER ROOM TO LOWER PUMP ROOM	DIAGRAM T-AO 187 442-590 5106

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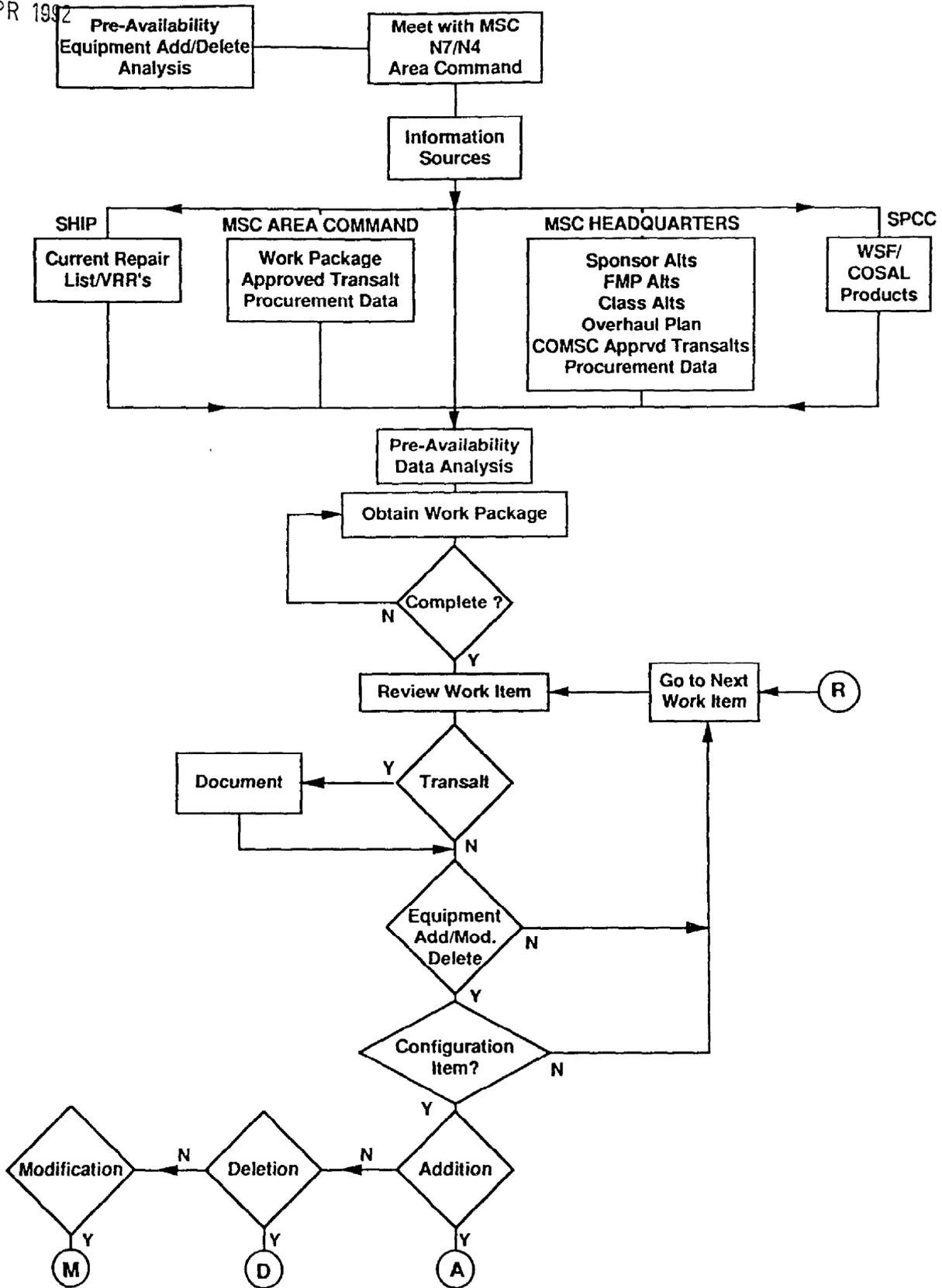


FIGURE D-8, WORK PACKAGE REVIEW LOGIC FLOW

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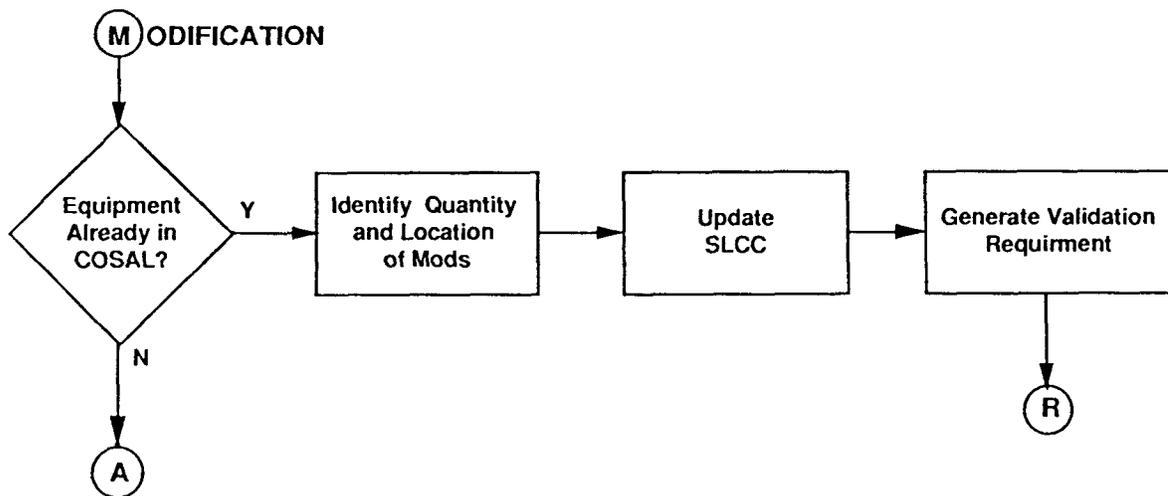
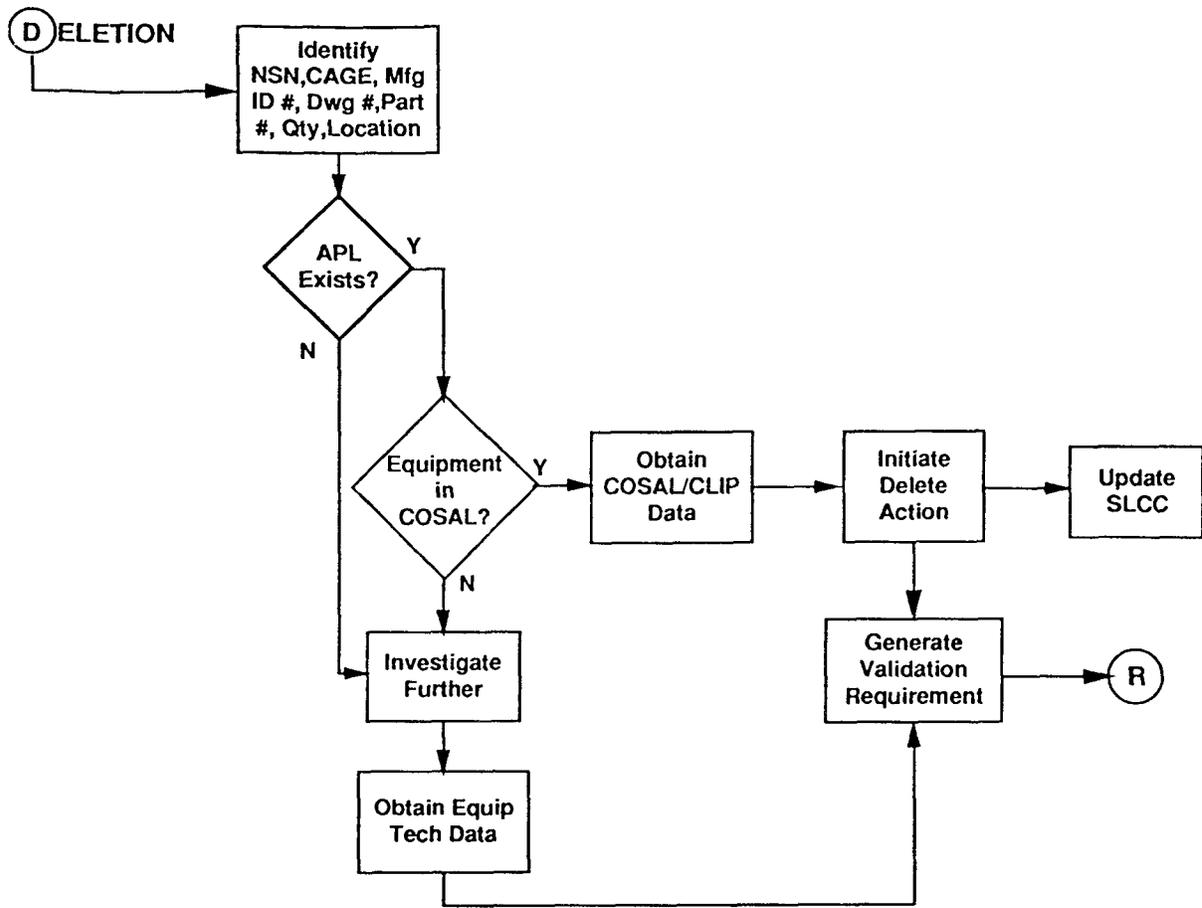


FIGURE D-8, WORK PACKAGE REVIEW LOGIC FLOW (CONT'D)

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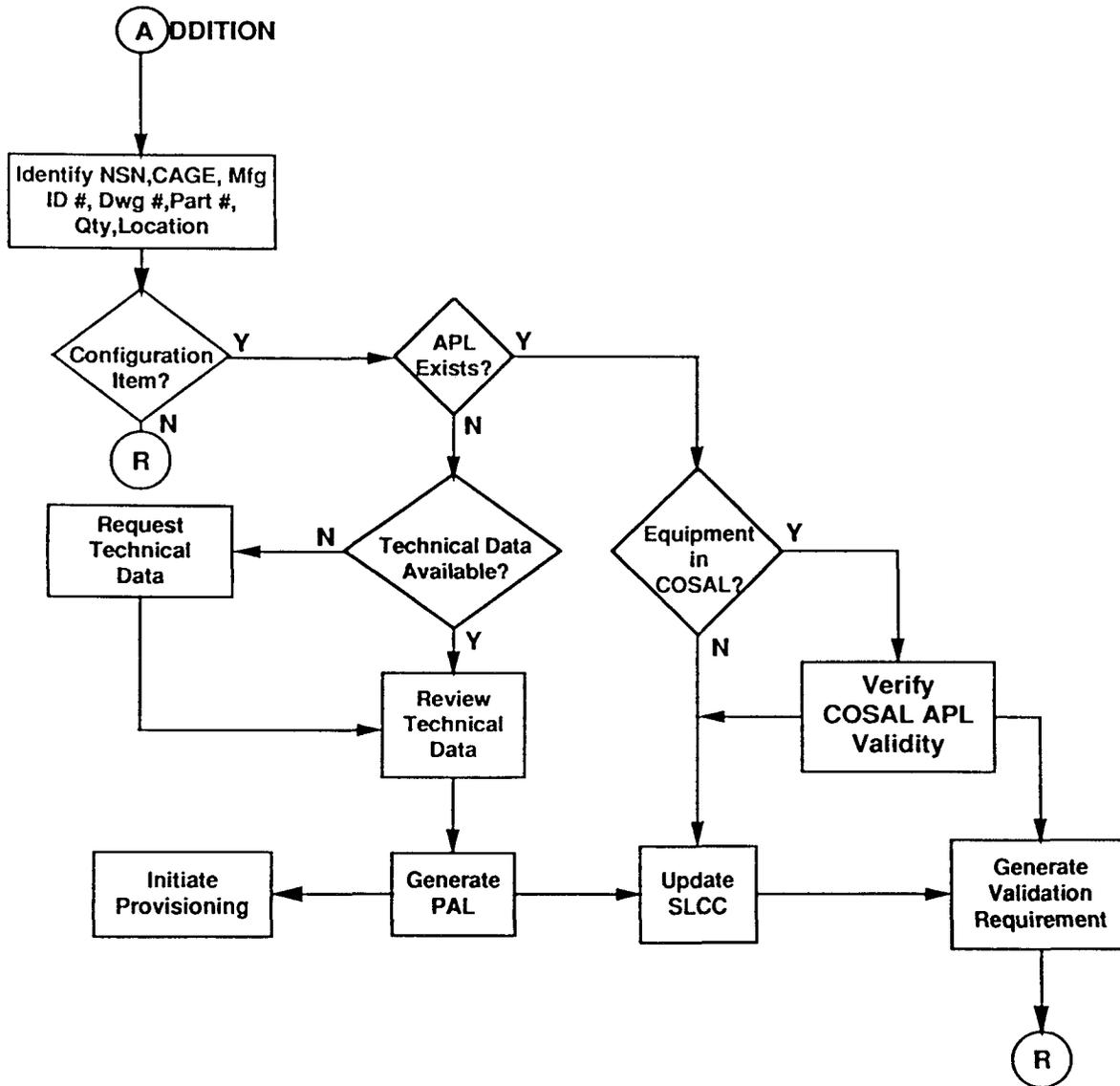


FIGURE D-8, WORK PACKAGE REVIEW LOGIC FLOW (CONT'D)

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a. Header. The Header identifies the Work Item number and TRANSALT number. Log any reference to TRANSALTs.

b. Section 2.0 References. Identifies technical information for the specific Work Item, including MILSPECs, drawings, standards, technical manuals or other information. Initially, this section must be reviewed to determine whether the Work Item includes an equipment addition or deletion. For programmed equipment changes, document the technical information on the Planned Equipment Addition/Deletion Report.

c. Section 3.0 Item Location/Description. Describes the location in the ship for the Work Item and provides the functional description of the equipment being repaired, removed or added. For programmed equipment changes, document the equipment description and location on the Planned Equipment Addition/Deletion Report.

d. Section 4.0 Government Furnished Equipment, Material, Services and Information. Provides detailed information concerning all equipment, material, services or information to be provided by the government. For equipment changes, document the equipment description on the Planned Equipment Addition/Deletion Report.

e. Section 7.0 Statement of Work Required

(1) Provides a detailed description of the actual industrial procedure for the Work Item. Specifically, it will provide details on the equipment to be removed or installed. This section must be thoroughly analyzed, because it may dictate a configuration change, even though no TRANSALT is cited or other indications of an equipment configuration change are lacking. If an undocumented configuration change is evident, provide the details to COMSC (N4) for review with the appropriate Engineering staff personnel. All available information on equipment additions/deletions must be documented on the Planned Equipment Addition/Deletion Report.

(2) The most important data to be obtained during the Work Package Review is apparent or suspected equipment changes. Review all items in the Work Package to ensure that additions, modifications and deletions generated in the contracting process are included. This data can be verified through cross-checking information and ultimately by conducting sight validations on the ship during the availability. Any errors/omissions will be documented for further analysis.

(3) After completing the review/analysis of the Work Package, the programmed equipment additions/deletions will be documented on the Planned Equipment Addition/Deletion Report. This report is the "*baseline*" for cross checking information and

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correlating any other available data; it will be the reference document throughout the remainder of the analysis effort.

D.2.5.4 MSC Engineering Administrative System (EASy). When operational, EASy will be the central engineering data repository and become the tool for all ship repair, alteration and upgrade planning. Since all ship Work Items will be entered in the EASy data base, collection and analysis of the Work Package data will be greatly simplified and expedited, thereby enhancing the effectiveness of the Planned Equipment Addition/Deletion Report. It is anticipated that these procedures will be modified at that time to automatically produce a pre-availability analysis report.

D.2.5.5 TRANSALTs and Class Alteration Plans

a. During the pre-availability data collection, these must be compared with the planned equipment change data on the Planned Equipment Addition/Deletion Report. The quantity and value of the data will vary from ship class to ship class and frequently, from ship to ship. Focus the review of these sources to identify potential configuration changes, controlled by outside agents, that may have been omitted from the ship's Work Package. This situation may occur when an outside activity procures the equipment, repair parts and PTD. The following step by step process should be completed:

(1) Isolate information which identifies potential equipment configuration changes that will be completed on the ship class or specific ship undergoing an availability. Class Alteration Plans will identify planned changes; the actual scheduling and execution of these plans is the responsibility of the Area Commanders and the Port Engineers.

(2) For each planned alteration identified, review the Planned Equipment Addition/Deletion Report to determine whether this alteration has been programmed for the upcoming availability. Document any approved alterations which cannot be crossed to an approved TRANSALT.

(3) Provide this information to N4 for further review with the Headquarters and Area Command Engineering staffs. All confirmed equipment changes from these sources will be added to the Planned Equipment Addition/Deletion Report.

b. For all Work Items which incorporate an approved TRANSALT, additional technical and reference data is available from the Engineering TRANSALT files. If required, review this technical data to complete the Planned Equipment Addition/Deletion report. Liaison with the Engineering Type Desk representative to obtain this TRANSALT technical data.

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D.2.5.6 Procurement Data. Pushed material, and centrally procured repair parts, equipments and services' procurement data can often confirm shipboard equipment configuration changes whose accomplishment has not been identified for a specific maintenance availability. MSC utilizes automated procurement systems that may provide information for planned equipment and/or repair part procurements which are scheduled for future installation. The format of the available data may vary, however the specifications and other details on major equipment or repair part procurements should be captured and used as a cross-reference with information derived from other sources. The following data sources should be reviewed.

a. GFET. This system is the primary automated tool to procure material requirements for maintenance availabilities. All GFET procurement data for the designated ship will be reviewed. The GFET system provides reports which identify all requirements on the system by ship or for a specific Work Package, down to the individual Work Item. Information from GFET may provide enough technical descriptive data about equipment to later confirm adequate COSAL support.

b. CMR. This system is used to track the stowage of long lead time materials for ship maintenance. The CMR system also provides reports which identify equipment on hand for a specific Work Package. Some information in CMR may duplicate GFET reports. Obtain and review a list of materials held in CMR for the designated ship.

c. 0X Cog. This system assists in the inventory management of MSC 0X Cognizance major end items. The 0X Cog item manager may reserve this material for upcoming ships availabilities by placing an "*issue restriction*" on the 0X Cog system for specific items. 0X Cog material "*held*" for the designated ship should be reviewed and installation planning confirmed with the Area Command Type Desk or the ship's Engineer.

D.2.5.7 Ship Organizational Repair Lists. The SAMM system supports the ships organizational maintenance requirements and documents all locally generated equipment addition/deletion/modification requests as VRRs. Any VRR which requires an equipment addition/deletion/modification will be assigned a TRANSALT request, forwarded to the Area Commanders and MSC Headquarters for review/approval. Pending equipment additions, deletions or configuration changes can be confirmed from individual ship's SAMM system reports. Additionally, SAMM provides a method of initiating Configuration Change Requests.

D.2.6 Planned Equipment Addition/Deletion Report Processing

a. The Planned Equipment Addition/Deletion Report establishes the initial baseline documentation of anticipated equipment configuration changes for the ship upcoming availability. Sight equipment validations will be accomplished by the ILR Team for each item identified in the report; additional logistics data required will be obtained from the available logistics data bases and the Configuration and Logistics Information Program (*CLIP*) system. Additionally, this report will be used during a subsequent phase of the ILR to develop the SLCC and to obtain or initiate requirements for adequate logistics support for confirmed equipment additions.

b. Due to differences between the respective Area Commander's maintenance and Work Package development procedures, the technical description of equipments being added/modified/deleted may not be in the format required to verify/update equipment configuration data. The CLIP system should be used to identify all of the key configuration data that relates to each TRANSALT or potential equipment configuration change due to action initiated by a VRR identified on the Planned Equipment Addition/Deletion Report. As the CLIP and EASy systems are implemented and further developed, specific data query and cross reference capabilities and reports will be developed to increase the speed and accuracy of this analysis.

D.2.7 Summary. After the ILR Team completes the Pre-Availability Work Package Review and produces the Planned Equipment Addition/Deletion Report, all changes to the "*planned*" alterations will be captured and recorded to update the ship configuration records. To ensure that proper logistic support is provided for confirmed alterations, the team will conduct a follow-on shipboard sight validation during the availability and continue the ILR analysis effort to monitor the completion of all equipment installations.

D.3 PRE-AVAILABILITY LOGISTICS READINESS ASSESSMENT

This section examines how the ship's configuration and associated logistics support needs are determined prior to each depot maintenance availability by the Area Commander, the ILR Team and the ship. It also outlines the preparations required of all activities before the beginning of a depot availability.

D.3.1 Objective. The primary objective of this assessment is to spot verify the validity of the ship's current equipment configuration data base and evaluate the quality of associated logistics and maintenance support. The assessment will also identify critical equipment or supply support problems experienced by the ship since the ship's previous depot maintenance availability.

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D.3.2 Responsibilities. The following organizational responsibilities apply specifically to the Pre-Availability Logistics Readiness Assessment function of the ILR.

D.3.2.1 CDM. The CDM is responsible for coordinating and scheduling all maintenance availability ILR support with MSC Headquarters/MSCCENTACT and the Area Commanders and direct logistics support contractors to conduct specific ILR tasks. The CDM will collect, analyze and provide MSC fleet CASREP data for the ILR Team.

D.3.2.2 ILR Team. The ILR Team will monitor the CDM's availability support schedule, liaison with the Area Commander/ship to obtain the required ship data and files. It will also conduct the "onboard" portion of the pre-availability logistics readiness assessment using the ship's data, report the results to the MSC representatives and provide inputs to the ILR work plan to the CDM. If tasked during this phase of the ILR, the team will also complete an inventory validity check and inventory technical manuals and/or test equipment.

D.3.2.3 Area Commander. The Area Command N4 will coordinate the scheduling of the onboard ship logistic assessment, provide a representative to the pre-arrival conference, review the results of the assessment, make recommendations to the CDM on problem areas and provide feedback concerning ship CASREPs and operational capability.

D.3.2.4 Master. The Master will provide access to files, records and copies of automated supply or maintenance reports/data bases for analysis by the Area Commander and the ILR Team, and ensure that all stock record maintenance action and stock requisition status is accurate and up-to-date. Additionally, the ship will provide inputs from the Chief Engineer and Supply Department to identify candidates for the critical/problem equipment logistics support analysis.

D.3.3 The Logistics Readiness Assessment

a. Approximately 2 months before an ILR availability, the CDM initiates the Pre-Availability Logistics Readiness Analysis, using a variety of logistics information sources. Representatives from the ILR Team and the Area Commander will visit the ship to perform this assessment. The team members will review records, files and automated reports to identify symptoms of equipment configuration problems or indications of inadequate logistics support. The record and files review will include previous ILR/AS/FA reports, ship's stock records, inventory validity, historical repair part demand data, supply effectiveness reports, allowance change requests, COSAL feedback reports, COSAL maintenance files, CASREP records and reports, validation results, provisioning files and recent supply management inspection results.

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b. The assessment will ensure that the ILR concentrates on the ship's most pressing operational logistic support needs. For example, conversations with the ship's engineers could reveal particular systems or components that are maintenance problems during ship's operations. These equipments could be candidates for a comprehensive logistics support review during the ILR. All elements of logistics support - the COSAL, repair parts, technical manuals and test equipment - are examined to ensure that their deficiencies were not impairing operational readiness. As a focal element of MSC's continuous ILR program, specific critical equipments are identified for each ship class from CASREPs and maintenance history; support for these critical equipments will be reviewed during the preliminary assessment. In this manner, while concentrating on critical equipment logistics support elements, the priorities and concerns of the ship and the Area Commander are also reviewed in the ILR. As new equipment problem areas emerge, the CDM will *"target"* these across ship classes for full ILS reviews.

c. Some conditions uncovered during this assessment which may be outside the scope of the MSC ILR to correct. Less than satisfactory storeroom inventory validity is an example. Such conditions will be reported to the Area Commander, who will then determine any necessary follow on corrective action.

d. Occasionally, due to the ship's operating schedule, it may not be possible to conduct the logistics readiness assessment onboard. In these cases, the assessment is accomplished using the best information available from the ship and the Area Commander. The Area Commander also maintains the reports mentioned earlier that can provide valuable insights into the ship's logistics support problems. The Supply Management Inspection report, if accomplished recently, will contain comments regarding storeroom inventory validity, quality of COSAL maintenance and quality of stock record battery maintenance. These resources can substitute for the shipboard assessment when an on board visit is not possible. These documents should be used to the maximum extent possible in planning for the MSC ILR.

D.3.4 MSC ILR Pre-Arrival Briefing. If a preliminary assessment is conducted on board the ship, then the MSC ILR Pre-Arrival Briefing should be held at its conclusion. At this briefing, the Area Command representatives and the ILR Team will discuss the functions of the ILR and how these functions will treat the conditions noted during the preliminary assessment. It is important that the team members emphasize the inter-relationships between the installed equipment, the COSAL, technical manuals and repair part support and then relate these broad concepts to the problems discovered aboard the ship during the assessment. The prime objective of this briefing is to stress the benefits the ship will derive from the ILR and to encourage the ship's commitment to make it a successful evolution. A second objective is to explain the ship's role and responsibilities in the process. The team members should highlight other problems discovered during the assessment and identify corrective action which can be completed before the start of the

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ILR. If an onboard preliminary assessment is not conducted, then the CDM will schedule the Pre-Arrival Briefing as soon as possible after details for the MSC ILR have been developed and the ship is available.

D.3.5 Advance Shipboard Preparation. The ship's advance preparations should concentrate on monitoring its own logistics support capability and ensuring that the required records and files related to the ILR functions are current, accurate and complete. These preparations emphasize sound configuration, supply and inventory management and complement the normal effort by ship's force to ready the ship for the availability.

D.3.5.1 Records and Files Review. The MSC ILR process depends on up-to-date, accurate and complete supply inventory and requisition records. Repair part requirements on MSC ships are often procured using interim Allowance Parts Lists (*APLs*), Preliminary Allowance Lists (*PALs*), Vendor parts lists and other provisioning documentation. This can lead to problems during the post-ILR shortage requisitioning if the due-in assets cannot be readily identified because of inaccurate or incomplete ship inventory and outstanding requisition records. The ship's supply personnel must complete two tasks before the ship enters the availability to expedite the ILR repair parts analysis. The first task is to ensure that the ship's Integrated Stock List (*ISL*) matches the stock record battery, with regard to allowed repair parts, allowance quantities and storeroom locations. For most MSC ships the SMIS O&M system will provide this information; the O&M stock records must be reviewed for completeness and to ensure that invalid stock record cards are purged. The second task is to confirm that all outstanding requisitions for allowed repair parts in the requisition file are valid, with up-to-date status posted to applicable requisitions as well as stock record cards. This effort will allow the ILR Team to accurately determine requisition quantities when the repair part shortages are ordered.

D.3.5.2 COSAL Maintenance. All MSC ships are required to perform routine maintenance on their COSAL during the operating cycle. The maintenance responsibility is assigned to the ship's supply personnel; guidelines are provided in the COSAL Use and Maintenance Manual, (*SPCCINST 4441.170*) and Area Command directives. Prior to depot maintenance availabilities, COSAL maintenance actions and COSAL maintenance files must be current and accurate.

D.3.6 Technical Manual Inventory. As part of the ILR preparations, an inventory will normally be conducted to ensure that the ship has the proper technical manual support for its installed systems and equipments, using the CDM's automated configuration data base as the guide. The manuals will not be physically removed from the ship during the inventory. The Pre-Availability Review will take a sample to ensure that the technical manuals onboard the ship contain the latest changes or have not been superseded. A complete and accurate inventory is essential to conduct the ILR Technical Manual Analysis, described in Section D.6.

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D.3.7 Special Purpose Test Equipment/RSS/MAM Inventory. Prior to the ILR, generally coincident with the Pre-Availability Assessment, the ship's special purpose test equipment, Ready Service Spare (*RSS*) parts and Maintenance Assist Modules (*MAMs*) will be inventoried. The test equipment inventory will be used in conjunction with the ILR configuration analysis to update the Start of Availability configuration data and to determine special purpose test equipment deficiencies. Similarly, *RSSs* and *MAMs* will be inventoried and analyzed to ensure that the proper items, in the right quantities, are available in the appropriate operating spaces, to troubleshoot the designated equipments they support.

D.3.8 Storeroom Repair Parts Inventory. Prior to the depot maintenance availability, storeroom Repair Part Inventory validity is checked as a part of the MSC ILR process. The validity will be determined using pre-established sampling methods and automated inventory tools, such as bar code readers (*planned to be available in SMIS O&M, Release 5.0*), whenever possible. If the results are within accepted standards, it is assumed that proper storeroom inventory and receipt procedures are followed during the operating cycle. Less than acceptable inventory validity will be reported to the ship and Area Commander for further review and corrective action.

D.3.9 Stowage Optimization

a. The Area Command/ILR Team representative will examine the ship's storerooms during the preliminary assessment, or at the time of the pre-arrival briefing to offer suggestions to the supply personnel on improving stowage efficiency. These suggestions will generally be confined to the requirement to assign locations to the additional repair parts ordered during the upcoming availability and to excessing material no longer required. The following general procedures may assist in optimizing stowage efficiency. Materials in shipboard storerooms and other stowage areas should be arranged to:

- (1) Ensure maximum utilization of available space.
- (2) Whenever possible, eliminate multiple locations for like items.
- (3) Provide orderly stowage and ready accessibility.
- (4) Prevent damage to the ship or injury of personnel.
- (5) Reduce the possibility of material loss or damage.

(6) Facilitate and ensure issue of the oldest stock first (*i.e., by the First In - First Out (FIFO) method*).

(7) Facilitate conduct of inventories.

b. The NAVSEA ILO Policy and Procedures Manual, Volume 6, Section 2 (*Advance Preparation for ILO*), provides detailed information on these basic stowage criteria, as does NAVSUP Publication P-485.

D.3.10 Other Corrective Action. During the preliminary assessment, team members may discover deficiencies in other records or files that are germane to other ILR functions. The team members will recommend a course of action for the ship's force to correct these deficiencies before the ship enters the availability. The team members will also assist ship's force personnel as limited time permits. If necessary, additional fleet assist services or training will be provided based upon Area Commander's assessments and the availability of resources.

D.3.11 Products. At the completion of the Logistic Readiness Assessment, the ILR Team will provide the ship with an assessment summary which will include the results of storeroom and TM inventory accuracy checks, a material stowage evaluation, the SPTE/RSS/MAM inventory and the configuration data file/COSAL quality review. A complete list of EOA ILR products is contained in Section D.10.5 of this appendix.

D.3.12 Summary. The MSC ILR process is designed to correct as many logistics support discrepancies as possible in the time available during the short availability. It concentrates on designated elements (*i.e., configuration, COSAL, repair parts, technical manuals*) and selected key/critical equipments in a structured process. The preliminary assessment will identify each ship's unique requirements; it highlights the ship's most pressing needs to allow the ILR to focus on its priorities. The ship's advance preparations will not only enhance the ability of the ILR Team to maximize the benefits of their effort, but will also improve the ability of the ship to manage its supply and maintenance resources, both during and after the availability.

D.4 CONFIGURATION VERIFICATION, ANALYSIS AND COSAL MAINTENANCE

The Configuration Verification and Analysis is the single most important aspect of the MSC ILR. Identification of the proper logistic support requirements for a ship is totally dependent upon the accuracy of the ship's configuration. Therefore, the task of maintaining its accuracy and the related logistic information is the cornerstone to the ILR's success. In this analysis, the ILR Team will identify, verify and document all equipment changes accomplished during the depot maintenance availability, update the COSAL and selectively validate current ship's configuration data.

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D.4.1 Objectives. The objectives of the Configuration Analysis and COSAL Maintenance function are:

a. To verify the accuracy and currency of the ship's equipment configuration and update the configuration baseline for all integrated logistics support elements.

b. To review the completeness of the ships COSAL, ensuring that all COSAL maintenance actions and associated logistics support elements have been implemented and completed.

c. To ensure the ship's equipment configuration is provided full logistic support at the end of the availability.

D.4.2 Responsibilities. The following responsibilities apply specifically to the Configuration Verification, Analysis and COSAL Maintenance function performed during an MSC ILR.

D.4.2.1 CDM. The CDM is responsible for configuration data planning to support all MSC depot availabilities. The CDM will obtain the most current configuration data for the ship undergoing a depot maintenance availability from the SPCC Weapons File and/or the MSC CLIP data base and integrate planned configuration changes into an ILR configuration analysis package. The CDM will also coordinate the generation of appropriate COSAL products and Auto-VALAIDs with the ILR Team and the Area Commander based upon the ship's configuration data management requirements.

D.4.2.2 Area Commander. The Area Commander will act as a primary interface on maintenance planning during the actual repair availability. The Area Commander will provide all Work Package changes, procurement, requisition and PTD for CFE and GFE, and availability planning documents to the ILR Team (*e.g., Overhaul Progress Conference Agenda, CFE and GFE status listings*). The Area Commander will also monitor the ILR contractor's progress and act as the MSC ILR QA representative. An availability point of contact to coordinate sight equipment validations will also be appointed.

D.4.2.3 ILR Team. At the SOA the ILR Team will integrate the Pre-Availability Work Package Review results and the listing of planned configuration changes (*including interim provisioning documentation*) and establish a baseline to monitor the configuration changes to be accomplished. The team will incorporate all configuration changes resulting from equipment alterations accomplished by the industrial activity or the ship into the Summary List of Component Changes/Summary List of Equipage Changes (*SLCC/SLEC*) and the COSAL. The team will conduct sight validations of planned and emergent additions/deletions/modifications of shipboard equipments and prepare

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appropriate Logistic Certification Forms for the CDM and Preliminary Allowance Lists for the ship. It will obtain PTD for all new, non-supported, configuration worthy equipment additions or alterations from the ship/Area Commander/Contractor. At the End of the Availability (*EOA*), the team will produce the master SLCC/SLEC and submit it to the CDM for entry into the MSC ship configuration data base (*CLIP*) and the WSF. The team will also provide copies of the SLCC/SLEC to the Area Commander and the ship for information and use until revised configuration documents are produced. When a new COSAL is produced, the ILR Team will provide the updated copies that incorporate the results of the Configuration, Tech Manual and Repair Parts analyses to the ship/Area Commander.

D.4.2.4 Master. The Master will provide the ILR Team access to its COSAL and all configuration related correspondence, COSAL maintenance files and ship inventory and requisition file data. The ship is also responsible for monitoring the modifications to the Work Package that occur during the availability and informing the ILR Team when unplanned configuration changes take place.

D.4.3 Configuration Verification, Analysis and COSAL Maintenance Process. The goals of the MSC ILR configuration analysis and COSAL maintenance functions, stated above, are identical to the standard Navy ILOs, but the methodology to accomplish them will differ slightly from the standard ILO procedures. The ILO Policy and Procedures Manual (*NAVSEA SL105-AA-PRO-020*), presents a detailed explanation of the process and should be used as the reference. The following paragraphs emphasize and highlight the key procedures in the process.

D.4.3.1 COSAL Products and Other Source Material

a. To begin the comprehensive analysis of the ship's configuration, the ILR Team must assemble specific information from a variety of sources. This includes:

(1) A hard copy of the ship's SOA COSAL Part I, Sections A through E (*if printed*).

(2) A download of the ship's current configuration from the SPCC WSF or the CLIP data base.

(3) The completed equipment Validation Aids from the last stem-to-stern validation (*if still available from SPCC*), particularly the validation "*fallout records*."

(4) Information concerning the status of any active provisioning projects for the ship.

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- (5) The ship's old COSAL indices.
- (6) A listing of the planned equipment adds and deletes from the Pre-Availability Logistics Assessment.
- (7) The ship and class CASREP historical data from the Area Commander or the CDM.
- (8) The ship's 4790/CK file.
- (9) A list of selected equipments, developed by the CDM, that have experienced configuration, maintenance or technical problems.
- (10) A list of other "*problem*" equipment/systems from the ships' personnel (*i.e.*, Chief Engineer, MILDET).
- (11) Previous ILR/AS/FA reports.

b. This information is sufficient to perform the configuration analysis, and to identify potential configuration discrepancies which will be resolved either through off ship research or sight validation. It will also focus the ILR Team's efforts on the equipments that are experiencing logistic support shortfalls.

D.4.3.2 Identification and Reconciliation of Potential Configuration Discrepancies.

The next step in the analysis is to review existing configuration data for errors or omissions. The ILR Team will verify that the results of the last equipment validation are correctly reflected in the latest ships COSAL or CLIP data base by spot checking onboard equipments. All "*fallout*" records (*equipments assigned a RIC of all 7s, 8s or 9s in the SPCC WSF, because they did not have a valid RIC assigned*) will be reviewed, assigned correct RICs or become candidates for provisioning after further analysis. If a SOA COSAL is produced, the team will compare the ship's old and new COSALs for differences, (*i.e.*, *equipment on the old COSAL not on the new with no deletion records*). The differences may result from a validation add/delete, 4790/CK submissions during operating periods or the inclusion of planned adds/deletes to the new COSAL. They will be reconciled during the availability to establish an accurate ship's post-availability configuration baseline.

D.4.3.3 Sight Validation. All equipment additions/deletions/modifications, completed during the availability, will be confirmed by a sight validation in accordance with the MSC A Users Manual. Any potential configuration discrepancy which cannot be resolved through document research will also be sight validated. A Validation Worksheet (VW) or AUTO-VALAID will be prepared for each equipment requiring validation. This

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will be the primary tool to identify shipboard ILR validation requirements and to document the results on the ship's configuration file. The ILR Team will maintain control over all VWs and validation aids and act as the central point of contact for all matters related to sight validations.

D.4.4 Review of Equipment Procurements. Upon commencement of the availability, the Area Commander (*or other designated agent, e.g., the Port Engineer*) will provide copies of purchase orders to the ILR Team for equipments scheduled for installation or replacement. These will be compared to the Planned Equipment Addition/Deletion Report. The ILR Team will extract information from the procurement document and the add/delete report and initiate a Logistic Certification Form (*Figure D-9*), for each new/replacement equipment.

D.4.5 Configuration Change Reporting

a. During the availability, the ILR Team must work closely with the ship's personnel, the Port Engineer and the Area Commander to ensure that all completed equipment alterations are documented and the ship's configuration data base is correctly updated. All confirmed configuration changes will be coordinated by the ILR Team with the ship configuration manager and recorded on validation aids or 4790/CK forms as they are completed. Concurrently, the ILR Team will update the ship's COSAL and obtain logistic support for newly identified equipments (*e.g., APLs, PALs, Repair Parts, Technical Manuals*). All configuration changes will be summarized by the ILR Team in a master SLCC/SLEC, produced at the end of the availability. The master SLCC/SLEC will be forwarded to the CDM to update the ships equipment configuration data base.

b. The ship's force and other maintenance agents (*e.g., in-service engineering activities*) may accomplish equipment modifications and alterations which often fall outside the scope of the industrial availability Work Package. Electronic equipment field changes, Replenishment At Sea (*RAS*) equipment modifications and other machinery alterations are examples of "*window of opportunity*" modifications which will most likely alter ship configuration and associated logistics support. Since they are not part of the formal availability Work Package, these changes, once accomplished, often go undocumented. It is imperative that the Port Engineer and ship's configuration manager keep the ILR Team informed of changes to allow documentation and reporting, via the Area Commander, to the CDM. The ILR Team plays a vital role during the availability in training and assisting ship's force personnel to properly document and report configuration changes. Once on-site, ILR Team members will continue to render the assistance required to ensure alterations to the ship's configuration are accurately documented and supported.

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LOGISTIC CERTIFICATION FORM FOR USNS XXXXXXXXXXXXXXXX XXXX XXX X-UIC-X		
TRANSALT # :	LOCATION:	QTY:
EQUIPMENT NOMENCLATURE:		
NSN :	APL # :	LSSC :
ESWBS:	SAC:	EIC:
MFR:	CAGE:	
MFR ID /PART# :		
MFR DWG# :		
MODEL/TYPE # :		
OTHER CHARACTERISTICS:		
SERIAL NUMBER:	VALVE MARK /CIRCUIT SYMBOL # :	
MLAPL:	TECHNICAL MANUAL# :	
	<u>YES</u>	<u>NO</u>
TECHNICAL MANUAL PROVIDED TO SHIP ?		
PTD AVAILABLE ?		
SHIP'S DRAWINGS REVISED ?		
REPAIR PARTS PROVIDED TO SHIP OR ORDERED ?		
ADDITIONAL COMMENTS:		

FIGURE D-9, LOGISTICS CERTIFICATION FORM

D.4.6 Configuration Baseline Document. Using ILR configuration analysis and validation techniques, the ILR Team, working with the ship's Configuration Manager, can perform a quality review of the ship's configuration in a short period of time. After all equipment verifications and sight validations previously described have been completed, the SOA ship's configuration data base will be updated to reflect the ILR driven changes and become the ship's post-availability configuration baseline document. This document will be quality reviewed by the Area Commander and guide the ILR Team in generating OPNAV 4790/CKs (*CCRF*) or an updated Auto-VALAIDS data base. It will be used as the official ship's configuration reference during the remainder of the availability. Since this baseline represents the ship's configuration with all discrepancies reconciled and updated with additions occurring during the availability, it becomes the source document for all subsequent ILR analyses and ultimately the vehicle to update the CDM's configuration accounting data base. If a new COSAL is warranted, it will be normally be produced before the SOA. Since this COSAL will include the planned additions/deletions, it becomes the basis for the post-availability COSAL; to reflect the unplanned changes and other corrections. Similarly, if a new COSAL is not provided, the ILR Team will make the "*pen and ink*" changes to the existing or "*old*" COSAL. As ships transition to CLIP, the post-availability configuration document will be used to electronically update the ship's data base.

D.4.7 Processing Configuration Changes. As the final part of the analysis, all configuration change information must be submitted by the ILR Team to the CDM. When ships have transitioned to CLIP, the ILR Team will load its reconciled configuration information to an electronic medium (*e.g., Floppy Disk, Bernoulli Disk*), simultaneously update the ship's onboard data base and end the data to the CDM. In the interim, the ILR Team will manually update shipboard records (*i.e., COSAL*), prepare AUTO-VALAIDS or 4790/CK forms and forward them to the CDM. The ILR Team will also determine the impact of the changes on repair part and technical manual allowances and initiate action to provide the required support as described in later chapters of this manual. The CDM will take this input, provide a technical and quality audit and, when complete, submit the updated data to the SPCC Weapon Systems File.

D.4.8 Products. At the end of the Availability (*EOA*) the ILR Team will produce the Master SLCC/SLEC and provide AUTO-VALAIDS or CCRFs (*4790/CKs*) to the CDM for entry into the MSC ship configuration data base (*CLIP*) and the WSF. The team will also provide copies of all Logistics Certification Sheets and the SLCC/SLEC to the Area Commander and the ship for information and use until revised configuration documents are produced and make appropriate shipboard COSAL pen-and-ink changes. If a new COSAL is produced, the ILR Team will provide the updated copies that incorporate the ILR results to the ship and the Area Commander. If no *EOA* COSAL is produced, the team will provide the required logistics support for newly identified equipments (*e.g.,*

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APLs, PALs). A complete list of EOA ILR products is contained in Section D.10.5 of this appendix.

D.4.9 Summary. As stated earlier, Configuration Verification and Analysis is the key effort in the ILR process. This phase of the ILR will capture the true ship's configuration through verification of all alterations and targeted problem equipments. By managing the configuration data properly through a controlled, closed loop process and constantly monitoring potential problem areas, the CDM will achieve the goals of the CDM and enhance the operational readiness of the MSC fleet.

D.5 REPAIR PARTS ANALYSIS

This section provides procedures for performing the Repair Parts Analysis of the ILR during a depot repair availability using automated data, reports developed from the Pre-Availability Logistic Review and the ship's SMIS O&M and SMMM systems. The Repair Parts Analysis is performed by the ILR Team on-site during the ship's availability. Since much of the analysis process is automated, it will not be as time consuming or labor intensive as in the past. The analysis will follow the general guidelines of the ILO Policy and Procedures Manual, NAVSEA SL105-AA-PRO-060, as modified to suit MSC unique requirements. The ship's historical demand data, all parts cross references and supply system logistics data will be updated before the availability. The ILR Team will ensure that the ship has new stock records and the newly allowed repair parts on hand or on order to support its end of availability equipment configuration. Unlike the U.S. Navy's ILO, the Repair Part Analysis will not include the physical off-load of shipboard repair parts.

D.5.1 Objective. The objective of the Repair Parts Analysis is to ensure that the ship's equipment configuration is properly supported by repair parts at the end of the availability.

D.5.2 Responsibilities. The following organizational responsibilities apply specifically to the Repair Parts Analysis function of the ILR.

D.5.2.1 Area Commander. The Area Commander will review, approve and fund repair parts shortages identified during the analysis for all ships within its area of responsibility. Repair parts shortages must be ordered expeditiously. Shortages requisitions must be completed during the same fiscal year as the ILR. For ILRs which cross fiscal years, the Area Commander will confirm the correct fiscal year with MSCCENTACT. The Area Commander will also review recommended repair part excesses with the ship and direct appropriate off-loading. The Area Commander will coordinate processing ILR shortage requisitions with the appropriate Navy Supply Center and the ILR Team. The Area Commander will ensure that no additional workload is

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placed upon the ship in receiving, stowing and documenting repair part shortage requisitions.

D.5.2.2 ILR Team. The ILR Team will identify the ship's repair part shortages and excesses based on the results of the Configuration Verification and the Repair Part Analysis. Upon the Area Commander's approval, the team will prepare requisitions for all shortages and forward them, via the Area Commander, to the nearest Navy Supply Center; the requisition data will also be loaded into the ship's SMIS O&M program. The team will process and stow all repair parts received during the availability, prepare documentation for all approved excesses and, if tasked, pull the material from ship's stock and process the turn-ins to the supply system or a designated MSC collection point. ILR shortages may not be reviewed and approved by the ship/Area Commander prior to the end of the availability. The ILR Team will assist in stowage of repair parts shortages and updating the ship requisition file and stock records when ILR shortages are delivered.

D.5.2.3 Master. The Master will provide the most current requisition information for its stock deficiencies, historical repair parts demand data and, when applicable, supply effectiveness data to the ILR Team. Ship's engineering and supply personnel will review shortage and excess lists with the Area Commander before material requisitioning or off-loading. Upon review and Area Commander approval, the ship will provide a block of requisition numbers to the ILR Team who will create MILSTRIP requisitions for approved shortages, input the requisitions to the appropriate supply activity and update local ship's records with the requisition data. For excesses, the ship will provide a block of expenditure numbers to the ILR Team who will generate turn-in documents and assist in the offload evolution.

D.5.3 Overview of the Analysis. The Repair Parts Analysis supports ILR objectives. The ILR Team will use pre-availability developed information to:

- a. Review the stock of allowed repair parts, onboard and on order, to validate that all issues made in the operating cycle have been properly replenished.
- b. Verify the accuracy of all stock records; determine that the proper allowance quantity, part number to stock number cross reference and logistics management data is accurate. Load all newly allowed repair part logistics management data.
- c. Update repair part substitute information, using the ILRs old to new cross references and substitute data collected during the ship's operating cycle.
- d. Identify and procure repair parts allowances to support equipment newly installed/modified during the availability.

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e. Identify and, upon approval from the Area Commander, offload repair parts held in excess of requirements because of equipment removals.

f. Update the ship's repair part support to reflect corrected configuration errors discovered during the ILR.

g. Analyze repair parts, previously not carried, but now eligible for stocking based on demand frequency.

h. Analyze usage data from the SMIS O&M module. Identify equipments frequently experiencing Not Carried (*NC*) and/or Not In Stock (*NIS*) repair parts. Review all logistics support elements for those equipments.

i. Review the repair parts support provided for selected mission critical systems and components.

D.5.4 Repair Parts Support for Equipment Installed During the Availability. The ILR Team will identify repair part range and depth increases for all confirmed equipment alterations completed during the depot maintenance availability. Initially, it will use the listing of planned additions and any associated provisioning technical documentation obtained from the Area Commander or Ship Overhaul Coordinator prior to the start of the availability. The team will determine repair part allowances for these equipments, using existing APLs, provisioning APLs or Preliminary Allowance Lists (*PALs*) generated by MSC. These new parts, along with the ships currently identified pre-availability range and depth of repair parts, are loaded into the Automated Repair Parts Analysis System (*ARPAS*), a program which compares old and new allowances and automatically calculates repair parts shortages based upon the ships new configuration. Spare parts requirements for new equipments, which do not have existing APLs, will be recommended by the ILR Team and forwarded for approval to the CDM. These "*interim*" repair parts are frequently provided with the parent equipment by the availability contractor. The ILR Team will obtain a list of these contractor furnished interim spares during the availability and create stock records for all storeroom items. As the contractor turns the parts over, the ILR Team will assist the ship in stowing and posting locations to stock records. At the conclusion of the availability all outstanding contractor furnished interim repair part deficiencies will be posted to the shortage list by the ILR Team.

D.5.5 Excess Repair Parts Processing. When the ILR Team has completed the processing of the repair part shortages, it will identify all repair parts held in excess of requirements, normally caused by equipment removals. During the Configuration Analysis, the team used the listing of planned equipment deletions to identify the equipments projected for removal during the availability. Through sight validation, it will

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confirm that the removals are completed during the availability. Repair parts allowances will be reviewed to determine if parts for the removed equipments have only that application. Any item supporting a deleted equipment with a single application will be identified as an excess candidate to the Area Commander. Upon concurrence from the Area Commander, the team will generate an 1109 work card or an off-load worksheet for all approved excesses, prepare the turn-in documents, off-load and process the parts to the designated MSC collection point. Depot (*DLRs*) and Field Level Repairables (*FLRs*) will be identified for special processing; hazardous items will be given particular consideration for safe handling.

D.5.6 Repair Part Support for Equipment Configuration Errors. The Configuration Analysis procedure includes a quality review of the ship's configuration. That analysis will likely uncover equipments installed in the ship, but not supported with repair parts. After updating the configuration data base, allowances for these items will be identified during the configuration analysis and reviewed during the Repair Parts Analysis. Stock range and depth additions will be calculated and shortages requisitioned. The Configuration Analysis may also reveal equipments no longer installed in the ship, but still supported with repair parts and technical manuals. The ILR Team will submit configuration change documentation to delete these equipments from the ship's configuration data base. As a result of these changes, the team will also identify excess repair parts and process them as described above.

D.5.7 Historical Demand File Review. The ILR Team will review the ship's historical demand file to ensure that all "*Not Carried*" (*NC*) repair parts, eligible for stocking based on their frequency of demand, are identified and approved items are ordered. The team will ensure MSC SIM criteria are strictly enforced and alternate/substitute items are researched and identified before adding new items to onboard stock.

D.5.8 Critical Equipment List. In preparing for the ILR, the CDM, in conjunction with the Area Commander, will prepare the list of mission critical systems and equipments. Upon completion of repair part shortage and excess processing, the ILR Team will systematically review this list to ensure every critical equipment is adequately supported with repair parts. The team may recommend allowance adjustments and submit appropriate documentation upon completion of the review.

D.5.9 Supply Effectiveness Analysis. MSC ships with the SMIS O&M subsystem will be capable of providing detailed supply effectiveness data and reports for the ILR Team to review during the repair parts analysis. Installed equipments experiencing a large volume of NC or NIS repair parts will be identified for more extensive logistics analysis in the future and potential reprovisioning. Correctly maintained ship's records will provide invaluable information to assist the ILR Team's research. Recommendations for allowance changes will be submitted to the CDM, via the Area Commander.

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D.5.10 Products. At the conclusion of the availability, the ILR Team will deliver a repair part shortage and excess lists along with special shortage and excess review lists to the ship and the Area Commander, along with the latest requisition status and stock record cards for all newly allowed repair parts. The team will update the Stock Record Battery (*OMSTOCK*) and prepare an Integrated Stock List (*ISL*) reflecting the ship's EOA allowances. A complete list of EOA ILR products is contained in Section D.10.5 of this appendix.

D.5.11 Repair Parts Shortage Listing Review Process

D.5.11.1 Background. Prior to requisitioning new material to cover the repair part shortages, the ship's engineer and supply personnel will review and confirm the shortage listings with the Area Command representative. After repair part shortages are confirmed and approval is obtained from the Area Commander, the ILR Team will submit requisitions into the supply system to order repair part deficiencies.

a. Shortage List Preparation. To provide increased monitoring/tracing capability of repair parts after the completion of the ILR, the ILR Team will provide the shortage listing in a data base format.

b. The ILR Team will prepare the shortage listing using the following sorting criteria.

(1) Sort the listing by equipment separating the equipment into single and multiple APL categories.

(2) Tabulate total dollar value of equipment for both single and multiple APL categories separated into existing allowances and new allowances from ILR SNSL.

(3) Sort shortages by extending dollar value per item.

(4) Separate list into categories of extended dollar value (*shortage quantity times unit price*): less than \$100; from \$101 to \$1,000; from \$1,001 to \$10,000 and greater than \$10,000.

(5) Separate ANC items into special categories.

(6) Sort by derivation code.

(7) Provide a listing of all newly allowed items driven by configuration changes identified during ILR including work items from work package or CK info/VALAID info and associated information about the configuration change.

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b. Shipboard Review Procedures. Ship level review should be conducted by shipboard engineering and logistics personnel prior to the Area Command representative's review for shortages. Shortage review listings should be annotated to reflect items not selected for stocking.

(1) Ship Configuration Manager/Engineer

- (a) Confirm whether new equipment was actually installed.
- (b) Determine whether repair parts for equipment are stored in ship's spaces other than Supply Department storerooms.
- (c) Determine whether the ship's Engineering Department has the capability to remove/replace repair parts on the shortage list (*proper tools, test equipment, etc.*).
- (d) Determine whether the Engineering Department concurs with the estimated price of the repair parts. Use derivation code and MEC.
- (e) Determine whether repair parts were previously provided for new equipment by the installing contractor.
- (f) Confirm maintenance/high-failure requirement for repair parts that exceed on-board installed quantity.

(2) Supply Department

- (a) Determine whether previously allowed repair parts do not have an outstanding requisition with valid supply status.
- (b) Determine whether initial outfitting requisitions does not exist for these repair parts.
- (c) Determine whether Supply Department concurs with the estimated price of repair parts.
- (d) Review allowance documentation, including a review of the NAVLOG MODFLSIP APL for high dollar value individual and cumulative total dollar value systems and items which exceed the total installed quantity.

c. Area Commander Review Procedures. Area Commanders are responsible for reviewing ship's recommendation, concurring/nonconcurring with stocking criteria and providing funds to ships for requisitioning. Area Commanders will receive the annotated

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listings after the ship review process is completed. If necessary, Area Command Engineering Type Desk representatives will be consulted.

(1) Shortage listings

- (a) Review annotated listings from the ship.
- (b) Clearly mark all changes or additions.
- (c) Turn over completed listing to ILR Team.

(2) Shortage Requisitioning

- (a) Receive updated total and shortage data base/listing from ILR Team.
- (b) Provide funding to the ship for approved shortages.
- (c) Upon ILR Team completion of ship requisition package, coordinate delivery and shipment of shortages with the nearest supporting supply center applicable to the ship.
- (d) Ensure ILR Team posts requisitions to the ship's local requisition file (*SMIS SM*).

D.5.11.2 Excess Listing Review Process. The ship's engineering and supply personnel will review and confirm the excess repair parts listing with the Area Commander prior to offloading material. After approval is obtained from the Area Commander, the ILR Team will prepare turn-in documents and process the excess parts to the designated MSC collection points. Ship excess material will be retained onboard for a period of 6 months, during which the issue requests experienced for the material will be closely monitored. Afterwards, the material will be offloaded to an MSC excess material storage warehouse facility, where it will be retained for a period of 1 year. After the 1-year period, the material will be placed in the MTIS program and turned in for credit.

a. Excess List Preparation

(1) To ensure only excess repair parts are offloaded, the ILR Team will develop the excess listings in a designated sequence that will provide the ship and Area Commander with effective tools to evaluate excesses and determine proper disposition of material. The ILR contractor will provide the excess listing in a data base format that will be loaded into the MSC excess material data base and the local inventory management system.

(2) In addition, the ILR contractor will prepare the excess listing using the following sorting criteria.

(a) Develop an equipment oriented listing showing effect on allowances and indicating the source of the configuration deletion action.

(b) Indicate the systems that are showing excesses and include the configuration file data such as location of removed equipment.

(c) Sort excesses by extending dollar value per item.

(d) Separate list into categories of extended dollar value (*excess quantity times unit price*): less than \$100; from \$101 to \$1,000; from \$1,001 to \$10,000 and greater than \$10,000.

b. Shipboard Review Procedures. Ship level review would be conducted by shipboard engineering and logistics personnel prior to the Area Command representative's review for excesses. Excess review listings should be annotated to reflect items not selected for offload.

(1) Ship Configuration Manager/Engineer

(a) Confirm whether equipment was actually removed.

(b) Assist efforts to determine whether repair parts for removed equipment have only one application. Repair parts in this category should be considered as excess. If required, review maintenance requirements and technical manuals to confirm validity to offload candidates.

(2) Supply Department

(a) Assist efforts to determine whether repair parts for removed equipment have only one application. Repair parts in this category should be considered as excess. If required, review APLs to confirm validity of offload candidates.

(b) Retain excess material onboard for 6 months and closely monitor issue request experiences.

(c) After the 6 months have passed, the material will be offloaded to an MSC excess material storage warehouse facility, where it will be retained for a period of 1 year.

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(d) After the 1 year period, the material not experiencing demand will be placed in the MTIS program and turned in for credit.

(e) Determine whether previously allowed excess repair parts have outstanding requisitions with valid supply status.

c. Area Commander Review Procedures. Area Commanders are responsible for reviewing ship's recommendations, concurring/nonconcurring with excessing criteria and directing appropriate offloading. Area Commanders will receive the annotated listings after the ship review process is completed. If necessary, Area Command Type Desk representatives will be consulted. Excess material listings will also be provided in the form of a data base which will be loaded into the MSC excess material data base and the local inventory management system (*to be determined at a later date*).

(1) Excess Listings. Review annotated listings from the ship.

(a) Clearly mark all changes or additions.

(b) Turn over completed listing to ILR Team.

(2) Excess Offloading

(a) Receive updated total and excess data base/listing from ILR Team.

(b) Provide direction to the ship for approved excesses.

(c) Coordinate offloading of excess repair parts with ILR Team and the nearest MSC redistribution storage site.

(d) Ensure ILR Team updates ship's stock records to reflect material that has been offloaded.

(3) MTIS Financial Credit Review

(a) Coordinate with Comptroller staff to ensure proper allocation of credit received through the MTIS process.

(b) Periodically review outstanding MTIS transaction to monitor backlog within Defense Reutilization and Marketing Service (*DRMS*).

D.5.12 Summary. Upon completion of the repair parts analysis, the ship should experience a significant improvement in its supply readiness. It will require a continuing

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effort by supply personnel to maintain this enhanced level of support. It can easily be accomplished by applying sound material management practices, accurate configuration change reporting and close cooperation between the engineering and logistic disciplines.

D.6 TECHNICAL MANUAL ANALYSIS

The Technical Manual Analysis is linked to the results of the ILR Configuration Verification and Analysis since it uses the ship's configuration as the baseline for its efforts. The analysis will include only the manuals used by the technicians to maintain and repair their installed shipboard equipment. The review will not cover Ship Selected Records (*SSRs*), drawings, training materials, personnel qualification standards or other manuals dealing with operating procedures. As in other ILR processes, automated systems and technology will be utilized whenever applicable to increase the speed and accuracy of the analysis effort.

D.6.1 Objective. The objective of the Technical Manual Analysis is to ensure that the ship's post-availability equipment configuration is adequately supported by technical manuals.

D.6.2 Responsibilities. The following responsibilities apply specifically to the Technical Manual Analysis.

D.6.2.1 CDM. The CDM will obtain the latest hull tailored Technical Manual-to-APL data from CLIP and the SPCC WSF and provide it to the ILR Team. The CDM will provide research tools to the ILR Team, including products available from the Navy Publishing and Printing Service Office (*NPPSO*), the Naval Sea Data Support Activity (*NSDSA*) and the COMSC Engineering Director (*N7*). At the end of the availability the CDM will up-load new technical manual data identified in the MSC ILR process to CLIP and the WSF.

D.6.2.2 ILR Team. The Validation or ILR Teams will inventory the ship's technical manuals. Technical manual shortages and excesses, based upon the newly installed equipments and the ships up-to-date configuration analysis will be identified. The team will review the currency of onboard technical manuals and order required changes/revisions. During the availability the team will receive, log and enter all new manual revisions and changes. The ILR Team will obtain a block of requisition numbers from the ship and generate MILSTRIP requisitions for all technical manual shortages.

D.6.2.3 Area Commander. The Area Commander will coordinate ship's technical manual deficiencies with the ILR Teams. The Area Commander will screen and approve all off-loads of excess manuals for possible redistribution to other ships.

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D.6.2.4 Ship's Chief Engineer. The ship's Chief Engineer will provide a point of contact to support the Technical Manual Inventory. The ship will turn over any Preliminary Technical Manuals received from the manufacturer with an equipment installation for the inventory. The ship will provide a block of requisitions numbers to the ILR Team and identify the media for dropping requisitions into the supply system. After the end of the availability the ship will receive and catalog all technical manuals and changes ordered by the ILR Team.

D.6.3 Technical Manual Analysis Overview

a. The MSC ILR Technical Manual Analysis is patterned after and generally follows the standard Navy ILO procedures, contained in NAVSEA Policy and Procedure Manual SL105-AA-PRO-030. If, due to time or resource constraints, the ILR analysis cannot perform this comprehensive process, a more limited version may be prescribed which still achieves the MSC ILRs objectives. The following are the minimum tasks that comprise the analysis.

- (1) Inventory the ship's technical manuals.
- (2) Determine technical manual requirements for newly installed equipments.
- (3) Identify and list technical manuals no longer required; remove excess manuals from the ship.
- (4) Eliminate other deficiencies by identifying and procuring the required manuals and changes based on updated ship's configuration data and ship's operational logistics support needs.

b. Whenever possible, the CDM will direct an inventory of the technical manuals onboard the ship prior to the commencement of the availability using MSC ILR Technical Manual Inventory forms. Since the short duration of MSC availabilities makes it difficult to accomplish the objectives of the technical manual review, the technical manuals will not be offloaded. Additionally, the technical manuals are needed onboard the ship throughout the availability because ship's force maintenance and repair work must be accomplished.

D.6.4 Conducting the Inventory. A successful technical manual review during an MSC ILR hinges on an accurate inventory of all manuals held by the ship. During the inventory, the Validation/ILR Teams, assisted by ship's personnel, will transcribe selected information from technical manual cover sheets to the MSC ILR Technical Manual Inventory forms (*Figures D-10 and D-11*). The Inventory Team will examine the manuals to identify all of the changes that have been entered and document the results. The changes are reviewed for currency and applicability. After examining each manual, the inventory team will determine if the manual requires replacement because of missing or tattered pages or heavy soiling, by indicating on the inventory form that the manual's condition is unsatisfactory. Ideally, the inventory will be completed before the ship enters the availability.

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**TECHNICAL MANUAL (TM) REVIEW
INVENTORY FORM INSTRUCTIONS**

This inventory form was developed for use during an MSC ILR when the technical manuals are not off-loaded. One form will be filled in for each separately numbered publication, each copy of a group of identical publications, and each volume of a set of publications.

The form will include the following data:

1. UIC - the ship's Unit Identification Code.
2. WORK CENTER - the ship's work center that maintains the TM.
3. DATE PREPARED - the date the inventory is taken.
4. CONDITION - physical condition of the TM. (NOTE: If the technical manual is missing pages or changes or if the pages are illegible, it is marked UNSAT.
5. TM# - the TM number, as it appears on the cover.
6. VOL - volume number, if part of a multi-volume set.
7. REV - revision number, if listed with the TM#.
8. COPY _____ OF _____ - if more than one identical manual, assign a copy number and record it here.
9. CHANGES INSERTED - circle each change inserted.
10. EQUIPMENTS - list the maintenance worthy equipments covered by the manual.

FIGURE D-11, TECHNICAL MANUAL INVENTORY FORM INSTRUCTIONS

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D.6.5 Technical Manual Review

a. The technical manual review will be initiated by the ILR Team upon completion of the inventory. The review focuses on supporting the installed systems and equipments with the appropriate technical documentation for adequate maintenance and repair. An essential step in this process is to link the technical manuals in the ship's inventory to the Allowance Parts Lists for the tionships, maintained by SPCC in the WSF, augmented by CLIP data are used as the baseline for the review. This core information is supplemented by data contained in the Ship's Technical Publications System (*STEPS*).

b. The ship's technical manual inventory establishes a shipboard baseline for the technical manual review. During the course of the review and during the ship's subsequent operating cycle, the Catalog Card (*OPNAV 5070/11*) (*Figure D-12*) will serve as the primary technical manual inventory management tool. These cards will be prepared by the ILR Team for every manual reported in the inventory. General instructions for preparing catalog cards are contained in the NAVSEA ILO Policy and Procedures Manual, Volume 3.

D.6.5.1 Technical Manual Support For Equipments Installed During the Availability.

As in the Repair Parts Analysis, the ILR Team's attention for the Technical Manual Analysis is focused on providing support for equipments being installed/modified during the ongoing availability. The ILR Team will use existing APLs or provisioning documentation (*APLs or PALs*) obtained in the Configuration Analysis to identify new technical manual requirements. Based upon specifications in procurement contracts, copies of the appropriate technical manual will normally be shipped by the manufacturer with equipments. The ILR Team will obtain all technical manuals received from contractors for new equipment through the ship overhaul coordinator, inventory and integrate them into the ship's technical manual library. If manuals are not received with a newly installed equipment, the ILR Team will review the contract specifications and follow up on missing manuals. If the specification does not call for a technical manual, or when circumstances dictate, the team will prepare skeletonized technical manual requisitions and submit them to the Area Commander for procurement. At the end of the availability the ILR Team will provide the ship with a list of newly requisitioned manuals for follow-on monitoring and processing as well as a list of contractor furnished TMs not yet delivered. New technical manual requirements will be added to a "*List of Technical Manual Additions.*" At the conclusion of the technical manual review this list will be integrated into the Master Inventory.

D.6.5.2 Excess Technical Manual Processing. The Configuration Analysis also will identify equipments that will be removed during the availability. Applicable APLs can be used to assist in the identification of supporting technical manuals which may no longer be required. All manuals verified as excess because of confirmed equipment removals

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PUB NO.		CAT.	VOL	PRT.	REV.	CHG	BASIC PUB DATE		SEC. CLASS	QTY.
TITLE										
DISPOSITION OF PUBLICATION										
COPY NO	HOLDER (SIGNATURE)	LOCATION/ WORK CENTER	REC'D DATE	RETURN DATE	DESTRUCTION					
					DATE	AUTHORITY				
REMARKS										

FIGURE D-12, TECHNICAL MANUAL FORM

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technical manual review, manuals on the *"List of Technical Manual Deletions"* will be recommended for deletion from the Master Inventory and upon the Area Commander's approval, removed from the ship.

D.6.5.3 Technical Manual Library Update. Prior to the end of the ships availability, the technical manual library will be updated to reflect the ship's inventory. Using the STEPS Indices, Navy Stocklist of Publications (*NAVSUP P-2002*) and the MSC Engineering Document System or technical manuals, the ILR Team will identify all manual deficiencies caused by physical deterioration, missing changes, recent revisions or publication of superseding manuals following the procedures outlined in the NAVSEA ILO Policy and Procedures Manual, Volume 3. The affected technical manuals will be reviewed, the missing changes identified and deficiencies ordered. The ILR Team will process all changes received prior to the end of the availability, and enter them into the appropriate manuals. At the conclusion of the Technical Manual Analysis a list of outstanding manual and change requisitions will be provided to the ship by the ILR Team. An updated technical manual index data base will be provided to the MSCCENTACT N7 and N4 staffs.

D.6.5.4 Determining Technical Manual Support for Installed Systems

a. The next step in the Technical Manual Analysis is to relate the inventoried technical manuals to systems and equipments installed in the ship to assist in confirming the ships configuration update completed during the Configuration Analysis. When this step has been completed, the systems not adequately supported by technical documentation become apparent. As previously noted, technical manual-to-equipment relationships obtained from CLIP and the Weapon Systems File may be used as a baseline. This process is also described in the NAVSEA ILO Policy and Procedures Manual, Volume 3.

b. New technical manual/APL relationships identified as a result of this research will be added to the *"List of Technical Manual to APL Relationships"* for upload to CLIP and the WSF. The ship's inventory, as reflected by the catalog card file, will be checked before these newly identified technical manuals are ordered since the manual may already be in the ship's inventory. These manuals may not have been linked to an APL number earlier because the Identification Number might not have been listed in the SPCC WSF. The inventory forms also provide a potential source of Technical Manual-to-APL relationships, since they are annotated with information concerning the supported equipments. Technical manuals reported on the inventory which cannot be linked to a specific APL number because of their general subject nature will be listed on the *"List of Non-equipment Specific Technical Manuals."* Upon completion of this analysis, the ILR Team will prepare requisitions for new requirements identified during this review in the same manner described in paragraph D.6.4.1.

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D.6.6 Products. At the end of the availability, the ILR Team will provide the ship and the Area Commander an updated TM inventory list along with the latest shortage requisition status. A complete list of EOA ILR products is contained in Section D.10.5 of this appendix.

D.6.7 Summary. The Technical Manual Analysis is one of the more complex evolutions of the ILR. Experience has shown that the typical ship operates with less than 50% of its technical manuals current or correctly reflecting its installed equipment configuration. Through the ILR analysis process, these deficiencies will be identified, documented, corrected and new/replacement technical documentation will be ordered. Upon completion of the ILR, the ship will operate more effectively with its technical library reflecting the end of availability configuration.

D.7 COSAL USE AND MAINTENANCE TRAINING

The COSAL is a dynamic document due to ship configuration changes and externally generated COSAL actions. An integral part of the MSC ILR is training ships maintenance and supply personnel in using and maintaining it. For ships newly introduced to CLIP, the ILR Team will also include training in the use of the shipboard CLIP system, which is an electronic alternative to the COSAL.

D.7.1 Objectives. The COSAL Use and Maintenance Training course is designed to provide shipboard personnel with the knowledge necessary to identify and correct basic equipment/system repair part support problems. In addition, this training provides a foundation of knowledge upon which ship's force personnel can build in conducting an ILR and the principles of configuration accounting.

D.7.2 Responsibilities. The following responsibilities apply specifically to the COSAL Use and Maintenance Training phase of the MSC ILR.

D.7.2.1 CDM. The CDM will develop and provide standard COSAL Use and Maintenance and CLIP Training course curricula. The CDM will monitor the NAVSEA ILO program to identify and evaluate changes for possible inclusion in the curriculum which may be beneficial to the MSC ILR program.

D.7.2.2 Area Commander. Area Commanders will monitor the COSAL Use and Maintenance Training provided during ILRs and provide QA and feedback on the quality of training and course content. Area Commanders will recommend additional areas of concentration for inclusion into the training curriculum as required.

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D.7.2.3 Master. The Master will ensure that key maintenance and supply personnel are available to receive training during the ILR. Ships will also provide QA and feedback to Area Commanders on the quality of training and course content.

D.7.3 COSAL Use and Maintenance Training. The ILR Team will conduct training as requested by the Area Commander and required by the ship, in a mutually agreeable format and location. The team will be prepared to conduct both formal classroom training, to larger groups, as well as one-on-one hands-on training as requested by the ship. Formal training will be conducted in accordance with CDM approved curricula. The training will focus on enhancing the ship's self sufficiency by using the COSAL as a maintenance and supply document, and by properly maintaining it during the operating cycle. Emphasis will be placed on the interface between shipboard supply and maintenance in the day-to-day resolution of support problems, rather than strictly supply or maintenance disciplines, stressing maximum utilization of available resources to remedy controllable conditions which contribute to unnecessary equipment/system downtime.

D.7.4 Products. The ILR Team will provide copies of training manuals, syllabuses and other training aids. Team members will also be able to provide advice on the availability of training courses, reference manuals and other source material. A complete list of EOA ILR products is contained in Section D.10.5 of this appendix.

D.7.5 Summary. Shipboard COSAL Use and Maintenance Training is a vital element of the MSC ILR. Through a continuing training effort, the ILR Team will enhance ship's personnel technical maintenance capabilities by making full use of onboard technical documentation and spare parts. The downstream benefits of this training will contribute greatly to the improved logistic readiness of MSC ships.

D.8 AVAILABILITY SUPPORT

The MSC Integrated Logistic Review (*ILR*) is the process by which the ship's equipment configuration profile is analyzed, verified and updated. Since ILRs are generally conducted only during extended port availabilities, another logistic assist procedure was needed to complement them when availability time was limited. Typically, MSC ships have frequent, but brief availabilities, where voyage repairs or equipment replacement will drive changes to the ship's equipment configuration. In the past, the reporting of these changes, as well as the acquisition of supporting logistic information, was often done on a hit-or-miss basis. To correct this condition and to provide additional logistic support for ships in short industrial availabilities, the Availability Support Assist was developed.

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D.8.1 Objectives. The objectives of the AS are to:

a. Ensure that the ship is provided the required logistic elements (*i.e., technical manuals, repair parts*) to allow maintenance and support of equipments added or replaced during the availability.

b. Update the ship's logistic references (*i.e., SMIS O&M, COSAL*) to accurately reflect the End of Availability (*EOA*) configuration.

c. Ensure all industrial work, which results in a configuration change, is accurately reported to the CDM.

d. Provide a means to verify, analyze and correct support problems of critical or mission supporting equipments, identified by the CDM or the Area Commander.

D.8.2 Responsibilities. The following responsibilities apply to the AS.

D.8.2.1 CDM. The CDM will schedule the AS in cooperation and coordination with the Area Commander. The CDM will identify selected ship's "*problem*" equipments for the ILR Team to review and analyze. The CDM will coordinate the gathering of the availability Work Package and provide appropriate AUTO-VALAIDs to the ILR Team. Upon completion of the AS, the CDM will receive and upload configuration accounting reports and other logistics data to CLIP and the SPCC WSF.

D.8.2.2 Area Commander. The Area Commander will coordinate AS schedules with the CDM and provide the availability Work Package. He will recommend to the CDM "*problem*" equipments on which to focus during the AS. The Area Commander will provide a representative to coordinate the AS with the ILR Team and perform the necessary QA at the completion of the availability work.

D.8.2.3 ILR Team. The ILR Team will receive the Work Package and analyze its contents. It will complete all configuration accounting tasks as outlined below, and any additional tasks provided by the CDM or Area Commander during the availability. Upon completion, all configuration changes and other logistic modifications will be reported to the CDM in the same manner as in the ILR.

D.8.2.4 Master. The Master will provide the ILR Team office space and access to ship's logistic records and other pertinent data. The ship will also designate an availability coordinator, preferably the ship's Configuration Manager, to interface with the

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ILR Team. The ship will requisition repair parts and technical manuals required due to configuration changes verified by the ILR Teams and approved by the Area Commander.

D.8.3 The Availability Support Process. Since the AS is an abbreviated version of the ILR, most processes and procedures will be similar. The AS will have a more concentrated or focused approach under this concept. In general, since the procedures contained in the ILR sections will be followed, only an AS overview or unique actions will be described.

D.8.3.1 Prepare Planned Equipment Addition/Deletion Report. The CDM and the Area Commander, or other subordinate administrative commander, will prepare availability Work Packages based on ship repair lists, voyage requests or planned alterations. A copy of this Work Package will be provided to the ILR Team, who will review it for potential configuration changes. These potential changes, as well as additional equipment/components identified for review (*e.g., due to maintenance problems, parts availability*) will become the focus of the AS effort. The Planned Equipment Addition/Deletion Report will be prepared as a guide for the team; it will identify all anticipated industrial work that may impact the ship's Logistic Support requirements (*i.e., addition/deletion of repair parts, technical manuals*). The report will also be used as a suspense document, to be reviewed at the completion of the availability and compared with actual work accomplished.

D.8.3.2 Review of Equipment Procurements. As in an ILR, upon commencement of the availability, the Area Commander will provide copies of purchase orders to the ILR Team for equipments scheduled for installation or replacement. These will be compared to the Planned Equipment Addition/Deletion Report. The ILR Team will extract information from the procurement document and the add/delete report and initiate a Logistic Certification Form (*Figure D-9*), for each new/replacement equipment.

D.8.3.3 Planned/Accomplished Work Reconciliation. Towards the end of the availability, when work has been accomplished or clearly defined, the ILR Team will meet with the Port Engineer and the ship's Chief Engineer. The Planned Equipment Addition/Deletion Report will be reviewed and differences between it and the actual work accomplished will be reconciled. The engineers will also have an opportunity at this meeting to identify other logistics issues or problems that may impact on ship's operations (*e.g., insufficient parts support for existing equipments*). The ILR Team will analyze them and propose remedial actions, either short range (*i.e., achievable before the end of availability*) or long range (*i.e., during the operating period or next availability*). These will be coordinated with and approved by the Area Commander and the CDM.

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D.8.3.4 Recording of Name Plate Data. Subsequent to the conference with the Port Engineer, a team member will sight validate all added or replaced equipment name plate data, and complete the Logistic Certification form. Planned and actual equipment deletions will also be reconciled and verified. Configuration change information will be appropriately recorded, (*e.g.*, *AUTO-VALAID* or *4790/CK*). The completed Logistic Certification form will be used to provide additional updated logistic data to the CDM and to ensure that all logistic support elements for these equipments have been identified and are in place or on order. If required, PTD will be collected and PALs will be generated by the ILR Team for new unprovisioned equipments.

D.8.3.5 Technical Manuals, Spare Parts, Tools, Test Equipment. Prior to completion of the AS, the ILR Team will consolidate requirements for new/revised technical manuals, tools, test equipment and spare parts based upon the configuration changes validated by the ILR Team. The consolidated requirements will be cross referenced to a work item or TRANSALT or configuration change request and sorted by parent equipment. The ship's engineer will review requirements and identify any items which are not recommended for stocking. Upon the Area Commander's approval, the supply department will requisition the material.

D.8.3.6 Follow-up on Previous ILR Actions. MSC's ILR process is continuous in that every industrial availability, outstanding actions affecting equipment configuration and logistics support are reviewed. The ILR Team will review previous ILR or AS results and follow-up on all key areas, including technical manual and repair parts shortages and previously unsupported equipment. This effort will "*close the loop*" on outstanding action which may have been overlooked or unknown to the ship's supply department.

D.8.3.7 Delivery of End of Availability (EOA) Documentation. During the availability, the ILR Team will develop and obtain logistic support documentation which will be delivered to the ship at the EOA. This documentation will reflect the ship's post availability configuration and identify the logistic support elements required by the ship for new/modified equipments. The products may vary with the ship data processing capability of the ship but will be similar to the ILR products.

D.8.3.8 Availability Completion. After delivery of the EOA products, and a quality review by the Area Commander, the configuration data developed during the availability is forwarded to the CDM. The CDM provides a final Quality Review and updates CLIP and the SPCC WSF. Normally, this marks the end of the formal availability support process. If additional logistics assistance is still required by the ship, it can be requested as a Fleet Assist.

D.9 FLEET ASSISTS (FA)

In recognition of the challenges presented by the increased operating tempo of the MSC fleet and to complement the CDM's continuous ILR, COMSC has established the Fleet Assist program to improve ship's logistics readiness. These brief, shipboard logistic assists will ensure that the MSC CDMP/ILR concept of maximum shorebased support for fleet units remains viable and a logistic presence is available on the waterfront in the form of the FA performed by the MSC Readiness Support Group (RSG).

D.9.1 Objectives. The FA will provide shipboard supply and maintenance personnel with tailored assistance in solving specific logistic support problems, (*e.g., poor inventory validity, recordkeeping problems, identification of material, training*), as identified by the cognizant Area Commander.

D.9.2 Responsibilities. Since the FA's concept is on focusing rapid responses to emergent problems, specific responsibilities are undefined, except for describing the process to request the services. The MSC ILR Team will assume the RSG support responsibilities.

D.9.2.1 Area Commander. The Area Commander will schedule FAs, as required, to support specific problem areas or in response to Area Commander's requests. The Area Commander will coordinate FA tasking with the CDM and the ILR Team. All FA requests will be approved/disapproved by the Area Commander. Post FA configuration and logistic information will be uploaded to CLIP and the WSF as appropriate.

D.9.2.2 The ILR Team. Double-hatted to the RSG, the ILR Team will respond to specific tasks, as directed by the Area Commander. At the completion of the task, appropriate reports will be made to the CDM and documentation provided to all concerned parties.

D.9.2.3 Master. The Master will provide the ILR Team access to the required records and spaces to complete its tasking. It will also make knowledgeable personnel available who can discuss the ship's logistic problems and are familiar with the tasks at hand. The ship will address all requests for assistance to the Area Commander.

D.9.3 The FA Process

a. FAs are task specific, designed to provide quick fixes for ad hoc problems that are beyond the capability of the ship to solve by itself. A secondary function to provide on-site training of shipboard personnel in recordkeeping, COSAL use and maintenance, storeroom organization and other aspects of supply management. The following are tasks which fall under the FA category:

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- (1) Logistic Support Posture Assessment Assist (*Pre-deployment*)
- (2) Inventory Support Assist
- (3) Data base Purification/Troubleshooting Assist
- (4) Preliminary and Post Supply Inspection Assist
- (5) Training Assist (*Departmental and/or COSAL Use and Maintenance*)
- (6) Configuration Assist (*last resort; defer for AS/ILR*)

b. Ships may request a FA from the Area Commander, or the Area Commander may schedule the FA as it deems necessary. The Area Commander will coordinate with the ILR Team/RSG to ensure that sufficient resources can be made available to meet the request without impacting the ILR/AS schedule. Since the ILR/AS schedules are established to support the ongoing continuous ILR programs, they must take precedence in all but the most urgent cases. The Area Commander will make the final determination and provide the formal tasking to the RSG to accomplish the FA. The RSG will liaison with the Area Commander and the ship to optimize the time frame for the visit. Upon completion of the task, the RSG will provide a Trip Report and other documentation, as directed, to the Area Commander, copy to the CDM.

D.9.4 Summary. The FA is an integral part of the CDMP effort to provide top flight support at the waterfront. This service is designed to be responsive to the ships' most urgent needs, and provide enhancement to shipboard supply operations, and improve readiness.

D.10 POST-AVAILABILITY ACTIONS

This section identifies the MSC ILR wrap-up actions that need to be accomplished after the conclusion of the industrial availability.

D.10.1 Responsibilities. These responsibilities apply specifically to the post availability phase of the MSC ILR. Many of them apply to an AS or FA, as well, focused on the specific problems as appropriate.

D.10.1.1 CDM. The CDM will monitor the ILR to ensure that the ship's operational needs are supported and that appropriate action was taken to correct logistics support problems identified during the preliminary logistic analysis. Based on feedback from the Area Commander and the ILR Team's post availability reports, the CDM will identify

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areas of concern in specific ILR elements which are incomplete or require future correction by the ILR Team. The CDM will collect data from the ILR process and retain reports for future reference by Area Commanders, or other authorized MSC users.

D.10.1.2 ILR Team. As the central responsible logistics support agent in the MSC continuous ILR, the team will ensure that the CDM's goals for the ship are achieved by the end of the availability and any remaining logistic support shortfalls or discrepancies are communicated to him. This responsibility requires the team to evaluate the results of each phase of the ILR and provide corrective action recommendations to the CDM for ILR follow-on efforts. The ILR Team is also responsible for specific End of Availability documents, products and actions. These include updating the CLIP configuration data base with the end of availability information through generation of required configuration change forms and reports and forwarding them to the CDM, via the Area Commander. When the CDM Configuration Data Management Plan calls for a new ship's COSAL, the ILR Team will verify that the SLCC and Configuration changes include the latest equipment alteration data available. This effort will be closely coordinated with the CDM to ensure that the new COSAL is produced in time, to provide the required support. Ships that have shipboard CLIP systems installed will be updated directly by the CDM's periodic automated changes. The ILR Team will also obtain the latest outstanding Contractor Furnished Technical Data and Equipment Listing from the overhaul coordinator to ensure that the information is provided to the ship and Area Commander for follow on provisioning and Logistic Support.

D.10.1.3 Area Commander. The Area Commander will provide the appropriate QA and monitor the ILR effort for each ship to ensure that the CDM's logistics support concerns are adequately addressed. After each availability, the Area Commander will review the end of availability reports and provide additional input to the CDM for follow on ILR efforts required to meet ship remaining logistic support needs.

D.10.1.4 Master. The Master will be responsible for the majority of post availability action. The ship's supply personnel will continue to coordinate all ships post availability responsibilities:

- a. Monitor and follow-up on all end of availability repair part shortages, including contractor furnished equipment.
- b. Ensure that stock records are properly updated with storeroom locations for all receipts.
- c. Monitor and follow-up on all end of availability technical manual requisitions and contractor furnished technical manuals.

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d. Process the post-availability COSAL indices. Upon receipt of an updated post-availability COSAL index verify that all transactions in the master SLCC/SLEC were incorporated.

D.10.2 Processing the Post-Availability COSAL Indices. After the EOA the ship will receive new COSAL Indices which reflect its post-availability configuration. These comprise a SLCC/SLEC and Index Sections A through E. Until these indices are received, the ship will operate with its old COSAL or existing indices marked up during the availability. Upon receipt of the post-availability Indices, the ships supply personnel will verify that all transactions in the master SLCC/SLEC were incorporated by comparing them with the SLCC/SLEC. Configuration change forms (*OPNAV 4790/CK*) will be generated by the ship for master SLCC/SLEC entries that were not found on the new index, (*pen and ink corrections will be made to the indices*). When the ship is satisfied that all configuration changes have been incorporated or otherwise resolved, the old COSAL indices may be discarded and replaced by the post-availability COSAL indices. Again, for ships with CLIP installed, this process will be accomplished through the CDM's periodic automated updates.

D.10.3 Repair Part Shortages. During an MSC ILR most confirmed repair part shortages are identified and requisitioned in the early phase of the industrial availability. Every effort will be made by the ILR Team and the Area Commander to fill these shortages before the end of the availability. However, for a variety of reasons, some repair part shortages will not be received before the ship departs the availability site. As a result, the ship's personnel must maintain current supply status on these outstanding requisitions and submit periodic follow-up action, as necessary, to ensure material delivery. Once the shortages are received supply personnel must integrate them in the ships storerooms with like items and annotate the Integrated Stock List (*ISL*) and Stock Records with the appropriate storeroom locations. In addition, to allow close out of the contract the ship must document the receipt of any contractor furnished interim repair parts which remained outstanding as of the end of the availability.

D.10.4 Technical Manual Inventory Update. During the technical manual review the ILR staff members prepared a TM catalog card file and summary listings which will continue to be processed by shipboard personnel after the end of the availability. This consists of updating deficient technical manuals with changes and cataloging and distributing missing technical manuals as they are received. These publication changes will be listed on the "*List of Technical Manual Additions.*" In addition, the ship must monitor and document the receipt of any contractor furnished technical manuals which remained outstanding at the end of the availability.

D.10.5 End of ILR Products and Documents. At the end of the availability, the ILR Team will deliver numerous documents and lists to the ship, Area Commanders and the CDM. These include:

- a. Updated Stock Record Battery (*OMSTOCK DBF*), to include Storeroom Items (*SRI*) and Technical Manual (*TM*) requisitions
- b. Requisition listing of *SRI/TM* Shortages
- c. *SRI/TM* Shortage Requisition Tape for delivery to/processing by NSC/NSD
- d. Integrated Stock List (*ISL*)
- e. Shortage Listing (*NSN/Part Number Sequence*)
- f. Equipment Oriented shortage Report
- g. Excess Report (*AT6*)
- h. Shelf Life Listing
- i. Updated COSAL SOEAPL; when a COSAL is produced, the End of Availability (*EOA*) COSAL (*all parts*) will be delivered to the ship and Area Commander
- j. Automated and hardcopy SLCC/SLEC
- k. Special Category Item Listing
- l. Configuration change forms (*4790/CK*) or AUTO-VALAIDs and Logistics Certification Forms for new/modified Equipments
- m. Technical Manual Index (*TMI*)/Publication Applicability List (*PAL*)
 - (1) Copy to ship
 - (2) Automated copy to COMSC for CLIP loading/verification
- n. ACRs, FCFBRs, TMDERs as required
- o. Instructor critique sheet and student attendance sheet

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p. Re-labeled material listing

q. End of Availability Report

D.10.6 Summary. At the conclusion of the ILR, AS or FA the ship will have a much improved logistic support posture. Continuing attention to the remaining shortages and deficiencies and rapid identification of new problems during the operating period will allow these gains to be maintained.

APPENDIX E

SHIPBOARD VALIDATION PROCEDURES

E.1 INTRODUCTION

To establish an accurate configuration data base for the MSC fleet, the MSCCENTACT CDM will direct "*Baseline*" equipment validations, performed by off-ship Validation Teams (*VAL Team*). As discussed in Appendix C of the CDMP Manual, this baseline validation is the second step, after initialization, in phasing a ship into the CLIP/WSF configuration databases under the CDM concept. The shipboard validation confirms systems and equipment configurations; it is the keystone of the ILR process that provides proper technical documentation and repair part support for MSC ships' maintenance. Without physical verification of shipboard equipment alterations, modifications, additions or deletions, configuration databases would rapidly decline into obsolescence and ships would sail without critical repair parts or technical manuals.

E.2 OBJECTIVE

The objectives of the Validations are:

- a. To verify the accuracy and currency of the ship's equipment configuration.
- b. To ensure the ship's equipment configuration data is available to the CDM.
- c. To permit the CDM to establish an accurate and credible Configuration Baseline.
- d. To provide timely Integrated Logistic Support elements to MSC ships, with an overriding emphasis on a quality product.

E.3 RESPONSIBILITIES

The following organizational responsibilities for shipboard validations are assigned:

E.3.1 MSCCENTACT N4. The Logistics Director, MSCCENTACT N4, is the MSC CDM. The CDM, in coordination with the Area Commanders, is responsible for validation scheduling. The CDM also directs the generation of the AUTO-VALAID data base for the VAL Team approximately 30 days prior to the start of the ship's availability. The CDM will coordinate the assignment of an MSC QA Rep from FOSSAC.

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E.3.2 Area Commander. The Area Command N4 will coordinate the VAL Team's visit with the ship, ensuring required clearances are obtained. With the CDM, the Area Commander will coordinate validation scheduling and direct the assignment of a shipboard Validation Coordinator.

E.3.3 Master. The Master will provide the VAL Team access to its COSAL, configuration files and shipboard spaces required to perform the equipment verification. To assist the team, the ship will also designate a Validation Coordinator and provide appropriate working/office spaces.

E.3.4 Validation Team (VAL Team). The VAL Team's schedules will be coordinated by the Area Commander and the CDM. It will receive and review the AUTO-VALAIDs data base, prepare the Validation Aids (*Figure E-1*) and other required documentation. It will perform the validations in accordance with the procedures detailed in this appendix and the AUTO-VALAIDs System User's Manual, provide Quality Assurance of its work and deliver the required post-validation products to the CDM, via the Area Commander. While the focus of the validation is to verify the ship's existing configuration, the VAL Team must also capture information on configuration changes as systems/equipments are added, modified or deleted during the ongoing availability.

E.4 THE SHIPBOARD EQUIPMENT SIGHT VALIDATION PROCESS

MSC validations are accomplished in a structured process, patterned after the detailed procedures contained in the NAVSEA ILO Manual SL105-AA PRO-020. The CDM will identify the ships that are candidates for validation in sufficient time to allow preparation of the required documentation and permit orderly scheduling of resources to minimize costs. The actual Validation is divided into five distinct phases:

- a. Pre-Validation Visit/Contact
- b. Pre-Validation Preparations
- c. The Shipboard Validation
- d. Quality Assurance
- e. Post-Validation Activity

These phases are briefly described below. Detailed instructions for AUTO-VALAIDs preparation, validation operations and quality assurance are contained in the AUTO-VALAID System Users Manual.

E.5 PRE-VALIDATION VISIT/CONTACT

a. After the CDM has confirmed the shipboard validation schedule, the Area Commander will notify the ship and prepare the required clearances. An MSC QA Rep from FOSSAC will be assigned for every MSC ship validation. While the representative's primary task is to provide QA for the validation products, he/she also acts as the on-site MSC representative to provide procedure and policy guidance.

b. If operational schedules permit, the MSC QA Rep and/or the Validation Team Leader will pay a visit to the ship three or four weeks prior to the validation to explain its purpose and expected duration to the ship's Master, Chief Engineer and Supply personnel. They will also solicit any concerns about unsupported or problem equipments from the ship's force, report the pre-validation visit results to the CDM (*via the Area Commander*) and notify the CDM if timing or availability problems exist. The CDM, in close cooperation with the Area Commander, will then resolve these scheduling problems.

E.6 PREPARATION FOR VALIDATION

a. The preparation phase will be accomplished ashore by the VAL Team and will not normally involve shipboard activity or personnel. Approximately thirty days prior to the validation, the CDM will provide the VAL Team the AUTO-VALAID data base, reflecting the ships pre-validation configuration. The Team Leader will print the VALAIDS to accomplish the validation from this data base and generate the documents needed to manage the task. Examples of these are the preliminary Ship's Integrated Configuration Report (*Figure E-2*) and the QA Control Sheet (*Figure E-3*). With these tools, the Team Leader will review, sort and count the printed VALAIDS by equipment category (*HM&E, ELEX or ORD*), and make Team assignments. The validators' backgrounds, knowledge and skills will be matched with appropriate systems to ensure that the team has the right skill mix to complete the validation effectively and on schedule.

b. Next, the Team Leader will review the VALAID package to select out "*non-validation worthy*" equipments/components. Non-validation worthy equipments normally will not warrant repair part support, since they are either non-essential, have a throw-away maintenance policy or have very low failure rates. A generic list of these non-validation worthy equipments is included at the end of this appendix. Additionally, the CDM may provide direction to limit the validation to selected critical or key equipments/systems, therefore the VALAIDS for the not selected equipments/systems will also be deleted.

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BLANK VALIDATION AID

CONTROL:

UIC : NAME :
 SAC : SAD :
 RIC : NOMEN :
 ESWBS : ESD :
 EIC : MEC :

APL/AEL CHARACTERISTICS

SUGGESTED APL: _____

- | | |
|--------------------------|---|
| 1) MFR. _____ | 10) PRESSURE _____ |
| 2) MFR. PART NO. _____ | 11) CAPACITY _____ |
| 3) MFR. DWG _____ | 12) TYPE _____ |
| 4) MFR. ID/CAT NO. _____ | 13) ENCLOSURE _____ |
| 5) NAVCOM PLAN _____ | 14) BODY MATERIAL _____ |
| 6) FSN _____ | 15) OPERATION _____ |
| 7) MIL SPEC _____ | 16) MOUNTING _____ |
| 8) TEMPERATURE _____ | 17) FRAME _____ CYCLE _____ VOLTS _____ WATTS _____ |
| 9) SIZE _____ | 18) HP _____ RPM _____ PHASE _____ AMPS _____ |
- OTHER _____

CNTRL	SFX	RIN	LOCATION	CODE	QTY	SERIAL/VM	TC	VSAC	RV	REASON FOR VALIDATION
NHA	NHA SN		REMARKS							

CHECK APPROPRIATE SELECTION :

CHECK	ADD (VSAC = 'SA')	CHECK	REPLACEMENT FOR ORIGINAL
RA	NEW EQUIPMENT.	VSAC	MUST HAVE VSAC CODE.

CONFIGURATION REPORTING ACTIVITY : SEACOR

INITIALS :
 Q/A INITIALS :

DATE :

FIGURE E-1, VALIDATION AID

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E.7 SHIPBOARD VALIDATION

a. After reporting aboard ship, the MSC QA Rep and the VAL Team Leader will contact the ship's Validation Coordinator to establish a central shipboard office space for use by the validation team. If a pre-validation visit was not conducted, it is appropriate at this time to explain the purpose of the validation to the ship's Master, Chief Engineer and Supply personnel.

b. Normally, the validation process will not interfere with the ship's operations or routine. However, because the validators have to locate their assigned equipment/system from the locations printed on the VALAIDs, the Team Leader will request ship's plans, damage control diagrams or other references to assist them in their task. Occasionally, ship's force assistance in locating specific equipments may be also requested. When the validator has located the assigned system, he/she must physically trace it to ensure every validation worthy equipment/component has a corresponding VALAID. The data on the VALAID must be compared with the equipment's/component's nameplate or other identifying information and any discrepancies noted. When the equipment's nameplate is damaged or missing, the Team Leader will use all available alternative data sources to verify its characteristics (*i.e., from Technical Manuals or ship's drawings*). If a printed VALAID does not exist for an equipment or component, a new one must be filled out to record the data. Figure E-5 depicts the Validation Action/Reason Not Validated VSAC/RNV codes used by the team during the actual sight verification of equipments. After the equipment/component has been verified and its VALAID completed, the validator will prepare a sticker (*following the VSAC/RNV color code below*), and apply it to the validated equipment/component where it can be easily seen by the MSC Representative during the quality review. When the validator has accounted for all VALAIDs for the assigned system, he/she must re-trace the system to ensure that stickers have been applied to all verified validation-worthy equipments. The application of the sticker is a check to ensure that the equipment has been recorded.

If VSAC/RNV is:		Sticker Color
SA	(straight add)	RED
SR	(change, revision)	GREEN
SC	(confirmed)	YELLOW
SN 2	(no nameplate, no technical manual)	YELLOW
SN 3	(lagged)	YELLOW
SN 4	(inaccessible)	BLUE (apply at closest point)

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Date : 10/18/91

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VALIDATOR'S Q/A CONTROL SHEET

NAME	SAC	SYSTEM	CONTROL RANGE	#EQMTS	COMP DATE	INITIALS
_____	OAAA	PORTS X WINDOWS-PILOT HOUSE WINDOW WIP	0001-0004	15	_____	_____
_____	OAAAE	STEERING-MAIN	0005-0013	17	_____	_____
_____	OAAAG	GYRO COMPASS SYSTEM, HM&E	0014-0048	47	_____	_____
_____	OAAAP	FUEL OIL SYSTEM	0049-0054	12	_____	_____
_____	OAAAW	PUMPING X DRAINAGE-ROCKET HOIST	9999-9999	1	_____	_____
_____	OAABR	PROPULSION-SHAFT	0055-0062	9	_____	_____
_____	OAABU	PUMPING X DRAINAGE	0063-0063	1	_____	_____
_____	OAAZ	FIRE FIGHTING	0064-0066	4	_____	_____
_____	OACA	AIR SUPPLY-HIGH PRESSURE	0067-0075	14	_____	_____
_____	OACB	AIR SUPPLY-LOW PRESSURE	0076-0083	10	_____	_____
_____	OACJ	DISTILLING PLANT-12000 GPD	0084-0091	8	_____	_____
_____	OACH	PROPULSION-SHIPS PROPELLER	0092-0093	2	_____	_____
_____	OADN	HEATING SYSTEM-PIPING	0094-0096	11	_____	_____
_____	OADP	DISTILLING PLANT-PIPING	0097-0104	13	_____	_____
_____	OADR	LUBE OIL SYSTEM-PIPING	0105-0105	1	_____	_____
_____	OADS	FUEL OIL SYSTEM-PIPING	0106-0117	20	_____	_____
_____	DAAT	AIR SUPPLY-PIPING HIP	0118-0148	69	_____	_____
_____	QAADU	FIRE FIGHTING-PIPING-SPRINKLING X FLOO	0149-0149	1	_____	_____
_____	QAADV	FEEDWATER SYSTEM-PIPING	0150-0151	10	_____	_____
_____	QAAGH	VENTILATION SYSTEM-1-43	0152-0160	9	_____	_____
_____	QAALR	VENTILATION SYSTEM-4-56	0161-0164	4	_____	_____
_____	QAALX	IC-CIRCUIT K PROPELLER REVOLUTION INDI	0165-0196	32	_____	_____
_____	QAAMB	IC-CIRCUIT SB	0197-0197	1	_____	_____
_____	QAAMC	IC-CIRCUIT Y UNDERWATER LOG SYSTEM	0198-0205	8	_____	_____
_____	QAAMD	IC-CIRCUIT FR	0206-0206	1	_____	_____
_____	QAAME	IC-CIRCUIT EM	0207-0207	1	_____	_____
_____	QAAMF	IC-CIRCUIT HD X HE	0208-0215	9	_____	_____
_____	QAAMI	FRESH WATER SYSTEM-PIPING	0216-0216	1	_____	_____
_____	QAAMJ	SALT WATER SYSTEM-PIPING-FLUSHING	0217-0217	1	_____	_____
_____	QAAML	AIR SUPPLY-PIPING LP	0218-0233	49	_____	_____
_____	QAAMR	LIGHTING NAVIGATIONAL-SEARCHLIGHT	0234-0241	15	_____	_____
_____	QAAMH	FIRE FIGHTING-FIRE PUMP	0242-0250	14	_____	_____
_____	QAAPI	PIPING MISCELLANEOUS	0251-0356	391	_____	_____
_____	QAAGD	ELECTRIC POWER DISTRIBUTION	0357-0408	173	_____	_____
_____	QAAGE	IC-CIRCUIT GA TORPEDO FIRE CONTROL SYS	0409-0411	5	_____	_____
_____	QAAGF	SECURITY	0412-0414	3	_____	_____
_____	QAAGG	SMALL BOATS	0415-0425	12	_____	_____
Totals =>			426	994		

FIGURE E-3, VALIDATOR'S QA CONTROL SHEET

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MSC VALIDATION REPORT

SHIP NAME & HULL # ZEUS, R21323

LOCATION _____
 ON-BOARD DATES _____
 SHIP POC _____
 A/C POC _____
 CA NUMBER _____
 SCHEDULE DATES _____

VAL TEAM LEADER _____
 HM&E VALIDATORS _____

 ELEX/ORD VALIDATORS _____

		H M & E		ELEX		ORD	
	VSAC	AIDS	EOPTS	AIDS	EOPTS	AIDS	EOPTS
1. PRE-VALIDATION COUNT	--	71	102	0	0	0	0
2. CONFIRMS	PVSC	0	0	0	0	0	0
3. EOPT QTY DECREASES	PVSD	█	0	█	0	█	0
4. DELETES(EXCEPT FALLOUT)	PVSD	0	0	0	0	0	0
5. FALLOUT DELETES	PVSD	0	0	0	0	0	0
6. POTENTIAL REVISIONS	PVSR	0	0	0	0	0	0
7. NONVALIDATION WORTHY (NON-SELECTS) PN1	PN1	0	0	0	0	0	0
8. NO NAMEPLATE OR TM IDENTIFICATION PN2	PN2	0	0	0	0	0	0
9. LAGGED PN3	PN3	0	4	0	0	0	2
10. INACCESSIBLE PN4	PN4	0	0	0	0	0	0
11. EOPT QTY INCREASES PVSA	PVSA	█	4	█	0	█	2
12. POTENTIAL ADDITIONS PVSA	PVSA	0	0	0	0	0	0
13. FINAL(NEW) COUNT	--	71	106	0	0	0	2

MSC REP SIGNATURE _____ DATE _____
 SHIP'S OFFICER'S SIGNATURE _____ DATE _____
 VALIDATION SUPERVISOR'S SIGNATURE _____ DATE _____

FIGURE E-4, MSC VALIDATION REPORT

E.8 QUALITY ASSURANCE ABOARD SHIP

a. As the validators return their individual packages during the validation, every VALAID will be checked to ensure that it has been filled out correctly and completely and all components of the system have been included. After all sight verifications have been completed, the Team Leader will conduct the CDM prescribed quality assurance checks on the validation team's work. As a minimum, a representative sample will be taken, following this list, in descending validation action priority sequence (*i.e.*, *perform delete (SD) reviews first, add (SA) next, etc.*).

	VSAC/RNV	QA objective
SD	(delete)	100%
SA	(add)	100%
SR	(revision)	100%
SC	(confirmation)	100%
SN 2	(no nameplate, no technical manual)	100%
SN 3	(lagged)	100%
SN 4	(inaccessible)	100%

To confirm that equipments have, in fact, been removed, the Team Leader will ask the MSC QA Rep or the ship's Chief Engineer to countersign all "*delete*" VALAIDs. Concurrently, to assist the CDM in assigning existing or developing new APLs, the collection of available technical data for newly added equipments (*coded "SA"*), will take place.

b. The Team Leader will now be ready to complete the Post-Validation Summary Report (*Figure E-4*). This report serves several purposes: it assists the MSC representative in performing the validation quality and statistical analysis, forms the basis of the debrief to the ship's personnel on the results of the validation and provides the preliminary summary information required by the CDM. The final report will be generated by the AUTO-VALAID program after completion of data entry and QA during the post-validation phase and provided to the CDM as a deliverable item.

E.9 MSC QA REP'S STATISTICAL ANALYSIS

To ensure that all validation-worthy equipments have had validation certification stickers applied, the Team Leader's final quality assurance check will consist of a walk-through of the entire ship with the MSC QA Rep. Following the walk-through, the MSC QA Rep will conduct a statistical assessment of the shipboard validation results, as specified in Appendix F, to measure the quality of the VAL Team's effort.

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<u>CONDITION</u>	<u>MSC VSAC/RNV</u>
<p>Confirm the pre-printed VALAID when the equipment/component's function is the same as the function indicated in the VALAID's nomenclature field (for example, the VALAID calls for a pump and the item is a pump, or the VALAID calls for a controller and the item is a controller) <u>and</u> the manufacturer's identification (name and/or CAGE code) <u>and</u> the equipment identification number <u>and</u> the model or type on the equipment nameplate (if additional characteristic data is available) matches the data on the VALAID.</p> <p><i>Note: When an equipment is confirmed to the standard above, additional characteristics data on the equipment is neither needed nor desired.</i></p>	SC
<p>Revise (change) the pre-printed VALAID to match the nameplate data only if the equipment/component's function (as indicated in the nomenclature field), or identification number, or manufacturer, or model, or type is different. If SR is used, all other nameplate characteristics data will be compared with the VALAID and differences recorded.</p>	SR
<p>Delete the pre-printed VALAID when equipment has been permanently removed. SD will also be assigned when both the equipment's identification number and the manufacturer's identification (name and/or CAGE code) do not match the pre-printed VALAID. Generate a new VALAID concurrently, using VSAC SA and record all nameplate characteristics data. Cross-reference the control number of the deleted VALAID to the new SA VALAID and the control number of the new SA VALAID to the original pre-printed SD coded VALAID.</p>	SD
<p>Add a VALAID for a validation worthy equipment when no pre-printed VALAID has been provided or when additional RINs must be added. SA is also assigned when an equipment is coded SD (deleted) because of nameplate data/VALAID inconsistencies and a concurrent replacement VALAID is generated.</p>	SA
<p>Not Validated equipment's Valaids must be coded N and assigned the appropriate reason code:</p> <ul style="list-style-type: none"> • Not validation worthy IAW COMSCINST 4790.3B, Appendix E or MSC CDM guidance • Missing or insufficient nameplate data <u>and</u> not identifiable from ship's technical manuals • Equipment is lagged • Equipment is inaccessible (e.g. underwater, energized, temporarily removed from ship for repair or calibration.) 	<p>N 1</p> <p>N 2</p> <p>N 3</p> <p>N 4</p>

FIGURE E-5, VSAC/RNV CODES

E.10 POST-VALIDATION SHIPBOARD BRIEFING

a. When the shipboard quality assurance has been completed, the MSC QA Rep and the VAL Team Leader will brief the ship's Master, Chief Engineer, Supply and other interested personnel on the validation's results. They will again explain the objectives of the CDMP and walk through the five steps of the baseline validation process. Using the preliminary Post-Validation Summary Report as a guide, they will inform the ship's crew of the equipments confirmed, added, revised, deleted and not validated (*including the reasons for not validating them*) and discuss any problem areas discovered during the validation.

b. When the Chief Engineer and/or Supply Officer/YN/SK concurs with the preliminary results, one of these officers, along with the MSC QA Rep, will sign the MSC Validation Report to certify completion of the shipboard phase of the validation.

E.11 POST VALIDATION QUALITY ASSURANCE AND DATA ENTRY

a. Before departing the ship (*if the operating schedule permits*), the Team Leader will complete the prescribed post-validation checks and load the validation results into the AUTO-VALAIDs data base. Detailed instructions for data loading are contained in the AUTO-VALAIDs Users manual.

b. After the data entry and final FOSSAC QA is completed, the AUTO-VALAID program will print the final Validation Summary Report which will provide the end of validation statistics. This report, along with the updated data base, will be forwarded to the CDM, via the Area Commander.

c. The CDM's Technical Support Group (*TSG*) will review the updated AUTO-VALAID data base for format and data compatibility. All VSAC SA, SD and SR entries will be extracted for detailed research. Added equipments (*SA*) will be researched to identify existing RICs/APLs, which will be transmitted to the ship. If no allowance document exists, a Preliminary Allowance List (*PAL*) will be prepared from available technical data and also forwarded to the ship. Deletes (*SD*) and revisions (*SR*) will be verified to ensure their validity and their impact on configuration accounting and logistic support will be assessed. For example, before an equipment delete action is completed, repair parts associated with it will be reviewed for applicability to the new/replacement equipment.

d. When the TSG completes its research, the updated information (*all VSACs*) will be loaded into CLIP to establish the ship's physical configuration baseline. CLIP will produce the post-validation AUTO-VALAID data base, which will be sent to the ship, and create an SDIF tape to update the SPCC WSF. New equipments will be provisioned as necessary and all validation actions will now be entered into the CDM document

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tracking system to be tracked to completion. To close the loop and to ensure proper logistic support is available onboard, these changes will be verified by the ILR Team during the follow-on ILR.

E.12 SUMMARY

The Baseline Validation supports the CDM's commitment to Total Quality Leadership by emphasizing the importance of sound configuration data management. It is an intensive process that takes skill, hard work, patience and dedication by ship's personnel, Area Commanders, the VAL Team and the CDM. Its proper execution will enable the MSC ILS Team to provide enhanced support for the fleet and achieve significant improvement in operational readiness.

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STANDARD NON-VALIDATION WORTHY EQUIPMENTS FOR HM&E

This is the list of MSC shipboard equipments/components that are currently considered non-validation worthy by the CDM due to their mission non-essentiality, low in-service failure rate, commonality of use, or ease of replacement/repairability. It is neither all-inclusive nor limiting; recommendations for additions, deletions or changes to the list are solicited by the CDM. Recommendations for changes to this list should include a justification statement and comments on the change's fleet-wide or ship-class-only applicability.

Access closures - manually operated (*doors, hatches and scuttles*)

AEL units - other than magnetic compasses

Cable assemblies

Circuit breakers - other than those within main, alternate, emergency and fire control switchboards and ACB/AQB of 100 trip amps and over

Connectors

Cooling coils, air duct type

Dial telephone sets

Dimmer/rheostats - controlling status board lights

Distribution boxes

Expansion joints and flexible pipe couplings

Fans - bracket

Filters - air conditioning type

Fuse boxes

Gauges and Meters - other than special types

Header assemblies

Heating units (*steam and electrical*) - other than rinse sink and hot water heaters

Indicators, sight liquid

Interconnecting boxes

Junction boxes

Lighting service - includes fixtures, connector receptacles, desk and bunk lights, etc.

Lights, battle lantern

Lights, indicator

Lights, navigational marine

Lights, portable

Lights, signal - mast lights only

Nozzles - firehose type

Panels - power and lighting distribution

Piping and cabling, miscellaneous

Plotting boards - other than tactical display

Relay and relay arms - other than reverse current (*type CON and CRN*)

Sound powered telephones - only if pre-printed valoids are provided

Sprinkle heads

Strainers, "Y"

Strainers, single - wire mesh type

Stuffing boxes

Switch boxes

Switches, manually operated (*rotary, push button, toggle and selector*)

Tanks, miscellaneous

Terminal boxes

Transformers - other than power distribution and lighting

Traps, steam

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Two line unit assemblies (*alarm circuits, unless single mounted*)

Urinals/water closets/lavatories

Valves, bubble - hand-operated

Valves,(Hays) flow regulator and associated indicators

Valves, flushing/flushometer

Valves, two inches or less, with a rating of 600PSI or less and are not controlled by hydraulic, pneumatic or electrical devices

Note: All of the following valves, regardless of size, should be validated:

Boiler blow-off valves

Boiler safety valves

Control valves, relief, sentinel and reducing

Diaphragm control valves, with air-operated pilots

Manifold valves

Pressure/temperature regulation valves

Unloading valves, used at each main and auxiliary condenser

APPENDIX F

QUALITY CONTROL

F.1 INTRODUCTION

COMSC's commitment to Total Quality Leadership (*TQL*) is an overriding consideration in the establishment of the CDMP. Throughout the program, a continuing series of checks and reviews will ensure that the quality assurance of products and processes is an integral part of every procedure. Accordingly, the CDM has established a set of Quality Standards explained in this appendix.

F.2 OBJECTIVES

To provide quality control over MSC fleet configuration and logistic data and to ensure products, processes and assists are accomplished completely, accurately and on time, under the TQL concept.

F.3 RESPONSIBILITIES

The following specific quality assurance responsibilities are assigned:

F.3.1 CDM. The CDM will designate QA requirements for all logistic support activity on the waterfront and ensure that the Validation (*VAL*) and ILR Teams have accurate and appropriate guidance to complete their tasks. The CDM will also provide a Fitting Out Supply Support Assistance Center (*FOSSAC*) QA representative for all validations. To eliminate potential scheduling or other conflicts, the CDM will specify changes to tasking and scheduling in writing and will resolve disputes between ships, Area Commands and the Teams. The CDM and Area Commanders will receive and review all post availability reports.

F.3.2 Area Commanders. The Area Commanders are the key to a successful CDMP. They will provide on-site representatives to perform QA of ILR, AS and FA products and processes and report the successful completion of all tasks to the CDM.

F.3.3 Master. The Master provides assistance and support as required by Validation and ILR Teams to perform their assigned functions. Ensures that conflicts in scheduling and availability of personnel are identified to the Area Command representative for resolution.

F.3.4 VAL/ILR Teams. Will perform tasks assigned by the CDM in a professional, accurate and timely manner. The teams will highlight conflicts or disputes to the Area Command's representative or the CDM for resolution.

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F.4 VALIDATION QUALITY REQUIREMENTS

The VAL Team will perform shipboard equipment validations in accordance with the CDM's tasking and conduct a 100% quality check of the documents. Validations will be either "*full*" (*a stem-to-stern verification of all installed equipments*) or "*selected*" (*focused on specific equipments or systems*). The team will also complete a Technical Manual inventory to achieve a 98% accuracy rate. The FOSSAC representative will perform concurrent quality checks, to encompass not less than 50% of total validation actions and 40% of verified equipments, paying special attention to adds and deletes. A statistical analysis of validation quality assurance results will be provided to the CDM in the format of Figure F-1.

F.4.1 Quality Standards. Validation errors will be categorized as "**MAJOR**" or "**MINOR.**" Major errors will be defined as impacting RIC or APL determination. Some examples follow:

- a. VSAC SC (*confirmed equipment*) with missing/wrong ID and/or missing/wrong component characteristic
- b. VSAC SD (*deleted equipment*) and the equipment is subsequently located on the ship
- c. VSAC SC/SA/SR for an equipment which is not installed on the ship
- d. Missing/wrong equipment serial numbers
- e. Missing/wrong Validation Source/Action Code

Discrepancies in other data fields will normally be considered minor errors unless they specifically impact APL determination

F.4.2 Deliverables. At the completion of the validation, the CDM will be provided the following.

- a. Updated AUTO-VALAIDS database or hardcopy Validation Aids
- b. Automated Technical Manual Inventory database
- c. MSC Validation Summary Report

F.5 ILR QUALITY REQUIREMENTS

ILRs will be performed as directed by the CDM's written tasking, guided by the procedures in the CDMP Manual and the ILR appendix. The CDM and the Area Commander will ensure that the ILR Team:

- a. Has the summary of configuration changes for the current availability.
- b. Is provided with copies of purchase orders for all overhaul package equipment adds/mods.
- c. Is provided with historical hull-tailored CASREP data.
- d. Is provided access to ship's previous ILR/AS/FA completion reports.
- e. Has access to ship's OPNAV 4790/CK, NAVSUP 1220-2/ACR, NAVSUP 1371/FCFBR files.
- f. Has access to ship's storerooms.

F.5.1 Configuration Analysis

- a. The Area Command QA Rep will conduct spot checks during and after the analysis to ensure that the ILR Team performs the following tasks.
 - (1) Reviews/resolves HM&E/ELEX fallout records.
 - (2) Researches and resolves equipments identified by ship's OPNAV 4790/CK files.
 - (3) Researches and resolves old AAPs in ship's COSAL.
 - (4) Accounts for equipment changes in the current availability and gathers all available technical data. Ensures APLs/PALs are provided for overhaul package equipment additions, APLs/AAPs are removed from ship's configuration for equipment deletes and all other equipment modifications are properly documented.
 - (5) Verifies existence/non-existence of special purpose electronic test equipment support for equipment additions.
 - (6) Identifies previous SLCC adds/deletes, not reflected in SOH COSAL.
 - (7) Researches CASREPs for equipments not identified in the ship's configuration database.
 - (8) Verifies accuracy of SLCC/SLEC with the installed equipments.

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MEMORANDUM

From: FOSSAC NORVA, Code 039E
 TO: COMSC WASH., D.C., Code N41

Subj: TRIP REPORT FOR USNS RELENTLESS - EQUIPMENT VALIDATION

1. A full equipment validation for USNS RELENTLESS was performed 14-28 January 1991 at Deytens Shipyard, Mt. Pleasant, SC. The validation QA was conducted 15-24 January 1991. Following is a breakdown of the QA results:

	<u>AIDS/EQUIPMENT</u>	<u>PERCENTAGES AIDS/EQUIPMENTS</u>
TOTAL VALIDATED	1020/1748	47.4/41.8
TOTAL REVIEWED	483/730	
SC= TOTAL VALIDATED	455/730	44.6/41.8
TOTAL REVIEWED	231/324	50.8/44.4
MAJOR DISCREPANCIES	1/1	.4/.3
MINOR DISCREPANCIES	3/3	1.3/.9
SR= TOTAL VALIDATED	175/264	17.2/15.1
TOTAL REVIEWED	82/121	46.9/45.8
MAJOR DISCREPANCIES	1/1	1.2/.8
MINOR DISCREPANCIES	1/1	1.2/.8
SA= TOTAL VALIDATED	390/754	38.2/43.1
TOTAL REVIEWED	170/285	43.6/37.8
MAJOR DESCREPANCIES	0/0	0/0
MINOR DESCREPANCIES	2/3	1.2/1.1
<u>TOTAL DISCREPANCIES</u>		
MAJOR DISCREPANCIES	2/2	.4/.3
MINOR DISCREPANCIES	6/7	1.2/1.0

NOTE:

SC= Equipment on board - validation aids confirmed.

SR= Equipment and validation aids did not match - data on aids revised to match nameplate data

SA= Equipment on board but not listed in the COSAL. Validation aids generated to add

FIGURE F-1, EXAMPLE OF A POST VALIDATION QA REPORT

b. Not all of these tasks allow statistical sampling; however by conducting progress checks, the QA Rep can develop a high degree of confidence that tasks are being properly executed and the desired accuracy levels will be achieved. Completion of all tasks will be verified.

F.5.2 Repair Part Analysis

a. The Area Command QA Rep will ensure that the ILR Team conducts the ship's repair part inventory validity check to determine if a wall-to-wall inventory is needed. This check will include 100% of DLR/MTR repairables as well as a 10% sample of shelf-life and hazardous material and all other repair parts. An accuracy rate of less than 95% overall will require a wall-to-wall inventory. If errors can be localized to a single storeroom, that storeroom will be reinventoried and the entire sample recalculated to verify the 95% accuracy requirement. If a wall-to-wall inventory is directed, a 98% validity must be achieved.

b. The Area Command Rep will take a 10% sample to verify accuracy and review bin-to-card and card-to-bin relationships (*storeroom, O&M, stock record battery*). He/ She will also accomplish the following.

(1) Conduct a 5% spot check of P/N NICNs and old NIINs which have been researched and relabeled (*98% validity required*). Accuracy of cross-referencing and bin-to-card and card-to-bin relationship (*storeroom, O&M, stock record battery*) will be reviewed.

(2) Conduct a 5% spot check of multi-location consolidation (*98% validity required*).

(3) Conduct a 5% spot check of shelf-life material, to screen expired material (*98% validity required*).

(4) Conduct a 5% spot check of shelf-life material, to stock record cards of material contractor has excessed/received (*98% validity required*).

(5) Review repair part support for overhaul package equipment additions (*100% completeness required*).

(6) For all newly allowed repair parts, spot check the O&M database/stock record battery for the following mandatory data elements (*100% validity required*).

(a) Cog (*Cognizance Symbol*)

(b) MCC (*Material Control Code*) for repairables

(c) SN, SMIC when applicable, Description, Part Number

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- (d) Unit of Issue
- (e) Unit price
- (f) APL, AEL or AAP (*blank for consumables*)
- (g) Location
- (h) HL/LL/SL (*High Limit, Low Limit, Safety Limit*) computed in accordance with NAVSUP P-485, para 6230-1a, if applicable
- (i) Demand Period/Demand Quantity, if applicable
- (j) Allowance quantity
- (k) AT (*Allowance Type*) code (*repair parts*)
- (l) E/R/C (*Equipage/Repair Part/Consumable*) code (*all*)
- (m) Beginning Month Demand (*ILR completion date*)
- (n) Demand Quantity Brought Forward (*DQBF*)
- (o) Demand Frequency Brought Forward (*DFBF*)
- (p) URG - item listed in Consolidated Afloat Requisitioning Guide Overseas (*CARGO*) and available from Underway Replenishment Group (*URG*)
- (q) CI (*Critical Item*) i.e., PMS
- (r) MEC (*Military Essentiality Code*) - as indicated in COSAL SNSL/ISL for repair parts and equipment related consumables
- (s) HIC (*Hazardous Item Code*), if applicable
- (t) SSC (*Supply Source Code*) - P485 para. 6025
- (u) SLC (*Shelf-life Code*), if applicable
- (v) Inventory Balance
- (w) Requisitions outstanding

F.5.3 Technical Manual Analysis. The Area Command QA Rep will ensure that the ILR contractor accomplishes the following.

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- a. Researches technical manual excesses for shipboard equipment application.
- b. Conducts a 5% spot check of technical manual inventory validity (*95% required*). If less than a 95% accuracy is observed or the inventory is not available, a technical manual inventory (*100% validity required*) will be conducted.
- c. Reviews equipment additions for technical manual support (*100% review required*).

F.5.4 COSAL Use and Maintenance Training. The Area Command QA Rep will ensure that the contractor schedules and provides training for maintenance and supply personnel as required by the ship.

F.5.5 Deliverables

a. At the completion of the ILR, the team will provide the following documents and products.

- (1) Updated Stock Record Battery (*OMSTOCK DBF*), to include Storeroom Items (*SRI*) and Technical Manual (*TM*) requisitions
- (2) Listing of SRI/TM Shortage Requisitions
- (3) Tape or DBF of SRI/TM Shortage Requisitions for delivery to the NSC/NSD processing
- (4) Integrated Stock List (*ISL*)
- (5) Shortage Listing (*NSN/Part Number Sequence*)
- (6) Equipment Oriented Shortage Report
- (7) Excess Report (*AT6*)
- (8) Shelf Life Listing
- (9) Updated COSAL SOAPL; when a COSAL is produced, the End of Availability (*EOA*) COSAL (*all parts*) will be delivered to the ship and Area Commander
- (10) Automated and hardcopy SLCC/SLEC
- (11) Special Category Item Listing
- (12) Configuration change forms (*4790/CK*) or Auto-VALAIDs and Logistics Certification Forms for new/modified equipments
- (13) Technical Manual Index (TMI)/Publication Applicability List

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- (a) Copy to ship
- (b) Automated copy to COMSC for CLIP loading/verification
- (14) ACRs, FCFBRs, TMDERs as required
- (15) Instructor critique sheet and student attendance sheet
- (16) Re-labeled material listing
- (17) End of Availability Report

b. A statistical analysis of ILR quality assurance results will be provided to the CDM by the Area Command QA Rep. The report will be in the format of Figure F-2.

F.6 AVAILABILITY SUPPORT QUALITY REQUIREMENTS

a. An AS will be scheduled and performed under written tasking from the CDM, guided by the procedures in the CDMP and the ILR appendix. The CDM will ensure that the contractor:

(1) Has the summary of configuration changes for the current availability extracted from the ship's work/spec package.

(2) Is provided with copies of purchase orders for all overhaul package equipment adds/mods.

(3) Is provided with a hull tailored WSF Level "A" or CLIP extract.

(4) Is provided with historical, hull-tailored CASREP data.

(5) Has access to ship's OPNAV 4790/CK file(s).

b. The Area Command QA Rep will conduct spot checks to ensure that the AS Team performs the following tasks, as appropriate.

F.6.1 Configuration Analysis. As directed by the CDM, the AS Team:

a. Ensures monthly COSAL maintenance actions have been performed.

b. Researches equipments identified by ship's OPNAV 4790/CK files.

c. Researches old AAPs in ship's COSAL.

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ILR QUALITY ASSURANCE ANALYSIS REPORT

CONFIGURATION ANALYSIS

SLCC:	TOTAL CHANGES	NUMBER CHECKED	ERRORS
	<input type="text"/>	<input type="text"/>	<input type="text"/>

REPAIR PARTS ANALYSIS

INVENTORY VALIDITY	SAMPLE SIZE	ERRORS	VALIDITY
DLR'S	<input type="text"/>	<input type="text"/>	<input type="text"/>
REPAIR PARTS	<input type="text"/>	<input type="text"/>	<input type="text"/>

STOREROOM REPAIR PARTS QA

	NUMBER CHECKED	ERRORS
RELABELLED MATERIAL	<input type="text"/>	<input type="text"/>
LOCATION CONSOLIDATION	<input type="text"/>	<input type="text"/>
SHELF LIFE MATERIAL	<input type="text"/>	<input type="text"/>
EXCESS MATERIAL	<input type="text"/>	<input type="text"/>

OVERHAUL EQUIPMENT ADDITIONS

REPAIR PART ADDS IN COSAL	<input type="text"/>	<input type="text"/>
STOCK RECORDS FOR ADDS	<input type="text"/>	<input type="text"/>

TECHNICAL MANUAL ANALYSIS

INVENTORY VALIDITY	SAMPLE SIZE	ERRORS	VALIDITY
	<input type="text"/>	<input type="text"/>	<input type="text"/>
REQUIRED	ON HAND	ON ORDER	ERRORS
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

RECAP

SAMPLE SIZE	ERRORS
<input type="text"/>	<input type="text"/>

FIGURE F-2

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d. Accounts for equipment changes in the current availability, gathers all available technical data, provides APL/AAPs for equipment additions and removes APLs/AAPs for equipment deletions and documents changes.

e. Compares ship's CLIP/WSF V30 extract with ship's SOEAPL to identify configuration discrepancies and to ensure support for equipment additions is available.

F.6.2 Repair Part Analysis. As directed by the CDM, the AS Team:

a. Reviews and documents repair part support for overhaul package equipment additions and deletions.

b. Identifies repair parts to be ordered/excessed.

F.6.3 Technical Manual Analysis. As directed by the CDM, the AS Team:

a. Reviews and documents technical manual support for overhaul package equipment additions and deletes.

b. Identifies technical manuals to be ordered and deleted.

F.6.4 COSAL Use and Maintenance Training. The Area Command QA Rep will ensure that the contractor schedules and provides training for maintenance and supply personnel as required by the ship.

F.7 FLEET ASSISTS

Since Fleet Assists are focused and problem specific, Quality Assurance requirements will be determined by the Area Commander on a task-by-task basis, using the guidelines contained in this appendix under the appropriate ILR functions.

F.8 SUMMARY

Quality cannot be overemphasized in any evolution that impacts on logistic support. By observing the guidelines in this appendix, the MSC CDMP Team will ensure that the fleet is properly supported logistically, which in turn will result in improved operational readiness.

APPENDIX G

SUMMARY OF DIRECTED CDMP RESPONSIBILITIES

G.1 INTRODUCTION

a. This appendix provides, in *"bullet"* format, brief summaries of the directed actions and responsibilities assigned to designated MSC activities under the CDMP. It is a quick reference, by activity, for each major functional element of the program:

(1) CDMP (*General*)

(2) COSAL Documentation and Maintenance

(3) Integrated Logistic Reviews (*Note: Availability Support (AS) and Fleet Assist (FA) visits complement ILRs. These are limited, focused or problem specific subsets of the continuous ILR program. Therefore, depending on the tasks assigned, AS and FA responsibilities are contained in the appropriate functional sections of the ILR.*)

(4) Validations

b. While this appendix is designed to be a comprehensive summary, action addresses should review subject sections of the manual for detailed information and explanations.

G.2 COMSC LOGISTICS DIRECTOR (N4)

G.2.1 General

G.2.1.1 Implement and Oversee CDMP

- a. Manage and oversee the MSC CDMP.
- b. Establish CDMP policies and procedures.
- c. Develop budget for and fund the CDMP.
- d. Develop and maintain the MSC CDMP manual.
- e. Perform the assigned duties of the MSC CDM.
- f. Maintain the MSC central configuration database (*CLIP*).
- g. QA the accuracy of CLIP through continuous cross-checks of feedback documentation with the database.
- h. Coordinate with other Navy activities/commands on configuration status accounting matters.

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G.2.1.2 Validation Team, ILR Team and Readiness Support Group

- a. Provide required contractor services to support:
 - (1) Shipboard Validations (*VAL*)
 - (2) Integrated Logistic Reviews (*ILR*)
 - (3) Availability Support (*AS*)
 - (4) Fleet Assists (*FA*)
- b. Develop and promulgate schedules to perform:
 - (1) VAL
 - (2) ILR
 - (3) AS
- c. Coordinate requirements and resources with Area Commanders to perform FA.

G.2.2 COSAL Documentation and Maintenance

G.2.2.1 Allowance Change Requests (ACR) and Allowance Change Request-Fixed (ACR-F)

- a. Act as the central point of contact for MSC in processing ACRs and ACR-Fs.
- b. Review all ACRs and ACR-Fs for technical and format propriety.
- c. Coordinate as required with the COMSC Engineering Director (*N7*) on ACRs.
- d. Review and approve/disapprove ACRs for MSC unique applications after coordinating functional/maintenance requirements with applicable engineering representatives.
- e. Establish an ACR status tracking program.
- f. Forward ACRs and ACR-Fs to NAVSEALOGCEN for processing.
- g. Establish points of contact at Navy ACR processing control points to resolve technical issues.
- h. Receive and distribute approved/disapproved ACRs and ACR-Fs to Area Commanders.

- i. Receive and resolve, or send to Area Commanders, requests for additional information on ACRs and ACR-Fs.

G.2.2.2 Fleet COSAL Feedback Reports (FCFBR)

- a. Act as the central MSC point of contact.
- b. Review all FCFBRs for technical and format propriety.
- c. Approve/disapprove FCFBR recommendation.
- d. Establish FCFBR status tracking program.
- e. Forward approved FCFBRs to NAVSEALOGCEN for further processing.
- f. Receive and resolve, or send to Area Commands, requests for additional information on FCFBRs.

G.2.2.3 Configuration Change Reporting

- a. As CDM, receive and process all 4790/CK submittals.
- b. Establish OPNAV 4790/CK status tracking program.
- c. Review 4790/CK forms for technical quality and completeness of data.
- d. Load confirmed 4790/CKs into CDM database.
- e. Provide interim status to Area Commanders.
- f. Send confirmation of changes to Area Commanders.
- g. Provide appropriate APL to requestor.
- h. For applicable unprovisioned equipments, provide Preliminary Allowance Lists (*PALs*) to the requestor for unprovisioned equipment.
- i. Provide periodic upload of configuration transactions to WSF.
- j. Research/resolve database discrepancies.

G.2.2.4 Monthly COSAL Maintenance Action Reports (MCMAR)

- a. Act as the single point of receipt for all MSC MCMARs.
- b. Cross-check MCMAR information with CDM data base.

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- c. Download MCMAR to Area Commanders for distribution to respective fleets.
- d. Reformat MCMAR to CLIP download for CLIP ships.

G.2.3 ILR

G.2.3.1 General

- a. Coordinate and schedule all availability contractor support efforts with Area Commanders.
- b. Coordinate availability planning with MSC Headquarters and Area Command Engineering and Contracting staffs.
- c. Order appropriate supporting documents/tapes from SPCC.
- d. Prepare and deliver AUTO-VALAIDS.
- e. Coordinate and oversee all CDMP actions.

G.2.3.2 Pre-Availability Assessment

- a. Establish the configuration data assessment and planning schedule for all ships.
- b. Closely monitor ship availability schedules to plan and effectively execute the continuous ILR program.
- c. Assign and monitor ILR tasking in support of configuration planning requirements.
- d. Provide schedule information to the Area Commander, FOSSAC and ILR Team.

G.2.3.3 Configuration Verification and Analysis

- a. Identify critical/problem equipments and other areas of concentration for analysis.
- b. Review availability work packages and alteration plans, develop a planned add/ delete report and provide it to the ILR team.
- c. Provide availability work packages and other planning data to the ILR Team.
- d. Provide additional guidance as required to accomplish ILR objective.
- e. Obtain the latest configuration data for the ship undergoing a repair availability from the SPCC WSF or the MSC CLIP database.

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f. Coordinate the generation of ship COSAL products based upon the ship configuration data management plan.

g. Receive and load all ILR reported configuration changes into the CDM database.

G.2.3.4 Repair Parts Analysis. Provide additional guidance, as necessary, to the ILR Team.

G.2.3.5 Technical Manual Analysis

a. Obtain the latest hull-tailored Technical Manual to APL cross reference from the MSC Engineering Library, SPCC WSF or CLIP data bases and provide it to the ILR Team.

b. Provide appropriate Technical Manual Research tools to the ILR Team.

c. Up-load new APL-to-Technical Manual data identified during the ILR to the MSC Technical Library, CLIP and the Weapon System File.

G.2.3.6 Training

a. Develop and approve all COSAL use and maintenance and CLIP training curricula.

b. Monitor the NAVSEA ILO program and evaluate any changes which may be beneficial to incorporate into the MSC ILR training program.

G.2.3.7 Post Availability Actions

a. Monitor the ILR effort to ensure that ships' operational needs are supported and that proper action is taken to analyze and correct logistics support problems identified during the depot availability.

b. Based upon post availability reports from the ILR Team, identify areas of concern in any specific ILR element which is incomplete or requires further action by the ILR Team.

G.3 AREA COMMANDER

G.3.1 General

G.3.1.1 Implement and Oversee Shipboard CDMP

a. Maintain a staff section to coordinate configuration data management policy and procedures with MSC CDM.

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- b. Promote support for and implement a strong configuration data management program in the MSC Fleet.
- c. Develop local policy and procedural guidance for ship's force assistance during on-site validation and configuration assist visits.
- d. Emphasize the requirement for utmost accuracy and timeliness in reporting configuration changes.
- e. Establish shipboard procedures for aggressively resolving configuration reporting discrepancies.
- f. Monitor ship requirements for assistance and conduct fleet assist visits based upon ILR Team resources and travel fund availability.
- g. Coordinate shipboard Validation and ILR Team and Readiness Support Group visit schedules with the CDM.
- h. Monitor the quality of configuration status accounting data in the force.
- i. Provide quality assurance of shipboard ILR, Availability Support and Fleet Assist visits.
- j. QA the accuracy of CLIP through continuous cross-checks of feedback documentation with the database.

G.3.2 COSAL Documentation and Maintenance

G.3.2.1 Allowance Change Requests

- a. Identify a single point of contact within the command for the processing and tracking of ACRs and ACR-Fs.
- b. Review all ACRs and ACR-Fs for propriety and adequacy of information and completeness of technical descriptive data.
- c. Return incomplete or incorrect reports to originator.
- d. Determine the applicability of the requested change to other ships.
- e. Approve ACRs for items applicable to a single ship.
- f. Provide the CDM an information copy of approved single ship ACRs to update the configuration database.

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g. Disapprove requests which are not considered to be appropriate for further review or do not meet usage criteria.

h. Forward ACRs and ACR-Fs recommended for approval to the CDM as follows:

(1) ACRs with multiple ship application.

(2) All ACR-Fs, regardless of single or multiple ship application.

(3) Any ACR which requires technical determination beyond Area Commander's expertise.

i. Establish an ACR tracking and status reporting program.

j. Coordinate with originator all ACR responses that ask for additional clarifying information.

k. Provide approved/disapproved ACR to requesting ship.

G.3.2.2 Fleet COSAL Feedback Reports

a. Identify a single point of contact within the command to process and track FCFBRs.

b. Review all FCFBRs for propriety and accuracy of information. Return incomplete or incorrect reports to originator.

c. Forward FCFBRs to the CDM for processing.

d. Establish a FCFBR tracking and status reporting system.

e. Coordinate FCFBR responses and requests for additional information with ship.

G.3.2.3 Configuration Change Reporting

a. Identify a single point of contact within the Area Command to process and track 4790/CKs.

b. Review all 4790/CK forms for propriety and accuracy of information. Return incomplete or incorrect forms to originator.

c. Forward 4790/CK forms to the CDM for processing.

d. Establish a 4790/CK tracking and status reporting system.

e. If available, provide APL to ship.

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- f. Coordinate 4790/CK responses or requests for additional information with the originator.

G.3.2.4 Monthly COSAL Maintenance Action Report

- a. Distribute MCMARs to ships under its administrative command.
- b. Monitor accomplishment of required action by ships.

G.3.3 ILR

G.3.3.1 General

- a. Coordinate availability planning with MSC Headquarters and Area Command Engineering and Contracting staffs.
- b. Provide schedule and planning data to the ships and staff maintenance, logistics and configuration managers.
- c. Send clearance request message for ILR Team to ship/shipyard.

G.3.3.2 Pre-Availability Assessment

- a. Provide the CDM a complete copy of all Work Packages, including all changes.
- b. Provide the ILR Team GFE and CFE technical specifications and status data.
- c. Provide the ILR Team staff points of contact and access to Type Desk and Port Engineer maintenance planning and technical data.
- d. Provide a configuration and logistic representative during the onboard ship assessment and pre-arrival conference.
- e. Review the results of the logistics support assessment and make appropriate recommendations to the CDM.
- f. To aid in the assessment, provide feedback to the ILR Team concerning ship problem equipment, CASREPs and operational capability.
- g. Ensure PTD and repair part support is planned and procured for new equipment.

G.3.3.3 Configuration Verification and Analysis

- a. Provide CFE and GFE procurement and requisition data and PTD to the ILR Team.

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- b. Provide Depot Availability Planning documents to the ILR Team, including Overhaul Progress Conference Agenda, CFE and GFE status listings.
- c. Provide an overhaul point of contact to coordinate equipment sight validations.
- d. Provide quality assurance of configuration changes reported by the ILR Team.

G.3.3.4 Repair Parts Analysis

- a. Review, approve and fund repair parts shortages.
- b. Review and approve potential excess repair part off-load lists.
- c. Direct storeroom inventory if warranted. Provide QA of inventory.
- d. Coordinate delivery of repair parts shortage requisitions and turn in of excess repair parts with supporting supply activities to minimize impact on ship workload.

G.3.3.5 Technical Manual Analysis

- a. Coordinate technical manual requirements for new equipments with the ILR Teams.
- b. Screen all off-loads of excess technical manuals for re-distribution to other ships.
- c. Provide quality assurance of ILR team's Technical Manual Analysis as directed by CDM.

G.3.3.6 Training

- a. Monitor the COSAL Use and Maintenance training provided during ILRs.
- b. Provide feedback to the CDM on the quality of training and course content.

G.3.3.7 Post Availability Actions

- a. Monitor the total ILR effort for every availability to ensure that specific logistic support concerns were adequately addressed.
- b. Review the end of availability reports and provide input to the CDM for follow-on ILR efforts required to meet ship logistics support needs.

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- c. Perform QA of all deliverables, as directed by the CDM.

G.4 SHIP

G.4.1 General

G.4.1.1 Implement Shipboard CDMP

- a. Designate Ship's Configuration Manager, a licensed engineer, who will report to the Chief Engineer.
- b. Report all equipment configuration addition/deletions and modifications as they occur.
- c. Establish files and records to track ACR, FCFBR and 4790/CK submissions.
- d. Review configuration reporting feedback reports from CDM, Area Commander or other activities.
- e. Promptly correct configuration reporting errors and reply to CDM questions.
- f. Provide required assistance and support to Shipboard Validation and ILR Teams and Readiness Support Group personnel.
- g. Provide feedback to CDM on recommended improvements in the program.

G.4.2 COSAL Documentation and Maintenance

G.4.2.1 Allowance Change Requests

- a. Originate an ACR (*NAVSUP form 1220-2*) or ACR-F (*message or letter*), as appropriate, to request a change in COSAL portable equipment, equipage, spares or fixed repair part allowance. (*Note: Do not use an ACR to request changes in installed equipment configuration.*)
- b. Ensure each ACR/ACR-F has all mandatory information on the form to revise allowance.
- c. Forward the ACR to the appropriate Area Commander.

G.4.2.2 Fleet COSAL Feedback Reports

- a. Originate an FCFBR (*NAVSUP Form 1371*) to identify technical discrepancies on APLs/AELs that require data addition, deletion or other correction. (*Note: The FCFBR is not used to report configuration changes.*)

- b. Ensure the FCFBR has sufficient information to determine required changes.
- c. Forward the FCFBR to the appropriate Area Commander.

G.4.2.3 Configuration Change Reports

- a. Originate an OPNAV 4790/CK form for any system/equipment/component that is added/deleted/alterd during operating periods.
- b. Originate a 4790/CK form for any system/equipment/component that is not supported in ship's current COSAL.
- c. Originate a correction 4790/CK form for any system/equipment/component that is incorrectly supported (*e.g., missing or conflicting characteristics data*).
- d. Ensure 4790/CK form is filled out completely and correctly, with sufficient information to update the MSC configuration database. When possible, identify appropriate APL (*from MIAPL or other local source*) and obtain a copy.
- e. Forward 4790/CK to the appropriate Area Command.
- f. Ensure that proper turn-in and disposition action is accomplished for replaced or deleted equipments or components.
- g. Ensure that funding is obtained and repair parts associated with reported configuration changes are ordered in accordance with existing MSC guidelines (*at a minimum, during the next ILR/AS/FA*).

G.4.2.4 Monthly COSAL Maintenance Action Report

- a. Upon receipt of the MCMAR, take immediate action to update the COSAL or other ships allowance documents.
- b. Order appropriate repair parts.

G.4.3 ILR

G.4.3.1 General

- a. Provide onboard access and working space for the ILR Team.
- b. Provide the ILR Team access to all ship overhaul planning documentation.
- c. Designate a shipboard ILR coordinator.

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G.4.3.2 Pre-Availability Assessment

- a. Provide the ILR Team access to files and records. Provide copies of automated supply or maintenance reports/data bases for analysis.
- b. Ensure that all stock record maintenance actions and requisitions are accurate and current.
- c. Identify critical/problem equipments that lack proper logistics support.

G.4.3.3 Configuration Verification and Analysis

- a. Provide the ILR Team access to COSAL and configuration related correspondence (*e.g., outstanding 4790/CK file*).
- b. Provide the ILR Team the latest COSAL, COSAL maintenance records, storeroom inventory records and requisition files.
- c. Monitor modifications to the Work Package that occur during the availability.
- d. Inform the ILR Team when unplanned configuration changes take place during the availability.
- e. Provide any PTD received with new equipments to the ILR team for review and appropriate action.

G.4.3.4 Repair Parts Analysis

- a. Provide the ILR Team the currently outstanding requisitions for stock deficiencies, historical demand data and supply effectiveness data.
- b. Provide all repair part listings for contractor furnished interim spares to the ILR Team.
- c. Provide the ILR Team all repair parts received during the availability.
- d. Process all repair parts received after the end of the availability.
- e. Review the repair parts shortage listing and make recommended changes based upon storeroom space and funding required for the shortages.

G.4.3.5 Technical Manual Analysis

- a. Provide a point of contact to support the Technical Manual Inventory (*e.g., the Ship Configuration Manager*).

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- b. Turn over any preliminary technical manuals received from the equipment manufacturer to the ILR Team for inventory.
- c. If required, process technical manual requisitions from the ILR Team.
- d. Process all technical manuals and changes received after the end of the availability.

G.4.3.6 Training

- a. Ensure that key maintenance and supply personnel are identified and made available to receive training during the ILR.
- b. Provide feedback to the Area Commander on the quality of training and course content.

G.4.3.7 Post Availability Actions

- a. Monitor and follow-up on all end of availability repair part shortages, including contractor furnished equipment parts.
- b. Receive and process all repair parts into appropriate storerooms.
- c. Upon Area Commander approval, offload excess repair parts.
- d. Ensure that stock records are properly updated with storeroom locations for all receipts.
- e. Monitor and follow-up on all end of availability technical manual requisitions and contractor furnished technical manuals.
- f. Receive and record technical manuals in the Tech Library.
- g. Process the post availability COSAL Indices if provided. Upon receipt of an updated post-availability COSAL index, verify that all transactions in the master SLCC/ SLEC were incorporated.

G.5 ILR TEAM

G.5.1 ILR

G.5.1.1 General

- a. Monitor the CDM's availability support schedule and liaison with the Area Commander and ship.

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b. Contact the appropriate MSC representatives to ensure that the Work Package is complete, and that all planned equipment alterations are identified and documented on the Planned Equipment Addition/Deletion Report.

G.5.1.2 Pre-Availability Assessment

a. Obtain the Work Package and Planned Equipment Addition/Deletion Report and conduct the Pre-Availability Work Package Review as specified in the CDMP Manual.

b. Obtain required ship data and files to conduct the "onboard" portion of the pre-availability logistics readiness assessment.

c. Accomplish the logistics analysis specified in the CDMP manual.

d. Report the results of the analysis to the CDM and Area Command representatives.

e. Provide the CDM inputs to the ILR work plan.

f. Complete the inventory validity check, and, if tasked, perform the repair part storeroom inventory. Inventory all Ready Service Spares (RSS) and Maintenance Assist Modules (MAM).

G.5.1.3 Configuration Verification and Analysis

a. Obtain and review work package and the listing of planned configuration changes (*including interim provisioning documentation*) to be accomplished during the availability.

b. Incorporate all configuration changes into the Summary List of Component Changes/Summary List of Equipage Changes (SLCC/SLEC) resulting from equipment alterations accomplished during the availability.

c. Conduct sight validation for all planned and emergent equipment additions/deletions/modifications.

d. Incorporate into the SLCC/SLEC valid Ship's Configuration Change Form (OPNAV 4790/CK) data resulting from ILR site validations.

e. Review/resolve validation fallout records.

f. Research CASREP equipments not identified in the ship's configuration.

g. When applicable, obtain PTD for equipment alterations from the Area Commander/vendor.

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- h. At the end of availability produce the Master SLCC/SLEC. Verify that the contents are accurate. Complete logistic certification forms for new/modified equipments. Initiate PALs for new, unprovisioned equipments and update the COSAL. Forward PALs to the CDM.
- i. Submit the Master SLCC/SLEC to the CDM for entry into the MSC ship configuration database and SPCC Weapon Systems File.
- j. Provide a copy of SLCC/SLEC to the ship for information and further use.
- k. Review ship COSAL maintenance files and records. Complete/correct any remaining required COSAL maintenance action.
- l. Provide ship/Area Command/CDM with an EOA database to include summary of all configuration changes, status of repair part and Tech Manual shortages/excesses, PTD and measures taken to provide interim support for new/unprovisioned equipments.

G.5.1.4 Repair Parts Analysis

- a. Based on a review of the ship's 4790/CK records and the results of the configuration verification and analysis, identify repair part shortages and excesses.
- b. Upon Area Commander approval, assist ship in requisitioning shortages.
- c. Process and stow all shortages received during the availability.
- d. Prepare turn-in documents for all approved excesses.
- e. If tasked by the CDM or Area Commander, pull excess material from stock.
- f. Turn-in excess parts to the supply system or to a COMSC designated activity.
- g. Deliver shortage list along with the latest supply status, and stock record cards for all newly allowed repair parts (*manual or automated*) to the ship at the conclusion of the depot availability.

G.5.1.5 Technical Manual Analysis

- a. Perform inventory validity check or inventory the technical manuals (*if not previously accomplished by VAL Team*).
- b. Identify technical manual shortages and excesses based upon the newly installed equipments and the configuration to technical manual analysis.

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- c. Review the currency of required technical manuals.
- d. Assist ship in requisitioning the required changes/revisions.
- e. During the availability, receive, log and enter all new manual revisions and changes.
- f. Deliver updated inventory, Technical Manual Index and requisition shortage list to the ship at end of availability.
- g. Provide the results of the Technical Manual Analysis to the CDM, in data base format, to update the MSC Technical Library and CLIP.

G.5.1.6 Training

- a. Provide shipboard and classroom training using appropriate MSC curriculum.
- b. Coordinate class schedules with ship and Area Commander.
- c. Develop training curricula, as required.

G.5.1.7 Post Availability Actions

- a. Ensure that all goals of the ILR efforts established by the CDM are met, and shortfalls or discrepancies are communicated to the CDM at the end of the availability.
- b. Evaluate the results of each ILR element and make recommendations to the CDM for follow-on ILR efforts.
- c. Update ship configuration data with the latest information after the end of the depot maintenance period.
- d. Generate the SLCC; confirm Configuration changes are correct. Based upon the SLCC, generate required configuration change forms and reports and forward them to the CDM, via the Area Commander.
- e. When the CDM Configuration Data Management Plan calls for a new ship's COSAL, coordinate with the CDM to ensure that the new COSAL is produced.
- f. Obtain the latest outstanding Contractor Furnished Technical Data and Equipment Listing from the overhaul coordinator.
- g. Ensure that all technical data and equipment information is provided to the ship and Area Commander.

G.6 VALIDATION TEAM

G.6.1 Validations

G.6.1.1 General

- a. Monitor the CDM's availability schedule and liaison with the Area Commander and ship.
- b. Obtain the appropriate validation aids from the CDM.

G.6.1.2 Validation

- a. Using AUTO-VALAID data base, print appropriate products.
- b. Conduct sight validation for all installed equipments, as directed by CDM.
- c. If possible, obtain PTD from the vendor or Area Commander for equipment not previously recorded.
- d. Conduct inventory of technical manuals.
- e. Conduct 100% quality check of work performed.
- f. Deliver end of availability products.
 - (1) Automated validation aids
 - (2) Technical manual inventory database
 - (3) MSC Validation Summary Report

G.7 FOSSAC

G.7.1 Validations

G.7.1.1 General

- a. Represent the CDM as the Quality Assurance Representative.
- b. Review not less than 50% of the total validation aids.
- c. Review not less than 40% of the equipments.
- d. Provide statistical analysis to CDM.