

NAVSEAINST 4790.8D  
17 Jun 2021



# Ships' 3-M Manual





DEPARTMENT OF THE NAVY  
NAVAL SEA SYSTEMS COMMAND  
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IN REPLY REFER TO

NAVSEAINST 4790.8D  
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NAVSEA INSTRUCTION 4790.8D

From: Commander, Naval Sea Systems Command

Subj: SHIPS' MAINTENANCE AND MATERIAL MANAGEMENT MANUAL

Ref: (a) OPNAVINST 4790.4F  
(b) COMUSFLTFORCOMINST 4790.3 REV D

1. Purpose. To issue a revised Ships' Maintenance and Material Management (3-M) Manual which incorporates new and updated maintenance management policy. This instruction is a complete revision and should be reviewed in its entirety.

2. Cancellation. NAVSEAINST 4790.8C.

3. Responsibilities. Reference (a) contains Chief of Naval Operations (OPNAV) policy regarding the 3-M System and assigns responsibilities to Naval Sea Systems Command (NAVSEA) Field Activities, Systems Commands (SYSCOMS) and the Naval Medical Command (NMC) for providing support.

4. Records Management

a. Records created as a result of this instruction, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the Department of the Navy/Assistant for Administration (DON/AA), Directives and Records Management Division (DRMD) portal page at <https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx>.

b. For questions concerning the management of records related to this instruction or the records disposition schedules, please contact your local records manager.

5. Review and Effective Date. Per OPNAVINST 5215.17A, NAVSEA Maintenance Engineering Division (SEA 04RM), will review this instruction annually on the anniversary of its effective date to ensure applicability, accuracy, and consistency with Federal, DoD, SECNAV, and Navy policy and statutory authority using OPNAV 5215/40 Review of Instruction. This instruction will automatically expire 10 years after effective date unless reissued or canceled prior to the 10-year anniversary date, or an extension has been granted.

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6. Forms. Required forms and reports are listed in Appendix B.

  
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This instruction is cleared for public release and is available electronically only via the NAVSEA Public Website located at <https://www.navsea.navy.mil/Resources/Instructions/>

## SUMMARY OF CHANGES

1. This revision to NAVSEAINST 4790.8 (Ships' 3-M Manual) primarily moves "how to" information to the reference (b), Joint Fleet Maintenance Manual (JFMM) Volume VI, Chapter 19. Per discussions and agreements reached by the Fleet Forces Command (FFC) chartered 3-M Requirements Management Board (RMB), NAVSEAINST 4790.8 will continue to be the policy instruction (what we do) and the JFMM will be the implementation (how we do it) document. Reference to the JFMM in the following text refers to Volume VI, Chapter 19 unless otherwise noted. NAVSEAINST 4790.8D incorporates NAVSEAINST 4790.8C Change 1.
2. Global Changes. Format of this manual changed in order to comply with OPNAV Manual 5215.1 and Navy Style Guide.
  - a. References have been included at the beginning of each chapter with a complete listing of references, in alphabetical order, as Appendix A.
  - b. Drawings have been added at the end of each chapter vice having a Figure section at the end of the manual.
3. Section I
  - a. Chapter 1. The Maintenance and Material Management (3-M) System. This chapter has been significantly changed. All Command Organization roles and responsibilities paragraph 1-2.1 through 1-2.10 have been expanded upon and moved to the JFMM Volume VI, Chapter 19. Chapter 19 has been rewritten to give an overview of 3-M and the interface between the FFC 3-M RMB and the NAVSEA Configuration Control Board (CCB).
  - b. Chapter 2. Planned Maintenance System. This chapter was revised to move sailor "how to" direction and procedures to the JFMM. Specific changes:
    - (1) Paragraph 2-4.1 and 2-4.2, new paragraph 4.a, PMS Master File, revised to direct the reader to the JFMM for specifics concerning the PMS Master File.
    - (2) Paragraph 2-4.3 and 2-4.4, new paragraph 4.b, PMS Work Center File, revised to direct the reader to the JFMM for specifics concerning the Work Center File.
    - (3) Paragraph 2-4.4 b. (7) new paragraph 4.d.1(7)(h) adds "RV" to the list of letters to be found in the other column of the Maintenance Index Page (MIP). RV denotes a maintenance requirement on a Navy Diving Life Support Systems (DLSS) asset or system/equipment that is within the Scope of Certification (DLSS-SOC) where Re-entry control (REC) documentation is required."

(4) Paragraph 2-4.4 b. (12) new paragraph 4.d.1(12), Man-Hours (M/H), adds “When performing maintenance on systems that must meet certification requirements, including but not limited to Submarine Safety Program (SUBSAFE), REC, Level 1 controls, Fly-by-Wire (FBW), and Scope of Certification (SOC) systems, the M/H determination for maintenance should include the time required for completion of those in-process certification requirements. M/H is listed in hours and tenths of an hour”. Same change made under Maintenance Requirement Card (MRC) definitions.

(5) Paragraph 2-4.5.d. 9 deleted, as this section has been approved by the JFMM BOD (Oct. 26, 2016) for inclusion into the JFMM Volume VI, Chapter 19.

(6) Paragraph 2-4.7, sub-paragraphs a through e deleted as information was moved to JFMM Volume VI, Chapter 19.

(7) Paragraph 2-4.8 is now reflected as 4.o, PMS Trend Data.

(8) Paragraph 2-4.9 is now reflected as 4.p, Preliminary PMS Documentation.

(9) Paragraph 2-4.10 and .11 are now reflected as 4.q, Advanced Change Notices (ACN).

(10) Paragraph 2-4.12 now reflected as 4.s, 13-Week Accountability Log, with a majority of the “how to” information transferred to the JFMM. Personal Identification Number (PIN) functionality also addressed.

(11) Paragraphs 2-5.1 and 2.5-2 are deleted and content of paragraphs moved to the JFMM.

(12) Paragraph 2-6.1 and 2-6.2 are now reflected as paragraph 5. Old sub-paragraph 2-6.2.a deleted as this information is covered by JFMM.

(13) Paragraph 2-7 now reflected as paragraph 6, PMS Force Revision. Paragraph 2-7.b (5) and Paragraph 2-7.c deleted as information now provided with JFMM.

(14) Paragraph 2-8, sub-paragraphs a through e deleted as information as information was moved to JFMM. Now reflected as paragraph 7, PMS Self-Assessment.

(15) Paragraph 2-9 now reflected as paragraph 8, Equipment Not Covered by PMS and expands upon when PMS development is not required.

(16) Paragraph 2-10 now reflected as paragraph 9, Inactive Equipment Maintenance (IEM). IEM paragraph revised to align with JFMM; paragraph 10 added to cover deactivated equipment.

c. Chapter 3. Initial Planned Maintenance System Installation and Update during Overhaul. Updated timeframe for load-out of PMS on submarines new paragraph 1.b.(2)(a).

d. Chapter 4. Organizational Level Maintenance Data System Interface. This chapter was revised to move sailor “how to” direction and procedures to the JFMM. Specific changes:

- (1) Paragraph 4-1 rewritten to cover just purpose.
- (2) Paragraph 4-4.1 Restructured and data added concerning ASI updates.
- (3) Paragraph 4-4.3 Restructure to reflect applicable JFMM sections. “How to” procedures for completing OPNAV forms 4790/ 2K, 2L and CK were moved to JFMM.
- (4) Paragraph 4-4.4 revised to direct reader to JFMM.
- (5) Paragraph 4-4.5 deleted as content moved to JFMM.
- (6) Paragraph 4-4.6 and 4-4.7 deleted with content moved to JFMM.
- (7) Paragraph 4-4.8 deleted; information moved to JFMM Vol VI, Chapter 24.
- (8) Paragraph 4-4.9 deleted with content moved to JFMM.
- (9) Paragraph 4-4.10 deleted with content moved to JFMM.
- (10) Paragraph 4-5 revised for content and format, but no significant changes.
- (11) Paragraph 4-6 relocated to new paragraph 4.g, Screening and Submission Process and 4.h, Transaction and Error Report.
- (12) Paragraph 4-7 deleted and content moved to JFMM.
- (13) Paragraph 4-8 revised to direct reader to the JFMM.

e. Chapter 5. Ship Inactivation, Reactivation, Strike or Transfer to Foreign Navies. There are no significant changes other than to incorporate formatting requirements.

f. Chapter 6. Maintenance Scheduling SKED. Added maintenance scheduling policy from information formerly in Appendix G, “How to Create and Maintain Planned Maintenance System (PMS) Schedules Using SKED 3.2.”

**4. Section II**

- a. Chapter 1. INSURV Inspection Procedures. There are no significant changes to the Board of Inspections and Surveys (INSURV) other than reformatting to comply with new requirements.
- b. Chapter 2. TYCOM/ISIC Assist Visits and 3-M Inspections. Type Commander (TYCOM)/Immediate Superior in Command (ISIC) Assist Visits and 3-M Inspections chapter has no significant changes other than reformatting to comply with new requirements.
- c. Chapter 3. Submarine Performance Monitoring Team (PMT) Maintenance and Inspection Procedures. There are no significant changes other than to incorporate formatting requirements.
- d. Chapter 4. Common Assessment Procedure Development for Material Condition Assessment, Inspection, Certification and Assist Visits of Aircraft Carriers and Surface Ships. There are no significant changes other than to incorporate formatting requirements.

e. Chapter 5. Fleet Maintenance Effectiveness Review (MER) Process Guide. Chapter deleted; superseded by NAVSEAINST 4790.26A Common Maintenance Planning Working Group, Enclosure (2).

**5. Section III**

- a. Chapter 1. Reports and Services Available from Naval Sea Logistics Center (NSLC). No significant changes to content except references to the Ships' 3-M Reference CD-ROM/DVD were removed; the CD/DVD is no longer available; reformatting incorporated to comply with new requirements.

**6. Section IV**

- a. Chapter 1. 3-M System Training. There are no significant changes other than to incorporate formatting requirements.

**7. Section V**

- a. Chapter 1. Aircraft Carrier, Submarine and Surface Ship Class Maintenance Plans. There are no significant changes other than to incorporate formatting requirements. This chapter will be superseded by NAVSEAINST 4790.30 Class Maintenance Plan Policy when published.

**8. Appendices**

- a. Added new Appendix A (Master List of References) and Appendix B (Forms and Reports).
- b. Appendix C. Data Element Descriptions and Validation Specifications. (Formerly Appendix A in 4790.8C). Significant format changes and Naval Sea Logistics Center (NSLC) changes to Reference Codes information to include listing of a website. Specific changes:
  - (1) Paragraph 3 information concerning Reference Codes updated.
  - (2) Added input to Action Taken Codes dealing with NSLC website.
  - (3) Adds a note dealing with CK and 2K use of Action Taken Codes.
  - (4) Availability Code updated to reflect use of NSLC Reference Code Forum website.
  - (5) Final Action (Intermediate Maintenance Activities (IMA) only) updated to reflect use of NSLC Reference Code Forum website.
  - (6) Paragraph 4.a.(2) (a) updated to reflect use of NSLC Reference Code Forum website.
  - (7) Paragraph 4.e.(2), Equipment Identification Codes (EIC), the references to the Ships' 3-M Reference CD-ROM/DVD were removed; the CD/DVD is no longer available.
  - (8) Paragraph 4.f.(1) updated to reflect use of NSLC Reference Code Forum website.
  - (9) Paragraph 4.s.(12) and 4.s(13) definitions for Ship's Force man-hours updated.
  - (10) Codes for Other Alterations and IMA Work Centers revised.
- c. Appendix D. Ship's 3-M Form (OPNAV 4790/2P) Preparation Maintenance Planning and Estimating. (Formerly Appendix B in 4790.8C) Revised to reflect 2P directions only. 2K, 2L and CK directions moved to the JFMM.
- d. Appendix E. 3-M Automated Periodic Maintenance Program (Master Job Catalog and Periodic Maintenance Requirements). (Formerly Appendix C in 4790.8C) Significant format changes. Paragraph and Figure depicting the modified PMR CK for reporting when automated system not available deleted per submarine forces direction. Form no longer used.
- e. Appendix F. List of Acronyms. (Formerly Appendix D in 4790.8C) Updated to reflect Manual revisions. All references to SPAWAR changed to NAVWAR throughout manual.
- f. Appendix G. Ship's 3-M Points of Contact. (Formerly Appendix E in 4790.8C)

- g. Appendix H. Alteration Management. (Formerly Appendix I in 4790.8C) A basic rewrite based on input from NAVSEA 04RP.
- h. Appendix I. Reliability-Centered Maintenance Certification Program. (Formerly Appendix J in 4790.8C) No significant changes other than reformatting to comply with new requirements.
- i. Appendix J. Assignment of Responsibilities for the Planned Maintenance System (PMS) of the Ships' Maintenance and Material Management. (Formerly Appendix H in 4790.8C) Significant format changes; combined Waiver information into one paragraph and added a section dealing with adding Network Software Procedures to PMS.
- j. NAVSEAINST 4790.8C Appendix F. How to Create and Maintain Planned Maintenance System (PMS) Schedules Using SKED 3.1. Appendix deleted as SKED 3.1 is being replaced with SKED 3.2 and the decision has been made to utilize the SKED User's Manual vice an Appendix in the 3-M Manual.
- k. NAVSEAINST 4790.8C Appendix G. How to Create and Maintain Planned Maintenance System (PMS) Schedules Using SKED 3.2. Appendix G deleted as the decision was made to utilize the SKED User's Manual vice an Appendix in the 3-M Manual. Pertinent SKED and Tailored Force Revision (TFR) information now provided as Chapter 6 of Section I.

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## **SECTION I**

### **CHAPTER 1**

THE MAINTENANCE AND MATERIAL MANAGEMENT (3-M) SYSTEM

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THE MAINTENANCE AND MATERIAL MANAGEMENT (3-M) SYSTEM

Ref: (a) OPNAVINST 4790.4 Series  
(b) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)

1. Scope

This instruction incorporates the requirements of references (a) and (b) and is applicable to all ships and shore station equipment under the cognizance of Naval Sea Systems Command (NAVSEA). This also includes, but is not limited to, Navy Meteorological Equipment, equipment of the Naval Air Traffic Control, Air Navigation and Landing System (NAALS), Aircraft Launch and Recovery Equipment (ALRE), Commander Naval Reserve Force, Navy Education and Training Command (NETC) activities, all Navy Expeditionary Combat Command (NECC) activities and Commander Navy Installations Command (CNIC) including Marine Corps Installations East (MCI-E), Marine Corps Installations West (MCI-W) and Marine Corps Bases Pacific (MARCORBASESPAC) activities.

- a. It does not apply to systems and equipment under the cognizance of Naval Nuclear Propulsion Directorate (NAVSEA 08), Director of Strategic Systems Program (DIRSSP) and aeronautical support equipment covered in the Naval Aviation Maintenance Program (NAMP). (For example, aviation and support equipment listed on the command's Individual Material Readiness List (IMRL) are covered under the Naval Aviation Maintenance Program (NAMP); NAVSEA/NAVSUP owned equipment are covered under the 3-M System per NAVSEAINST 4790.8). Ships, service craft and small boats manned by civilian crews are also exempted from this instruction unless approved by the Chief of Naval Operations (CNO) as specified in reference (a).
- b. In addition to appearance, "how to" maintenance policy, as approved by the 3-M Requirements Management Board, has been moved to the Joint Fleet Maintenance Manual, Volume VI, Chapter 19. Enclosure (1) contains a complete synopsis of changes.
- c. Common support equipment used by both ship's force and naval aviation units must have Planned Maintenance System support following the policy of this instruction.
- d. Management of shipboard PMS and corrective maintenance is the responsibility of the Commanding Officer. It is imperative that Commanding Officers maintain a comprehensive program within their command to monitor the health of their maintenance system. To this end, an aggressive 3-M Self-Assessment Program is vital to ensure quality maintenance is being performed. The number of spot checks required each week will vary between units and will be

determined by guidelines provided in reference (b). Periodic 3-M Self-Assessments/evaluations must be conducted by each Commanding Officer to determine the exact state of their programs.

e. For the purposes of this instruction, maintenance is defined as, "Actions taken to ensure that systems, equipment and components perform their intended function when required."

## 2. Purpose

The Ship's 3-M System manages afloat and applicable shore station equipment. This system provides maintenance and material managers throughout the Navy with processes and tools for planning, acquiring, organizing, directing, controlling, and evaluating the manpower and material resources used to support maintenance. The goal of the Ship's 3-M System is to manage maintenance and maintenance support to achieve maximum equipment operational readiness. The Ship's 3-M System provides:

- a. Standardization. Achievement of uniform maintenance standards and criteria.
- b. Efficiency. Effective use of available manpower and material resources in maintenance and maintenance support efforts.
- c. Documentation. Recording maintenance and maintenance support actions to establish a material history.
- d. Analysis. Used to improve reliability and maintainability of systems and equipment, and to reduce cost of material ownership.
- e. Configuration Status Accounting. The reporting and recording of changes to installed equipment, equipment configuration specifications, and shipboard location.
- f. Scheduling. Standardized method for planning, managing, executing and tracking maintenance requirements and accomplishments. This includes component requirements from class maintenance plans.

The Ships' 3-M System consists of 1) the Planned Maintenance System (PMS) and 2) the Maintenance Data System (MDS). The Maintenance Data System provides information and reports for fleet maintenance and maintenance support. It produces and manages the Current Ship's Maintenance Project (CSMP) Reports, manages the planning, scheduling, and reporting of maintenance, and gathers maintenance history, which is stored in the Ships' 3-M System database.

## 3. Organization

Reference (b) Volume VI, Chapter 19 now delineates 3-M responsibilities for key organizational

maintenance personnel in both the shipboard and shore-based environment.

#### **4. 3-M Requirement Management Board (RMB) & Configuration Control Board (CCB)**

a. The 3-M Requirements Management Board (RMB) was created in 2014 and establishes a repeatable process for identifying, evaluating, and prioritizing stakeholder requirements in a forum that communicates, documents, and verifies these needs among all 3-M stakeholders. Comprised of representatives from USFF, CPF, CNAL, CNAP, CNSL, CNSP, CSL CSP, NECC, CNIF and CNIC as well as SEA 04, SEA 05, SEA 06, and NSLC, the 3-M RMB facilitates the identification and resolution of requirements and configuration issues that extend across functional and software application boundaries of the 3-M System. The specific purposes of the RMB are to provide OPNAV with a defendable list of prioritized 3-M requirements for FYDP planning; deliver a list of prioritized 3-M functional requirements to the 3-M CCB; and maintain all functional manager and fleet stakeholder 3-M requirements while ensuring they support the Joint Fleet Maintenance Manual (JFMM), reference (b) and NAVSEAINST 4790.8, the 3-M Manual. The 3-M RMB acts as the owner and user advocate of the functional-level requirements that have been identified as part of the NAVSEA 04 3-M Program, including applications, interfaces, products, and policies. The RMB is responsible for validating all 3-M requirements, including those initiated through Change Proposals (CPs).

b. The 3-M Configuration Control Board (3-M CCB) was also created in 2014, and establishes and maintains technical and functional baselines for the 3-M System. The 3-M CCB provides integrated and disciplined oversight to produce a structured and streamlined control process for managing the 3-M System throughout its development and intended life cycle. Chaired by SEA 04RM, members include the NAVSEA 3-M Program Manager, Naval Sea Logistics Center Deputy Program Manager for 3-M, 3-M Functional Managers for U.S. Fleet Forces and Pacific Fleet, the NAVWAR Program Manager for maintenance systems, and the NAVSEA Program Manager for configuration. The 3-M CCB executes requirements approved by the 3-M RMB. It reviews change requests, analyzes the feasibility and impact of changes, proposes better or less expensive alternatives, tests and accepts software, updates policies, and communicates with stakeholders. Whereas the 3-M RMB, with members from Fleet and Type Commanders, focuses on what the 3-M System must be able to do, the 3-M CCB defines how it will meet those requirements within established funding. The 3-M CCB ensures requirements are defined and articulated, proposed changes are implemented only after understanding the impact on related systems, and policy remains aligned with the needs of the fleet.

#### **5. Submission of Changes to this Manual**

All requests for change to this manual will be submitted using the PMS Feedback Report process outlined in Section I, Chapter 2 and Appendix J of this manual. A Ships' 3-M Manual change request/correction form is also available from the Navy 311 web site (equipment/maintenance tab) available from: <http://www.public.navy.mil/navwar/navy311/Pages/home.html> Use this form to report deficiencies, problems, and make recommendations to this instruction.

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**SECTION I**  
**CHAPTER 2**  
PLANNED MAINTENANCE SYSTEM

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PLANNED MAINTENANCE SYSTEM

- Ref:
- (a) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)
  - (b) NAVSEAINST 4734.1B (NAVSEA Test, Measurement and Diagnostic Equipment (TMDE) and Calibration Programs)
  - (c) SECNAVINST 5510.36A (Department of the Navy Information Security Program Instruction)
  - (d) OPNAVINST 3120.32D (Standard Organization and Regulations of the U.S. Navy)
  - (e) Nuclear Powered Submarine Atmosphere Control Technical Manual Volume 1 (0910-LP-104-7333 (UNCLASSIFIED))
  - (f) Nuclear Powered Submarine Atmosphere Control Technical Manual Volume 2 (0910-LP-275-1800 (CONFIDENTIAL))

**1. Purpose**

This chapter provides Maintenance and Material Management (3-M) System policy and guidelines in support of the Planned Maintenance System (PMS.) PMS provides the command's maintenance team with the tools to plan, schedule, and control planned maintenance effectively. The maintenance procedures developed under Reliability-Centered Maintenance (RCM) principles are the minimum required to maintain equipment within specifications. Though standard in concept and procedure, PMS is flexible enough to be adjusted by the organization to be compatible with operational schedules and other demands.

**2. Scope**

PMS supersedes all previous planned or preventive maintenance systems or programs. Where a difference exists between the requirements and procedures of PMS and other technical publications or systems, PMS requirements will prevail. Differences should be reported using PMS feedback reporting procedures. Equipment not supported by PMS will continue to be maintained per existing manufacturer documentation, Systems Commands (SYSCOM) technical manuals or Bureau of Medicine and Surgery (BUMED) technical manuals, until PMS is developed and installed. Naval Sea Logistic Center (NSLC) Detachments Norfolk and San Diego function as PMS Coordinating Activities (PMSCA) for the accountability and distribution of PMS documentation.

**3. Objective**

The objective of PMS is to maintain equipment within design specifications through preventive maintenance and to identify and correct potential problems before the equipment or system becomes inoperable. PMS provides:

- a. Comprehensive procedures developed under RCM principles for the planned maintenance of systems and equipment.
- b. Minimum requirements for planned maintenance.
- c. Scheduling and control of the performance of tasks.
- d. Description of the methods, materials, tools, and personnel needed for maintenance.
- e. Detection of hidden failures or malfunctions.
- f. Test procedures to determine material readiness.
- g. Assessment procedures to determine material condition of equipment.

#### 4. PMS Policy

PMS policy dealing with RCM waivers; PMS responsibilities and procedures; PMS for new construction ships, ships in overhauled, in-service and new systems and equipment, alterations, and foreign navies; PMS Feedback Reports and their processing; and policy for PMS network software procedures are described in Appendix J of this instruction.

#### 5. PMS Functional Components

- a. PMS Master File. The PMS Master File contains information relative to PMS requirements for specific equipment for which the command is responsible. The contents of the Master File are delineated in reference (a), the Joint Fleet Maintenance Manual (JFMM), Volume VI, Chapter 19.
- b. PMS Work Center File. The PMS Work Center File reflects that portion of the PMS Master File applicable to a particular work center. The PMS Work Center File is designed to provide a ready reference of planned maintenance requirements and is retained in the work area for use by the Work Center Supervisor (WCS) and maintenance personnel. The contents of the PMS Work Center File are delineated in reference (a), JFMM, Volume VI, Chapter 19.
- c. List of Effective Pages (LOEP). The LOEP, (Figure I-2-1) provides a listing of the Maintenance Index Pages (MIP) for systems and equipment assigned to each work center, those systems and equipment not requiring PMS, or those systems and equipment currently being evaluated for PMS. The LOEP is designated as the "PMS-5" report. The LOEP contains the data elements listed in subparagraphs 4.c.(1) through 4.c.(13):
  - (1) Report date, which is the date the LOEP is produced.

- (2) Force Revision (FR) number.
- (3) Type Commander (TYCOM.)
- (4) Activity Identification, or “Act. Id”, which is the ship’s hull number or shore activity Unit Identification Code (UIC.)
- (5) Unit Identification Code (UIC).
- (6) Work Center.
- (7) Name of ship or shore activity.
- (8) Designator to indicate changes from an earlier FR, denoted by an “A” if the MIP was newly added to an activity’s LOEP, or a “C” if the contents of the MIP changed.
- (9) MIP number.
- (10) Maintenance Requirements Substantiated (MRS) tracking number.
- (11) No Maintenance Required (NMR) tracking number.
- (12) Nomenclature, which is a brief description of the system or equipment.
- (13) Repairable Identity Code (RIC), Allowance Parts List (APL) or Allowance Equipage List (AEL.)

d. Maintenance Index Page (MIP). MIPs (Figure I-2-2) are prepared and issued for each installed system or equipment for which PMS support has been established. MIPs are basic PMS reference documents. Each MIP is a complete index of Maintenance Requirement Card (MRC)s applicable to a ship system, subsystem, or equipment. MIPs contain the information and instructions listed in subparagraphs 5.d.(1) through 5.d.(16):

(1) MIP SYSCOM Control Number. Three SYSCOM MIP control numbering systems have been developed based on changing PMS philosophy: Conventional, Surface Missile System (SMS), and RCM numbering systems. Preliminary MIPs are those documents not certified via the PMSCA, have yet to undergo a full RCM analysis, but are released in a preliminary format to support maintenance while the RCM analysis is being conducted. Since nearly all new maintenance requirements are established using RCM principles, preliminary control numbers are modified RCM MIP SYSCOM control numbers.

(a) Conventional MIP SYSCOM Control Number. A four-segment code is used. The first segment identifies the equipment group and may contain from one to three characters

followed by a dash (-). The second segment identifies a specific subgroup or component number within an equipment group and may contain from one to four characters followed by a slash (/). The third segment identifies a distinct version within that equipment subgroup and may contain from one to three characters followed by a dash (-). The fourth segment contains two characters identifying the month and year the MIP was prepared or revised. The numbers 1 through 9 are used for the months January through September and the letters A through C are used for the months of October, November and December. The final character is a number indicating the last digit of the year the MIP was prepared or revised. For example, a conventional MIP SYSCOM control number may look like “A-061/701-A8” where the equipment group is A, the equipment subgroup or component number is 061, the version is 701, the month of issue is October and the year of issue is 1998, 2008, or 2018.

(b) SMS MIP SYSCOM Control Number. A three-segment code is used. The first segment identifies the equipment group and contains seven alphanumeric characters followed by a slash (/). The second segment identifies the equipment configuration and contains three characters followed by a dash (-). If the first character in the second segment is “U”, this is Unscheduled Maintenance; otherwise, this is scheduled maintenance. The third segment contains two characters that identify the month and year the MIP was prepared or revised. For example, a SMS MIP SYSCOM control number may look like “5HEK000/003-78” where the equipment group is 5HEK000, the equipment configuration is 003, the month of issue is July, and the year of issue is 1998, 2008, or 2018.

(c) RCM MIP SYSCOM Control Number. A three-segment code is used. The first segment contains four alphanumeric characters followed by a slash (/). The characters are based on the Expanded Ship Work Breakdown Structure (ESWBS) number. The second segment identifies the sequence of maintenance requirements development for this functional grouping or system, and contains three characters followed by a dash (-). The third segment contains two characters that identify the month and year the MIP was prepared or revised. For example, an RCM MIP SYSCOM control number may look like “4911/001-27” where the first segment an ESWBS-based number is 4911, the sequence of maintenance requirements is 001, the month of issue is February and the year of issue is 1997, 2007, or 2017.

(d) Preliminary MIP SYSCOM Control Number. Identified by a “P” code and number in the second segment of the RCM MIP SYSCOM Control Number. For example, a preliminary MIP SYSCOM control number may look like “6628/P01-29” where the ESWBS-based number is 6628, the “P” before the second segment signifies “preliminary”, the sequence of maintenance requirements is 01, the month of issue is February and the year of issue is 1999, 2009, or 2019.

(2) Date. Preparation date of the MIP by month and year. The date changes with each revision of the MIP or revision of an MRC on the MIP.

(3) Ship System, System, Subsystem, or Equipment. Description of equipment by noun name, Army/Navy (AN) nomenclature, Mark, or Modification.

(4) Reference Publications. Publications pertaining to the system, subsystem, or equipment.

(5) Configuration. Configuration data regarding the system, equipment, and components to which the MIP applies. Document authors may also put unformatted text within the configuration block. It may contain text used by the author to indicate the MIP was issued or revised based on feedback responses or the results of a Maintenance Effectiveness Review (MER).

(6) Scheduling Aids. Located in the Scheduling Aids block, scheduling aids provide amplifying information for the proper scheduling of maintenance requirements, such as “MRC M-2 (NU78) must be performed when the ship is >50 NM from land”. Scheduling Aids may also provide guidance of applicability of maintenance requirements, for example, “MRC W-1(ABCE) and M-3(WXYZ) are for DDG 51 through DDG 72 ONLY.” Additionally, legends can be provided which designate specific attributes of selected maintenance requirements. For example, an asterisk (\*) indicates a Safety of Ship item.

(7) Other. Contains codes assigned for administrative use by NSLC and may contain a one or two-character code. Codes are listed in subparagraphs 5.d(7)(a) through 5.d(7)(k):

(a) H. Denotes a Calibration Maintenance Requirement developed under the cognizance of the NAVSEA Calibration Program per reference (b).

(b) K. Denotes a Maintenance Requirement and/or inspection developed under the cognizance of NAVSEA 05U7 In-Service Submarine Engineering Division. Most “K” MRCs are monitored by the Submarine Performance Monitoring Team (PMT) for Condition-Based Maintenance (CBM) analysis, Preventative Maintenance, which requires special certification or training, special test equipment, and/or failure identification.

(c) RD. Denotes a maintenance requirement on a Deep Submergence System (DSS) asset, system/equipment that is within the Scope of Certification (SOC) where Re-Entry Control (REC) documentation is required.

(d) XD. Denotes a maintenance requirement on a Deep Submergence System (DSS) asset, system/equipment that is within the Scope of Certification (SOC) where no Re-Entry Control (REC) documentation is required.

(e) RS. Denotes a submarine maintenance requirement that is within the Submarine Safety Program (SUBSAFE) boundary where Re-Entry (REC) documentation is required.

(f) XS. Denotes a submarine maintenance requirement that is within the SUBSAFE boundary where no Re-Entry Control (REC) documentation is required, or where a note is included to indicate there is a potential for SUBSAFE work to be accomplished.

(g) RF. Denotes a maintenance requirement that is within the Submarine Flight Critical Component (SFCC) boundary where Re-Entry Control (REC) documentation is required.

(h) RV. Denotes a maintenance requirement on a Navy Diving Life Support Systems (DLSS) asset or system/equipment that is within the Scope of Certification (DLSS-SOC) where Re-entry control (REC) documentation is required.

(i) N. Denotes a maintenance requirement on Moored Training Ship (MTS) systems/equipment that requires Moored Training Ship Support Yard (MTSSY) concurrence and NAVSEA approval.

(j) C. “C” appended to code denotes Confidential classification.

(k) S. “S” appended to code denotes Secret classification.

(8) MRC SYSCOM Control Number. A seven-character alphanumeric code assigned to each MRC. It consists of three segments. The first segment contains two characters identifying the month and year the MRC was prepared and will only change when the MRC is revised. Numbers 1 through 9 are used for the months of January through September and letters A through C are used for the months of October, November and December. The final character is a number indicating the last digit of the year. The second segment is a four-character alphanumeric Library Control Number which uniquely identifies each MRC. The last character may be a “Y” (indicating repair parts are required for this MRC), an “N” (indicating repair parts are not required for this MRC), or a “U” (indicating this is an unscheduled maintenance MRC and may require parts).

(9) Maintenance Requirement Description. Brief description of each maintenance requirement.

(10) Periodicity Code. Delineates how frequently the maintenance requirement must be performed. The periodicity code may be followed by either an asterisk (\*) or a plus sign (+). An asterisk indicates a Safety of Ship item and requires the ship or user to comply with reference (a), JFMM, Volume VI, Chapter 19. A plus sign indicates this procedure is primarily intended to be scheduled for accomplishment by off-ship maintenance personnel for those classes of ships (e.g. LCS, DDG 1000) that utilize off-ship personnel for PMS. If the periodicity is followed by a symbol, a note will be placed on the document explaining the symbol to ensure clarity. Some MIPs that have the off-ship maintenance indicators are applicable to multiple classes of ships.

For those ships that do not use off-ship maintenance personnel to accomplish O-level maintenance, those indicators are to be ignored.

(11) Rates. Identifies the recommended skill level of the person(s) considered capable of performing the maintenance requirement(s). Qualified personnel other than the rate or rank specified may be assigned. Substitution of other personnel is not allowed when a Navy Enlisted Classification (NEC) code, Damage Control Petty Officer (DCPO), or Safety Petty Officer (SPO) is assigned with the exception of civilian personnel whose Position Description (PD) requires the performance of preventive maintenance. Civilian personnel, including contractors, must be qualified through 3-M Personnel Qualification Standard (PQS) or a Job Qualification Requirement (JQR) and are authorized to perform maintenance actions associated with their PD.

(12) Man-Hours (M/H). The average time, per equipment, per person, needed to perform the maintenance requirement(s), not including time for tool preparation and return, tag out, or removal and replacement of interference. When performing maintenance on systems that must meet certification requirements, including but not limited to SUBSAFE, REC, Level 1 controls, Fly-by-Wire (FBW), and SOC systems, the M/H determination for maintenance should include the time required for completion of those in-process certification requirements. M/H is listed in hours and tenths of an hour.

(13) Related Maintenance. There are three types of related maintenance, listed in subparagraphs 5.d.(13)(a) through 5.d.(13)(c). If no related maintenance exists, the MIP reflects "None" in the related maintenance column.

(a) Mandatory. Maintenance requirements that must be accomplished concurrently with another maintenance requirement. A pound sign (#) indicates a mandatory related maintenance requirement exists. Example: M-3#. Mandatory related maintenance from another MIP is indicated by including that MIP's number. Example: IC-017/003: M-4#.

(b) Convenience. Maintenance requirements that can be accomplished concurrently with another maintenance requirement for timesaving or manpower considerations. Example: M-3. Convenience related maintenance from another MIP is indicated by including that MIP's number. Example: EL-10/001: M-4.

(c) Conditional. Maintenance requirement that is performed when specific conditions are either present or not met on the referencing MRC. Conditional related maintenance will appear the same as convenience related maintenance.

(14) Unscheduled Maintenance. Corrective in nature and used to return system or equipment to operational condition within predetermined tolerances or limitations.

(15) Inactive Equipment Maintenance (IEM). Reduced maintenance requirements for extended periods of equipment inactivity.

(16) Class Maintenance Plan (CMP). Tasks that are unscheduled maintenance, typically Assessment Procedures (AP), provided to assist maintenance managers with the identification of deficiencies for the planning and accomplishment of requirements during future availabilities and executed by outside activities with Ship's Force participation. This maintenance is not intended to be accomplished by Ship's Force unless directed by higher authority and is provided for informational purposes only. MRCs listed in this section need not be placed on the ship's schedule nor printed and stored in the shipboard PMS Master File.

e. Maintenance Requirement Card. MRCs (Figure I-2-3) provide detailed procedures for performing maintenance requirements and describes who, what, when, how, and with what resources a specific maintenance requirement will be accomplished. MRCs contain the information and instructions listed in subparagraphs 5.e.(1) through 5.e.(17).

(1) Distribution Statement. Identifies who is authorized to hold this document, where to refer requests for the document, and instructions for destroying the document.

(2) Date. This block contains the month and year the MRC was prepared or revised.

(3) MIP Series. The MIP series code is the portion of the MIP SYSCOM Control Number that identifies the equipment group and is found prior to the slash (/) of the MIP SYSCOM Control number containing this MRC. There may be more than one MIP series listed when an MRC applies to more than one group.

(4) MRC SYSCOM Control Number. A seven-character alphanumeric code assigned to each MRC. It consists of three segments. The first segment contains two characters identifying the month and year the MRC was prepared and will only change when the MRC is revised. Numbers 1 through 9 are used for the months of January through September and letters A through C are used for the months of October, November and December. The final character is a number indicating the last digit of the year. The second segment is a four-character alphanumeric Library Control Number which uniquely identifies each MRC. The last character may be a "Y" (indicating repair parts are required for this MRC), an "N" (indicating repair parts are not required for this MRC), or a "U" (indicating this is an unscheduled maintenance MRC and may require parts).

(5) Periodicity. Identifies the interval in which a maintenance task must be performed. There are three categories of periodicities: calendar, non-calendar, and IEM. The authorized periodicities are listed in subparagraphs 5.e.(5)(a) through 5.e.(5)(d):

(a) Calendar Periodicity Codes. Daily, weekly, and monthly codes will have a number preceding them indicating the number of days, weeks, and months encompassing the period. For example, 2D represents two days, 3W represents three weeks, and 8M represents

eight months. An asterisk (\*) following the periodicity code indicates a Safety of Ship item and requires the ship or user to comply with reference (a), JFMM, Volume VI, Chapter 19.

1. D – Daily
2. W – Weekly
3. M – Monthly
4. Q – Quarterly
5. S – Semi-annually
6. A – Annually

(b) Calendar Periodicity Date Ranges. The SKED program tracks all calendar periodicities using the unit of days. MRCs are displayed as out of periodicity when they fall outside the established date range in the SKED program. Date ranges are listed in subparagraphs 5.e.(5)(b)1 through 5.e.(5)(b)15:

1. Daily: None.
2. 2D: None.
3. 3D: None.
4. Weekly: None.
5. 2W: 9 to 19 days.
6. 3W: 14 to 28 days.
7. Monthly: 21 to 41 days.
8. 2M: 41 to 83 days.
9. Quarterly: 61 to 121 days.
10. 4M: 83 to 165 days.
11. Semiannual: 121 to 243 days.
12. 8M: 165 to 331 days.

13. 9M: +/- 90 days from scheduled date.

14. Annual: +/- 90 days from scheduled date.

15. Multi-month after Annual: +/- 90 days from scheduled date.

(c) Non-Calendar Periodicity Codes

1. R - Situational Requirement

2. U - Unscheduled Maintenance

3. AP - Assessment Procedure

(d) Inactive Equipment Maintenance Codes

1. LU – Lay-Up

2. PM – Periodic Maintenance

3. SU – Start-Up

4. OT – Operational Test

(e) Periodicity Code Numbering. The periodicity code also includes a number for specific identification. When more than one MRC of the same periodicity exists in the same MIP, the MRCs should be numbered consecutively, e.g., “D-1”, “D-2”, “D-3”, or “M-1”, M-2”, etc. An existing MRC may be reapplied to a revised MIP even though the periodicity code of the reapplied MRC may not fall within the numeric sequence assigned to the revised MIP’s MRCs. For example, W-1, W-2, W-3, W-6 may appear on a MIP, where W-6 was an existing MRC that was reapplied to this equipment. Technically valid MRCs will not be reprinted merely to change the periodicity code number. Non-sequential numbers will not affect scheduling or management control.

(6) Location. This block contains the specific location of the equipment, sourced from a SKED 3.2 maintenance group, or a TYCOM-authorized check-off list detailing equipment location.

(7) Ship System, System, Subsystem, and Equipment. Identification of the ship system (functional group), system, subsystem, and equipment involved.

(8) Rates. Identifies the recommended skill level of the person(s) considered capable of performing the maintenance requirement(s) and the number of persons required to perform the

maintenance requirement(s), for example, 2ETs. Qualified personnel other than the rate or rank specified may be assigned. Substitution of other personnel is not allowed when an NEC code, DCPO, or SPO is assigned with the exception of civilian personnel whose PD requires the performance of preventive maintenance. Civilian personnel, including contractors, must be qualified through 3-M PQS or a JQR and are authorized to perform maintenance actions associated with their PD.

(9) Man-Hours. The average time, per equipment, per person, needed to perform the maintenance requirement(s), not including time for tool preparation and return, tag out, or removal and replacement of interference. When performing maintenance on systems that must meet certification requirements, including but not limited to SUBSAFE, REC, Level 1 controls, Fly-by-Wire (FBW), and SOC systems, the Man-hour determination for maintenance should include the time required for completion of those in-process certification requirements. Man-Hours are listed in hours and tenths of an hour. Total Man-hours is the sum of all entries in the Man-hour blocks, not including time for tool preparation and return, tag out, or time needed for removal or replacement of interference.

(10) Maintenance Requirement Description. A brief description of the maintenance action to be done, presented as an imperative sentence (e.g., "Change Fuel Oil Filter." or "Measure System Tangential Sensitivity").

(11) Safety Precautions. A listing of those warnings and references which direct attention to possible hazards to personnel which could result in death or injury while doing maintenance. For example:

(a) To prevent personnel injury, tag-out procedures must comply with the Tag-out User's Manual (TUM). Shore approved Lock-out/Tag-out procedures may also be used.

(b) Do not enter or work in a non-ventilated tank.

(c) Gas-Free Engineer must test tank with combustible gas indicator to ensure gas-free state is obtained.

(d) Use oxygen analyzer; do not use flame safety lamp. Use of flame safety lamp is hazardous. Lamp cannot indicate minimum oxygen content of 20%, as required.

(e) Station person at tank access to maintain contact with personnel in tank.

The following statement appears on most MRCs, "Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series." In instances where ship and shore use the same MRC, shore commands are required to use the OPNAVINST 5100.23 series even if this is not explicitly stated on the MRC.

(12) Tools, Parts, Materials, Test Equipment (TPMTE). This block contains the required tool(s), part(s), material, test equipment, and miscellaneous item(s) necessary to perform the maintenance action. Items are identified by the applicable Standard PMS Item Name (SPIN) number in brackets. The SPIN is a number assigned to TPMTE that can be referenced to the Standard PMS Materials Identification Guide (SPMIG) for stock number identification. The stock numbers for Personal Protective Equipment (PPE) are also listed in the Hazardous Materials User's Guide (HMUG). The five basic TPMTE categories are listed in subparagraphs 4.e.(12)(a) through 4.e.(12)(e):

(a) Category I - Test Equipment. Category I is used only for General Purpose Portable Electrical and Electronic Test Equipment (GPETE) listed in the Test, Measurement, and Diagnostic Equipment Index (TMDE-I). Test equipment required to support a maintenance action should be listed by Sub-Category (SCAT) code which identifies the general group under which test equipment models have been approved to support specific measurement requirements. Those approved models can be found within the SCAT search on the TMDE-I. The Ship/Shore Portable Electrical/Electronic Test Equipment Requirements List (SPETERL) establishes allowances for GPETE for ships and shore activities under NAVSEA cognizance. Those allowances are identified by SCAT code. MRC test equipment requirements are synchronized with the SPETERL. For any test equipment item required and not identified by SCAT, contact [navsea\\_gpete\\_help@navy.mil](mailto:navsea_gpete_help@navy.mil).

(b) Category II - Materials. Materials include a wide range of administrative supplies and housekeeping items which may not be consumed entirely. Some consumable items such as grease, oils, or solvents are consumed each time the maintenance action is performed whereas others such as buckets, funnels, or ladders are not.

(c) Category III - Parts. Parts are defined as any items, which are an integral part of the equipment. For example: gaskets, mechanical seals, packing material, O-rings, filters, etc. The medium for identification of PMS part requirements is the Allowance Equipage List/Allowance Parts List (AEL/APL). Ship unique repair parts are not listed in the SPMIG.

(d) Category IV - Tools. Category IV covers common hand tools of all types except "special tools".

(e) Category V - Miscellaneous. Category V covers all equipage items as well as any other special tools or materials not otherwise covered under categories I through IV. As a general rule, all items, which are identified and supported through AELs, will be considered Category V. Special tools are equipment-unique tools that are designed for a particular piece of equipment by the manufacturer. Such tools always have a manufacturer's part number and Commercial and Government Entity (CAGE) code. Per NAVSEA and Naval Supply Systems Command (NAVSUP) policies, special tools will be listed on the APL and are, therefore,

classified as repair parts. Equipage items are Category V even though some may be used as a tool; for example, jacking gear.

(13) Hazardous Materials Control Statement. Identifies additional control measures, precautions, Personal Protective Equipment (PPE), and spill controls for the hazardous material identified in the TPMTE block. Examples of statements currently in use:

(a) For Forces Afloat, the Hazardous Material Users Guide (HMUG), S9086-WK-STM-020, NSTM Chapter 670 Volume II provides additional control measures, precautions, Personal Protective Equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test, Equipment block.

(b) For other forces (expeditionary, shore based units, units based at a host nation facility), OPNAVINST 5100.23 (series) provides guidance for Hazardous Material Control and Management (HMC&M) and directs the use of Safety Data Sheets (SDS) to determine additional control measures, precautions, Personal Protective Equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test Equipment block.

Maintenance personnel must determine if additional PPE is necessary to accomplish the MRC and take appropriate action to obtain and wear such PPE to ensure the safety of maintenance personnel. Final disposition of all HAZMAT, both shipboard and ashore, must use local Hazardous Material Minimization Center (HAZMINCEN)/ Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) guidance as required by OPNAVINST 5090.1 series Table 35-4. Report any deficiencies via PMS feedback report.

(c) Naval Nuclear Power Training Unit (NPTU), Charleston (CHASN) Instruction (INST), Occupational Safety and Health Manual (OSHMAN), and the applicable Safety Data Sheets (SDS) provide additional control measures, precautions, Personal Protective Equipment (PPE), and spill controls for the hazardous materials.

(14) Procedure. This block details the sequence of steps to be followed in performing the maintenance action. An MRC must be a complete maintenance document containing all the information required to perform the task. Reference to other approved procedures must be restricted to an extreme minimum and must be approved by the PMSCA before inclusion on the MRC. Supporting documentation references are incorporated into the MRC and unless directed by a procedural step, are not required to be utilized in conjunction with performing an MRC. They may be referenced to gain a better understanding of the procedural steps, general safety precautions, or higher-level requirements if confusion exists regarding the direction provided. As data may vary between ships, the MRC may contain blanks in which the ship's company must supply the data necessary to properly do the work, e.g., pressure settings, temperature settings, brush tension, limiting speed, tolerances, and levels. The necessary data can generally be found in the equipment or system technical manual, ship's information book, ship's and equipment drawings, Naval Ships' Technical Manual (NSTM), or Operational Sequencing

System (OSS). If the data necessary to fill in the blanks is not available, the Ship's Force should submit a PMS Feedback Report (FBR) requesting the required data.

(15) Warnings/Safety Precautions/Notes. These items appear throughout the Procedure block and will be listed prior to applicable steps or procedural actions.

(a) Warning. Warnings are associated with personal safety. Failure to adhere to the warning could result in injury to personnel. Warnings are listed in the Safety Precautions block in the same order as they appear in the procedure. They are repeated immediately preceding the procedural step involved. For example, a Warning may read, "WARNING: Asphyxiation Hazard! No tank, void, or confined space will be entered until it has been ventilated, inspected and certified by a Gas Free Engineer (GFE), or National Fire Protection Association (NFPA) marine chemist. Toxic gases may exist."

(b) Caution. Cautions are associated with equipment safety. Failure to adhere to the Caution could result in damage to equipment. Cautions are not listed in the Safety Precautions block but must precede the procedural step involved. For example, a Caution may read, "CAUTION: Use silicone based lubricant only to lubricate O-ring. Petroleum based lubricant will damage O-ring resulting in leaks."

(c) Note. Notes are procedural advisories. Notes must not direct any action except to identify alternative procedural steps to which the technician is to proceed, or identify those steps which should be omitted for a specific situation or configuration. All notes are sequentially numbered and must precede the procedural step involved. For example, a Note may read, "NOTE 2: Venting of hydraulic control valve may require dumping of External Hydraulic Accumulator by momentarily opening HE-1911. Hydraulic accumulator should not read FULL prior to cycling control valve."

(16) Footers. Information provided at the bottom of the MRC.

(a) OPNAV Form Serial Number. For example, "OPNAV 4790/85 (REV. 9-97)."

(b) Page Information. For example, "Page 1 of 10."

(c) SYSCOM MRC Control Number. The three segment code used in cataloging MRCs is located as a footer on the right side of each page of each MRC. For example, "SYSCOM: 85 6HJB Y".

f. Classified MRCs. Classified MRCs are printed on pink stock with the classification indicated at the top and bottom of each page. Classified MRCs and handling procedures for classified information on Digital Video Disks (DVD) will be handled per reference (c). When MRCs are classified, an unclassified locator card is provided. The locator card duplicates the

information in all of the MRC blocks except the procedures block and includes one of the following statements:

(1) "Maintenance procedure with the requirement is CONFIDENTIAL. Maintenance Requirement Card is stowed in \_\_\_\_\_."

(2) "Maintenance procedure with the requirement is SECRET. Maintenance Requirement Card is stowed in \_\_\_\_\_."

g. Pointer MRCs

(1) Pointer MRCs are similar to Locator cards in that they direct the maintainer to a complete document for accomplishing a particular maintenance task. For example, an MRC on a system MIP calls out a calibration maintenance requirement at a set periodicity. The calibration task is an Annual periodicity and the procedure itself is applicable to many components on the unit. The system MIP reflects an Annual requirement to accomplish the calibration but the pointer MRC directs the maintainer to another MIP that actually contains an unscheduled ("U") MRC reflecting the procedure. That same type of component in another system may require less frequent calibration and the pointer MRC on that system MIP will direct the maintainer to the same unscheduled procedure.

(2) Pointer MRCs will reference only one other complete MRC when used in the Scheduled Maintenance area of the MIP but can reference one or more MRCs when used in the IEM section of the MIP. For example, a Start-Up MRC may point to numerous MRCs to bring a system or equipment back in service after a lay-up period. The pointer MRC would direct accomplishment of a number of scheduled maintenance actions (Accomplish MRCs M-1, M-4, Q-8, S-7, A-1 etc.). A pointer MRC will only be utilized when the entire procedure (including the maintenance requirement) of the MRC, to which it points, is exactly the procedure required for performance of the specified task. The only portion of the "pointed to" MRC that can change is the "Ship System," "System," "Sub-System," and "Equipment" designations in the heading block. If any other information (primarily procedural) is different between the pointer MRC task and the MRC to which it points, the relationship is broken and a new complete MRC will be generated.

h. Situational Requirement. A PMS situational requirement is a preventive maintenance task that is to be accomplished only when a specified situation, known event, or set of circumstances occur. A situational requirement defines an event that must occur for an MRC to be scheduled. MRC periodicities of these tasks are identified with an "R." Situational requirements must have a note describing the situation that invokes the maintenance requirement. This note must be the first entry in the Procedure block. Situational requirements are made of the events and elements listed in subparagraphs 5.h.(1) and 5.h.(2).

(1) Events.

(a) State. A state event is a persistent event that can be tracked over a duration of time (in days). It is a toggle that is either “on” or “off” and corresponds to the current state of the ship, equipment, or status. The use of a state indicates a change in maintenance requirements due to the persistent event. Obvious state event examples are “at sea” and “in port.” You are either “at sea” or “in port,” you cannot be in both at the same time. State should not be confused with a prerequisite (see subsequent paragraph 5.h.(2)(d) below) which indicates the conditions which must exist for the maintenance to be performed. In some situations, there will be a periodic maintenance requirement that is scheduled while in a state. An example would be R-1W, where the state may be “while at sea” and the maintenance requirement is then “weekly” while in that state.

(b) Trigger. A trigger event is a single occurrence or action that may have a maintenance action tied to it. A trigger could happen more than one time in a single day, or may go weeks or months without ever happening. Trigger event examples are “getting underway” and “entering port” which would bookend the “at sea” state event.

(c) Metered. A metered event is an event that is based on the current value of a measurement in relation to that value at the time of last accomplishment. The measurement parameters are defined at the MRC level. An example of a metered event would be “every 600 hours of engine run time.” Another example of a metered event would be one that occurs when metered data reaches a specific numeric trigger which then schedules the MRC. A plus or minus value may be provided to specify an acceptable range for accomplishing the maintenance (example: Accomplish after 250 +/- 25 arrests).

## (2) Elements.

(a) Situational Parameter. A situational parameter is used to further define the specifics of how a generic situational requirement is applied to the specific MRC. This is similar to “filling in the blanks” of the situational requirement.

(b) Offset Information. Offset information is an aid that is used to determine when the MRC is scheduled based on the occurrence of the event (example: Prior to or after getting underway). The offset will generally have a timeframe associated with it such as 96 hours, 48 hours, etc., and would be written as “96 hours prior to getting underway.” In this example, it should be noted that the 96 hour offset is provided to give the maintainer sufficient time to accomplish the task prior to the event happening. Generally, it is not imperative that the task be accomplished exactly 96 hours prior to getting underway, just that the task be accomplished prior to the event. If a task must be accomplished in an exact offset timeframe, the task should be explicit in stating so. If an offset parameter is not specified, the MRC is scheduled the day the event occurs. The WCS must have the flexibility to schedule maintenance requirements around his or her timeframes and workload. Thus, in the example cited above, such a requirement may be accomplished within that 96-hour period prior to getting underway.

(c) Periodicity. A periodicity parameter specifies how often to schedule the MRC while in the situational requirement state. For example, “While at sea (state), perform quarterly (periodicity).”

(d) Prerequisites. A prerequisite specifies the situation that must exist in order for the maintenance to be accomplished, and has no effect on scheduling. Examples would be “Dry Deck”, “360-degree visibility”, or “a sea state of 4 or less.” A prerequisite of “At Sea” or “In Port” should not be confused with the state which creates the condition in which the maintenance requirement becomes schedulable. A prerequisite is normally utilized as a Scheduling Aid on the MIP and a Note on the MRC.

i. Situational Requirements with Calendar Periodicities. Situational requirement codes may be used with a calendar periodicity code in circumstances when both the situation and the calendar periodicity govern the scheduling of the requirement. Examples include:

- (1) M-1R - Monthly or every 600 operating hours, whichever occurs first.
  - (2) W-3R - Weekly or after each use, whichever occurs first.
  - (3) S-1R - Semiannually or during each upkeep period, whichever occurs first.
  - (4) Q-1R - Quarterly or prior to getting underway, whichever occurs first.
- (5) R-1W - When a “specified situation occurs,” accomplish weekly. (i.e. Lube Oil Cooler is in Freshwater Lay-up, check level weekly)

j. Unscheduled Maintenance Requirements. Unscheduled maintenance requirements are those actions required to restore a system or equipment to an operational condition within predetermined tolerances or limitations. Unscheduled maintenance requirements evolve from system or equipment failures or other indications of system or equipment degradation and include alignment, adjustment, and repair. Unscheduled maintenance procedures are depicted on unscheduled MRCs (See Figure I-2-4), and may be listed on system or equipment level MIPs or MIPs developed specifically for unscheduled MRCs. Their use may be directed by a scheduled MRC, scheduling aid, or system/equipment failures. Unscheduled checks that do not apply to ships configuration and are not called out by other PMS that resides on the ships schedule will be lined out.

k. Assessment Procedures. Assessment Procedures (AP) are developed following the procedures in Section II, Chapter 4 of this manual. They are provided to assist maintenance managers with the identification of deficiencies for the planning and accomplishment of requirements during future availabilities and executed by outside activities with Ship’s Force participation. These MRCs will not be placed on the work center schedule unless accomplished by Ship’s Force as the nature of these checks are for Maintenance Planning Managers/Port

Engineers to use for detection of required repairs by outside activities and are provided to Ship's Force for informational purposes only. MRCs listed in this section need not be placed on the ships schedule nor printed. Ships must maintain AP card MIPs on their List of Effective Pages (LOEP) as long as the applicable equipment is held by that work center. The recording of completed APs by off-ship personnel is recorded on the Work Candidate, and Ship's Force participation is recorded in their completion remarks on that Work Candidate. There is no need for recording Ship's Force participation in an assessment event on the PMS schedule.

1. Location and Use of MRCs. Each Work Center must maintain applicable MRCs. Maintenance personnel will use these to perform assigned planned maintenance per the requirements of reference (a), JFMM, Volume VI Chapter 19.
  - m. Policy for MRC Accomplishment. MRCs are prepared as instructions to complete a maintenance task based upon the premise that the personnel assigned to perform the task have sufficient knowledge of the rate listed on the card, and are qualified to perform maintenance as directed by the MRC.
    - (1) The MRC must be accomplished in sequential order, adhering to all Warnings, Cautions and Notes. Routine sub-steps (e.g., fastener removal, steps to don and remove PPE, turning on a vacuum) may or may not be included in the MRC and their absence should not prevent the maintainer from completing the maintenance task.
    - (2) Procedures are written at a level of detail based on the assumption maintenance personnel are trained, qualified and supervised by experienced leadership to consistently and expertly execute the maintenance. They exist to provide a common standard, specify acceptance criteria, communicate warnings and cautions specific to the maintenance and provide proven maintenance practices. They are not intended to:
      - (a) Supplement or duplicate rules and procedures that must be followed for hazards generally associated with the equipment (Hazardous Material Handling, Electrical Shock Risk Management, etc.) but not specifically associated with a step of the procedure.
      - (b) Identify every process and every warning associated with the maintenance environment of the component being maintained (Aloft, In Tanks, Near an Active Flight Deck, In a Heat Stress area, etc.)
      - (c) Specify every possible action of the maintainer.
    - (3) Leadership must uphold standards for complying with maintenance procedures. This standard does not mean the maintainer is expected to robotically follow the MRC word-by-word. Leadership, trainers, monitors, auditors and inspectors should not expect it. The key word here is intent. The objective is to perform the intent of each step (step-by-step) performance.

(4) If a step is missing that is necessary to complete the task, and that step is not obvious to the maintenance person, an FBR should be submitted.

(5) MRC completion status is dependent on the accomplishment of all procedural steps on all of the equipment listed on the MRC, its accompanying Equipment Guide List (EGL) or Location Guide List (LGL) to include inspections where material deficiencies were noted during accomplishment.

(6) The performance of additional rational actions during the accomplishment of an MRC is authorized. Examples of such actions include turning on and off items utilized during the performance of the MRC (vacuum cleaners, test equipment, etc.) and general housekeeping (cleaning up or containing spilled fluids or dirt). Performing these actions in no way detracts from the accomplishment status.

(7) The substitution of any tools, materials or test equipment not held by the activity should be considered prior to deciding to defer the maintenance until the exact tools, materials or test equipment listed on the MRC are procured. This is especially critical for frequently required maintenance where several performance cycles can be missed while waiting for supply to provide the correct items.

n. Shipboard Authorized Changes to MRCs. See reference (a), JFMM, Vol. VI, Chapter 19.

o. PMS Trend Data. If directed by the Fleet Commander or subordinate commanders, trend data records (e.g., bearing clearances, resistance test readings, etc.) will be established and maintained for designated equipment. The purpose of this data is to identify equipment or component trends by recording readings or other historical data over continuous periods of time.

p. Preliminary PMS Documentation. Preliminary documents provide new or changed procedures that have not been given a final engineering validation. This documentation falls into two categories:

(1) Preliminary MIPs without MRCs. Preliminary MIPs without MRCs are forwarded by the SYSCOMs via the NSLC and provide guidance in maintaining equipment not covered by PMS. Their purpose is to aid the activity in identifying and scheduling maintenance. The activity may develop interim MRC procedures based on experience and applicable technical manuals in support of these MIPs until formal documentation is received. Before scheduling preliminary MIP requirements, the WCS and the Department Head must verify their applicability to installed equipment. Preliminary MIPs are identified by a "P" code and number (P01) following the slash of the SYSCOM MIP control number.

(2) Preliminary MIPs with MRCs. Preliminary MIP(s) with MRC(s) are provided by the SYSCOMs via the NSLC for use while the MIP(s) and MRC(s) are undergoing final technical review. Preliminary MIP(s) are identified by a "P" code and number (P01) following the slash

of the SYSCOM MIP control number. Preliminary MIP(s) are reviewed and approved by the designated technical review activity. The approved MRC(s) will be provided in a subsequent FR following approval.

q. Advance Change Notices (ACN). PMS ACNs are authorizations for, and a record of, changes to an existing MIP or MRC, or the addition of a new MRC. ACNs are issued in advance of the release of the next FR and are incorporated in either that FR or a subsequent FR. ACNs are normally issued as a result of safety-related revisions but can also reflect updates to maintenance or equipment requirements. All ACNs are sent via encrypted e-mail.

(1) Types of ACN Changes. Types of changes indicated on PMS ACNs are listed in subparagraphs 5.q.(1)(a) through 5.q.(1)(e):

- (a) Periodicity of accomplishment.
- (b) Deletion or modification of an existing MR.
- (c) Addition or modification of an MRC procedural note or figure to clarify the content or description of a procedural step.
- (d) Procedural step modification to correct technical data, e.g., frequency, pressures, voltages, current, decibels, resistance values, clearance, test data, etc.
- (e) Addition or modification to the list of tools, parts, materials, and test equipment.

(2) Control and Tracking of ACNs. Control and tracking of each ACN will be accomplished in the manner listed in subparagraphs 5.q.(2)(a) through 5.q.(2)(d):

- (a) A PMS ACN will refer to a specific MIP and MRC that is being altered and the locations of the revisions will be indicated visually by a vertical change bar on the left side of each MIP and MRC page. A revised MIP and MRC, in PDF format, will be sent by physical or electronic means as necessary to all holders.
- (b) Each PMS ACN is serialized. The serial number consists of the “ACN” indicator, originating activity code, MIP number, serial number, log number and date.
- (c) NSLC will maintain accountability of all outstanding ACNs by MIP and MRC. The revised MIP will incorporate superseded ACNs.
- (d) The activity 3-M Coordinator (3MC) must record the receipt of each ACN, maintain a copy in the PMS Master File, and distribute a copy to the appropriate Work Center(s).

(3) **Special Issues.** Special Issues are a category of ACNs and are issues, as in distribution, of new documentation between FRs. A Special Issue represents a new MIP and at least one new MRC. A Special Issue may reflect newly developed documentation or may reflect a change in the documentation a Command receives, such as the addition of a MIP or MRCs to the Work Center LOEP due to the addition of new equipment. Each Special Issue is serialized on every page. The serial number consists of the Special Issue indicator “SI”, originating activity code, serial number, MIP number, MRC number (if applicable), and revision date. Special Issues will be forwarded as a response to a locally-generated FBR to the applicable hulls and activities. Special Issues will be sent by encrypted e-mail. A record of Special Issues must be maintained in the Work Center and PMS Master File.

r. **Pen and Ink Changes.** Pen and Ink changes are revisions to any aspect of existing PMS documentation and are authorized in FBR responses. In contrast to ACNs, Pen and Ink changes provide interim measures as a result of minor changes due to updated maintenance or equipment requirements. Pen and Ink changes provide detailed instructions for specific MIPs, MRCs, or both. All Pen and Ink changes are sent electronically via encrypted e-mail as FBR responses. Subsequently NSLC will distribute revised MIPs and MRCs reflecting Pen and Ink changes to all affected MIP holders via FR. A record of Pen and Ink changes must be maintained in the Work Center and PMS Master File.

s. **13-Week Accountability Log.** The WCS must maintain a 13-Week Accountability Log. Requirements and maintenance of the 13-Week Accountability Log are detailed in reference (a), JFMM, Volume VI, Chapter 19. Units employing SKED 3.2 must use the Personal Identification Number (PIN) functionality to record disposition of an MRC. Using PIN functionality eliminates the requirement to sign and date an MRC completion on a 13-week accountability sheet. The assigned crewmember will be recorded along with the disposition (complete, not applicable, etc.). This will become a permanent record once the week has been closed out. All PMS maintenance assigned to a maintenance person is presented to them immediately upon SKED 3.2 log-on, and chain of command review can be tracked on the weekly closeout signature sheet. Therefore, when a ship/unit is utilizing SKED 3.2 PIN functionality, there is no need to retain the 13-week accountability log.

6. **PMS Feedback Report.** The PMS FBR is used to notify NSLC of matters related to PMS. Feedbacks are used to report problems and also to request PMS coverage for newly installed systems or equipment. While a request for PMS coverage will provide initial PMS coverage and changes, submission of an OPNAV 4790/CK form is required to initiate the rest of the logistic support process. SKED users must submit FBRs via SKED where they are assigned a serial number for tracking purposes. Non-SKED users submit FBRs via the PMS Management Information System (PMSMIS) website at <https://algol.pmsmis.navy.mil/PMSMIS/default.aspx> by selecting the Feedback tab and Feedback Wizard. Non-SKED users accessing this website for the first time will need to request an account. Click on File Manager and select New User

Account Request. This displays options to select a form and readme file, which can be downloaded, filled out, and sent via e-mail as directed in the readme file. An e-mail will be sent to the requester confirming the new account and providing access to the main screen.

a. Types of PMS Feedback Reports.

(1) CAT A (Non-Technical). This type of FBR is non-technical in nature and is intended to meet PMS needs which do not require technical review, including changes in Work Center LOEPs. These FBRs are submitted to request classified or other PMS documentation, which cannot be obtained locally. See an example of a CAT A (Non-Technical) FBR in Figure I-2-5.

(2) CAT B (Technical). This type of FBR is technical in nature and is used to report technical discrepancies inhibiting PMS performance. Category B FBRs are either Routine or Urgent. See an example of a CAT B (Technical) FBR in Figure I-2-6.

(a) Routine. An FBR is Routine when the reason for submission relates to the technical requirements of the documentation and it does not deal with safety of ship or personnel. It is used to report technical discrepancies or request clarification of MRC procedures.

(b) Urgent. An FBR is Urgent when the reason for submission involves safety of personnel, safety of ship, or the potential for equipment damage if the MRC procedure is followed as written. Urgent FBRs will be forwarded to both NSLCs, the cognizant SYSCOM, BUMED, NAVSAFECEN and TYCOM by naval message containing a PMS FBR Serial Number. An Urgent FBR should be drafted in SKED to obtain an FBR serial number that can be included in the naval message Figure I-2-7. Once the message has been sent, the date time group of the message can be included in the FBR and the FBR submitted. The message must describe the unsafe procedures or conditions, and must identify the MIP / MRC involved.

b. NSLC FBR Processing. PMSCAs NSLC Norfolk and San Diego process CAT A FBRs expeditiously and answer CAT B FBRs by electronic means when possible. When NSLC cannot resolve a CAT B FBR, their actions are listed in subparagraphs 6.b.(1) through 6.b.(4). (See Appendix J for additional information on FBR processing).

(1) NSLC will electronically forward the FBR to the designated technical review activity for resolution.

(2) NSLC will maintain the PMSMIS copy of the FBR.

(3) NSLC will provide the ship an electronic notice identifying what action is pending and by whom.

(4) All related changes in documentation must be reflected in a subsequent revision.

c. Technical Review Activities Processing. A technical review activity is an organization assigned system responsibility by the Technical Warrant Holder that reviews and maintains maintenance requirement documentation. The cognizant technical review activity receiving FBRs for resolution must analyze, categorize, and process these FBRs as described in subparagraphs 6.c.(1) and 6.c.(2). (See Appendix J for additional information dealing with NAVSEA and other system command actions related to the processing of feedback reports).

(1) Urgent FBRs. SYSCOM or BUMED technical review activities must provide a preliminary response to the originator by message, info NAVSAFECEN Norfolk, and NSLC within 1 working day of receipt. This message response must be distributed to all TYCOMs of units holding the affected documentation. TYCOMs will forward this message to all commands that could be affected by the PMS change. Responses to Urgent FBRs must not be delayed because a naval message is not received in a timely manner.

(2) Routine FBRs. The technical review activity must provide the resolution to the question asked in the FBR to NSLC by direct entry into the PMSMIS or other electronic means. The response may contain corrections to PMS documentation, superseded documentation, or an explanation of the reasons for non-concurrence. The response may also defer concurrence with the ship's recommendation or request further investigation. Electronic responses are preferred over paper. NSLC will provide an electronic response to the originator.

d. Processing Goal. NAVSEA has established a goal of providing an FBR response in 1 day. NAVSEA realizes that there are certain FBRs that will require more extensive research to answer and these FBRs will not be answered in 1 day. However, the vast majority can and should be answered much sooner. Technical review activities are required to answer all FBRs submitted to them within 21 working days.

e. Updated Documents. NSLC will provide all holders of the affected MIP(s) and MRC(s) with updated documents in the next FR when the technical review activity concurs with an FBR or initiates documentation revisions in support of an FBR resolution.

## 7. PMS Force Revision

Installed PMS packages are periodically updated to reflect changes in systems, equipment, and package configuration and to provide new or revised PMS documentation. FRs are normally effective on the first Monday of the quarter and are mailed prior to the beginning of a quarter to allow adequate preparation prior to the scheduled implementation date. When an FR is not received in time to permit implementation on the first Monday of the quarter, the actual date of implementation will be designated by the Executive Officer. Safety-related PMS updates are required to be implemented within 2 to 5 working days of receipt.

a. FR Package Contents. All PMS FR information and reports are contained on the PMS DVDs and listed in subparagraphs 7.a.(1) through 7.a.(8):

(1) Automated Library Issue Document (ALID). (Figure I-2-8.) The ALID identifies:

- (a) Applicable FR
- (b) Applicable ship hull number
- (c) Superseded MIPs
- (d) Superseding MIPs
- (e) Applicable Work Center codes
- (f) Quantities of Work Centers affected
- (g) Added and deleted MIPs

(2) LOEP Report, PMS 5. (Figure I-2-1)

(3) PMS Activity to MIP to Work Center File, Report PMS 4A. (Figure I-2-9.) This report reflects the ships' current MIP to Work Center assignments.

(4) Activity to MIP to Work Center, Report PMS 4

(5) Technical Feedback Status Report, Report PMS 22. (Figure I-2-10.) This report contains outstanding and completed Technical FBRs received by NSLC. Non-Technical FBRs will not be reflected on this report.

(6) Classified MRC to MIP Report. This report is only provided for activities whose LOEP lists a MIP that has a classified MRC.

(7) PMS Service Brief. The brief contains general information about the PMS program and new changes and updates to PMS policy. The PMS Service Brief should be reviewed by the chain of command for information that may affect their schedules.

(8) Reference Documents. Reference documents included on the DVDs are:

- (a) NAVSEAINST 4790.8 Series, Ships' 3-M Manual
- (b) NAVEDTRA 43241-Series, 3-M PQS
- (c) NSTM 670 Vol 1 & 2, Afloat HMC & M Guidelines and Hazardous Materials User Guide (HMUG)

- (d) SKED 3.1 User's Manual & Administrator's Guide; SKED 3.2 User's Guide
  - (e) SKED Master for SKED 3.1.
- b. FR Procedures. Use SKED Revision Editor to apply the FR procedures. These procedures apply to all PMS revision types used in SKED.
- (1) PMS revision package will be addressed, "Attention: 3-M System Coordinator."
  - (2) The FR number is listed in the upper right-hand corner of the ALID. This number will be the same for all ships and commands and will identify each FR in the calendar year. For example, the first package issued in calendar year 2017 was assigned the number 1-17.
  - (3) Commands having no additions or changes will receive a copy of the ALID with a statement, "No Master File changes reflected by this FR."
  - (4) Ships in overhaul will receive FR packages. Updating procedures for PMS packages during overhaul are contained in Section I, Chapter 3.
  - (5) Procedures for implementation of FRs are outlined in reference (a), JFMM, Volume VI, Chapter 19.
  - (6) NSLC provides PMS DVDs to the TYCOMs with each FR along with various PMS reports as requested. An example is the MIP to Hull File, Report PMS 2A, which identifies each hull to which a given MIP is applicable within that TYCOM. The reports are available on the DVDs. Contact NSLC for additional information on available reports.

## 8. PMS Self-Assessment

The ability of the activity to perform critical self-assessment is instrumental to the success of all command programs, including PMS. An integral part of a self-assessment program is the assessment of the material condition of systems and equipment. Reference (d), the Standard Organization Regulations of the U.S. Navy (SORM), requires every command conduct periodic inspections, "Zone Inspections," to ensure proper measures are taken to keep machinery, spaces and equipment clean, operational and in a satisfactory state of preservation. As a minimum, each space will be formally inspected at least once per calendar quarter. Reference (a), JFMM, Volume VI, Chapter 19 deals with command inspections and self-assessments.

- a. The Commanding Officer is responsible for the effective assessment of the material condition of the activity. The Commanding Officer must assign duties and responsibilities in support of Zone Inspections per TYCOM instructions.
- b. Zone inspections will emphasize safety, preservation, damage control readiness, material condition and cleanliness, as well as specific items of interest, and will be structured to ensure

rapid correction of major discrepancies that could cause injury to personnel, damage to equipment or constitute a fire hazard. Special emphasis must be placed on the elimination of fire hazards, safety hazards and the proper stowage of hazardous materials. Refer to TYCOM instructions for the documentation and abatement requirements for Zone Inspection deficiencies.

c. The designated Zone Inspection program manager should ensure all personnel who are assigned as Zone Inspectors are qualified to conduct inspections and that the Commanding Officer is provided routine reports regarding the "as found" material condition of the command.

d. All material condition deficiencies that require corrective maintenance, regardless of significance, must be entered into the MDS. The utilization of specific Zone Inspection management tools does not satisfy this requirement.

## 9. Equipment Not Covered by PMS

a. Reasons for Non-Coverage. There are various items of equipment in the fleet which do not have PMS coverage. Reasons for this are numerous and include:

(1) Insufficient funds for development of PMS.

(2) Non-delivery of technical documentation for equipment previously delivered and installed.

(3) Determination that planned maintenance is not required, due to either item cost (typically less than \$5,000 for replacement), or the item has no unique impact on mission, safety, or regulatory requirements.

(4) Equipment or systems that are planned for disposal, and as such, not economical for PMS development.

b. Classification of Equipment Not Covered by PMS. The terms listed in subparagraphs 9.b.(1) and 9.b.(2) have been established for use in PMS to aid in the classification of equipment or system status. SYSCOMs, BUMED, INSURV, and fleet units will be provided a status report of such equipment for use as a reference in determining the scope of PMS coverage and deficiencies in coverage.

(1) Maintenance Requirement Substantiated (MRS). The classification MRS is given to equipment which has been analyzed by the designated technical review activity and the need for PMS requirements established. A requirement then exists for final development and the equipment is so identified for technical review activity action. The MRS Code is also listed in the PMS automated LOEP for each ship and command in which the equipment is installed.

(2) No Maintenance Required (NMR). The term NMR can be assigned to equipment only if no maintenance other than normal housekeeping actions is required to keep the equipment in good operating condition or if it is determined that the development of PMS is not required. Designated technical review activities must provide either an RCM or cost analysis to justify an

NMR determination. Once an NMR determination is made, the item will be listed on the LOEP for the ship on which the equipment is installed.

c. Responsibilities for Providing Coverage. When a ship, activity or TYCOM considers there is a need for equipment PMS coverage, the steps in subparagraphs 9.c.(1) and 9.c.(3) will be taken.

(1) The ship or activity will notify NSLC by PMS FBR of the need for PMS coverage.

(2) If, through the development process, planned maintenance tasks are identified, NSLC may forward preliminary MIPs and MRCs to the applicable ships and activities for those items coded "MRS" and send a copy to the TYCOM.

(3) If preliminary MIPs and MRCs are not provided by NSLC, the command may develop and schedule interim procedures based on applicable technical manuals, documentation, and quality maintenance processes. These locally developed procedures must be submitted through the PMSCA as recommendations for the development of formal PMS.

## 10. Inactive Equipment Maintenance

A piece of equipment or system intentionally placed in a hibernated state for a specific period of time with the intention of reactivating that equipment or system at the end of that period.

a. Status I. Equipment that will:

(1) Remain onboard,

(2) Is not scheduled for corrective maintenance or overhaul,

(3) Will be inactive during extended shutdown periods and maintenance availabilities as determined by the Department Head.

Example: Submarine CO<sub>2</sub> Removal Plant in wet or dry Lay-up.

**NOTE:** Perform a "wet lay-up" (CO<sub>2</sub> Removal Plant filled with distilled/demineralized water) prior to entering port when the ship is expected to be in port for 7 to 45 days or a "dry lay-up" (CO<sub>2</sub> Removal Plant left empty after flushing and draining), prior to entering port when the ship is expected to be in port for greater than 45 days, or prior to entering port when maintenance requiring the removal of all CO<sub>2</sub> Removal Plant fluid is expected.

b. Status II. Equipment that is inactive and:

- (1) Subject to corrective maintenance, overhaul, or removal for safe storage
- (2) Temporarily transferred to another activity for maintenance responsibility for extended shutdown periods as determined by the Department Head.

Example: Submarine Refrigeration Compressor removed for Depot level overhaul.

c. Implementation and Responsibility. While inactive, minimum maintenance is performed in order to ensure the success of the reactivation. The IEM section of the MIP will cover this maintenance.

(1) To implement procedures for the accomplishment of PMS for equipment declared in an inactive status, current PMS schedules are modified to annotate the requirements listed in the IEM section of the MIP. For advance planning and scheduling of maintenance to take place, it is necessary to determine and identify the extent to which unit/ship force personnel will conduct PMS during an inactive period. MIPs in each Work Center will be reviewed to determine if equipment has IEM coverage (e.g. LU, PM, SU, and OT), if the coverage is adequate, and what procedures are to be followed if there is no IEM coverage on the MIP or provided coverage appears inadequate. The Department Head is responsible for determining equipment IEM status. When placing a system or equipment in IEM status, the Department Head will also determine the IEM start date to be reflected in SKED. The IEM end date will not be applied in SKED until the system or equipment is ready to be brought out of IEM status. All periodic PMS scheduled at the end of IEM should be reviewed for applicability, with applicable maintenance accomplished prior to operating equipment.

(2) IEM procedures are listed on MIPs and separated from operational PMS by a horizontal line. The IEM section is titled "Inactive Equipment Maintenance" and is prefaced by the following statement: "The following requirements will be scheduled when equipment is inactivated for periods of prolonged idleness." When there are no IEM requirements the words "None required" will appear under the Inactive Equipment Maintenance Section of the MIP. When IEM procedures are inadequate, submit an FBR. The unit/ship should consider all factors that affect equipment deterioration and take necessary precautionary measures. These factors include environmental conditions, equipment location, susceptibility to damage, or other factors that cannot be anticipated when IEM procedures were originally developed by the cognizant ISEA or design activity.

(3) The lack of IEM requirements on a MIP does not prohibit placing that system/equipment into an inactive state. Additionally, certain locations require precautions and maintenance not required force-wide. The unit/ship should consider all factors that affect equipment deterioration and take necessary precautionary measures. The WCS or Leading Chief Petty Officer (LCPO) for SURFOR units, is responsible for identifying factors that are inadequate and may require additional preparation and maintenance of the inactive equipment while reporting the same to the Department Head for approval. Factors may include

environmental conditions, equipment location or susceptibility to damage. For those actions that are recurring in nature, the WCS must submit an FBR for possible MRC development.

d. IEM Periodicity Codes. Periodicity codes (LU, PM, SU, OT) are assigned to all IEM actions available on the MIP.

(1) Lay-Up Maintenance (LU). Lay-Up maintenance actions prepare the equipment for periods of prolonged idleness, and are usually performed only once at the beginning of the inactive period.

(2) Periodic Maintenance (PM). Periodic maintenance actions are accomplished on a recurring basis during the inactive period to prevent equipment deterioration. These maintenance actions are usually operational PMS requirements specified via a note on the MIP. They are performed either at the same periodicity or at a different periodicity with a note specifying the frequency of accomplishment.

(3) Start-Up Maintenance (SU). Start-Up maintenance actions ensure that equipment is in a condition suitable for operation and are used to reactivate an equipment or system that has been inactivated for a prolonged period. Start-up maintenance consists of performing turn-on procedures and restoring the equipment to its ready-for-service condition.

(4) Operational Test (OT). Operational test actions are those conducted to determine the operational condition of the equipment, its ability to function as designed, and be integrated with other equipment to form a system.

e. IEM MRCs. IEM MRCs are assigned SYSCOM MRC control numbers in the same manner as operational MRCs. When an IEM MRC is utilized to refer to an operational MRC, the periodicity indicator will be its IEM requirement. The skill level will reflect the most senior person required on the operational MRC(s), and man-hours block will reflect an appropriate amount of time for that person to review the requirements for the task(s) identified (normally 0.1 or 0.2 M/H).

f. IEM Scheduling. SKED provides the capability to perform IEM scheduling.

(1) Status I. The scheduling of maintenance for Status I inactive equipment utilizes conventional PMS scheduling techniques. LU checks will automatically be added to the schedule at the beginning of IEM by SKED. PM checks will be manually added to the schedule by the WCS for the period of IEM according to the guidelines of the MIP. At the conclusion of IEM, SU checks and routine PMS will automatically be added to the schedule by SKED. SU checks must be accomplished the week IEM ends. All periodic checks added at the end of IEM, can be moved to the right, not to exceed the allowable date range. Since the MRC date range cannot be applied to the left (into the IEM period), the MRC date range can only be moved to the right, and therefore only the plus value of the specific range, i.e., the date range for a monthly is

21 – 41 days. The requirement can only be moved (scheduled) 10 days to the right and will not go into "alert" until after the 10<sup>th</sup> day. This allows the Maintenance Person/WCS scheduling flexibility within the plus side of the date range of the MRC.

(2) Status II. The scheduling of maintenance for Status II inactive equipment utilizes conventional PMS scheduling techniques, however, not all scheduled IEM PMS may need to be accomplished by the unit/Ship's Force. LU checks will automatically be added to the schedule at the beginning of IEM by SKED, and may be marked N/A if the LU check did not support the equipment being removed from the ship/unit, or "Accomplished by Higher Authority" symbol if completed by the Intermediate or Depot level maintenance activity. PM checks may be required to be schedule during the IEM period. At the conclusion of IEM, SU checks and routine PMS will automatically be added to the schedule by SKED. SU checks must be accomplished the week IEM ends, and may be marked with the "Accomplished by Higher Authority" symbol if they were completed by the Intermediate or Depot level maintenance activity. Routine PMS added at the end of IEM may also be marked with the "Accomplished by Higher Authority" symbol if they were completed by the Intermediate or Depot level maintenance activity. All periodic checks added at the end of IEM, can be moved to the right, not to exceed the allowable date range. Since the MRC date range cannot be applied to the left (into the IEM period), the MRC date range can only be moved to the right, and therefore only the plus value of the specific range, i.e., the date range for a monthly is 21 – 41 days. The requirement can only be moved (scheduled) 10 days to the right and will not go into "alert" until after the 10<sup>th</sup> day. This allows the Maintenance Person/WCS scheduling flexibility within the plus side of the date range of the MRC.

g. Supply Materials Required Prior to Inactivation. Certain advance preparations are necessary to properly prepare for IEM. Reference documents such as CSMPs, Ship Alteration and Repair Package (SARP), LOEPs, MIPs, and MRCs should be reviewed by the shipboard maintenance manager well in advance of a planned idle period. A comprehensive list of the needed equipment and materials required may be prepared by reviewing the IEM MRCs for the items called out under "Tools, Parts, Materials, Test Equipment." Care must be exercised in the selection of cleaning agents, detergents, solvents, adhesives, cements, and similar materials to avoid the use of materials, which are not authorized. On submarines, refer to the effective edition of the Submarine Material Control List and to references (e) and (f).

h. Meeting IEM Requirements. In some cases, accomplishing IEM requirements will require that portable equipment such as exhaust blowers, heaters, and dehumidifiers are available. In other situations, special materials for protecting idle ship equipment must be used. Many items required in implementing IEM are normally used or stocked on the ship and are, therefore, readily available. Lubricants, cleaning agents, rags, hand tools, and test equipment are typical among these items. Arrangements for loan and extended use of portable equipment during an overhaul period should be made with a tender or other repair or overhauling activity. In assessing equipment requirements, duplication of effort and equipment redundancy should be avoided. For instance, a particular overhaul action under shipyard responsibility may include

provisioning of equipment, material, or services otherwise assumed to be part of IEM requirements. In such cases, yard versus ship responsibility for supplying materials will be determined.

## 11. Deactivated Equipment

**Deactivated Equipment.** A piece of equipment or system intentionally placed out-of-service with no intention of reactivating the equipment or system.

- a. Occasionally, in preparation for removal from the ship or when retired in place due to obsolescence, equipment may be deactivated. The Program Office/Ship Platform Manager, will provide direction to deactivate a piece of equipment or system to the TYCOM. The Program Office/Ship Platform Manager will provide specific direction concerning placement of the equipment in a deactivated state. This guidance could be as simple as direction to tag out physical and electrical isolations or as complex as a formal configuration changes for the physical divorcing of the equipment or system from other equipment/systems on the ship/unit. No maintenance will be performed after it has been deactivated.
- b. Should the ship/unit seek to deactivate a system/equipment, the Commanding Officer/Officer In Charge provides the request to the TYCOM via Naval Message. The TYCOM will contact the Program Office/Ship Platform Manager for guidance concerning the deactivation and respond to the requesting ship/unit by Naval Message with specific direction concerning placement of the equipment in a deactivated state.

***NOTE:** Upon receipt of Program Office/Platform Manager direction to deactivate equipment/system, submit an FBR requesting the LOEP be updated to reflect NMR for the subject equipment. Until deactivated equipment is physically removed from the ship/unit, the associated MIP will remain on the Work Center's LOEP. Maintenance of MIP and associated MRCs is not required after LOEP has been updated to NMR status.*

Act ID: SSN 0021 UIC: R21834 Work Center: OC01 USS SEAWOLF

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Chg

## Chg MIP Nomenclature RICs

C	1511/R21-46 Submarine Sail 3000/029-37 Submarine Portable Electrical 4121/059-86 AN/UYQ-70(V) Advanced Display System (ADS)
C	4251/034-37 Integrated Submarine Imaging System TI-12 APB11 4251/R14-86 Periscope Frequency Power Converter 4411/504-16 Antenna Control Group OK-664 (V) /BRC 4411/505-B6 OE-315 (V) /BRC Antenna Group 4411/721-C6 AN/BRA-24C(1) and AN/BRA-24J 4413/015-17 T-1630 SEPIRB
C	4414/502-47 AN/WRR-12, 12A, 12B 4415/004-66 Portable Communications 4416/521-B6 Common Submarine Radio Room (CSRR) Network Maint 4416/523-26 Common Submarine Radio Room (CSRR Hardware 4417/011-36 AN/USQ-145 (V) Multiple Access Communication Sys
C	4417/201-47 AN/USC-38(V) 1-13, AN/USC-38B(V) 1,2 EHF SATCOM
C	4417/211-47 Global Broadcast System
C	4417/216-17 AN/USC-61(C) Digital Modular Radio (DMR)
C	4418/503-37 AN/BSQ-9(V) TFDS 4461/021-36 KG-250 Cryptographic Device 4461/022-C5 KY-99A MINTERM
C	4461/024-27 KIV-7M MultiChannel Encryptor 4461/031-35 Cryptographic Universal Enclosure (CUE) 4461/032-B6 TSEC/KY-57, KY-58 4461/033-36 TSEC/KW-46 (KWR-46, KWT-46) 4461/035-C6 KIV-7, KIV-7HS, KIV-7HSA, KIV-7HSB 4461/038-96 TSEC-KYV-5, AN/USC-43
C	4461/044-37 TSEC/KG-175, KG-175A, KG-175B, KG-175D TACLANE 4461/100-A5 Crypto Fill Devices and Cables
C	4551/123-37 AN/APX-123 Transponder systems 4721/026-15 AN/BLQ-10(V) 3 Electronic Support (ES) System 4721/R54-73 AN/BRD-7 Direction Finder Set 4911/001-36 Portable Electronic Test Equipment 4934/008-B5 Exterior Communications System (ECS) CANS
A	5132/021-37 Ventilation System Filters 5851/021-17 Periscope Mechanism, Submarines, Type 8J, 8M 5851/921-17 Periscope Mechanism, Submarines, Type 18H 5852/002-81 Mast Mechanisms, Submarines (AN/BRD-7) 5852/023-17 Antenna Group (SSN 21 Class) 5852/036-86 Antenna Group 6300/002-96 Preservatives and Coverings 6561/015-17 Paper Shredder
C	- 447/001-77 AN/BRM-2, 2A W/AN/BRT-1
C	- 681/002-24 AN/BRA-6B Antenna Tuning Group
--- NMR - No Maintenance Required, Do Not Schedule	
NMR-4461/028-95 AN/PYQ-10(C) Simple Key Loader (SKL)	
--- MRS - The need for Maintenance Requirements is Substantiated	
MRS-4411/503-77 AN/BRA-34A(V) 2/SSN-21 Class	

**Figure I-2-1**  
**List of Effective Pages (LOEP) (PMS 5)**

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**MIP CONTROL NUMBER:** 5121/030-17 **Date:** January 2017

**SHIP SYSTEM, SYSTEM, SUBSYSTEM, OR EQUIPMENT**

Ventilation System, Non-Machinery Spaces

5121

**REFERENCE PUBLICATIONS**

S9LPD-AS-SSM-040

**CONFIGURATION**

LPD-17 Class Hulls

**SCHEDULING AIDS**

1. Accomplish MRC R-2W (H0KV) on a weekly basis immediately after MRC R-1D (H0KW) is accomplished.
2. "U" MRCs (Unscheduled Maintenance Requirements) are provided to assist in restoring a system/equipment to an operational condition. Their use may be directed by a scheduled MRC, scheduling aid, or system/equipment failures.

# Mandatory scheduling required.

H Denotes a Calibration Maintenance Requirement developed under the cognizance of the NAVSEA Calibration Program.

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OTHER	MRC NO.	MAINTENANCE REQUIREMENT DESCRIPTION	PERIODICITY CODE	RATES	MAN HRS	RELATED MAINT
	B4 E4YB N	1. Test Smoke Ejection System.	Q-1	DC2 2DC3	2.0 2.0	None
	24 G6QZ N	1. Test Operate Automatic Fire Damper With Remote Fire Control Toggle Switch.	Q-2	EM3 FN	0.2 0.2	None
		<b>NOTE:</b> The following test is applicable to grease interceptor hood installations having electrical interlocks between ventilation fans and grease interceptor hood fire damper.				
	83 F7NJ N	1. Conduct FWD and AFT Damper Test.	Q-6R	6EM/FC3	7.2	None
		<b>NOTE:</b> Accomplish this maintenance requirement when any of the following periodicities or situations occur.				
		a. Quarterly. b. Prior to deployment. c. After the end of CNO availability. d. Prior to entering hostile environment.				
	83 X88G N	1. Test Battery Charger Interlock.	S-1	EM3	0.1	None
	17 H7NN N	1. Test Grease Interceptor Hood High Temperature Switch.	A-1	DC/MM3 EM3	0.7 0.7	None

OTHER	MRC NO.	MAINTENANCE REQUIREMENT DESCRIPTION	PERIODICITY CODE	RATES	MAN HRS	RELATED MAINT
	86 Y31P N	1. Clean and Inspect Grease Interceptor Hood Detergent Tank.	A-7	PO3 FN/SN	0.2 0.2	None
	56 H0KW N	1. Inspect Level of Detergent in Tank and Clean and Inspect Vent Exhaust Grease Interceptor Hood.	R-1D	FN/SN	0.2	None
<b>NOTE:</b> Accomplish this maintenance requirement when any of the following periodicities or situations occur.						
		a. While in use, daily.				
	56 H0KV N	1. Inspect Grease Interceptor Hood Internals.	R-2W	FN/SN	0.2	R-1D
<b>NOTE:</b> Accomplish this maintenance requirement when any of the following periodicities or situations occur.						
		a. While in use, weekly.				
<b>UNSCHEDULED MAINTENANCE</b>						
H	A5 X71T U	1. Calibrate Exhaust Damper Temperature Switch.	U-22	2PO3	2.0	9802/002: U-7# or 9802/002: U-30#
	92 H1RC U	1. Replace Inoperable Smoke Ejection System Actuators.	U-23	DC2 2DC3 *CPR	2.0 4.0 0.5	U-24#
	55 H1RD U	1. Calibrate Limit Switches on Smoke Ejection System Electric Actuator.	U-24	DC2 2DC3	2.0 2.0	None

#### INACTIVE EQUIPMENT MAINTENANCE

The following requirements will be scheduled when equipment is inactivated for periods of prolonged idleness.

##### Lay-Up Maintenance

17 F7ND N	1. Clean and Inspect Grease Interceptor Hood Detergent Tank.	LU-1	PO3	0.1	None
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**NOTE:** Accomplish when the grease interceptor hood detergent tank is placed in Lay-Up.

##### Periodic Maintenance

OTHER	MRC NO.	MAINTENANCE REQUIREMENT DESCRIPTION	PERIODICITY CODE	RATES	MAN HRS	RELATED MAINT
		None				
		<b>Start-Up Maintenance</b>				
44 F7NE N		1. Fill Grease Interceptor Hood Detergent Tank.	SU-1	PO3	0.1	None
		<b>NOTE:</b> Accomplish when the grease interceptor hood detergent tank is placed in Start-Up maintenance.				
		<b>Operational Test</b>				
		None				
		<b>CLASS MAINTENANCE PLAN</b>				
14 G1Z2 U		1. Inspect Ventilation Supply, Exhaust and Recirc Ducting, and Plenum Interior.	AP-1	2Assessor	20.0	None
83 G1Z3 U		1. Conduct inspection of the Supply, Exhaust and Recirc System Interior Ventilation Ducting.	AP-2	Assessor Assessor	3.0 3.0	None
17 G2B2 U		1. Perform Visual Inspection; Test Operation for Each GIH and EVT Solenoid Operated Dampers; Conduct GIH Exhaust Air Flow Using Air Flow Anemometer; Inspect Hood, Spray Nozzles and Access Door Hardware and High Temperature Switch; Inspect Wash-Down Control Cabinet; Inspect Pump, Detergent Tank, and Foot Valve; Perform Operational Test of Wash-Down System.	AP-3	Assessor Assessor	1.0 1.0	None

---

**DISTRIBUTION STATEMENT D:**

Distribution authorized to DOD components and DOD contractors only; Critical Technology; August 2016. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04RM). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

Date:	MIP	5121	MRC:	86 Y31P N	Periodicity:	A-7
<b>Series:</b>						
<b>Location:</b>						
<b>Ship System:</b>	Climate Control	51000				
<b>System:</b>	Ventilation System	51200				
<b>SubSystem:</b>	Ventilation System, Outside Machinery Spaces	51210				
<b>Equipment:</b>	Grease Interceptor Hood					
Rates	Man-Hours	Rates	Man-Hours	Rates	Man-Hours	
PO3	0.2	FN/SN	0.2			
<b>Total Man-Hours:</b>	0.4	<b>Elapsed Time:</b>	0.2			

**MAINTENANCE REQUIREMENT DESCRIPTION**

1. Clean and Inspect Grease Interceptor Hood Detergent Tank.

---

**SAFETY PRECAUTIONS**

1. Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series.
2. To prevent personnel injury, Tag-Out procedures shall be in accordance with the Tag-out Users Manual (TUM), and/or local tag-out instruction.

---

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**MATERIALS**

1. [01102]Rag, wiping
2. [01144]Tag, safety
3. [02376]Water, fresh, No NSN -- W/C provide
4. [02610]Brush, plater's, hand
5. [13014]Cleaning compound, solvent detergent  
Hazardous Material User's Guide (HMUG) Group 3

**TOOLS**

1. [01789]Wrench, adjustable, 10" heavy duty, 1.135" jaw open
2. [02271]Flashlight, Type 3, style 1, explosive proof

**MISCELLANEOUS**

1. [00525]Gloves, rubber, industrial
2. [02274]Pail, utility, plastic, 3 GL
3. [02996]Apron, utility
4. [03707]Goggles, industrial, non-vented
5. [11922]Hazardous Material Users Guide (HMUG), S9086-WK-STM-020, NSTM 670 Vol II
6. [15244]S0400-AD-URM-010/TUM; TAG OUT USER'S MANUAL

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

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**HAZARDOUS MATERIALS CONTROL STATEMENT(U)**

For Forces Afloat, the Hazardous Material Users Guide (HMUG), S9086-WK-STM-020, NSTM Chapter 670 Volume II provides additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test, Equipment block. For other forces (expeditionary, shore based units, units based at a host nation facility), the OPNAVINST 5100.23 (series) provides guidance for Hazardous Material Control and Management (HMC&M) and directs the use of Safety Data Sheets (SDS) to determine additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test Equipment block. Maintenance personnel shall determine if additional PPE is necessary to accomplish the MRC and take appropriate action to obtain and wear such PPE to ensure the safety of maintenance personnel. Final disposition of all HAZMAT, both shipboard and ashore, shall be IAW local HAZMINCEN/CHRIMP guidance as required by OPNAVINST 5090.1 series Table 35-4. Report any deficiencies via PMS feedback report.

---

**PROCEDURE**

**Preliminary**

**WARNING:** To prevent personnel injury, Tag-Out procedures shall be in accordance with the Tag-out Users Manual (TUM), and/or local tag-out instruction.

- a. De-energize circuit and attach safety tag(s) in accordance with the TUM and/or local tag-out instruction.

**1. Clean and Inspect Grease Interceptor Hood Detergent Tank.**

- a. Put on apron and goggles, then gloves.
- b. Disconnect detergent line from pump.
- c. Remove detergent line and foot valve from detergent tank.
- d. Remove detergent tank.
- e. Drain detergent tank.

**NOTE 1:** Use of brush, platers, hand (SPMIG 02610) may be necessary if there is foreign matter of a buildup of detergent on the interior tank walls.

- f. Clean detergent tank; inspect tank for cracks and interior for foreign matter.
- g. Disassemble foot valve.
- h. Disassemble foot valve parts; inspect screen for breaks and clogged perforation.
- i. Reassemble foot valve.
- j. Fill detergent tank with cleaning compound in accordance with Table 1.
- k. Reinstall detergent tank.
- l. Reinstall foot valve and detergent line in detergent tank.
- m. Connect detergent line to pump.
- n. Inspect all connections for tightness.
- o. Remove gloves then apron and goggles.
- p. Remove safety tag(s) in accordance with the TUM and/or local tag-out instruction.
- q. Return equipment to desired readiness condition.

APPLICATION	DESCRIPTION	RATIO
Normal Duty	Heavy grease producing equipment such as griddles, fryers or broilers.	Full strength
Light Duty	Light grease producing equipment, such as ovens, kettles, steamers and ranges.	One part detergent to one part water.
Hood Exterior Cleaning (pail or spray bottle)	Hood exterior, damper, and baffle.	One part detergent to twenty parts water.

**Table 1**

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**DISTRIBUTION STATEMENT D:**

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<b>Date:</b> September 2012	<b>MIP</b> 5121	<b>MRC:</b> 92 H1RC U	<b>Periodicity:</b> U-23
<b>Location:</b> Various			
<b>Ship System:</b>	Climate Control 510		
<b>System:</b>	Ventilation System 512		
<b>SubSystem:</b>	Ventilation System, Non-Machinery Propulsion Spaces 5121		
<b>Equipment:</b>	Smoke Ejection System		
<b>Rates</b>	<b>Man-Hours</b>	<b>Rates</b>	<b>Man-Hours</b>
DC2	2.0	2DC3	4.0
<b>Total Man-Hours:</b>	<b>Elapsed Time:</b>	2.0	*CPR
6.5			0.5

---

**MAINTENANCE REQUIREMENT DESCRIPTION**

1. Replace Inoperable Smoke Ejection System Actuators.

---

**SAFETY PRECAUTIONS**

1. Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series.
2. To prevent personnel injury, Tag-Out procedures shall be in accordance with the Tag-out Users Manual (TUM), and/or local tag-out instruction.
3. To prevent personnel injury, Electrical Safety procedures shall be in accordance with NSTM 300 section 300-2.4 and Table 300-2-1a, and/or section 300-2.5 and table 300-2-1b.

---

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**MATERIALS**

1. [01144]Tag, safety

**TOOLS**

1. [01198]Screwdriver, flat tip, 6"
2. [11227]Key set, socket head screw

**MISCELLANEOUS**

1. [02000]Mandatory Related Maintenance MRC (U-24 (H1RD))
2. [11009]Communicator, wirefree, radio
3. [15244]SO400-AD-URM-010/TUM; TAG OUT USER'S MANUAL
4. [19009]S9086-KC-STM-010/CH-300; NAVAL SHIPS' TECHNICAL MANUAL, CHAPTER 300 ELECTRIC PLANT-GENERAL

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

---

**PROCEDURE**

**NOTE 1:** \* Omit CPR qualified person if IVV check is being conducted on (1) Single power source equipment (a single-speed motor, an oven, a string of lights, etc.) or (2) Multiple power source equipment designated by the Commanding Officer in writing to be low risk (e.g., a single-speed motor controller that also has an alarm circuit, a fan with two power supplies, etc.)

**NOTE 2:** Work Center Supervisor (WCS) review MRC and omit steps not applicable. No feedback required.  
**Preliminary**

**WARNING:** To prevent personnel injury, Tag-Out procedures shall be in accordance with the Tag-out Users Manual (TUM), and/or local tag-out instruction.

a.

**Figure I-2-4 (Page 1 of 3)**  
**Unscheduled Maintenance Requirement Card**

De-energize actuator and attach safety tag(s) in accordance with the TUM and/or local tag-out instruction.

**1. Replace Inoperable Smoke Ejection System Actuators.**

**NOTE 3:** The Keystone EPI-3 Actuator is obsolete and has been replaced by the Nu-Torque EO3 actuator. Follow the removal procedure in steps 1.a.(1)(a) through 1.a.(1)(h), then proceed to step 1.b. for installation instructions of the new actuator.

- a. Remove actuator.
  - (1) Remove Keystone EPI-3 actuator.
    - (a) Remove the yellow indicator arrow with a small flathead screwdriver.
    - (b) Unscrew the end-cap bolt with a 5/32 inch allen wrench and remove the end-cap.

**CAUTION:** Slowly remove the top, taking caution not to rip any wires from the terminal board.

- (c) Remove the top casing by unscrewing the 4 bolts at the corners with a 1/4 inch allen wrench.

**WARNING:** To prevent personnel injury, Electrical Safety procedures shall be in accordance with NSTM 300 section 300-2.4 and Table 300-2-1a, and/or section 300-2.5 and table 300-2-1b.

- (d) Conduct electrical safety check in accordance with NSTM 300 section 300-2.4 and Table 300-2-1a, an/or section 300-2.5 and Table 300-2-1b to ensure equipment is de-energized.

**NOTE 4:** Make note of any wires missing wire markers to ensure successful replacement.

- (e) Carefully remove the wires from the bottom row TB 1-1 through TB 1-7 and remove from the unit.
- (f) Remove cable from the unit.
- (g) Remove the 4 bolts from at the rear of the actuator securing the unit to the damper opening.
- (h) Remove the Keystone actuator by sliding it straight off of the damper stem.

- (2) Remove Nu-Torque EO3 actuator.

**CAUTION:** Slowly remove the top, taking caution not to rip any wires from the terminal board.

- (a) Remove the top casing by unscrewing the 4 bolts at the corners with a 1/4 inch allen wrench.

**NOTE 5:** Make note of any wires missing wire markers to ensure successful replacement.

- (b) Carefully remove the wires from the outer terminal board TB 1-1 through TB 1-7 and remove from the unit.
- (c) Remove cable from the unit.
- (d) Once the cable has been removed from the unit, remove the 4 bolts from at the rear of the actuator securing the unit to the damper opening.
- (e) With all 4 bolts removed, the Nu-Torque actuator should slide straight off of the damper stem.

**Figure I-2-4 (Page 2 of 3)  
Unscheduled Maintenance Requirement Card**

- b. Install Nu-Torque EO3 actuator.

**NOTE 6:** In rare situations, wiring the actuator and installing the cover before mounting to the damper stem is required due to space restrictions in the overheads. If this occurs, calibration must be performed prior to installation and verified to be in line with the damper stem range of movement.

- (1) Slide the actuator onto the damper stem after ensuring that the actuator position (open/closed) matches the position of the valve, aligning the 4 corners of the unit with the 4 mounting bolts.
  - (2) Secure the actuator to the mounting by tightening the 4 bolts on the rear of the mounting assembly.
  - (3) Feed the cable through the corner of the actuator after removing the white plugs using stuffing tube(s).
  - (4) Wire the cable to the outer terminal board TB1-1 through TB1-7 as identified on the wire markers.
- c. Calibrate limit switches on newly installed actuator. Accomplish MRC U-24 (H1RD).
- d. Remove tag(s) in accordance with the TUM and/or local tag-out instruction.
- e. Restore all ventilation equipment to an operational status.
- f. Report any discrepancies to Work Center Supervisor.

**Figure I-2-4 (Page 3 of 3)  
Unscheduled Maintenance Requirement Card**

NAVSEAINST 4790.8D  
17 Jun 2021

Date: 12/15/17

Time: 10:30.09

Planned Maintenance System  
Non-Technical Feedback

Act ID: USS RONALD REAGAN (CVN 0076)

Ser #: 4733-17

Orig Date: 11/06/2017

Recd Date: 12/14/2017

MIP: 4361/700-C6 MRC: D-Code:

Nomen: HM&E Rotating Equipment

Work Center: EA01

FB Desc: Respectfully request to add MIP 4361/700 MIP to the following Work Centers.  
They are conducting vibration analysis that requires a Mandatory Check from 4361/700.

EA01 EA08 RE12

POC: (3MC) MMCS Josafat

Email Addr: 3mc@cvn76.navy.mil

**Figure I-2-5**  
**CAT A Feedback Report (Non-technical)**

Date: 12/15/17

Time: 10:39.42

Planned Maintenance System  
Technical Feedback

Act ID: USS CONNECTICUT (SSN 0022) Ser #: 0802-17

Orig Date: 11/19/2017

Recd Date: 12/12/2017 RIC:

MIP: 5142/9R3-57 MRC: 39 9FAT U C/S: 4132C

Nomen: Air-Conditioning Plant

FB Desc: MRC: 39 9FAT U [U-8] Changes for the Tools/Parts/Materials/Tools/Test  
Equipment: Sight Flow indicator replacement parts (SPMIG 12062) (NIIN 013138304) is incorrect. R-114 Technical Manual (S9514-DQ-MMA-010) calls out (NIIN 012899296) which requires removal and brazing for new install. Correct part is NIIN 012663578.  
Recommend replacing 012663578 in MRC and adding to SPMIG.

POC: ETCS(SS) Garcia

Email Addr: edwardkd@connecticut.navy.mil

**Figure I-2-6**  
**CAT B Feedback Report (Technical)**

UNCLASSIFIED//

PATUZYUW RHOVBXR2185 0911300-UUUU--RHMFIUU.  
ZNR UUUUU ZUI RHMMCA7762 0912006  
P 011300Z APR 09 PSN 134277H24  
FM USS BOXER  
TO RHMFIUU/NAVSEALOGCEN MECHANICSBURG PA//6211/62111/62112//  
INFO RHMFIUU/COMNAVSEASYSCOM WASHINGTON DC  
RULSSEA/COMNAVSEASYSCOM WASHINGTON DC//04RM//  
RHMFIUU/COMNAVSAFECEN NORFOLK VA  
RHMFIUU/BUMED WASHINGTON DC  
RHMFIUU/NAVAVNFCSTCEN NORFOLK VA//00/10/30/40/60/90//  
RHMHAA/COMPACFLT PEARL HARBOR HI  
RUHEQUE/COMTHIRDFLT RHOVMTZ/COMTHIRDFLT  
RHVRJZB/COMEXSTRIKGRU THREE  
RHOYSHP/COMPHIBRON FIVE RHOYBXR/USS BOXER BT  
UNCLAS //N04790// MSGID/GENADMIN/USS BOXER//  
SUBJ/URGENT PMS FBR SERIAL 1123-09//  
RMKS/1. SYSCOM MIP CONTROL NR 5420/012-C8.  
2. MRC CODE 5420 R-32W.  
3. SYSCOM MRC CONTROL NR 97B6DZN.  
4. RECOMMEND THAT MRC SYSCOM: 97 B60Z N R-32W MIP 5420/012  
PAGE 02 RHOVBXR2185 UNCLAS  
PROCEDURE STEP 2 BE CHANGED TO READ THE FOLLOWING:  
5. 2.L. REMOVE SAFETY TAGS.  
6. 2.M. ENSURE QUALIFIED PERSONNEL FLUSH AND RECIRCULATE  
REFUELING SYSTEM TO REMOVE ANY PARTICULATE CONTAMINANTS.  
7. 2.N. RETURN EQUIPMENT TO READINESS CONDITION.  
8. NOTE 3: FLUSHING OF REFUELING SYSTEM WHILE IN PORT  
REQUIRES PRIOR AUTHORIZATION.//  
BT  
#2185  
NNNN

Figure I-2-7  
Urgent Feedback Report (Message)

NAVSEAINST 4790.8D  
17 Jun 2021

Date: 08/09/08 Planned Maintenance System Page: 5  
Time: 11:29:45 Automated Library Issue Document (ALID) FR: 4-08

**NAVAL SURFACE FORCE US ATLANTIC FLEET (DK-6)**

Act ID: CG 0061 UIC: V21450 USS MONTEREY

## S U P E R S E D U R E S

Superseded MIP	Superseding MIP	Applicable Work Centers	Qty
8443/503-38	8443/503-78	CF03	1
58TOM29/001-18	58TOM29/001-78	CM01	1
58TOM34/001-18	58TOM34/001-68	CM01	1
58TOM36/001-38	58TOM36/001-68	CM01	1
50RD001/001-48	50RD001/001-58	CG03	1
5WTOM09/001-38	5WTOM09/001-68	CM01	1

A D D S

Added MIP	Applicable Work Centers	Qty
1701/001-78	CE03 CG03	2
4911/SU2-27	CF03	1
4957/010-48	CSE1	1
5000/014-C7	ER04	1
5551/001-78	ER04	1
5736/001-97	CG03	1
6111/002-68	CA01 CG03	2
6646/049-68	ER09	1
7121/009-78	EE02	1

D E L E T I O N

Deleted MIP	Applicable Work Centers
4121/099-57	CSE1
4911/SU2-27	CF02
5519/005-A7	ER04
5519/014-A5	ER04
5551/001-38	ER09

### **Figure I-2-8 Automated Library Issue Document (ALID)**

NAVSEAINST 4790.8D  
17 Jun 2021

MIP	Nomenclature	Work Center Distribution
1000/005-17	Hull Structure, General	ER01
1101/001-85	Underwater Hull Inspection	ER01
1230/001-A6	Trunks And Enclosures	EB14
1231/005-55	Tanks	ER01
1501/001-16	Superstructure And Fittings	ER01
1631/004-B6	Sea Chests	EA01 EM01 EM02
1671/001-67	Watertight Hatches/Scuttles, Manually Operated	ER09
1671/003-77	Watertight/Airtight Doors, Hatches, and Scuttles	ER09
1671/008-77	Watertight/Airtight Doors, Manually Operated	ER09
2000/001-67	Machinery Lubricating Oil	EA01 EB14 EM01 EM02
2020/005-96	Integrated Condition Assessment	EM04
2340/002-77	Main Propulsion Gas Turbine LM2500	EM01 EM02
2400/018-77	Transmission And Propulsor Systems	EM01 EM02
2411/023-77	Propulsion Reduction Gears 2411	EB14 EM01 EM02
2421/002-50	Propulsion Clutches And Couplings	EM01 EM02
2451/001-57	Propellers And Propulsors	EB14 EM01 EM02 EM04
2513/001-47	Combustion Air System	EM01 EM02 EM04
2521/040-37	Engineering Control System Equipment (ECSE)	EM04
2591/002-57	Uptakes And Baffles (Inner Casing)	EM01 EM02
2600/002-37	Vent Fog Electrostatic Precipitator	EM04
2610/005-77	Fuel Service System	EB14 EM01 EM02 EM04
2620/004-47	Main Propulsion Lube Oil System	EM01 EM02 EM04
2640/003-77	Lube Oil Fill, Transfer, And Purification	EM01 EM02 EM04
3000/001-77	Misc Shipboard Elect Equip	EE01 EE02 EM04
3000/074-C5	Thermal Image Survey	EE02
3001/002-77	Miscellaneous Controllers	EE02 EM04
3002/001-C6	Misc AC/DC Motors	EE02 EM04
3113/008-67	S/S Gas Turbine Generator Set	EM01 EM02 EM04
3131/005-46	Battery/Serv. Facilities	EE02
3140/011-56	Power Conversion Equipment	EM04
3201/002-B6	Power Cables (Casualty)	EE02
3202/047-67	Switchgear And Panels	EE02 EM04
3211/009-45	Shore Power (CG 47 Class ships only)	EE02
3212/004-A6	AESS POWER DISTRIBUTION	EE02
3301/002-77	Lighting Distribution And Fixtures	EE02 EM04
3431/001-96	SSGTG Support Systems	EM01 EM02 EM04
4221/001-66	Electrical Navigation Aids	EE02
4361/568-47	AN/PDQ-1 thru 10 Multi-Function RADIAc Set	ER04
4371/004-96	Indicating, Order, And Metering Systems	EM04
4371/010-77	Shaft Torsionmeter System	EM04
4372/002-67	Tank Level Indicating Systems	EM04
4431/002-37	Visual And Audible Communication	EA01 EE02
4751/003-66	Degaussing	EE02
4926/HDL-77	Helo Deck Lighting	EE02
4926/RHR-77	Horizon Reference Set (HRS) A/W37A-1	EE02
5000/005-77	Valves And Valve Operators	EA01 EA04 EB14 EE02 EM01 EM02 EM04 ER01 ER04 EA01 EB14 EM01 EM02
5000/007-A5	Engineering Repair Procedures	EA01 EA04 EB14 EM02
5000/009-47	Flexible Hoses	EA01 EA04 EB14 EM01 EM02 ER01

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**Figure I-2-9**  
**MIP to Work Center File Report (PMS 4A)**

NAVSEAINST 4790.8D  
17 Jun 2021

Date: 08/02/17 Planned Maintenance System Page: 1  
Time: 10:54:35AM TFBR Status by Hull (PMS-22) 07/28/2015 - 08/02/2017

**Outstanding TFBR's for USS MONTEREY (CG 0061)**

Naval Surface Force US Atlantic Fleet

Serial #	Date Received	Date to ISEA	ISEA Responsible	Due Date	Revised Due Date	Days Del	Funded
<hr/>							
4288-15	06/04/15	06/04/15	SPAWARSYSCEN ATLANTIC 41230	07/09/15		760	No
4319-15	08/03/15	08/04/15	SPAWARSYSCEN ATLANTIC 41230	09/08/15		700	No
4354-15	12/18/15	12/23/15	NSWC IHD PICATINNY DET G31	01/27/16		563	Yes

Total Outstanding TFBR's: 3

Completed TFBR's for USS MONTEREY (CG 0061)

Naval Surface Force US Atlantic Fleet

Serial #	Date Received	Date Sent	ISEA Responsible	ISEA	Close-Out
				Response Date	Response Date
4090-13	01/28/13	04/02/14	NAVSURFWARCENDIV PHIL 316	11/02/15	11/04/15
4149-13	05/21/13	05/22/13	NAVSURFWARCENDIV PHIL 316	03/08/16	03/10/16
4234-15	02/12/15	02/12/15	NAVSURFWARCEN PHDIV A66 (AWS)	09/28/15	10/20/15
*4262-15	04/24/15	04/28/15	NAVSURFWARCEN DAM NECK F31	08/14/15	09/23/15
4271-15	04/30/15	05/04/15	NSWC IHD PICATINNY DET G31	08/04/15	08/05/15
4275-15	04/30/15	04/30/15	NAVSURFWARCEN PHDIV A66 (AWS)	09/28/15	10/20/15
4278-15	06/04/15	06/04/15	NAVSURFWARCENDIV PHIL 316	08/19/15	08/20/15
4282-15	06/04/15	06/05/15	NAVSURFWARCEN PHDIV A66 (AWS)	07/24/15	08/03/15
4312-15	08/03/15	08/03/15			08/03/15
4313-15	08/04/15	08/05/15			08/05/15
*4314-15	08/03/15	08/04/15	NAVSURFWARCEN PHDIV S53	09/09/15	11/13/15
*4315-15	08/03/15	08/04/15	NAVSURFWARCEN PHDIV S53	09/09/15	11/13/15
4317-15	08/03/15	08/03/15			08/03/15
4318-15	08/03/15	08/03/15			08/03/15
4320-15	08/03/15	08/04/15	NAVSURFWARCENDIV PHIL 316	08/17/15	09/04/15
4321-15	08/03/15	08/04/15	NAVSURFWARCENDIV PHIL 316	08/17/15	09/04/15
4322-15	08/03/15	08/04/15	NAVSURFWARCENDIV PHIL 316	08/19/15	09/14/15
*4326-15	08/03/15	08/05/15	NAVSURFWARCENDIV PHIL 316	11/03/15	11/06/15
*4332-15	08/18/15	08/24/15			08/24/15
*4338-15	10/02/15	10/07/15	NAVSURFWARCEN PHDIV A55 (VLS)	10/28/15	11/05/15
*4340-15	10/02/15	10/06/15			10/06/15
4344-15	10/14/15	10/15/15			10/15/15
4351-15	12/18/15	01/20/16			01/20/16
4352-15	12/18/15	12/21/15			12/21/15
4353-15	12/18/15	12/21/15			12/21/15
*4365-16	05/12/16	05/12/16	NAVMEDLOGCOM MARYLAND 04	06/29/16	07/11/16
*4367-16	05/13/16	05/16/16	NAVSURFWARCEN PHDIV L35	06/15/16	06/23/16

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## **Figure I-2-10**

### **Technical Feedback Status Report (PMS 22)**

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**DISTRIBUTION STATEMENT D:**

Distribution authorized to DOD components and DOD contractors only; Critical Technology; May 2015. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04RM). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

Date: May 2015	MIP Series:	5511	MRC:	55 F4PH N	Periodicity:	LU-1
<b>Location:</b>						
<b>Ship System:</b>	Air, Gas, and Miscellaneous Fluid Systems	55000				
<b>System:</b>	Compressed Air Systems	55100				
<b>SubSystem:</b>	Air System, High Pressure Compressors, High Pressure Air	55110				
<b>Equipment:</b>	Dehydrator, High Pressure Air					
Rates	Man-Hours	Rates	Man-Hours	Rates	Man-Hours	
MM3/MMFN	0.1					
<b>Total Man-Hours:</b>	0.1	<b>Elapsed Time:</b>	0.1			

---

**MAINTENANCE REQUIREMENT DESCRIPTION**

1. Install Protective Covering.

---

**SAFETY PRECAUTIONS**

1. Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series.
2. To prevent personnel injury, Tag-Out procedures shall be in accordance with the Tag-out Users Manual (TUM), and/or local tag-out instruction.

---

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**MATERIALS**

1. [00973]Paper, kraft, treated
2. [01144]Tag, safety
3. [01356]Tape, pressure sensitive adhesive

**TOOLS**

1. [01238]Shears, straight trimmers, 7", household/industrial

**MISCELLANEOUS**

1. [15244]S0400-AD-URM-010/TUM; TAG OUT USER'S MANUAL

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

**PROCEDURE**

**NOTE 1:** Accomplish if industrial work is to be performed in vicinity of equipment.

**1. Install Protective Covering.**

**WARNING:** To prevent personnel injury, Tag-Out procedures shall be in accordance with the Tag-out Users Manual (TUM), and/or local tag-out instruction.

- a. De-energize HP air system dehydrator circuit and attach safety tag in accordance with the TUM and/or local tag-out instruction(s).
- b. Cut a piece of kraft paper large enough to cover unit.
- c. Place kraft paper over unit and tape in position.

**Figure I-2-11**  
**Lay-Up Maintenance (LU) MRC**

---

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Distribution authorized to DOD components and DOD contractors only; Critical Technology; March 2009. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04RM). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

Date: March 2009	MIP Series:	5511	MRC:	39 F5TY N	Periodicity:	PM-4
<b>Location:</b>						
Ship System:	Air, Gas, and Miscellaneous Fluid Systems	550				
System:	Compressed Air Systems	551				
SubSystem:	Compressors, High Pressure Air	5511				
Equipment:	High Pressure Air System					
Rates	Man-Hours	Rates	Man-Hours	Rates	Man-Hours	
MM3	0.1					
Total Man-Hours:	0.1	Elapsed Time:	0.1			

---

**MAINTENANCE REQUIREMENT DESCRIPTION**

1. Blow Down HP Service Air Bank.

---

**SAFETY PRECAUTIONS**

1. Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series.

---

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**MISCELLANEOUS**

1. [02000]Mandatory Related Maintenance MRC (W-1R (9DZG))

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

---

**PROCEDURE**

**NOTE 1:** Accomplish Monthly while equipment is in inactive equipment maintenance status.

**1. Blow Down HP Service Air Bank.**

- a. Schedule and perform MRC W-1R (9DZG).

**Figure I-2-12**  
**Periodic Maintenance (PM) MRC**

---

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Distribution authorized to DOD components and DOD contractors only; Critical Technology; July 2008. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04RM). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

Date:	MIP Series:	MRC:	Periodicity:
July 2008	5511	78 F4PJ N	SU-1
Location:			
<b>Ship System:</b> Air, Gas, and Miscellaneous Fluid Systems 550			
<b>System:</b> Compressed Air Systems 551			
<b>SubSystem:</b> Compressors, High Pressure Air 5511			
<b>Equipment:</b> Dehydrator, High Pressure Air			
Rates	Man-Hours	Rates	Man-Hours
MM3/MMFN	0.1		
Total Man-Hours:	0.1	Elapsed Time:	0.1

---

**MAINTENANCE REQUIREMENT DESCRIPTION**

1. Remove Protective Covering.

---

**SAFETY PRECAUTIONS**

1. Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series.
2. Avoid inhalation of, ingestion of, skin contact with, and eye contact with hazardous materials. Avoid use near heat or open flame and provide adequate ventilation. Consult work center supervisor if unsure whether ventilation is adequate and if respiratory protection is necessary.

---

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**MATERIALS**

1. [01102]Rag, wiping
2. [01904]Cleaning compound, solvent-detergent Hazardous Material User's Guide (HMUG) Group 6
3. [02274]Pail, utility, plastic, 3 GL
4. [02376]Water, fresh, No NSN -- W/C provide

**MISCELLANEOUS**

1. [02086]Gloves, chemical and oil protective, disposable
2. [03707]Goggles, industrial, non-vented
3. [11922]Hazardous Material Users Guide (HMUG), S9086-WK-STM-020, NSTM 670 Vol II

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

---

**HAZARDOUS MATERIALS CONTROL STATEMENT(U)**

For Forces Afloat, the Hazardous Material Users Guide (HMUG), S9086-WK-STM-020, NSTM Chapter 670 Volume II provides additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test, Equipment block. For other forces (expeditionary, shore based units, units based at a host nation facility), the OPNAVINST 5100.23 (series) provides guidance for Hazardous Material Control and Management (HMC&M) and directs the use of Safety Data Sheets (SDS) to determine additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test Equipment block. Maintenance personnel shall determine if additional PPE is necessary to accomplish the MRC and take appropriate action to obtain and wear such PPE to ensure the safety of maintenance personnel. Final disposition of all HAZMAT, both shipboard and ashore, shall be IAW local HAZMINCEN/CHRIMP guidance as required by OPNAVINST 5090.1 series Table 35-4. Report any deficiencies via PMS feedback report.

---

**PROCEDURE**

**NOTE 1:** Accomplish when equipment was covered for protection.

---

**1. Remove Protective Covering.**

a.

**Figure I-2-13 (Page 1 of 2)  
Start-Up Maintenance (SU) MRC**

- Pull tape from unit.  
b. Remove kraft paper.

**WARNING:** Avoid inhalation of, ingestion of, skin contact with, and eye contact with hazardous materials. Avoid use near heat or open flame and provide adequate ventilation. Consult work center supervisor if unsure whether ventilation is adequate and if respiratory protection is necessary.

- c. Put on goggles and gloves.  
d. Wash tape residue from unit with rag and cleaning compound. Dry with rag.  
e. Remove gloves and goggles.  
f. Remove tag and set main power panel circuit breaker to ON.  
g. Return equipment to readiness condition.

---

**DISTRIBUTION STATEMENT D:**

Distribution authorized to DOD components and DOD contractors only; Critical Technology; December 2014. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04RM). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

Date:	December 2014	MIP	4551	MRC:	C4 FNP8 N	Periodicity:	OT-1
<hr/>							
<b>Location:</b>							
Ship System:		Surveillance Systems (Surface)	450				
System:		Identification Systems (IFF)	455				
SubSystem:		AIMS MK XII IFF Transponder System	4551/45				
Equipment:		AN/APX-72 or AN/UPX-28(V) Transponder Set	4551/45				
Rates		Man-Hours		Rates		Man-Hours	
ET3		0.5					
Total Man-Hours:		0.5		Elapsed Time:		0.5	

---

**MAINTENANCE REQUIREMENT DESCRIPTION**

1. Test Transponder Operation.

---

**SAFETY PRECAUTIONS**

1. Forces afloat comply with Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series; shore activities comply with SOH Program Manual, OPNAVINST 5100.23 series.

---

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**MISCELLANEOUS**

1. [02000]Mandatory Related Maintenance MRC (R-2Q (BZV8))

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

---

**PROCEDURE**

**1. Test Transponder Operation.**

- a. Accomplish MRC R-2Q (BZV8).

**Figure I-2-14**  
**OPERATIONAL TEST (OT)**

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## **SECTION I**

### **CHAPTER 3**

INITIAL PLANNED MAINTENANCE SYSTEM INSTALLATION  
AND  
UPDATE DURING OVERHAUL

SECTION I |CHAPTER 3  
INITIAL PLANNED MAINTENANCE SYSTEM INSTALLATION  
AND  
UPDATE DURING OVERHAUL

1. Planned Maintenance System (PMS) Installation (Shipboard)

Type Commanders (TYCOMs) are responsible for ensuring the proper installation and operation of PMS within the ships and activities under their command.

a. Preparation of Materials. Prior to the PMS installation, equipment configuration information will be verified by the Configuration Data Manager (CDM). The PMS Maintenance Index Page (MIP) and Maintenance Requirement Card (MRC) documentation will be certified by the Naval Sea Logistics Center (NSLC) sites Norfolk and San Diego. Following the validation, NSLC will assemble the PMS documentation, equipment listings, schedules, and forms required for the installation package. Each PMS installation package is tailored to the ship. Installation packages consist of:

- (1) A transmittal letter with an inventory of installation materials.
- (2) List of Effective Pages (LOEP).
- (3) PMS Master File.
- (4) One Work Center PMS Manual for each Work Center. The Work Center PMS Manual reflects that portion of the PMS Master File that contains the planned maintenance requirements applicable to a particular Work Center and includes a deck of associated MRCs and PMS Feedback Report (FBR) forms.
- (5) A PMS delivery and installation reporting card.

b. PMS Load-Out. NSLC is responsible for installing PMS aboard ship. PMS is installed in two phases: preliminary and final.

(1) Preliminary PMS Installation. A preliminary, time-phased PMS package that is tailored to the ship's manning and compartment acceptance plan will be built and installed as ship construction continues. Close coordination between the Supervisor of Shipbuilding (SUPSHIP), NSLC, and the ship, monitored by the TYCOM, will continue through final PMS installation. PMS installation phases may be altered to accommodate manning phases. The goal is to bridge the gap between acceptance of a space and PMS installation, minimizing damage to equipment and systems during this transition period.

(2) Final PMS Installation. A final, formal, ship-wide PMS installation, which represents the full PMS package installation, will correspond with the ship's commissioning plan. NSLC

will notify the ship of a proposed final PMS installation date, the names and security clearances of team members, and a brief overview of the procedures. Subparagraphs 1.b.(2)(a) through 1.b.(2)(c) provide a general time frame for installations:

(a) Submarines. Approximately 3 months prior to shipbuilder's Event 25 (Initial Fill). The sequence of events is as follows:

1. Place ship in FR database (PMSMIS) and therefore on the FR disk one quarter prior to Event 25.
2. TYCOM request UIC database build from NSLC.
3. TYCOM load UIC database onto ships NIAPS LAN.
4. TYCOM load FR in SKED.
5. Ship's 3MC build user accounts in SKED and Chain-Of-Command.
6. Ship conducts FR approvals and go live with PMS, placing systems that have yet to be turned over in IEM.

(b) Nuclear Powered Surface Ships. Approximately 2 weeks prior to placing the ship "In Service".

(c) Surface Ships. Approximately 2 weeks prior to commissioning.  
c. Installation Briefings. NSLC will conduct briefings during the preliminary PMS installation phase and final installation process. A TYCOM representative should be present at these briefings.

(1) The installation team leader will conduct a top-management level briefing for the benefit of the Commanding Officer, Executive Officer, 3-M Coordinator, and Department Heads. The purpose of the briefing will be to provide refresher training in the concept and management aspects of PMS. The briefing will be scheduled once the majority of Department Heads are aboard the pre-commissioning unit based on the ship's commissioning plan.

(2) The installation team will conduct a briefing at the Division Officer and Work Center level. This briefing will consist of PMS concepts and detailed procedures directed to the maintenance personnel. It will be held once the majority of Division Officers and Work Center Supervisors have reported aboard. Additional briefings will be conducted by the TYCOM as required during preliminary periods.

(3) NSLC will brief the 3-M Coordinator during the formal, full PMS package installation.

d. Inventory of Installation Package

(1) Inventory of Preliminary PMS Package. NSLC will provide a copy of the latest PMS package applicable for the ship class with the ship's known PMS assigned and available for scheduling. The ship will monitor the pre-commissioning space acceptance progress and inventory equipment associated with spaces to be accepted. The ship will use the PMS package to identify applicable PMS and will coordinate with NSLC to acquire PMS documentation for those equipment and systems under Ship's Force control. NSLC will assist the ship if PMS cannot be identified for a system to be accepted. It is the ship's responsibility to validate the PMS for their hull.

(2) Inventory of Final PMS Package. The PMS installation team, in conjunction with ship personnel, must conduct an inventory of the installation package received from NSLC. This will be done to ensure the package contains all materials necessary for the PMS installation. The installation team will compile a list of all deficiencies and discrepancies. The installation team will forward this list directly to NSLC for immediate corrective action.

e. Installation Completion Check List. During the preliminary PMS package build, the installing activity will develop a check list to use during the PMS installation. This checklist will be used to ensure that:

(1) All PMS Work Center Supervisors are instructed in using the Automated Scheduling Program to do their PMS schedules and instructed in the preparation of Equipment Guide Lists (EGL) and Location Guide Lists (LGL).

(2) Supply personnel are familiar with the Standard PMS Item Name (SPIN), Standard PMS Material Identification Guide (SPMIG), and other responsibilities in support of Ships' 3-M Systems.

(3) The 3-M Coordinator, Division Officers, Chief Petty Officers (CPO), and Leading Petty Officers (LPO) can access the Local Area Network (LAN) and the Internet from their work stations. Demonstrate the ability to connect to the Revised Alternative Dataflow Web (RADWEB), Configuration Data Manager's Database – Open Architecture (CDMD-OA), and on-line 3-M Manual as required.

(4) An adequate number of the Ships' 3-M Manuals, OPNAV 4790 forms, and TYCOM 3-M Systems instructions are available onboard.

## 2. Update of Shipboard PMS Package during Overhaul Period

The procedures listed in subparagraphs 2.a through 2.e establish the general guidelines within which NSLC, overhaul activities, TYCOMs, and ships will function to ensure that an adequate and accurate PMS update is accomplished prior to completion of a regular overhaul or any lengthy availability.

a. Prior to Overhaul. Three months prior to the start of overhaul, the responsible Regional Maintenance Center (RMC) will initiate a letter of request to NSLC for a PMS update package. When the availability or overhaul date is not known 90 days prior to the start of overhaul, the request will be made as soon as it becomes known. Thirty days prior to the start of overhaul and after receipt of the RMC request, NSLC will provide the documents named in subparagraphs 2.a.(1) through 2.a.(3):

- (1) PMS 4 (MIP to Work Center Listing)
- (2) PMS 5 (List of Effective Pages Listing)
- (3) One set of all updated MIPs and unclassified MRCs.

b. List of Effective Pages (LOEP) Validation. In conjunction with Ship's Force, the RMC must verify the PMS 4 and 5 listings with onboard equipment configuration and identify adds, changes, and deletes per RMC procedures. The total update package consisting of an Annotated PMS 5 (LOEP) and LOEP update list should be sent by the NSLC to the RMC and the ship periodically during overhaul, but definitely by the end of the overhaul. This will allow the ship to begin PMS coverage prior to receipt of the Force Revision (FR). Data submitted will be incorporated into the next FR. Items lacking PMS coverage but needing planned maintenance must be added to the Maintenance Requirements Substantiated (MRS) listing.

c. Procedure Development. When tasked and funded, NSLC must coordinate the development of PMS requirements for MRS items.

d. Distribution of Documentation. The responsible NSLC Det. will provide the updated PMS documentation directly to the Integrated Logistics Overhaul (ILO) activity and the ship via the normal FR cycle until the end of overhaul, at which time only the ship will continue to receive PMS documentation via FR updates.

e. PMS Update Process. The PMS update process for overhaul periods is shown in Figure I-3-1.

## 3. Shore Units, Schools and Training Commands

- a. Installation Teams. Installation teams are not provided to shore units, schools and training commands for installing or updating PMS. However, sufficient training is available on both the east and west coasts to assist these activities in readying staff and instructor personnel for the receipt, distribution of materials, and execution of the PMS program. These training courses are delineated in Section IV, Chapter 1.
- b. Shore Units, Schools and Training Commands. Shore Units, schools and training commands are responsible for the same functions as specified for shipboard PMS installation and updates. Following receipt of a PMS package or FR update from NSLC, implementation of new and updated PMS documentation must be accomplished using existing procedures as described in Chapter 2 of this section.

## PMS Update Process

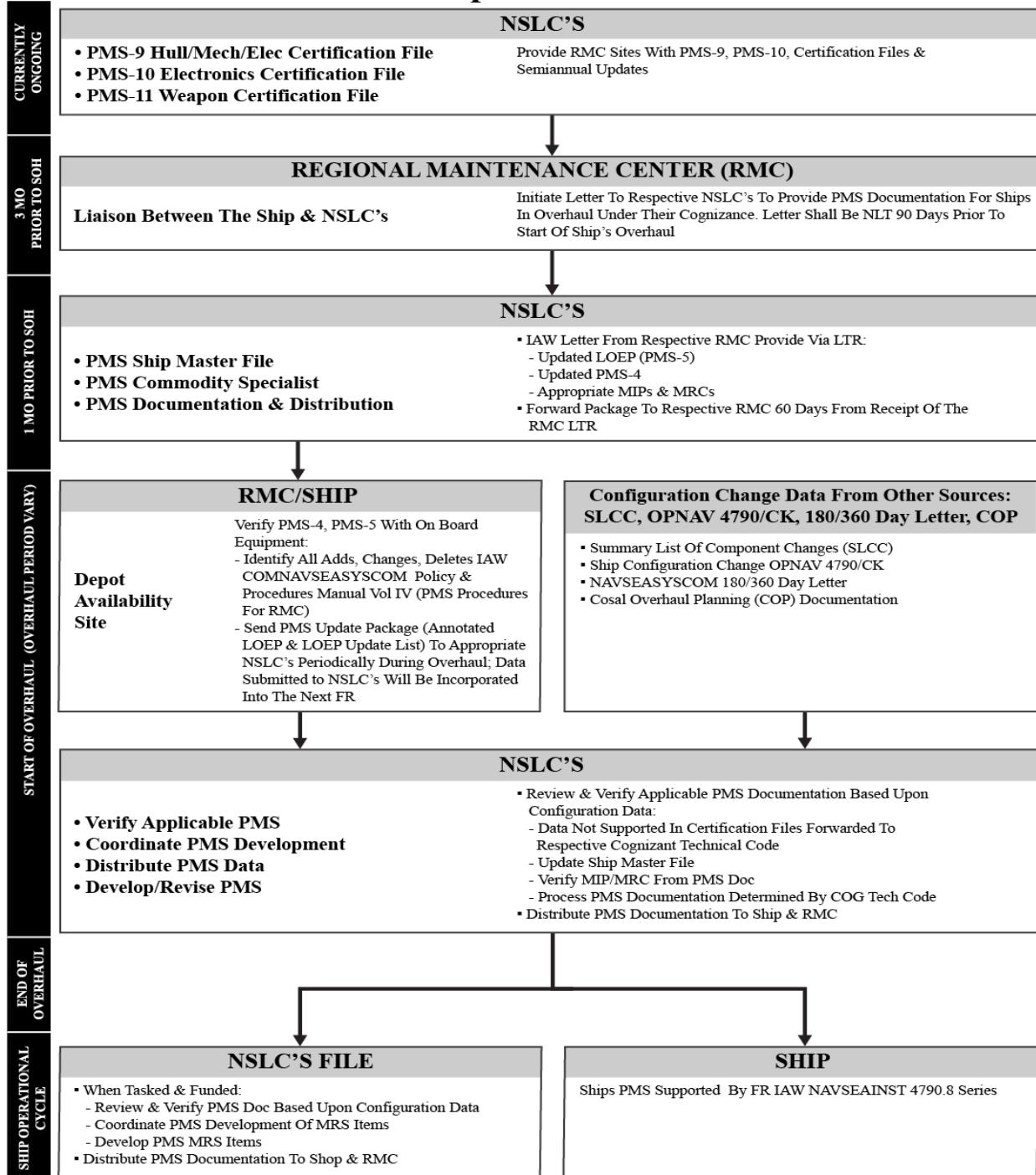


Figure I-3-1  
PMS Update Process

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17 Jun 2021

**SECTION I**  
**CHAPTER 4**

ORGANIZATIONAL LEVEL MAINTENANCE DATA SYSTEM INTERFACE

## SECTION I | CHAPTER 4

### ORGANIZATIONAL LEVEL MAINTENANCE DATA SYSTEM INTERFACE

- Ref: (a) NAVSEA S9213-45-MAN-000(U), (Naval Nuclear Material Management Manual)  
(b) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)  
(c) NAVSEA TECHNICAL SPECIFICATION 9090-700 (Series)  
(d) NAVSUP PUBLICATION 485, Vol I, (Afloat Supply Procedures)

#### 1. Purpose

The purpose of this chapter is to provide the 3-M Program's Maintenance Data System (MDS) policy and guidelines in support of Organizational (O) level maintenance and material reporting.

#### 2. Scope

This chapter specifies the requirements for O-level MDS reporting. It requires the reporting of maintenance actions and configuration changes on all categories of equipment. Maintenance data collection or reporting requirements, not specified in this manual, will not be levied on fleet units by the shore establishment without prior approval of the Chief of Naval Operations (OPNAV N43).

#### 3. Objective

The 3-M program provides a means to effectively manage and control organizational-level maintenance. It is primarily managed via the Current Ship's Maintenance Project (CSMP). A thorough and accurate CSMP reflects the material condition of the ship or activity. This objective is achieved by:

- a. Reporting maintenance actions.
- b. Reporting configuration changes.
- c. Producing CSMP reports.
- d. Producing work requests and work candidates.
- e. Producing deficiency documents for use by the Board of Inspection and Survey (INSURV).
- f. Providing information necessary to evaluate and improve readiness, reliability, maintainability, and availability of installed systems and equipment.

g. Providing maintenance history information to the 3-M System Central Database.

4. 3-M O-Level MDS

a. MDS. Provides the maintenance and material managers throughout the Navy with the means to plan, acquire, organize, direct, control, and evaluate manpower and material resources expended or planned for expenditure in support of maintenance. It allows for information collected by maintenance personnel to be recorded only once and the maintenance database thereafter will provide information to all who have a need for it. It is the responsibility of each Work Center Supervisor (WCS) to ensure that the CSMP accurately describes the material condition of the Work Center. It is imperative that for each maintenance action:

- (1) Proper equipment is identified.
- (2) Correct codes are used.
- (3) The Chain of Command reviews each transaction.
- (4) Proper supply documents are generated to ensure that the correct parts are ordered.

b. Classification. The CSMP must contain UNCLASSIFIED data only but that data is business sensitive and must not be made available for public release.

c. Databases. Various automated systems have been developed to reduce the administrative workload associated with maintenance, provide users with a responsive and flexible facility for on-line management of maintenance, and improve the accuracy and timeliness of existing up-line reporting. The ability to accurately document, track, and maintain configuration and maintenance history is critical for maintaining proper logistics support.

(1) The NSLC 3-M Systems Central Database is the focal point for receipt and distribution of UNCLASSIFIED maintenance and material data. Each reporting activity must ensure that narrative data sent up-line to this database does not contain any classified or Navy Nuclear Propulsion Information (NNPI). Ships equipped with the Propulsion-Organizational Maintenance Management System (P-OMMS) should refer to the reference (a), the Naval Nuclear Material Management manual, for P-OMMS operating requirements. The Naval Nuclear Material Management manual will provide additional information to resolve differences between the requirements in this manual and NAVSEA 08 guidance documents.

(2) The Configuration Data Managers Database—Open Architecture (CDMD-OA) serves as the Navy's central repository for Ship Configuration and Logistic Support Information (SCLSI). This information also assists in Battle Damage Assessment (BDA) and repair. CDMD-OA provides information used by Naval Supply Systems Command-Weapon Systems Support (NAVSUP-WSS), Mechanicsburg, for the calculation of allowances of repair parts

carried onboard. Updates via the Automated Shore Interface (ASI) are made available to the activity on a continuous basis. This enables the supply department to easily maintain its Coordinated Shipboard Allowance List (COSAL) and order repair parts as an automated process. See reference (b), JFMM, Volume VI, Chapter 19 for TYCOM-specific ASI requirements. CDMD-OA is also used to identify the technical manuals, PMS documents, and test equipment necessary to support unit or activity equipment and systems. Accurate reporting of configuration data is critical to ensure logistics documentation and parts support is available.

(3) NAVSEA SEA 06L manages and directs the Ship Configuration and Logistics Support Information System (SCLISIS) process which supports the equipment Configuration Status Accounting (CSA) and logistics delivery processes throughout the Navy. Policy, implementation, operation and maintenance of all aspects of SCLISIS are provided in reference (c).

(a) The SCLISIS process is used for Navy and Coast Guard automated and non-automated surface ships and submarines. SCLISIS also serves designated shore activities, such as Naval Expeditionary Combat Command (NECC) activities, Mobile Inshore Underwater Warfare Units (MIUWU), Moored Training Ships (MTS), Antisubmarine Warfare Operations Center (ASWOC) sites, Naval Training Facilities, and other Navy activities; and equipment system groups such as Aircraft Launch and Recovery Equipment (ALRE), Navigational Aids and Landing Systems (NAALS), and Aegis systems.

(b) The SCLISIS process allows ships to maintain an on-line source of their SCLISIS information allowing them to locate and determine configuration, logistics, and supply data associated with all installed equipment. This information can then be used to fill in MDS Maintenance Action Forms (OPNAV 4790/2K) and Configuration Change Forms (OPNAV 4790/CK) without having to refer to a series of manual or off-line reference books and files. The on-line system also allows the maintenance personnel to identify the repair parts associated with the equipment and systems that they are maintaining and to order these parts on-line. Since the configuration data in the OMMS-Next Generation (OMMS-NG) and Shipboard Non-tactical ADP Program (SNAP) databases is provided, the shipboard and unit personnel need only select the correct equipment and report the information relevant to the actual maintenance of the equipment. Supply and maintenance worthy equipment configuration changes must be reported and processed by the Configuration Data Manager (CDM).

(4) Automated and non-automated units maintain a copy of their own configuration and logistics database. This database is the same as the unit's section of the master CDMD-OA database. The two databases are kept in synchronization through the SCLISIS management process.

d. Configuration and Logistics Data.

(1) The accuracy of a unit's configuration information affects the quality of the logistics support that the unit receives. Inaccurate data will result in the unit being supplied with incorrect component parts and technical documents, ultimately hindering battle damage repair efforts.

(2) CDMD-OA is the source for configuration and logistic support data available to ships and other fleet and shore activities. This database also supports Class Maintenance Plan scheduling and refurbishment requirements and identifies all of the items, components, equipment, sub-assemblies, assemblies, sub-systems, and systems requiring integrated logistics support or planned maintenance requirements.

e. Reporting. The 3-M System requires all afloat activities to report deferred and completed maintenance actions, configuration changes, and configuration file corrections. For information on COSAL feedback reporting, refer to reference (d), Afloat Supply Procedures. As directed by TYCOM or higher authority, shore activity 3-M Work Centers are to report corrective maintenance and configuration changes on all installed shipboard-identical equipment and equipment installed in service crafts and boats. One Work Candidate (OPNAV 4790/2K or equivalent) must be submitted for each job action. Do not bundle multiple equipment on one Work Candidate.

(1) The configuration and maintenance forms used for manual reporting are the Configuration Change Form (OPNAV 4790/CK), the Maintenance Action Form (OPNAV 4790/2K), and the Supplemental Form (OPNAV 4790/2L.) Detailed instructions for completion of and examples of completed forms are found in reference (b), JFMM, Volume VI, Chapter 19, Appendices G through I. Consult TYCOM directives for nuclear-specific CSMP procedures.

(2) MDS automated data reporting is basically the same as in the non-automated 3-M program. The terms "2K", "CK", and "Work Candidate" are perpetuated in supporting software even though the paper forms are not filled out (with the exception of the Supplemental Form, OPNAV 4790/2L). Transactions are entered into the computer and reported up-line by using applicable software. Software instructions are developed and distributed by the 3-M Central Design Activities (CDA) and supplemented by TYCOM instructions as required. Options are available in the systems to print simulated OPNAV 4790/2K, OPNAV 4790/CK and Work Candidate forms when desired. Check the applicable system's user manual or Online Help for additional information. Appendix C provides the data elements and allowed values (as applicable) for each type of automated report.

(3) Ships are responsible for reporting equipment or component changes detected or accomplished by Ship's Force and Intermediate Maintenance Activities (IMA). While the equipment Technical Authority is responsible for reporting Alteration Installation Team (AIT) installations, the ship is ultimately responsible for its own configuration accuracy. Fleet and TYCOM directives govern the AIT's access to the ship's MDS and these directives must be closely followed prior to allowing changes to occur. If these configuration changes have not been properly reported by the Technical Authority, the ship is responsible for reporting them.

Shipboard personnel report the configuration changes to the TYCOM via a completed Configuration Change Form (OPNAV 4790/CK).

(4) The Navy Supervising Activity (NSA) provides a certification of alteration accomplishment to the ship and the appropriate CDM when the shipyard has accomplished an installation. This certification includes the Work Center Job Sequence Number (JSN) assigned to the alteration and the Final Action taken. The certification will be in the format shown in Figure I-4-1. The ship must endorse the shipyard's certification letter and forward to the support activity managing the ship's Master CSMP. The endorsement provides authorization for information transmitted to be processed as completed deferrals in the Master CSMP. Refer to Figure I-4-2. This eliminates the need for documenting multiple configuration changes with multiple OPNAV 4790/CKs or 2K/Work Candidates to close the CSMP deferral. Configuration changes made by the depot in accomplishing the alterations are reported separately by the NSA to the CDM.

(5) Reported maintenance action information is used for material history purposes and is the basis for the material and logistics support necessary to maintain equipment. Maintenance and material information in numerous reports and formats is available through the 3-M central database to any command requiring the information. These reports yield information concerning equipment maintainability and reliability, man-hour expenditures, material usage and costs, and material condition. Refer to Section III Chapter 1 of this instruction for information on obtaining 3-M data reports from NSLC.

f. Work Candidate/JSON Log. The Work Candidate/JSON logs are used by all non-automated ships. The Work Center Supervisor (WCS) must maintain a Work Candidate/JSON Log as described in reference (b), JFMM, Volume VI, Chapter 19.

g. Screening and Submission Process. All maintenance actions required to be documented by this instruction will be screened for accuracy and completeness. Any material requests that support a maintenance action must be assigned the identical JCN of that action and contain complete and accurate information. MDS documents, except supply documents, must be screened and transmitted off the ship as directed by TYCOM. Figure I-4-3 is an illustration of a sample letter of transmittal for 3-M documents submitted by non-automated activities to the supporting Automated Data Processing (ADP) facility. The timeliness of submission and the accuracy of the maintenance information reported are critical to the management of shipboard material deficiencies. The ship must have an up-to-date and useful CSMP showing the material condition of the ship for each Work Center. The CSMP provides the TYCOM with the means of determining urgent repairs for scheduling an IMA availability, shipyard overhaul, or a restricted availability.

h. Transaction and Error Report. When information is entered into the computer at the supporting ADP facility, a Transaction and Error Identification Report is generated. A letter of transmittal will be generated and sent from the data processing activity to the originator for

review and corrective action as necessary. The 3-M Coordinator is responsible for evaluating and resolving errors in the CSMP.

## 5. Selected Level Reporting (SLR)

SLR is a process that provides the capability for data collection of unique data elements in addition to the standard Work Candidate/2K submission. Designated SLR equipment may be either new or modified, proven to be unreliable, or require the collection of unique information to determine reliability. The NAVSEA 04RM SLR Technical Agent, NSLC Mechanicsburg, performs the development, maintenance and distribution function for SLR. SLR data that is collected is ultimately available in the Ships' 3-M System via the Open Architectural Retrieval System (OARS).

### a. Selected Equipment Indicator (SEI)

(1) The SEI resides in both CDMD-OA, considered to be the master database, and in the shipboard equipment file. The value contained in the SEI controls whether an individual equipment record is regarded as an SLR record. If a given equipment file record contains an appropriate and specific SEI value, it determines which set of unique additional data elements will be displayed on an SLR template upon entering a Work Candidate/2-Kilo.

(2) NSLC Mechanicsburg maintains the values in SEI via CDMD-OA. Changes to an SEI are accomplished by using unique Unit Identification Code (UIC)/Record Identification Number (RIN) combinations via special work-files (Item Type = SEI). The SEI is not updateable on the CDMD-OA browse or detail screens. Only the CDM is authorized to modify an SEI and does so by processing an "SEI" work-file created by NSLC Mechanicsburg.

(3) Any changes to an SEI in CDMD-OA automatically forwards a duplicate change transaction to the applicable activity in order to keep the values of SEI "in sync" between the master database in CDMD-OA, and the onboard equipment file.

### b. Selected Level Reporting Categories. The four distinct categories of SLR data are Level 1, Level 2, Level 3, and Level 4.

(1) Level 1. In addition to the basic Work Candidate/2-Kilo data entry requirements, Level 1 requires a mandatory data entry for both "Active Maintenance Time" and "Trouble Isolation" during all completion entries. A "Meter Reading" entry is also desired on all completions of equipment designated Level 1 but is not mandatory.

(2) Level 2. Level 2 requires the basic Work Candidate/2-Kilo data entries, the Level 1 mandatory data entries, additional unique data entries, and optional free-form data entries.

#### (a) Unique Data Elements

1. Start Time (Hours) – Mandatory on a deferral and a completion.
2. Stop Time (Hours) – Mandatory on a completion only.
3. Repaired/Replaced (1 or 2) – Mandatory on a completion only.
4. End of Downtime – Optional.
5. End of Logistics Delay – Optional.
6. End of Outside Assistance – Optional.
7. Mode of Operation – Optional.

(b) Optional free-form “Remarks”

1. Problem(s) encountered.
2. Reference Designator(s)/Part Serial Number(s).
3. Symptom(s) of Failure.
4. Logistics Deficiencies.
5. Description of Difficulties.
6. Description of multiple events within a Work Candidate.
7. Any other helpful information regarding the event.
8. Completion meter reading.

(3) Level 3. SLR requires data entry for various unique data sets as defined by the requestor for each equipment designated as Level 3. Level 3 SLR utilizes a unique template for collection of the desired information within the applicable operating system whether it be the legacy SNAP or OMMS-NG. Subparagraphs 5.b.(3)(a) through 5.b.(3)(c) list examples of currently designated Level 3 SLR equipment:

- (a) Trident Command and Control Problem Reporting System – SEI is “C.”
- (b) LM2500 Gas Turbine Engine – SEI is “L.”
- (c) Aircraft Launch and Recovery Equipment Maintenance Program – SEI is “M.”

(4) Level 4. Level 4 SLR was developed to meet the requirement to provide a more flexible SLR template. Level 4 provides the flexibility for the requestor to define the length of each data element for data collection and the maximum number of possible elements was expanded by nine. Level 4 also provides the requestor the capability to tailor the template layout as required. Level 4 will ultimately become the sole SLR template category serving as a replacement for all existing Level 1, Level 2, and Level 3 categories. An example of a designated SLR Level 4 equipment is Commercial Off-The-Shelf (COTS) AN/UYQ-70 Equipment which has an SEI of "A."

c. Level 3/Level 4 SLR Template. Unique Level 3 and Level 4 Specialized Reporting templates are created by NSLC Mechanicsburg and forwarded to applicable activities via a special software application within the CDMD-OA umbrella. The template serves as a data entry vehicle for the collection of additional information on specified SLR elements. SLR templates are forwarded and up-loaded to applicable activities via the standard ASI process.

d. SLR Nominations, Deletions, and Changes.

(1) A TYCOM, SYSCOM, or designated ISEA normally originate nominations for adding equipment to the SLR program, requests for deleting equipment from the SLR program, requests for changing either Level 3 or Level 4 templates, and requests for changing the SEI settings. If originated by a TYCOM, the request should be submitted via the cognizant SYSCOM or ISEA exercising technical control over the equipment. If originated by a SYSCOM or ISEA, the SYSCOM is responsible for obtaining formal concurrence of all TYCOMs having units affected by the change prior to submitting the request.

(2) NAVSEA 04RM must approve all SLR nominations, deletions, and changes.

(3) Nomination requests for an equipment to be added to SLR should include the information listed in subparagraphs 5.d.(3)(a) through 5.d.(3)(f):

- (a) Justification of the need for adding the equipment to SLR.
- (b) Evidence the fleet has the capability to input the requested unique data.
- (c) A statement confirming that necessary resources are available and budgeted to perform the in-depth analysis of MDS data on the nominated equipment.
- (d) Identification of the appropriate UIC/RIN combinations.
- (e) Specification of the desired SLR category, Level 1, 2, 3, or 4.

(f) Level 3 and Level 4 SLR nominations should also include the identification of desired unique data elements to be incorporated into a template. Level 4 nominations should additionally include the desired length of each requested data element.

(4) Nominations may be submitted via the internet either through the NSLC website (<https://oars.nsle.navy.mil/>), or directly through the Navy 311 website at: <http://www.public.navy.mil/navwar/navy311/Pages/home.html>. Select “Submit a Support Request.” You may telephone Navy 311 at 1-855-NAVY-311 (1-855-628-9311) to submit an SLR nomination.

e. SLR Data Analysis. SLR data is available for review, analysis, or problem identification through the Ships’ 3-M System via OARS. Separate data tables will be established on each SLR equipment for data storage within Ships’ 3-M. Current as well as historical data will be available for download from each of these SLR tables. The Ships’ 3-M application is capable of joining the SLR data table with other standard tables. If assistance is required in obtaining SLR data from Ships’ 3-M, contact Navy 311 at 1-855-NAVY-311 and ask to speak with an NSLC Mechanicsburg SLR representative.

f. SLR Record Identification in CDMD-OA. CDMD-OA, as the master database, provides activities with the capability to download all records that are considered SLR for a given specific activity. For assistance contact Navy 311 at 1-855-NAVY-311 and ask to speak with a NSLC Mechanicsburg SLR representative.

g. Three-year Limitation. As a general rule equipment will automatically be removed from SLR after a period of three years. Every effort will be made to notify the originating requestor as the three-year limit is approaching. NSLC Mechanicsburg will request the nominator submit a justification for retention of the equipment in the SLR program. Equipment can be deleted upon making a request to NSLC Mechanicsburg at any time during the three-year period when it has been determined that sufficient information has been collected.

h. Semiannual Update. SYSCOMs having technical control of specific SLR equipment are strongly urged to provide applicable TYCOMs and Fleet Commanders with a semiannual update outlining the status of SLR data collection efforts, the status of identified problems with possible solutions, and a plan of action for resolution of problems. SYSCOMs are responsible for informing applicable TYCOMs and Fleet Commanders if the SLR data is not being received. If data is not being received, the SYSCOM should provide both the TYCOM and Fleet Commanders an in-depth analysis of why data is not being received and recommend either the equipment continue as an SLR item or be deleted.

## 6. Current Ship's Maintenance Project

The purpose of the CSMP is to provide unit and activity maintenance managers with a consolidated list of deferred maintenance to identify the material condition of the ship.

Reference (b), JFMM, Volume VI, Chapter 19, provides an in-depth discussion of the CSMP, TYCOM specific requirements, usage and available reports.

7. Shipboard Assessment of MDS Performance

The Commanding Officer is ultimately responsible for the performance of MDS at their command. Specific TYCOM requirements and inspection attributes are now contained in reference (b), JFMM, Volume VI, Chapter 19.

NAVSEAINST 4790.8D  
17 Jun 2021

4720  
Ser/Org Code  
Date:

From: (Originating Activity)  
To: Commanding Officer, USS (Ship's Name and Hull Number)

Subj: CERTIFICATION OF ALTERATION INSTALLATION DURING AVAILABILITY  
(include data range of availability)

Ref: (a) NAVSEAINST 4790.8 (Series)

1. The following alterations are certified installed. The listed alterations meet the requirements of the issuing agency as instructed, and include all required Logistics Support documentation.

3-M WC/JSN            ALTERATION NO.            DESCRIPTION            A/T  
(For example only):

DXSA 0054	SADDG 0045 K	MISSLE LAUNCH INSTL	5B
EXSA 3994	SADDG 01003 K	SSTG INSTL	5B
EXSA 4007	SADDG 01675 K	HPAC RPLCMNT	5B

//Signature//

By direction

Copy to:  
(Cognizant TYCOM)  
NAVSEA (Cognizant Code)

**Figure I-4-1**  
**Alteration Certification Letter**

4720

NAVSEAINST 4790.8D  
17 Jun 2021

Ser/Org Code  
Date:

FIRST ENDORSEMENT on NSY LTR 4720 Ser/Orig Code of (Date of LTR)

From: Commanding Officer, USS (Ship's Name and Hull Number)  
To: (Supporting Activity, e.g., IUC, RSG, etc.)

Subj: CERTIFICATION OF ALTERATION INSTALLATION DURING AVAILABILITY  
(include date range of availability)

Ref: (a) NAVSEAINST 4790.8 (Series)

1. Request the alterations reported completed by basic correspondence be processed as completed deferrals in the Master CMSP.

//Signature//

By direction

Copy to:  
(Cognizant TYCOM)  
NAVSEA (Cognizant Code)

**Figure I-4-2**  
**First Endorsement of Alteration Certification Letter**

NAVSEAINST 4790.8D  
17 Jun 2021

4720  
Ser/Org Code  
Date:

From: (Submitting Activity)  
To: Commanding Officer, (Applicable Data Processing Facility)

Via: Applicable TYCOM (Optional by TYCOM direction)

Subj: SUBMISSION OF 3-M DOCUMENTS

Ref: (a) NAVSEAINST 4790.8 (Series)

Encl: (1) MDS Documents

1. Per reference (a), enclosure (1) is forwarded for processing. The following information is provided:

- a. Unit Identification Code:
- b. Number of Deferred Maintenance Actions:
- c. Number of Completed Maintenance Actions (2Ks):
- d. Number of Completed Maintenance Actions (CKs):
- e. Number of Correction Documents:
- f. Total Number of Documents Submitted:

//Signature//

By direction

**Figure I-4-3**  
**MDS Non-Automated Commands**

NAVSEAINST 4790.8D  
17 Jun 2021

## **SECTION I**

## **CHAPTER 5**

SHIP INACTIVATION, REACTIVATION, STRIKE, OR TRANSFER  
TO FOREIGN NAVIES

SECTION I | CHAPTER 5  
SHIP INACTIVATION, REACTIVATION, STRIKE, OR TRANSFER  
TO FOREIGN NAVIES

1. Objective

This chapter provides procedures for the orderly termination of the shipboard Maintenance and Material Management (3-M) System and the disposition of 3-M System materiel and software upon decommissioning or inactivation. It also provides procedures for the re-implementation of 3-M Systems upon ship reactivation.

2. Ship Inactivation or Conversion

a. Planned Maintenance System (PMS).

(1) The Naval Sea Logistics Center (NSLC) must maintain a current Planned Maintenance System (PMS) Master File of the ship scheduled for decommissioning.

(2) NSLC will hold the PMS Master File in suspense until such time as a decision is made to reactivate or strike. A copy of the PMS Master File must be forwarded to the designated inactive ship maintenance facility.

(3) The ship must phase out PMS coverage of equipment in concert with the decommissioning plan. PMS actions must continue to be accomplished on firefighting equipment and other personnel safety items and equipment until all Ship's Force personnel are permanently berthed ashore or on their assigned berthing barge.

(4) Removal and reissue or disposal of related hardware, software, and documentation (computers, printers, DVDs, instructions etc.) not specifically addressed within the ship's decommissioning plan must be accomplished by Type Commander (TYCOM) direction.

(5) TYCOMs will specify procedures to be followed for the disposal of PMS material, both classified and unclassified.

b. Maintenance Data System (MDS).

(1) The TYCOM must ensure a complete Automated Work Request (AWR) package is provided by the ship to the Inactive Ships Management Office (INACTSHIPOFF) or Inactive Ships On-Site Maintenance Office (INACTSHIPMAINTO) prior to reporting to the designated activity.

(2) The ship's inactivation crew must review and correct the Current Ship's Maintenance Project (CSMP). Any additional deferred maintenance must be documented and processed for inclusion into the CSMP.

(3) The ship must inform the TYCOM when the last deferrals and completed inactivation and maintenance actions have been submitted.

(4) The ship must produce and forward the final up-line CSMP with a hard copy given to the designated INACTSHIPOFF or INACTSHIPMAINTO for retention until subsequent reactivation. The material history will be maintained at NSLC Mechanicsburg.

(5) The INACTSHIPOFF or INACTSHIPMAINTO will maintain a ship condition status for the ship's inactive period.

(6) In the event equipment in a deferred maintenance status is transferred to another activity for use, the INACTSHIPOFF or INACTSHIPMAINTO will provide the receiving activity with that part of the CSMP pertinent to the equipment transferred.

### 3. Ship Reactivation

Upon notification that an inactive ship will be reactivated, the procedures listed in subparagraphs 3.a and 3.b must be followed.

a. PMS. Restoration of PMS coverage for Foreign Military Service (FMS) will be at the discretion of the customer via the designated ship transfer program office. Upon notification, NSLC must retrieve and forward a copy of the PMS Master File from the suspense file to the ship being reactivated. The same PMS installation procedures specified for new construction or conversion must be followed. (See Chapter 3 of this section)

b. MDS. The TYCOM must notify NSLC Mechanicsburg of the ship's reactivation and administrative command assignment. NSLC Mechanicsburg will forward the ship's material history of outstanding deferrals to the Automated Data Processing (ADP) center serving the TYCOM supporting the reactivated unit. The supporting ADP center will reactivate the ship's material history and provide documentation of all deferrals, which were outstanding at the time of decommissioning.

### 4. Ship Strike

Upon notification that an active ship is to be decommissioned and stricken, the procedure listed in subparagraphs 4.a and 4.b must be followed.

a. PMS.

(1) The ship must phase out PMS coverage of equipment in concert with the decommissioning plan. PMS actions must continue to be accomplished on firefighting

equipment and other personnel safety items until all Ship's Force personnel are permanently berthed ashore or on their assigned berthing barge.

(2) Removal and reissue or disposal of related hardware, software, and documentation (computers, printers, DVDs, instructions etc.) not specifically addressed within the ship's decommissioning plan must be accomplished by TYCOM direction.

- b. MDS. The ship must stop MDS reporting 2 months prior to its decommissioning date.

## 5. Transfer to A Foreign Navy

Upon notification of an operational ("hot ship") transfer to a foreign navy, the procedures listed in subparagraphs 5.a and 5.b must be followed.

- a. PMS

(1) The ship will continue PMS actions as directed by the Transfer Plan. Normally PMS actions will continue until decommissioning for equipment and systems still in use and for training of foreign transfer crew.

(2) Removal and reissue or disposal of related hardware, software, and documentation (computers, printers, DVDs, instructions etc.) not specifically addressed within the ship's decommissioning or Transfer Plan must be accomplished by TYCOM direction.

(3) TYCOMs will specify procedures to be followed in the disposal of classified and unclassified PMS material and other technical documentation that is not called out as part of the approved transfer configuration of the ship. Normally the Transfer Agent will assist Ship's Force in the identification, removal and destruction of this material.

- b. MDS

(1) Two weeks prior to transfer, the ship must document all outstanding maintenance for inclusion in the CSMP.

(2) At the time of transfer, the TYCOM must provide a CSMP to the designated representative responsible for the transfer. The ship's material history report must also be provided at the time of transfer to the designated representative, if requested.

NAVSEAINST 4790.8D  
17 Jun 2021

**SECTION I**  
**CHAPTER 6**  
MAINTENANCE SCHEDULING SKED

## SECTION I| CHAPTER 6

- MAINTENANCE SCHEDULING SKED Ref: (a) SKED 3.2 User Guide  
(b) SKED 3.2 Quick Reference Guide  
(c) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)  
(d) Tailored Force Revisions (TFR) Guide

### 1. Purpose

To provide NAVSEA policy concerning the use and implementation of NAVY maintenance scheduling software, SKED.

### 2. Scope

This chapter applies to all activities and commands utilizing SKED Version 3.2 or higher.

### 3. Policy

The use of SKED version 3.2 or higher for PMS scheduling constitutes full compliance with all administrative provisions of this manual. Guidance for the use of SKED 3.2 is provided via reference (a) and (b), Help menus, Wizards, instructor-led activation training, and embedded Computer-Based Training. NAVSEA authorizes the use of references (a) and (b) as governing documents for the implementation and use of SKED.

### 4. Conversion SKED 3.1 to SKED 3.2

All SKED 3.1 users are being migrated to SKED 3.2. Reference (b) provides guidance and direction for installing this upgrade.

### 5. SKED User Roles

a. SKED 3.2 contains default user roles that support Command 3-M Organization and Responsibilities described in reference (c), Vol. VI, Chapter 19. The TYCOM may change default roles for customized management of the 3-M program. Default roles include the following:

- (1) 3-M Coordinator
- (2) Department Head
- (3) Division Officer
- (4) Leading Chief Petty Officer (LCPO)

(5) Work Center Supervisor (WCS)

(6) Maintenance Personnel (designated as Crew Members in SKED fields)

(7) Administrator

(8) Read-Only (for inspectors and observers)

b. The 3-M Coordinator will assign the default permissions and viewable content for each user account. Permissions are based upon a user's role and position in the chain of command. Users may determine their role from the MY TASKS view of SKED.

## 6. SKED User Interface

a. SKED consists of functional areas whereby data is presented within a modular layout of grids, tables, and outlines. Each functional area or "view" consists of a custom menu, sorting features, toolbar(s), Help tool, status bar, and icon legend. Most views have secondary views that further define functionality. Each view is independent of other views.

b. Users will log on to the system with a username and password or registered Common Access Card (CAC). User activity such as acknowledging, signing, or generating information becomes part of the automated PMS workflows that are built into the system. Through these automated workflows, the chain of command may track actions for accountability purposes.

## 7. Equipment-Based PMS Schedules

PMS schedules are dynamic, meaning they automatically change according to ship evolutions, equipment status, situational events, and other maintenance requirements. PMS schedules are equipment-based and centered on the use and organization of Maintenance Items and Maintenance Groups. Equipment-based schedules enable the WCS to forecast man-hours, checks, tools, parts, materials, Hazardous Materials (HAZMAT), and test equipment.

a. Maintenance Items. Maintenance Items are defined as any piece of equipment, sub-equipment, system, or subsystem requiring maintenance. Therefore, all PMS-worthy equipment must be identified as Maintenance Items. Each Maintenance Item has unique MRC relationships which show how many MRC procedures are appropriate and required for each item. The schedule provides data pertaining to each Maintenance Item such as title, serial number, location, nomenclature, maintenance procedure(s), and note block.

b. Maintenance Groups. Maintenance Groups organize Maintenance Items under like categories. Supervisors will create and use groups as an organizational tool for managing maintenance; however, Maintenance Groups do not directly affect the PMS schedule.

## 8. True Interval Scheduling

SKED uses a calculated scheduling interval by periodicity from the last scheduled instance of an MRC. This true interval scheduling maintains proper periodicity between scheduled maintenance tasks.

- a. Scheduling rules revolve around a specific number of days. Weekly checks are performed every 7 days; monthly checks every 31 days; quarterly checks every 91 days; and so on. Time intervals are maintained and future maintenance is automatically rescheduled based on the interval established when a maintenance task was originally scheduled.
- b. When Supervisors add or reschedule PMS, future occurrences of the check will adjust accordingly to maintain proper periodicity.
- c. Supervisors are not allowed to manually reschedule checks that are out of periodicity. If maintenance is not performed, the check is moved to the next week on the schedule when the Work Center is closed out for the week. If a maintenance task goes out of periodicity, a PMS alert will be generated when a weekly closeout is performed. An automated workflow sends the PMS alert to the chain of command. At this time, the WCS must provide a reason why maintenance was not performed on time.
- d. True Interval scheduling keeps the sailor from repeating maintenance that was just performed, and always maintains the proper number of days between checks. If an unscheduled check such as an M-1R occurs a week before an M-1R that is already on the schedule, SKED 3.2 automatically moves the next M-1R to 31 days after the M-1R is performed.

## 9. Schedule Preparation

The Navy PMS DVDs are the primary source of data for SKED. The DVDs contain the List of Effective Pages (LOEP) with all MIPs and MRCs associated to a specific command, unit and Work Center. For every Force Revision (FR), the PMS DVD is loaded into SKED, ensuring the software has the most current data available for preparing PMS schedules.

- a. Overview. PMS schedule is built for a collection of Maintenance Items. When building a new Work Center, the WCS must first identify Maintenance Items. Proper identification of Maintenance Items will result in accurate scheduling and optimal SKED functionality. Once established, Work Center schedules will be updated automatically each quarter when PMS documents are directly imported as part of the FR process.

b. PMS Organization. Most organizational outlines in SKED 3.2 are as follows: Maintenance Index pages (MIPs), Maintenance Groups, Maintenance Items, and Maintenance Requirement Cards (MRCs).

(1) MIPs. MIPs are the broadest unit of organization of PMS documents. Each MIP represents coverage for a system, subsystem, component, or a category of components. The PMS DVD containing the LOEP with associated MIPs and electronic PMS documents are imported into SKED. To prepare PMS schedules, the WCS will use this data to perform the following:

(a) Accept the MIP if it applies to the Work Center and add to the schedule.

(b) If the MIP does not apply to a Maintenance Item in the Work Center, provide a Feedback Report to ensure the MIP is removed from the LOEP during the next update process. If shifting maintenance responsibilities, follow the guidelines outlined in Reference (b), Vol VI, Chapter 19.

(2) Maintenance Items. When building a PMS schedule, the WCS must first define and organize Maintenance Items into like items. Maintenance Items must be created first because they directly affect the schedule. Maintenance Groups do not affect the schedule despite being placed higher in the organizational outline. Maintenance Items will be identified by their relation to a MIP from the OMMS Ship's equipment configuration list. If a Maintenance Item is not listed on the configuration list, the WCS may create unique Maintenance Item(s) based on title, serial number, and location. After ensuring the Maintenance Items are organized correctly, the WCS will add them to the schedule.

(3) MRCs. When adding Maintenance Items to the schedule, the WCS will review MRCs to determine how the MRC is used in relation to the development of Maintenance Items and Maintenance Groups. The WCS needs to decide whether the MRC procedure applies to one item, and is then repeated in its entirety on multiple, identical items, such as "Inspect Battle Lantern," or, the MRC procedure is performed on a system, subsystem, equipment, or sub-equipment, such as "Isolate the fire main to the compartment." The WCS will also conduct the following:

(a) Perform a "review and omit" process on the procedural steps to eliminate the risk of execution errors. With SKED, this process is automated through electronic procedure line-outs, which are then approved by the Division LCPO. The procedure will then be customized for the Maintenance Item. Discrepancies in procedural steps other than those outlined in reference (c) Vol VI, Chapter 19 must be documented with an FBR.

(b) Review the MIPs to determine if Related Maintenance must also be performed. The related MRC must be linked to the parent MRC on the schedule. Mandatory-Related Maintenance procedures, indicated by a # symbol on the MIP, will be automatically scheduled together for the life of the Work Center.

(4) Maintenance Groups. After identifying Maintenance Items and reviewing MRCs, the WCS will organize Maintenance Items into like Maintenance Groups. Create a single Maintenance Group at a time. The groups will serve only as a management tool to better organize schedules and displays, they do not affect the schedule.

(5) Assign Maintenance Personnel. Crew members are assigned to Work Centers to produce a talent pool from which the WCS can assign PMS tasks. Supervisors may add or remove crew members as needed utilizing any display in the WORK CENTER view.

## 10. SKED Views

The permissions assigned to an individual's User ID will determine the Views that will be visible in SKED. The available Views will be displayed on the View Tab Bar at the bottom of the window.

a. MY TASKS. Maintenance personnel must check the MY TASKS tab (Tasks view) upon each use of SKED. Personnel are responsible for performing maintenance tasks that are assigned to them and can determine assignments from MY TASKS. The function provides specific, user-oriented instructions regarding maintenance tasks awaiting action, Unit PMS Messages sent by the 3-M Coordinator, notices of sub-standard metrics, and notices of triggered global events affecting a Work Center. It also identifies Work Centers with FRs past due. Reference (a) provides additional guidance.

b. WORKCENTER. The purpose of the WORKCENTER view is to create, maintain, and document the Work Center's maintenance. Most of the actions here are completed by a WCS. The initial display of the WORKCENTER lists all of the command's Work Centers. The Chain of Command (CoC) must review the maintenance activity being performed in the Work Centers to determine current maintenance status. The WORKCENTER View is divided into seven separate displays: Schedule, Review, Forecast, Situational Events, IEM (Inactive Equipment Maintenance), Journal, and PMS Documents. A Work Center must be opened to access these displays. Reference (a) provides additional guidance.

(1) Weekly Closeouts. After weekly maintenance tasks have been completed, the WCS must perform the function known as "weekly closeout". The weekly closeout facilitates computation of PMS accomplishment data and generation of reports relative to maintenance status. The closeouts become part of the ship's PMS data; they will be date/time stamped and electronic signatures will be recorded. If a maintenance task goes out of periodicity, a PMS alert will be generated when a weekly closeout is performed. The Supervisor must enter the reason why maintenance was not performed on time. The reason will be reviewed and approved/disapproved by the Division Officer.

c. PMS VIEWER. The PMS VIEWER allows you to view and print Maintenance Index Pages (MIPs) and Maintenance Requirement Cards (MRCs) that are distributed on the PMS

DVD. The PMS Viewer in SKED is meant to replicate the same functionality as the DVD PMS Viewer application. This functionality allows the user to:

- (1) Display various MIP and MRC documents.
- (2) Search for PMS documents by SYSCOM control number or nomenclature.
- (3) Print PMS documents individually.
- (4) Batch print multiple PMS documents.
- (5) View by current Command or all Unit Identification Codes (UICs).

The documents displayed in the DVD PMS Viewer are reference documents and therefore not customized for a Work Center or a specific piece of equipment. To view customized PMS documents, use the PMS Documents section of the WORKCENTER view. Reference (a) provides additional guidance.

d. FBR.

(1) The Feedback Report Manager (FBR on the view tab bar) provides an organized way to view PMS Feedback Reports, both technical and non-technical. Reference (a) provides additional guidance. Reports can be viewed in four different ways:

- (a) List by Quarter.
- (b) List by Work Center.
- (c) List by Originator.
- (d) List by Status.

(2) Each list contains the same information, but the lists are organized differently to suit need or preference. Depending on the user's permissions, the following tasks can be performed:

- (a) View FBR details.
- (b) Create new FBRs.
- (c) Delete old FBRs.
- (d) Print FBRs and details.
- (e) Perform quick and advanced searches.

- (f) Export approved FBRs.
  - (g) Change feedback preferences.
- e. SPMIG. The Standard PMS Material Identification Guide Viewer (SPMIG on the view tab bar) enables you to access and search the tools, parts, and materials databases used with MRC documents. This information may be useful for ordering repair parts, gathering test equipment information, or checking if an item is out of stock on the ship. The following can be performed:
- (1) Perform a quick search of the SPMIG database.
  - (2) Perform an advanced search of the SPMIG database.
  - (3) View and print SPMIG record details.
  - (4) Print search result lists.
  - (5) Reference (a), the SKED 3.2 Users Guide, Chapter 9, provides additional guidance.
- f. SPOT CHECKS. SKED features a separate SPOT CHECKS view. Spots checks assess performance of planned maintenance procedures. Leaders in the CoC may spot check various pieces of equipment in any given Work Center, which gives them a completion confidence factor. The two types of spot checks are:
- (1) Spot Check. This type of check assesses maintenance that was previously performed.
  - (2) Monitored MRC. This type of check is a real-time assessment but does not earn a recorded score (SCAR).
  - (3) Reference (a) provides SKED guidance; reference (c), Vol VI, Chapter 19 provides TYCOM requirements.
- g. TRAINING. SKED 3.2.4 features embedded, interactive and narrated training. From the TRAINING view, several training courses can be accessed, which are called circuits. Each circuit is comprised of a series of sports themed lessons. For SKED 3.2.5 and later, video tutorials replaced the embedded training. Reference (a), provides additional guidance.
- h. LOEP. The List of Effected Pages (LOEP) Manager (LOEP on the view tab bar) indicates the current Work Centers, MIPs, and MRCs being implemented in SKED. For MIP and MRC documents, the LOEP Manager also provides the number of Maintenance Items that use the specified MIP or MRC (Count). The LOEP Manager has two displays: the Workcenter List View and the MIP List View. Both lists have two panes (sections). The left pane has the outline view of the Command. The right pane lists data applicable to a selected item from the outline view. Reference (a), provides additional guidance.

i. EVENTS. SKED has two functional areas that must be used when managing situational maintenance: Global Events Manager (EVENTS view) and the Situational display (secondary display in the WORK CENTER view). The 3-M Coordinator must use the Global Events Manager (EVENTS view) to view and update the ship's schedule. The EVENTS view is similar to the Situational display, but only events that affect the whole ship are displayed. Reference (a), provides additional guidance.

(1) Content of the EVENTS View. This view is comprised of a full-screen calendar that spans one year: one past quarter, the current quarter, and two future quarters. All events, both states and triggers, are shown on this calendar. All states on the calendar are color-coded. Blue signifies "At Sea." Gray signifies "In Port." Yellow signifies any other type of state.

(2) Use of the EVENTS View. The 3-M Coordinator must establish the event title, define the event, assign offsets, and perform the following actions:

- (a) Update a global state.
- (b) Remove a global state.
- (c) Add a global trigger.
- (d) Remove a global trigger.

j. REPORTS. The REPORTS view allows reports to be run in SKED such as Assigned PMS, Customized MRCs, Feedback Reports, Forecasting, Situational Events, Training, and much more. This view also allows a user to Import activity-specific reports and Export Reports as necessary. Reference (a), provides additional guidance.

k. ADMIN. SKED Administration (ADMIN on the view tab bar) is a management tool. Not all users have a visible ADMIN tab on their screen. User roles dictate this permission. The ADMIN view features the following secondary displays:

- (1) User Management.
- (2) Chain of Command.
- (3) Accomplishment Ratings.
- (4) Weekly Closeout Status.
- (5) Training Manager.

(6) Transaction Log.

In addition to these secondary displays, you can access the SKED Preferences tool from the Admin menu. Reference (a), provides additional guidance.

11. Revision Editor

Performing correct revisions of PMS schedules is a critical step in the 3-M System. An error may result in severe scheduling consequences. Therefore, particular attention must be given to every revision created in SKED. The Revision Editor provides the framework for an accurate schedule. By utilizing the Revision Editor, the WCS may change the PMS requirements for their Work Center, such as inconsistencies between maintenance requirements and the quantity of Maintenance Items needed for each task. Supervisors may also change their Work Center's structure, including MIP, Maintenance Group, Maintenance Item, or MRC relationships.

a. Types of Revisions. The WCS will be able to make the following revisions utilizing SKED:

(1) Advance Change Notice (ACN). ACN revisions permit rapid responses to technical difficulties encountered in the fleet's use of a MIP or MRC. ACNs may change the PMS schedule.

(2) Document/Information Transmittal (DIT). DIT revisions forward new or superseded PMS documentation between Force Revisions. DITs also provide PMS information and narrative replies to non-technical FBRs. They are addressed to 3-M Coordinators to ensure accountability and disposition of PMS information.

(3) Feedback Report (FBR). FBR revisions result when the UIC receives a response to an FBR that requires Work Center changes.

(4) Force Revision (FR). Force Revisions are periodic updates to installed PMS documentation. FRs are distributed on the PMS DVD and imported to SKED to keep data accurate. SKED will compare the current reference data from the PMS DVD against a given Work Center schedule.

(5) Administrative (Admin). Admin revisions correct administrative inconsistencies with the Work Center PMS schedule that are not covered by the other four types of revisions.

b. Chapter 2, Paragraph 4 and 6 of this manual and reference (a), provide guidance concerning the implementation of the above listed revisions.

## 12. Accomplishment Ratings

Accomplishment ratings in SKED 3.2 differ significantly from SKED 3.1. The Accomplishment Ratings displayed in the ADMIN View provide details of four metrics. These metrics include: Periodic Accomplishment Ratings (PAR), Situational Accomplishment Ratings (SAR), Administration Accomplishment Ratings (AAR), and Spot Check Accomplishment Ratings (SCAR).

- a. PAR measures the percentage of checks performed within periodicity. PAR factors PMS Alerts and lost checks.
- b. SKED knows when global situations occur and SAR is a calculation of the accomplishment of that maintenance.
- c. AAR keeps track of administration duties such as checking weekly close-out status, signing Feedback Reports (FBR), acknowledging PMS alerts, and approving MRC lineouts.
- d. SCAR measures the number of satisfactory checks divided by the total number of spot checks. SCAR provides administrators and inspectors a confidence rating that reflects how well the Command is performing maintenance

Reference (c), Vol VI, Chapter 19 provides in-depth guidance and background concerning Assessments and Accomplishment Ratings.

## 13. Tailored Force Revision

The Tailored Force Revision (TFR) initiative was developed to reduce the administrative burden on Ship's Force personnel when installing a PMS Force Revision. The program has evolved from a TYCOM sponsored effort to a NAVSEA 04 authorized and sustained initiative. TFR currently applies to all surface ships and most recently has been expanded to cover submarine assets. TFR packages are assembled on the standard FR cycle, using current ship PMS schedules from SKED and provide pre-processed PMS documentation to give the WCS a significant head start in processing an FR. TFR is basically maintenance experts ashore assisting a WCS with the administration of their FR.

TFR brings PMS, configuration, and ship's PMS schedules together for the first time, along with a dedicated team of professionals whose entire job is focused on identifying changes to PMS, configuration, and how it applies to the Fleet. WCSs are provided, in conjunction with the standard FR, a separate tailored FR disk that contains pre-processed FR data to import into SKED. It also comes with an Applied List of Effected Pages (LOEP) report that shows document and schedule changes. The Applied LOEP report also flags items for review. In addition, the TFR comes with summary reports highlighting anomalies for the WCS and 3MC.

a. Visibility Ashore. Snapshot is a product of TFR. It is a one-stop-shop PMS data research tool. Snapshot provides shore-based analysts and leadership a tool to research how PMS is being scheduled between ships within the same class. The searchable data is pulled from all aspects of PMS to give the sailor a detailed look at the current state of Navy Planned Maintenance. Released quarterly, Snapshot shows current schedules and the latest Force Revision. Snapshot lets you quickly:

- (1) See which ships are using a particular MIP.
- (2) View entire classes of ships to compare differences in LOEPs and schedules.
- (3) Look up general information about multiple ships or specific equipment details for one.
- (4) Snapshot PMS data research tool is available from: <https://nedcchrgw.dc3n.navy.mil/>

When prompted, select e-mail certificate, then the OARS folder, followed by the Snapshot icon. Note, new users must first establish an account using the following web site:  
<https://oars.nsfc.navy.mil/oars/docs/registrationwizard.html>

b. Shipboard Responsibilities. Reference (d) provides guidance to Ship's Force personnel concerning the following responsibilities:

- (1) Review PMS documents for Adds, Changes and Deletes.
- (2) Determine which configuration items (quantity) are applicable.
- (3) Update PMS schedules with applicable PMS and configuration information.
- (4) Print the new or updated PMS documents.
- (5) Customize MRCs (pen and ink).
- (6) Customize MIPs (pen and ink).
- (7) Review and Approve via Chain-of-Command.
- (8) Update PMS Deck for maintainers.

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**SECTION II**  
**CHAPTER 1**  
**INSURV INSPECTION PROCEDURES**

SECTION II |CHAPTER 1  
INSURV INSPECTION PROCEDURES

- Ref: (a) OPNAVINST 4730.5 (Trials and Material Inspections (MI) of Ships Conducted by the Board of Inspection and Survey)  
(b) OPNAVINST 3120.32 (Standard Organization and Regulations of the U.S. Navy)  
(c) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)

1. Purpose

This chapter describes Maintenance and Material Management (3-M) related actions required prior to, during, and following an inspection conducted by the Board of Inspection and Survey (INSURV).

2. INSURV Mission

INSURV was established by Congress as a board to periodically examine naval vessels and make recommendations to the Secretary of the Navy if any should be stricken from the Naval Vessel Register. Per references (a) and (b), INSURV has been tasked with added specific functions including the following:

- a. Determining a vessel's fitness for further service.
- b. Identifying material conditions that limit performance, and compiling statistical information.
- c. Providing assurance to higher authority that mechanisms to identify, document, and resolve material deficiencies are adequate and that these systems are being judiciously executed. The examination of naval vessels is conducted as a Material Inspection (MI), which consists of operational tests or demonstrations of major systems and equipment. The formative basis for the MI is a command's own self-awareness to its material condition and readiness. It is therefore incumbent upon each command being inspected to demonstrate a thorough knowledge of its material condition through accurate records and operational demonstrations.

3. INSURV Documentation Procedures

Per reference (b), Ship's Force should review the preparation guidelines available at INSURV's homepage: <https://usff.navy.deps.mil/sites/insurv/Inspections/Pages/Home.aspx>. The ship being inspected will prepare material deficiency documents as directed within reference (c). The

INSURV Board prepares material deficiency documents to record conditions found during the inspection using PRESINSURV Inspection Management System (PRISMS). Deficiencies will be cataloged on Maintenance Action Forms (OPNAV/2K), or "2-Kilos," to be reviewed and later input into the Maintenance Data System (MDS). Specifically, for those 2 Kilos being created by INSURV:

- a. BLOCK 1, UIC will be entered globally.
- b. Using Ship Configuration and Logistic Information System (SCLISIS) data, the elements listed in subparagraphs 3.b.(1) through 3.b.(9) will be entered programmatically via selection of the Record Identification Number (RIN) for the deficient Configuration Item (CI) – one CI per Maintenance Action (OPNAV/2K):
  - (1) BLOCK 2, Work Center
  - (2) BLOCK 4, Allowance Parts List (APL)
  - (3) BLOCK 13, ID/Serial Number
  - (4) BLOCK 14, Equipment Identification Code (EIC)
  - (5) BLOCK 16, Location
  - (6) BLOCK 5, Equipment Noun Name
  - (7) Hierarchical Structure Code (HSC)
  - (8) RIN
  - (9) Positional Reference Identification (PRID)
- c. The Job Sequence Number (JSN) (BLOCK 3) will begin with alpha character "R" followed by a three-digit sequence number programmatically generated by PRISMS.
- d. The default values listed in subparagraphs 3.d.(1) through 3.d.(9) will be used:
  - (1) BLOCK 6, When Discovered – 4 (During Inspection)
  - (2) BLOCK 7, Status – Based on Equipment Operational Capability (EOC) or 3 (Reduced Capability)
  - (3) BLOCK 9, Deferral Reason – 8 (For Ship's Force)

- (4) BLOCK 17, When Discovered Date–INSURV Start Date (-) 3
  - (5) BLOCK 25, Man-Hours Expended (MHRs. EXP.) – 1
  - (6) BLOCK 26, Defer Date – INSURV Completion Date (+) 1
  - (7) BLOCK 28, Deadline Date – Blank
  - (8) BLOCK 41, Priority – 4 (Desirable. Default unless specified by Fleet / TYCOM)
  - (9) BLOCK 42, Type Availability (T/A) – 4 ((Ship's Force) Default unless specified).
- e. The inspector will enter the data listed in subparagraphs 3.e.(1) through 3.e.(16):
- (1) BLOCK 15, Safety Hazard Code – enter appropriate Risk Assessment Code (RAC).
  - (2) Selected Level Reporting (SLR) – N/A.
  - (3) Remarks – enter observed symptoms and what is wrong, if known, followed by "XXX Troubleshoot & Repair or Replace."
  - (4) Current Ship's Maintenance Project (CSMP) Summary – enter summary up to 30 characters.
  - (5) Contacts – select from approved list.
  - (6) EOC
  - (7) Safety – "S"
  - (8) Inspector Name
  - (9) INSURV Department
  - (10) Root Cause Code
  - (11) PRI-RES
  - (12) Reliability/Maint
  - (13) Corrected
  - (14) Corrosion – N/A

(15) CSMP-worthy

(16) Inspection Status – N/A

f. If a configuration item has an existing Maintenance Action (OPNAV/2K), INSURV will create a new OPNAV/2K if the observed symptoms are significantly different from that already reported. The new OPNAV/2K will reference the existing OPNAV/2K JSN.

#### 4. Procedures Before INSURV Inspection

a. Ship Responsibilities. The specific actions of the Commanding Officer and Ship's Force are noted in reference (c). The INSURV inspection provides an opportunity for the ship to demonstrate a high material self-awareness as reflected in accurate documentation of its deficient conditions, such as in the CSMP and on Casualty Reports (CASREP.) The ship's 3-M Coordinator and Work Center Supervisors should routinely be reviewing work candidates. Those that are old should be verified as still valid; those that appear to be duplicates should be considered for removal or combining, and those for which repairs have been completed should be closed out and removed from the CSMP. Additionally, equipment Standard Operating Procedures (SOP) are expected to be current and easily executed when called upon by board members.

b. Immediate Superior in Command (ISIC). Specific actions are denoted within reference (c). The ISIC must pay particular attention to ensuring that the mechanisms to identify, document and correct material deficiencies identified by Ship's Force or others are accurately reflected within the CSMP. Additionally, the ISIC should ensure that deficiencies are being continuously prosecuted and adjudicated with the appropriate priority and assignment.

#### 5. Deficiencies to be Reported

Per reference (c), the CSMP is "the sole source of work to be accomplished by industrial activities, FMAs, and organizational level activities" and therefore should reflect the deficient material items requiring maintenance action. Reference (c) outlines expected items to be noted within the CSMP.

#### 6. Procedures During INSURV Inspection

Documentation of INSURV inspection deficiencies will be accomplished per reference (c).

#### 7. INSURV Numbering Procedures

INSURV will assign a unique tracking number to deficiencies identified during the inspection. Subparagraphs 7.a. through 7.f. describe the content of blocks 19 through 24 of the

Maintenance Action Form (OPNAV 4790/2K). The INSURV number is assigned to each deficiency identified during an inspection or trial to uniquely identify a deficiency, indicate the relative importance of a deficiency, identify special classes of deficiencies and specify the required time for correction of a deficiency. See Figure II-1-1.

19.*/** *	20.INSURV NUMBER 1K001HB	21. NA	22. NA	23.S S	24. R/M
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Figure II-1-1

a. Block 19 - Starred Cards. Asterisks (stars) designate a completion requirement and are used on Acceptance Trials (AT), Final Contract Trials (FCT), Integrated Trials (IT), Combined Trials (CT), and Guarantee Material Inspections (GMI).

(1) Single Starred Deficiencies: (\*). A deficiency which, in INSURV's judgment, requires resolution or waiver by the Chief of Naval Operations (CNO) before the ship is delivered to the Navy and which:

- (a) Significantly degrades a ship's ability to perform an assigned primary or secondary Mission Essential Task (MET).
- (b) Prevents the crew from safely operating or maintaining ship systems.
- (c) Prevents the crew from safely living or messing onboard.
- (d) Precludes safe navigation, effective damage control or firefighting operations, or adequate physical security.
- (e) Prevents the ship from complying with environmental or Navy Safety and Occupational Health (SOH) regulations.

(2) Double Starred Deficiencies: (\*\*). A deficiency applicable only to ships constructed, converted, or modernized with a separate fitting-out period assigned away from the building site, and represents a deficiency which, in INSURV's judgment, requires resolution or waiver by the CNO prior to the ship's departure from the building yard.

b. Block 20 - INSURV Identification Number. The seven spaces of this block are filled in as seen in Figure II-1-2:

1	K	0	0	1	H	B
1	2	3	4	5	6	7

Figure II-1-2

(1) Importance (Space One). A numeral located in Space One indicates the relative importance of the deficiency. This is called the "PART" number and the number can be either PART 1, 2, or 3.

(a) PART 1. Deficiencies that in INSURV's judgment are likely to:

1. Cause the ship to be unseaworthy.
2. Substantially reduce the effectiveness of personnel or essential material.
3. Reduce the ability of the ship to carry out its assigned mission or to perform in a primary mission area.
4. Cause injury to personnel or damage to vital material. This includes significant deficiencies to the ship's safety equipment and devices. These deficiencies are documented as a "Safety" with an assigned RAC.

(b) PART 2. Deficiencies that do not meet the criteria for a PART 1 deficiency, but should be corrected to restore the ship to required specifications. These can include safety-related issues.

(c) PART 3. Deficiencies that in the inspector's judgment will require either a major alteration to correct, or modifications that are too costly to accomplish during the life cycle of the ship (i.e., passageway too narrow, overhead too low, insufficient equipment). These are documented to identify design changes required on future ships. These deficiencies are generally coded "9" in Block 45 (TYCOM SCREENING) and passed to machinery history files. The deficiency will appear on the INSURV deficiency list. PART 3 deficiencies also include documented demonstration deficiencies. This information is used by INSURV for statistical analysis or for documentation purposes.

(2) Responsibility (Space Two). The single capital letter "K", "G," or "A" is used to indicate responsibility for corrective action. This space should normally be left blank for trials.

(a) "K" indicates that, in the reviewer's opinion, correction of the deficiency is the responsibility of the contractor because he or his subcontractors or vendors failed to meet the requirements of the contract.

(b) "G" indicates that in the reviewer's opinion correction of the deficiency is the responsibility of the government.

(c) "A" designates an "Alteration Card" which requires a design action or configuration change not authorized or not yet accomplished on the ship inspected. This may include applicable Ship Alterations (SHIPALT), Ordnance Alterations (ORDALT), Machinery Alterations (MACHALT), Field Changes, or other configuration changes that are not complete

or not scheduled for this hull, recommended alterations not previously documented, and changes which require design action by NAVSEA. Alteration Cards should include recommendations for how correction can be accomplished either by referencing a previously engineered alteration or by detailing possible corrective action in the remarks section. A PART 3 Alteration Card ("3A") indicates a change that might be beneficial to the ship, but because of the ship's age or other consideration is unlikely to be accomplished or is low priority. A PART 3 Alteration Card ("3A") could indicate an area where an older ship does not comply with current specification, standards or instructions, but that the effort to engineer and install the required changes are unlikely due to cost or other factors. INSURV expects that a "3A" deficiency will be passed to history without action on the ship being inspected.

(3) Sequential Number (Space 3, 4, and 5). This is a sequential number or alphanumeric assigned to each deficiency by INSURV which, along with the department code, uniquely identifies each deficiency.

(4) Department (Space 6 and 7). A combination of two capital letters is used to identify the INSURV department having primary cognizance as seen in Table II-1-1:

DEPARTMENT	SYMBOL	DEPARTMENT	SYMBOL
ASW	AS	MEDICAL	MD
AVIATION	AV	MINE COUNTERMEASURES	MN
AEGIS WEAPONS SYSTEM	AW	MAIN PROPULSION	MP
AUXILIARIES	AX	NAVIGATION	NV
COMMS	CC	OCCUPATIONAL SAFETY	OH
DAMAGE CONTROL	DC	OPERATIONS	OP
DECK	DK	PRESERVATION	PR
ELECTRICAL	EL	SUPPLY	SP
ENVIRONMENTAL PROTECTION	EP	VENTILATION	VT
HABITABILITY	HB	WEAPONS	WP
INFORMATION SYSTEMS	IS		

Table II-1-1

- c. Block 21 - Suffix. No longer used.
- d. Block 22 - Mission Degrade. No longer used.

e. Block 23 - Safety. The suffix "S" is added to indicate that this deficiency is identified as a safety hazard.

f. Block 24 - Reliability/Maintainability. The suffixes "R" and "M" are added by INSURV to indicate:

(1) "R" is assigned to deficiencies related to an equipment or component that displays low reliability requiring frequent corrective maintenance or replacement.

(2) "M" is assigned to indicate that the equipment or component requires excessive maintenance, that the deficiency is related to the Planned Maintenance System (PMS), or that the deficiency represents a problem with Integrated Logistics Support (ILS).

#### 8. Procedures After INSURV Inspection

a. Post INSURV action items are outlined in reference (b). Due to its importance, note the action to appropriately CASREP applicable "PART 1" deficiencies.

b. INSURV deficiencies will be provided to the ship and processed per reference (c) or specific TYCOM directives, or both.

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## **SECTION II**

### **CHAPTER 2**

TYCOM/ISIC ASSIST VISITS AND 3-M INSPECTIONS

SECTION II |CHAPTER 2  
TYCOM/ISIC ASSIST VISITS AND 3-M INSPECTIONS

Ref: (a) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)

1. Introduction

The Ships' 3-M System enhances force readiness and helps identify material problems. Type Commanders (TYCOMs) and shore commands performing TYCOM functions (i.e., Commander Navy Installations Command (CNIC), Marine Corps Installations East (MCI-E), Marine Corps Installations West (MCI-W), Marine Corps Bases Pacific (MARCORBASES PAC), etc.) are responsible for ensuring that each command under their cognizance effectively uses the 3-M System. When the 3-M System is effectively used, a higher degree of equipment readiness will be achieved. Through inspections of the 3-M System and assist visits, TYCOMs, or ISICs under TYCOM direction, can recognize problems the command may be having in effectively identifying, scheduling, performing, and documenting maintenance actions. For problems identified, corrective action can then be initiated. Each TYCOM (or ISIC under TYCOM direction) will establish, train, and maintain a team of qualified 3-M System Coordinators or Representatives responsible for:

- a. Monitoring PMS installations.
- b. Providing assistance when requested.
- c. Performing 3-M Inspections.

2. Assist Visits

a. The TYCOM must schedule assist visits to each ship or shore activity as requested. The purpose of an assist visit is to aid command 3-M Managers in determining how efficiently their 3-M program is operating, and help identify potential problem areas. The assist team will respond appropriately to identify the areas that need attention and the type of assistance required. An assist visit is instructional and provides training and assistance to the requesting activity.

b. Assistance in the form of briefings or group discussions must be provided to clarify any problems that become apparent during an assist visit. Each assist visit must include a debriefing with the Commanding Officer prior to concluding the visit. These assist visits will include advice concerning management of the Planned Maintenance System (PMS) and Maintenance Data System (MDS), as well as advice regarding other significant 3-M System problems.

### 3. TYCOM / ISIC Inspections

- a. The purpose of an inspection is to determine the effectiveness of the command's 3-M program in managing the accomplishment of maintenance. A TYCOM (or ISIC under TYCOM direction) inspection is a comprehensive audit of the Ships' 3-M Program. Emphasis is to be given to the effectiveness of maintenance management and maintenance accomplishment. Included in the inspection will be the adequacy of the PMS installation and the effectiveness of the shipboard 3-M training program.
- b. The TYCOM (or ISIC under TYCOM direction) must conduct a complete inspection of each command under their cognizance, per the requirements of reference (a), JFMM, Volume VI, Chapter 19.
- c. The procedures and criteria in reference (a), JFMM, Volume VI, Chapter 19 must be used to ensure standardization of the measurement of 3-M program performance, and to enhance communications at all levels of command.

### 4. PMS Inspection

Proper accomplishment of PMS is critical to maintaining acceptable equipment performance levels required in today's tactical environment. Additionally, personnel and environmental safety is paramount in conducting routine preventive maintenance. It is the Commanding Officer's responsibility to ensure the PMS objectives, listed in subparagraphs 4.a through 4.c are met per Fleet and TYCOM directives.

- a. Ensure PMS performed matches the installed equipment.
- b. Ensure PMS completed was done correctly following the MRC. "Correctly" includes but is not limited to the accomplishment of subparagraphs 4.b.(1) through 4.b.(4):
  - (1) Safety precautions were observed.
  - (2) Proper tools and materials were used.
  - (3) Tag out procedures were correct when applicable.
  - (4) If Hazardous Material (HAZMAT) was used, appropriate personal protective equipment was used and in good material condition. HAZMAT disposal was conducted correctly.
- c. Determine unit and departmental trends.

## 5. MDS Inspection

Documentation and validation of MDS data is the cornerstone of configuration management. Accurate configuration management provides for improved logistics and repair support. MDS spot checks, similar to PMS spot checks, must be conducted. Refer to reference (a) JFMM, Volume VI, Chapter 19, for Fleet inspection requirements, evaluation criteria and calculations for both PMS and MDS. MDS inspections verify:

- a. Ships Configuration and Logistics Support Information System (SCLSiS) file matches installed equipment.
- b. Logistics Support Data (LSD) matches installed equipment.
- c. Current Ship's Maintenance Project (CSMP) provides correct information to allow effective planning and estimating of deferred maintenance actions.
- d. Pre-transmittal review, up-line reporting and Automated Shore Interface (ASI) processing are accomplished per the requirements of reference (a) JFMM, Volume VI, Chapter 19.

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## **SECTION II**

### **CHAPTER 3**

SUBMARINE PERFORMANCE MONITORING TEAM (PMT)  
MAINTENANCE AND INSPECTION PROCEDURES

SECTION II |CHAPTER 3  
SUBMARINE PERFORMANCE MONITORING TEAM (PMT)  
MAINTENANCE AND INSPECTION PROCEDURES

Ref: (a) OPNAVINST 3120.33 (Submarine Extended Operating Cycle (SEOC) Program)  
(b) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)

1. Purpose

This chapter provides an overview of NAVSEA and Performance Monitoring Team (PMT) functions and responsibilities as they apply to the submarine Performance Monitoring Program (PMP) and the program's interface with the Maintenance and Material Management (3-M) program.

2. Objective

a. The Submarine PMP was established by the Chief of Naval Operations, per reference (a), as a method of collecting objective engineering evidence of ship system performance. This data was then used to:

- (1) Allow the extension of shipyard overhauls.
- (2) Extend operational cycles.
- (3) Extend the useful life of the vessels.
- (4) Align major maintenance.

b. While this mission is still applicable today with the PMTs ensuring safe and reliable Extension of Operating Cycles (EOCs), the maintenance has also evolved into using Conditioned Based Maintenance (CBM) techniques to assess the performance of many critical submarine systems, primarily, submarine Hull, Mechanical, and Electrical (HM&E) systems.

3. Responsibilities

a. NAVSEA SEA05U7. The offices of NAVSEA 05U7 provide the technical oversight, technical documentation, requirements, and analysis for the PMP while programmatic oversight is provided by NAVSEA In-service Submarine Program Office (PMS392).

b. Performance Monitoring Team. The PMT's are an integral part of NAVSEA's PMP and assist SEA05U7 & PMS392 in:

- (1) Identifying and resolving fleet material issues.
- (2) Improving system reliability.
- (3) Reducing Total Ownership Cost (TOC).
- (4) Assessing system health across the fleet.

(5) Improving the submarine fleet's material condition and operational readiness. They do this by aiding in early identification of system deficiencies and predicting failures before they occur thereby avoiding more critical, mission-limiting failures.

- (6) Providing major shipyard availability inputs for work package definition.

(7) Providing special inspection programs defined in reference (b), such as the Vibration Analysis Program.

- (8) Providing fleet maintenance assistance.

#### 4. 3-M Interface

The maintenance requirements and inspections that are monitored by PMT are fully integrated in the ship's PMS system. PMP Maintenance Requirement Cards (MRCs) are coded with a "K" in the "Other" column on the MIP.

a. While the ship is responsible for scheduling this maintenance, the ship is supported by the PMT using an advanced engineering data collection and analysis information system. NAVSEA recommends that the ship frequently bring a copy of their Work Center PMS schedule with monitoring MRCs to the PMT to synchronize the ship to the PMT and vice versa.

b. The performance of numerous cards calls for PMT assistance or PMT supplied test equipment which requires the ship to coordinate with the PMT concerning the accomplishment of this maintenance.

#### 5. PMT Documentation and Reporting

a. PMT CBM Deficiency Reports. The deficiencies and recommendations that result from a PMT inspection and monitored maintenance are published in an engineering memorandum called an On Site Analysis Report (OSAR). This material deficiency report is passed to the ship for corrective action and maintenance planning where applicable. In some cases, no repair action is required if a condition exists which is starting to degrade, yet does not meet repair standards. The OSAR is provided for information or other actions, such as increased monitoring frequency.

These OSARs are also uploaded to NAVSEA's Submarine Maintenance Monitoring Information System (SMMIS) for advanced analysis and to aid in overall determination of system health.

b. End of Monitoring Period (EMP) Reporting. Periodically, PMT will provide a report of the monitored maintenance as a summary closeout of the services provided and deficiencies noted. This report is provided to aid in the planning of the next monitoring period. Ship "monitoring periods" are conducted each calendar year and monitoring periods mirror the ship's PMS schedule.

## 6. Data Collected and Trended

The data collected per the Supplemental Report Forms (SRF) attached to the "K" MRCs, as well as the deficiency reports, is entered into the PMP Engineering Analysis System and uploaded in real-time to SMMIS. Over 10 years of data exists. The website provides the ability to retrieve the data and export to Excel spreadsheets as well as on line graphing of data that behaves in a predictable fashion. Ship's Force and other organizations may request historical data through the local PMT site.

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## **SECTION II**

### **CHAPTER 4**

COMMON ASSESSMENT PROCEDURE DEVELOPMENT FOR  
MATERIAL CONDITION ASSESSMENT, INSPECTION, CERTIFICATION AND ASSIST  
VISITS OF AIRCRAFT CARRIERS AND SURFACE SHIPS

SECTION II |CHAPTER 4  
COMMON ASSESSMENT PROCEDURE DEVELOPMENT FOR  
MATERIAL CONDITION ASSESSMENT, INSPECTION, CERTIFICATION AND ASSIST  
VISITS OF AIRCRAFT CARRIERS AND SURFACE SHIPS

- Ref: (a) OPNAVINST 4790.16B (Condition-Based Maintenance (CBM) Policy)  
(b) NAVSEAINST 4790.27A (Reliability-Centered Maintenance (RCM) and Condition-Based Maintenance (CBM) Policy for Ships, Ship Systems and Equipment)  
(c) MIL-STD-3034A (Reliability-Centered Maintenance (RCM) Process)  
(d) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)

**1. Purpose**

This chapter describes and documents the development of Reliability-Centered Maintenance (RCM) based Common Assessment Procedures (CAP). As these documents reside on Maintenance Index Pages (MIP) in the Class Maintenance Plan (CMP) section as “AP” checks or requirements, they will for the purpose of this chapter be referred to as Assessment Procedures (AP).

**2. Objective**

APs are used to evaluate the material condition of Navy ships, systems, and equipment in support of Condition-Based Maintenance (CBM).

**3. Scope**

a. APs provide for standardized inspections used across carriers, surface ships, and other activities with similar systems and equipment. APs apply based on commonality. The two types of commonality invoked are:

- (1) Functional use.
- (2) Common platforms with similar systems and equipment.

b. Submarines do not use APs. The submarine community has a Pre-Arrival Test (PAT) program with associated procedures that provides for similar functionality.

c. These standards do not apply to, nor is development required for public or private shipyard new construction, modernization, or post-repair test procedures unless invoked by contract or specification.

**4. Overview**

- a. APs are applicable and effective maintenance measures. When properly and consistently executed, they deliver an accurate status and measurement of material condition, determine and document discrepancies, and specify repairs required to restore the material condition to a satisfactory state.
- b. Reference (a) institutes CBM as the Chief of Naval Operations (CNO) strategy for maintaining ships, aircraft, and infrastructure material. CBM is designed to optimize life cycle maintenance program costs. CBM methodology dictates the performance of maintenance based on the objective evidence of need.
- c. RCM provides the maintenance engineering principles used to determine objective evidence of need. It also provides the methodology for determining and continuously improving applicable and effective maintenance requirements and associated maintenance assessment procedures.
- d. Under most circumstances APs can be used for inspection, certification and assist visit functions. This chapter establishes requirements for the development of APs in order to:
  - (1) Effectively evaluate material condition.
  - (2) Ensure conformity to RCM standards.
  - (3) Ensure procedures are useful for all of their intended purposes.
  - (4) Support commonality of purpose and use.
  - (5) Maximize commonality across ship classes to the extent system and equipment similarity allows.

## 5. Policy

Development of APs must adhere to the technical standards listed in subparagraphs 5.a. and 5.b.

- a. AP Development. APs must be developed and periodically reviewed using RCM methodology.
  - (1) All new or modified maintenance requirements and procedures for use by government or contractor personnel aboard carriers, submarines, and surface ships must be developed or modified per reference (b). Use of the reference (b) process has been automated by the Naval Sea Systems Command (NAVSEA) eRCM application.
  - (2) RCM analysis must be conducted and approved only by NAVSEA certified practitioners per Appendix I (RCM Certification Program) of this instruction. RCM analysis

results and resultant assessment tasks and procedures must be reviewed and approved by the technical authority for the subject system or equipment, typically the In-Service Engineering Activity (ISEA) designated by the Technical Warrant Holder.

(3) Results of RCM analysis and technically approved APs must be recorded by the Planned Maintenance System (PMS) Coordinating Activity, Naval Sea Logistics Center (NSLC) per reference (b) for inclusion in the PMS database. Associated Intermediate or Depot-level tasks that call out the use of APs must be included in Class Maintenance Plans (CMP) by the applicable Program Executive Office (PEO) or NAVSEA CMP Coordinating Activity, Carrier Planning Activity (CPA), or Surface Maintenance Engineering Planning Program (SURFMEPP). The submarine community does not use APs.

b. AP Format.

(1) New or modified APs must be developed as Maintenance Requirements Cards (MRC) per reference (b). For equipment and systems for which an adequate assessment MRC has yet to be developed, the technical authority or the Technical Warrant Holder for the subject system or equipment may approve the use of other test formats. These formats can include but are not limited to technical manual procedures, System Operation and Verification Test (SOVT) procedures, shipyard test procedures or approved shipboard procedures. Shipboard procedures could include the use of Combat Systems Operational Sequencing System (CSOSS) or Engineering Operational Sequencing System (EOSS) procedures. In all cases, formats other than MRC procedures should be considered temporary. APs should be developed as MRCs to the maximum extent possible. MRCs are integral to the resourced 3-M Program of Record and are always available on the platform via Force Revisions. APs are used primarily by off-ship subject matter experts, but also may be used by Ship's Force, with technical authority oversight, as a key element of distance support. APs must include all data fields required by reference (b) for MRCs. APs must clearly identify and explain all requirements needed to satisfy Inspection Points and Certification Statements. APs must be prepared using the NAVSEA New PMS Editor application.

(2) Approved APs must be issued and managed per this instruction as part of the Navy's Planned Maintenance System Management Information System (PMSMIS) database. CMP tasks may be used to call out the use of the APs. Discrepancies associated with and requests for modifications to APs or associated CMP tasks must be reported via the 3-M Feedback Report (FBR) System.

(3) APs must be self-contained to the maximum extent practicable. The goal is to require minimum reference to other documents except for general references (e.g. NSTM 300 reference to electrical safety requirements) or to EOSS or CSOSS procedures.

(4) Each AP must state qualification requirements and specify the skill, non-typical labor category, or both, required to perform the procedure. Examples include NAVSEA-designated

assessors and specific Ship's Force ratings and ranks. Personnel with the qualifications listed on the AP possess the required skill and knowledge levels required to safely and efficiently execute the procedure.

(5) APs must be thoroughly shipboard tested prior to implementation. Satisfactory completion of this testing must be recorded in PMSMIS along with RCM analysis documentation.

(6) Procedural steps and situational triggers must be presented in language that is free of vague and ambiguous terms and uses simple words and phrases to convey the intended meaning. Appendices C and F of reference (c) provide writing and word choice guidelines.

(7) Procedures must clearly define all failure modes and effects the procedure is designed to predict, identify, prevent or correct. Specific criteria must be provided to evaluate satisfactory and unsatisfactory conditions associated with these failure modes. In certain cases, such as extensive assessments of large or complex systems, it may be appropriate to define functional failures (e.g., low-level alarm fails to sound) vice functional failure (relay K-12 shorted to ground). In such cases, the generation of a Maintenance Action Form OPNAV 4790/2K noting completion of the task should lead to troubleshooting and repair actions.

(8) Procedures must include failure threshold criteria values or parameters required to satisfy inspection or certification requirements. The implication of failure modes associated with being above or below threshold, including specific economic, safety or mission impacting concerns or operational limitations must be included in the procedure. Examples include:

(a) Increased cost to repair if rust is allowed to exceed some percent of exposed surface.

(b) Significantly increased probability of line shaft bearing failure that would require decoupling of the shaft and subsequent reduction in top speed if bearing clearance is allowed to exceed some value.

(c) Eventual deterioration of electrical insulation leading to risk of electrical shock and death if resistance value is allowed to decrease below a critical value.

(d) Decertification of flight deck and restriction to "emergency only" flight deck operations if certain equipment is inoperable.

(9) APs must explicitly address generation of a completion Maintenance Action Form OPNAV 4790/2K when required for recording of data for material condition history, inspection, or certification purposes or to document the need for corrective action.

(10) APs must explicitly specify where and when measurements are to be taken, and how data is to be recorded. Appropriate qualitative or quantitative standards must be included to

determine satisfactory or unsatisfactory results, allowable tolerances or out-of-specification ranges, and adjustment set-points and tolerances as required. Required data may be qualitative (e.g. record the visual appearance of the paint system) or quantitative (e.g. output temperature recorded in degrees Fahrenheit to the nearest half degree) as required based on results of RCM analysis or where required to support interval age exploration.

(11) APs must explicitly address any specific criteria needed for documentation of "as found material condition" on completed Maintenance Action Form OPNAV 4790/2Ks when required by the system, ~~or~~ equipment Life Cycle Manager, or Life Cycle Planning Activity. (See paragraph 11.e of Appendix E)

(12) Developed MRCs must clearly identify the need to document discrepancies found during planning for, or execution of, the procedure. Discrepancies identified must be documented as a maintenance ready 4790/2K and submitted to the ship CSMP following the procedures outlined in the JFMM.

## 6. Responsibilities

a. NAVSEA. As the lead systems commander for ship in-service support, NAVSEA must:

(1) Oversee the core process of CMP development in acquisition programs and in-service ships, including development of APs.

(2) Select in-service systems or equipment for development of APs based on such factors as troubled system analysis, repair costs, mission criticality, as found condition reports, and Fleet feedback.

(3) Recommend new construction systems and equipment that would benefit from PEO development of APs in initial PMS and CMP development.

(4) Exercise technical authority over the development and approval of material condition assessment tasks and procedures.

(5) Ensure all maintenance requirements are developed under RCM processes by qualified and certified RCM practitioners and approved by the applicable technical authority.

(6) Ensure approved assessment tasks are incorporated in the CMP by the applicable coordinating activity and that APs are incorporated in the PMS database by the NSLC.

b. PEO and Ship Program Managers (SPMs).

(1) Develop APs for selected systems and equipment following the guidelines of this Chapter.

(2) Coordinate efforts with NAVSEA for the development and implementation of APs for in-service ships.

c. Shipboard or Organizational. Reference (d), JFMM, Volume VI, Chapter 19 defines Ship's Force responsibility with regards to AP MIP requirements.

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**SECTION III**  
**CHAPTER 1**  
REPORTS AND SERVICES AVAILABLE FROM  
NAVAL SEA LOGISTICS CENTER

SECTION III |CHAPTER 1  
REPORTS AND SERVICES AVAILABLE FROM  
NAVAL SEA LOGISTICS CENTER

**1. Maintenance and Material Management (3-M) System Database**

Ship's maintenance information is reported by fleet personnel to Naval Sea Logistics Center (NSLC) Mechanicsburg, PA, for processing into the Ships' 3-M System database. This database provides a single source of 3-M data available to Naval Sea Systems Command (NAVSEA) Program and Equipment Managers, In-Service Engineering Activities (ISEA), Type Commanders (TYCOMs), Ships, Naval Supply System Command (NAVSUP) and government sponsored contractors.

**2. Data Collected**

Maintenance data reported and retained in the 3-M System database includes:

- a. Completed maintenance actions.
- b. Deferred maintenance actions.
- c. Planning and estimating information for shipboard maintenance.
- d. Planning and estimating information for Intermediate Maintenance Activities (IMAs).
- e. Repair parts.
- f. Configuration data.
- g. IMA data from:
  - (1) Tenders.
  - (2) Repair Shops.
  - (3) TYCOM Support Units.
  - (4) Regional Maintenance Centers (RMC).
- h. Navy Maintenance Database Re-platform (NMDR) data for the cost of parts and man-hours for maintenance work conducted by private contractors.

- i. Naval Shipyard data for the cost of parts and man-hours for work completed by Naval Shipyards.
- j. Technical Assist and Assessment data for completed and deferred maintenance, including parts and man-hour data.
- k. Reactivated ship Current Ship's Maintenance Project (CSMP).

### 3. Uses of the Data

Information available from the 3-M Maintenance Data System (MDS) can be of value in:

- a. Scoping and quantifying data for engineering and logistics analyses.
- b. Providing management resource information to higher authority to support the decision making process.
- c. Planning and allocating resources for logistics support.
- d. Analyzing maintenance or reliability problems.
- e. Determining adequacy of equipment specifications.
- f. Analyzing life cycle and other costs.
- g. Determining equipment effectiveness.
- h. Preparing and updating technical manuals or directives.
- i. Providing Work Center equipment maintenance history.
- j. Providing data assist provisioning.
- k. Overhaul planning.
- l. Analyzing repair parts usage.
- m. Updating allowance lists and the Coordinated Shipboard Allowance List (COSAL).
- n. Providing data for ship design.
- o. Shipboard management including determination of problem equipment and providing data for availability and overhaul.

- p. Analyzing part failures.
- q. Displaying labor hours, parts cost, maintenance action count and the calculated ownership cost value for ships and equipment.

#### 4. Data Elements Available in the 3-M System

The MDS data elements, which are stored in the database, are listed and defined in the Ships' 3-M Database Reference Manuals. The Ships' 3-M Database Reference Manuals can be downloaded using the Ships' 3-M Information link on the Ships' 3-M Open Architectural Retrieval System (OARS) home page:

<https://oars.nsfc.navy.mil/>

The OPNAV 4790/2K, OPNAV 4790/CK, OPNAV 4790/2P, DD 1348, NAVSUP 1250-1 forms, and 3-M Automated Data Processing (ADP) programs are used to report these data elements.

#### 5. Ships' 3-M On-line System

The Ships' 3-M on-line database is a historical repository (data from 1995) of corrective maintenance actions. It contains maintenance, supply and IMA data and allows the user to select, sort, and process data as well as create reports. It provides the means to plan, acquire, organize, direct, control and evaluate manpower and material resources in support of maintenance. The Ships' 3-M on-line database is used to predict failure rates of components, determine areas that need improvement and track equipment performance. Access to 3-M data allows the user to research equipment history, perform trend analysis and provide a tool to the fleet that can provide information concerning fleet maintenance and maintenance support experience to organizations responsible for fleet logistics support. On-line access is available through NSLC.

#### 6. OARS

The application can produce ad-hoc reports, as well as import text, and download data. Reports can be run in either immediate or batch mode and saved in various file formats such as Excel and Tab-delimited Text.

- a. All members of the NAVSEA community, the Fleet, and others with access to the internet with CITRIX downloaded to their computers can access the database by using OARS, a CITRIX tool developed by the NSLC. OARS, an intuitive and flexible tool that operates in a Windows environment was designed to make retrieving maintenance and material management information quick and easy.

b. OARS generates most standard 3-M reports, such as Parts Issued for Maintenance Detailed Report and the S4790.5019 Ships' 3-M History Report. The following reports listed in subparagraphs 6.b.(1) through 6.b.(3) are also available:

(1) 4790.L0103 - Ownership Cost Ranking Report. This report provides a quick method for determining fleet maintenance problems based upon the ownership cost, ship force man-hours, IMA man-hours, part issues, maintenance actions, total repair replacement cost, and total replacement cost.

(2) 4790.L0104 - Graph Trend Report. This report provides a graphical view of a logistics element over a chosen time frame.

(3) 4790.L0105 - Ownership Cost Total View Graphs. This report will display seven logistics factors and graph a trend for these logistics factors to indicate equipment performance.

c. To find out more about the OARS tool, visit the Ships' 3-M OARS Home Page at:

<https://oars.nsfc.navy.mil/>

The Ships' 3-M OARS website contains informational downloads of database reference manuals, OARS report catalogs, and Ships' 3-M directives. It allows users to register for access to the OARS Citrix-based retrieval application and OARS training. It contains links to enable users to access Ships' 3-M code translations and to initiate the OARS Citrix-based retrieval application. It also contains troubleshooting capabilities when users experience difficulty in accessing the OARS retrieval application.

## 7. On-line Systems Training Course

The Ships' 3-M and OARS Basic Training Course is a two-day course designed to introduce and train individuals on the basic usage of Ships' 3-M data as well as the OARS retrieval tool. This course is essentially broken into two main topic areas, Introduction and Overview of Ships' 3-M, and Introduction of the OARS Retrieval Tool. This training places an emphasis on hands-on computer lab time. Upon completion, students should have obtained a knowledge level, which will enable them to retrieve the data necessary for the specific functions desired. NSLC conducts the course.

## 8. Ships' 3-M Standard Reports Catalog

The Standard Reports Catalog displays samples and descriptions of the Ships' 3-M Standard Reports. Potential users of ships' maintenance data should contact NSLC for assistance if a desired product format is not listed in the Standard Reports Catalog. The Standard Reports Catalogue can be downloaded using the Training link on the Ships' 3-M OARS home page:

<https://oars.nsfc.navy.mil/>

If you have specific needs which are not met within the standard reports, OARS provides the user the capability of developing customized ad hoc reports.

## 9. Other Products

There are various tools available to the customer through the Ships' 3-M OARS website homepage. These include:

- a. Ships' 3-M Manual. Establishes CNO's policy, requirements, and responsibilities for the Ships' 3-M System. Directions and guidance contained in this manual supersede any other directives, which may be in conflict.
- b. Ships' 3-M Reference. This site offers users the ability to access multiple 3-M reference code tables. Each code table provides the definition and code translation for each entry in the table. The user has the ability to search each table by code, definition, or keyword. Additionally, the user may use the "list" option to display the entire list of codes for a particular table. Where appropriate, a hierarchical breakdown of the code is available.
- c. The Reference Code Forum. Formerly known as the Maintenance Modernization Business Unit (MMBU) Standard Codes Forum.

(1) The Reference Code Forum contains a mirror image of all code tables implemented within the current releases of the applications listed in subparagraphs 9.c.(1)(a) through 9.c.(1)(c):

- (a) Organization Maintenance Management System - Next Generation (OMMS-NG).
- (b) Maintenance Resource Management System (MRMS).
- (c) Regional Maintenance Automated Information System (RMAIS).

(2) It also serves as a communications link where recommended changes, modifications and deletions are submitted, discussed and approved or disapproved prior to release and implementation. Updates to the reference codes are accomplished following the steps outlined in subparagraphs 9.c.(2)(a) through 9.c.(2)(d):

- (a) Requests for MMBU changes must be identified to NSLC. The change(s) can be provided from any source.
- (b) NSLC performs basic pre-vetting of a proposed change or changes for impact to any 3-M driven Information Technology (IT) system.

(c) NSLC presents proposed change(s) to the 3-M Requirements Management Board (RMB) with IT impacts noted, if any.

(d) 3-M RMB considers functional impact and votes to accept or reject changes.

(3) The Reference Code Forum (formally the MMBU Standard Codes Forum) is available at:

<https://oars.nsfc.navy.mil/oars/docs/ref/index.html>

Updates to the Reference Codes may be requested by clicking the "Contact Customer Support" link at the bottom of any of the Ships' 3-M OARS website pages.

d. Ships' 3-M Data Record Layout. Describes the format of all data records processed through the legacy Shipboard Non-Tactical ADP Program (SNAP) systems, which are found within Ships' 3-M. This document specifies the format for all Configuration, Logistics, and Maintenance data records found within Ships' 3-M.

e. Requesting 3-M System Data. Access to the various Ships' 3-M products can be obtained through the Ships' 3-M OARS website homepage:

<https://oars.nsfc.navy.mil/>

All requests for assistance may be submitted by clicking the "Contact Customer Support" link at the bottom of any of the Ships' 3-M OARS website pages.

Written correspondence to the NSLC Mechanicsburg may be forwarded to:

NAVAL SEA LOGISTICS CENTER  
ATTN SHIPS 3-M FUNCTIONAL ANALYST 5450  
CARLISLE PIKE  
PO BOX 2060  
MECHANICSBURG PA 17055-0795

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**SECTION IV**  
**CHAPTER 1**  
**3-M SYSTEMS TRAINING**

SECTION IV |CHAPTER 1  
3-M SYSTEMS TRAINING

1. Introduction

The Ships' Maintenance and Material Management (3-M) System consists of the Planned Maintenance System (PMS) and Maintenance Data System (MDS) and is the nucleus for managing maintenance aboard all ships and shore stations of the Navy. Personnel must have a clear understanding of:

- a. How to effectively manage maintenance, configuration and logistics support appropriate to their position.
- b. How PMS is essential to sustaining material readiness.
- c. How and why managers at the systems commands are dependent upon the 3-M System for information to identify and correct Fleet material problems.

2. Naval Education Training Command (NETC)

NETC is responsible for maintaining a 3-M System training plan designed to meet the needs of the Fleet.

3. TYPE Commanders (TYCOM)

TYCOMs must ensure adequate 3-M Program training for all personnel within the command associated with maintenance, configuration and logistics support management. The TYCOMs are required to monitor and take corrective action to ensure ship compliance with 3-M policy and procedures, including a continuing quality review of 3-M data submitted by each ship. Shipboard on-the-job training represents the cornerstone of Fleet operational readiness and provides the optimum method of acquiring hands-on training. On-the-job training will be relied upon to sustain that level of knowledge and awareness received during formal training. Training should be continuous as new methods, procedures or features are introduced.

4. 3-M Systems and 3-M System Support Ashore Training

The Center for Service Support (CSS) is the program manager for fleet-wide 3-M training. Feedback or requests for information should be sent to:

COMMANDING OFFICER  
CENTER FOR SERVICE SUPPORT  
NAVAL STATION NEWPORT  
1183 CUSHING ROAD  
NEWPORT RI 02841-1210  
Commercial (401) 841-1051 (DSN Prefix: 841)

5. 3-M System Training

Provided in the curricula of Class “A” schools, United States Naval Academy (USNA), Officer Candidate School (OCS), and Naval Reserve Officer Training Candidate (NROTC) courses to introduce students to 3-M System concepts, operation applications and benefits.

6. Catalog of Naval Training Courses (CANTRAC)

Provides information on available courses, course descriptions, quota controls, and school locations. The courses listed in subparagraphs 6.a through 6.f are 3-M courses currently available and reflect the course number, course name, number and target audience:

- a. Navy Tactical Command Support System (NTCSS) II Manager A-531-0021. Trains personnel in common software services that provide interface between client/server application programs and the operational environment.
- b. Maintenance and Material Management Systems Coordinator/Inspector J-500-0029. This course trains TYCOM, Group and Squadron personnel and Ship's 3-M Coordinators in the responsibilities associated with verification, update and inspection of the ship's 3-M Systems. Personnel applying for this training must be billeted to either a 3-M Coordinator or 3-M Inspector Billet. Personnel attending J-500-0029 must be previously qualified PQS 305 via NAVTRA 43241 prior to class convening. Personnel attending should have completed one tour as a supervisor of a work group that utilized the Navy 3-M System.
- c. Unit Level Relational Supply A-551-0026.
- d. Stock Control Supervisor/R-Supply Force Level A-551-0027. Provides leading Logistics Specialists assigned to R-Supply (Force) equipped ships with the required knowledge and skills to perform duties.
- e. Relational Supply (Unit) Stock Control Supervisor A-551-0028. Provides leading Logistics Specialists assigned to R-Supply (Unit) equipped ships with the required knowledge and skills to perform duties.
- f. Relational Supply (Force Level) Operations Technician A-551-0029. Provides knowledge and skills training for Logistics Specialists assigned to or in transit to R-Supply

(Force Level) equipped ships. Personnel will be assigned access within one or more functional systems and with specific responsibilities within a particular functional area. These individuals will be able to perform the following functions;

- (1) add/change/delete records,
- (2) suspend transaction processing,
- (3) run queries,
- (4) perform issue, requisition and receipt processing,
- (5) submit batch jobs for generation of management reports,
- (6) process Defense Finance and Accounting Service (DFAS) financial feedback reconciliations.

## 7. Navy eLearning (NeL)

The NeL web site also contains 3-M computer-based training lessons developed by the CSS and is accessible through the "My Navy Portal" at: <http://my.navy.mil/>. Refer questions to 3M Training Manager at (401) 841-1044 or DSN: 841-1044.

## 8. Other 3-M System Training

a. Ships' 3-M On-line System Training Course. This course, sponsored and conducted by Naval Sea Logistics Center (NSLC), is a 2-day program designed to introduce and train individuals on the usage of Open Architectural Retrieval System (OARS) and the 3-M database. The course essentially encompasses two major areas, Introduction and Overview of Ships' 3-M, and Introduction to the OARS Retrieval Tool. It provides both instruction and hands-on lab time. Upon completion of this course, individuals should possess enough knowledge to enable them to retrieve data necessary for their specific functions. Target audience includes military and civilian, equipment life cycle managers, system managers and engineers with a need to work with Ships' 3-M data. Requests for information and course dates can be obtained from the OARS website at: <https://oars.nsfc.navy.mil/oars/docs/training.html>. Click on Training on the left side and then following the "Training Class Registration Wizard" link in the center of the screen or contact Navy 311 at 1-855-628-9311, DSN 510-NAVY-311, or e-mail at: [Navy311@navy.mil](mailto:Navy311@navy.mil).

b. Maintenance University (MU). Commander Naval Surface Forces (COMNAVSURFOR) established the MU in 1998 to support Atlantic and Pacific Fleet surface ships. MU delivers both classroom and shipboard technical expertise and training consistent with the TYCOM's mission to provide trained Sailors and crews to support deployment priorities with the

complementary goal of establishing an enhanced culture of maintenance excellence onboard COMNAVSURFOR ships.

(1) MU provides the ship with a unique combination of administrative, material assessment, and hands-on technical training delivered by subject matter experts. This includes practical exercises to improve the conduct of preventative maintenance, corrective maintenance and sustained self-assessment.

(2) MU provides the crews of surface ships, as well as shore-based managers, with the knowledge required to successfully plan and execute the spectrum of shipboard maintenance processes from Chief of Naval Operations (CNO) Availabilities to Ship's Force Upkeeps. All MU briefings are referenced based, current and provide an integrated understanding of maintenance processes, best practices and lessons learned. They are tailored to the target audience, from Major Commanders and Department Heads to Work Center Supervisors, and delivered as an integral part of the Surface Warfare Officer training program at Newport, Rhode Island and at Fleet Concentration Centers. MU course information is available from:

<https://tsd.huntingtoningalls.com/capabilities/fleet-support-group/maintenance-university/>

## 9. Shipboard Training

The Commanding Officer establishes and maintains a viable 3-M System training program to sustain the level of knowledge and awareness received during formal training.

- a. 3-M System Team Assist Visits. Periodic assistance is provided upon request as outlined in Section II, Chapter 2 of this manual.
- b. Training/Qualifications - 3-M Personnel Qualification Standards (NAVEDTRA 43241). Provides 3-M knowledge fundamentals and qualification requirements for workstations with both PMS and automated MDS requirements.

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## **SECTION V**

### **CHAPTER 1**

AIRCRAFT CARRIER, SUBMARINE AND SURFACE SHIP CLASS  
MAINTENANCE PLANS

SECTION V |CHAPTER 1  
AIRCRAFT CARRIER, SUBMARINE AND SURFACE SHIP CLASS  
MAINTENANCE PLANS

- Ref:
- (a) OPNAVINST 4700.7 (Maintenance Policy for U.S. Navy Ships)
  - (b) MIL-STD-3034A (Reliability-Centered Maintenance (RCM) Process)
  - (c) OPNAVINST 4790.16B (Conditioned-Based Maintenance (CBM) Policy)
  - (d) OPNAVLTR 4700 (Notional Intervals, Durations, and Repair Man-Days for Depot-Level Maintenance Availabilities of U.S. Navy Ships)

1. Purpose

This chapter provides an overview of the Class Maintenance Plan (CMP), its content, applicability and discusses the development and management process. Throughout this document, the term “ship” refers to all surface ships, aircraft carriers, and submarines.

2. Overview

- a. Reference (a) requires each ship of a class to have a Naval Sea Systems Command (NAVSEA) approved CMP. The CMP contains detailed Organizational (O-Level), Intermediate (I-Level) and Depot (D-Level) maintenance requirements and notional maintenance cycles as tasked and funded by the Program Executive Offices (PEO).
- b. CMP requirements are developed using RCM methodology as described in reference (b) and executed following Condition Based Maintenance (CBM) methodology as defined in reference (c).
- c. Each CMP is developed to provide the information needed to plan, schedule and control I-level and D-level planned maintenance effectively. The cognizant life cycle maintenance planning activities -- Carrier Planning Activity (CPA), Submarine Maintenance Engineering for Planning and Procurement (SUBMEPP), and Surface Maintenance Engineering Planning Program (SURFMEPP) -- manage requirements and scheduling of D-Level and I-Level maintenance requirements. The content and update of Organizational level (O-Level) and selected I-Level maintenance requirements (primarily Assessment Procedures (AP)) are managed by Naval Sea Logistics Center (NSLC) for NAVSEA 04. Section 1, Chapter 2 of this instruction deals with the management of O-Level requirements.
- d. The CMP may also identify needed O-Level repair capabilities; I- and D-level specifications (e.g., number, type, duration, interval between, and man-day size of availabilities) and required support features such as facilities requirements, specific turnaround programs, insurance material programs, special diagnostic systems, and husbandry agents (e.g., Port Engineers).

e. In addition to describing all preventive maintenance actions and maintenance support requirements, including material condition assessment requirements, approved modernization, and shipyard routines, the CMP may also include standard repairs required based on commonly expected assessment results.

### 3. Class Maintenance Plan

The CMP must encompass all essential maintenance elements required to economically sustain ship classes at a high state of material condition and reach their Expected Service Life (ESL). The three sections of a CMP are reviewed in subparagraphs 3.a through 3.c.

a. Plan Overview. The plan overview section must provide a narrative description of the CMP, including major issues, solutions chosen and justification for the approaches taken in the CMP. This section describes the strategic plan and the role of maintenance in sustaining current and future readiness and material condition to ensure ships remain relevant and reach their expected service life. This includes outlining a detailed approach to managing a cost effective maintenance program, linking requirements to resource needs, addressing high cost maintenance drivers and system maturation. This section must also concentrate on maintenance and management processes for slow-to-degrade and distributed systems. Operational profiles as well as I- and D-Level maintenance periods are also addressed in relation to maintaining overall ship performance. The description must cover:

(1) Design overview of the class to include capabilities, missions and design features used to achieve them.

(2) Unique characteristics of the class.

(3) Strategies required to maintain hull stability margins, environmental controls, power requirements, ventilation requirements, payload upgrades, etc.

(4) The delegated responsibilities of organizations tasked with administering and supporting the ship's CMP (e.g., Regional Maintenance Centers, PEOs, CPA, SUBMEPP Activity, SURFMEPP Activity and husbandry agents such as Port Engineers or Maintenance Managers, etc.).

b. Maintenance Requirements. The maintenance requirements section must list and describe all maintenance expected to be performed on ship systems and equipment so that maintenance and availability routine tasks can be effectively planned and executed. Certain I- and D-Level maintenance tasks reflected in the CMP are performed using APs (refer to Section II, Chapter 4). APs are stored in the Planned Maintenance System (PMS) database in Maintenance Requirement Card (MRC) format. There are two categories of CMP maintenance tasks, scheduled tasks, and unscheduled tasks.

(1) Scheduled tasks. Scheduled tasks may include qualified repairs and life cycle renewal tasks; material condition assessment or inspection tasks; or approved ship changes (formerly called alterations) which have been deemed beneficial and cost effective when performed at fixed time intervals.

(2) Unscheduled tasks. Unscheduled tasks are performed by a non-time-based event or by objective evidence of need. Unscheduled tasks are deemed beneficial and cost effective when performed as required or by an event trigger. Unscheduled tasks may include those listed in subparagraphs 3.b.(2)(a) through 3.b.(2)(c):

(a) Material Condition Assessment tasks available for troubleshooting or pinpointing degraded or failed components when unsatisfactory performance occurs or is suspected.

(b) Corrective maintenance tasks where the scope of work is determined by obvious failure, observable degradation, or detected by either an on-line CBM diagnostic system or the accomplishment of a Material Condition Assessment task.

(c) Concurrent maintenance tasks of a limited nature, which can be economically performed in conjunction with the accomplishment of a scheduled or other unscheduled task(s).

c. Notional Class Maintenance Schedule. This section must summarize the projected I- and D-Level workload for each major availability in the notional operating cycle of a ship of the class from reference (d). This may require more than a single set of availability types in order to reflect such maintenance program differences as Continental United States (CONUS) home ported ships, forward deployed ships, and multi-crewed ships.

#### 4. Responsibilities

a. Commander, NAVSEA. As the lead systems commander for ship In-service support, NAVSEA must:

(1) Oversee the core processes for CMPs in acquisition programs and In-Service ships.

(2) Support PEO Carriers, Team Ships (PEO Ships, SEA 21), PEO IWS, and Team Subs (PEO Subs and SEA 07) in the development and management of maintenance plans for each ship class, active and reserve, to ensure that U.S. Navy ships are cost effectively maintained in the highest possible state of material condition.

(3) Ensure maintenance plans are continuously improved and updated as changes occur.

(4) Establish Hull, Mechanical, and Electrical (HM&E) and Combat Systems technical requirements and provide the technical support necessary to safely maintain the material condition of all ships.

- (5) Ensure all maintenance requirements are developed using RCM principles.
  - (6) Establish policy for ensuring maintenance requirements are properly linked to ship configuration.
  - (7) Ensure CMP changes are made by appropriately qualified and certified RCM practitioners.
  - (8) Establish policy for and oversee execution of periodic RCM reviews of all CMP maintenance requirements.
  - (9) Coordinate PEO CMP efforts to ensure the use of common, standard, best-practice maintenance requirements for like equipment across all ships.
  - (10) Oversee and manage standardization of maintenance and modernization processes and products in support of the Navy's drive toward "one way of doing business" for ship maintenance.
  - (11) Review and approve CMPs, including those developed by PEOs, ensuring that they satisfy the requirements of reference (a), are technically correct, and are best suited to individual ship classes.
  - (12) Ensure recommended changes to existing maintenance programs and CMPs are based on RCM experience and are cost effective.
- b. PEO Carriers, Team Ships (PEO Ships, SEA 21), PEO IWS, Team Subs (PEO Subs, SEA 07) and Ship Program Managers (SPM). These organizations must:
- (1) Develop, issue and continuously maintain a ship class, tailored CMP that is cost effective, and supports fleet mission and material readiness needs and achieves Expected Service Life (ESL). The CMP must be issued to support delivery of the first ship of a class.
  - (2) Ensure maintenance requirements are developed and maintained per the NAVSEA approved RCM process by qualified RCM practitioners.
  - (3) Analyze in-service operational data and maintenance feedback (i.e., Maintenance and Material Management (3-M) maintenance data, casualty reports, repair activity discrepancy reports, guarantee and warranty deficiencies etc.) to refine maintenance requirements.
  - (4) Maintain the integrity of and accessibility to CMP data as well as the structure of the CMP. To facilitate control of change management, require all modifications to CMP data to be

made by the PEO authorized CMP development activity with cognizant technical authority approval.

(5) Coordinate with Fleet and Type Commanders (TYCOM) to ensure that:

- (a) Unscheduled and scheduled CMP maintenance requirements are executed properly and properly recorded when executed.
- (b) Scheduled maintenance requirements are executed within the periodicity required or are appropriately reviewed by cognizant technical authorities and SPMs if deferred beyond required periodicity.

(6) Coordinate with NAVSEA and other cognizant PEOs and SPMs to ensure that common, standard, best-practice maintenance requirements are implemented in their respective programs.

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## **APPENDICES**

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**APPENDIX A**  
**MASTER LISTING OF REFERENCES**

APPENDIX A  
MASTER LISTING OF REFERENCES

COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)

MIL-STD-3034A (Reliability-Centered Maintenance (RCM) Process)

NAVSEAINST 4720.15 (Machinery Alterations (MACHALTs) on HM&E Systems)

NAVSEAINST 4734.1B (NAVSEA Test, Measurement and Diagnostic Equipment (TMDE) and Calibration Programs)

NAVSEAINST 4790.27 (Reliability-Centered Maintenance (RCM) and Condition-Based Maintenance (CBM) Policy for Ships, Ship Systems and Equipment)

NAVSEA S9213-45-MAN-000(U), (Naval Nuclear Material Management Manual)

NAVSEA TECHNICAL SPECIFICATION 9090-700 (Series)

Navy Modernization Process Management and Operations Manual (NMP-MON) (SL720-AA-MAN-030)

NAVSUP PUBLICATION 485, Vol I, (Afloat Supply Procedures)

Nuclear Powered Submarine Atmosphere Control Technical Manual Volume 1 (0910-LP-104-7333 (UNCLASSIFIED))

Nuclear Powered Submarine Atmosphere Control Technical Manual Volume 2 (0910-LP-275-1800 (CONFIDENTIAL))

OPNAVINST 3120.32 (Standard Organization and Regulations of the U.S. Navy)

OPNAVINST 3120.33 (Submarine Extended Operating Cycle (SEOC) Program)

OPNAVINST 4700.7 (Maintenance Policy for U.S. Navy Ships)

OPNAVINST 4730.5 (Trials and Material Inspections (MI) of Ships Conducted by the Board of Inspection and Survey)

OPNAVINST 4790.4 (Ships' Maintenance and Material Management System Policy)

OPNAVINST 4790.16 (Condition-Based Maintenance (CBM) Policy)

OPNAVLT 4700 (Notional Intervals, Durations, and Repair Man-Days for Depot-Level Maintenance Availabilities of U.S. Navy Ships)

SECNAVINST 5510.36A (Department of the Navy Information Security Program Instruction)

Virtual SYSCOM Joint Instruction VS-JI-22A (Virtual SYSCOM Engineering and Technical Authority Policy, of 31 Jan 2007)

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**APPENDIX B**  
**FORMS AND REPORTS**

## APPENDIX B FORMS AND REPORTS

### Master Listing of Forms and Reports

Technical Feedback Report Form (OPNAV 4790/7B)  
Configuration Change Form (OPNAV 4790/CK)  
Maintenance Action Form (OPNAV 4790/2K)  
Supplemental Form, OPNAV 4790/2L)  
Ship's 3-M Form (OPNAV 4790/2P)

Available from Naval Forms Online:  
<https://navalforms.documentservices.dla.mil/web/public/home>

### Master Job Catalog Call-Down Frequency Report

Available from SUBMEPP Maintenance and Ship Work Planning (MSWP)

Automated Library Issue Document (ALID)  
MIP to Work Center File Report (PMS 4A)  
Technical Feedback Status Report (PMS 22)

Available from PMS Force Revision DVD

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## **APPENDIX C**

### **DATA ELEMENT DESCRIPTION AND VALIDATION SPECIFICATIONS**

## APPENDIX C

### DATA ELEMENT DESCRIPTION AND VALIDATION SPECIFICATIONS

#### 1. Purpose

This appendix identifies the data elements used for 3-M documentation and reporting, and provides a complete listing of the data elements and their descriptions. This appendix also includes the data element specifications used for 3-M reporting. Only the core 3-M data elements have been included, however, the use of additional data elements may be allowed if they support specific TYCOM, Program Manager, or OPNAV requirements.

#### 2. Objective

The objective of this appendix is to ensure that 3-M data requirements are explicitly understood and followed. Divided into two sections, the validation specification portion followed by a data element description section. The validation specification portion can be used to:

- a. Provide a means for organizational and intermediate level personnel to document information that is correct and complete.
- b. Establish data element requirements for all 3-M ADP systems, including systems that interface with 3-M.
- c. Provide a means for personnel conducting 3-M validations to ensure that 3-M data specifications are being followed.
- d. Establish requirements for reporting 3-M maintenance data.

#### 3. Data Element Specifications

Following the validation specification section is an alphabetical listing of the authorized 3-M data elements. This listing provides a short definition of each data element along with allowable codes and values where applicable. Updates to any of the Reference Codes may be requested according to Section III, Chapter 1, Reports and Services Available from Naval Sea Logistics Center (NSLC), paragraph 9. (c).

### DATA ELEMENT SPECIFICATIONS

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
Action Taken	F968	2K	2	E	<ol style="list-style-type: none"><li>1. Mandatory.</li><li>2. Must be left-justified.</li><li>3. For 4790/2K, first character must be 0, 1, 2, 3, 4, 6, 7, 8, or 9. For action taken codes 1, 2, and 3, the second character codes A, B, C, M, or T can be used. For action taken code 7, the second character codes A, B, C, D, or E can be used. For action taken code 9, the second character codes A, B, C, D, E, F, G, H, I, or J can be used.</li><li>4. For action taken code 6, the second character codes A, B, C, D, E, F, G, H, I, J, K or L can be used.</li><li>5. Codes are listed on the NSLC Reference Code Forum website; choose the Action Taken Lookup dropdown option. Available from: <a href="https://oars.nsfc.navy.mil/oars/docs/ref/index.html">https://oars.nsfc.navy.mil/oars/docs/ref/index.html</a></li></ol>

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
Action Taken	F968	CK	2	E	<ul style="list-style-type: none"> <li>1. Mandatory.</li> <li>2. Must be left-justified.</li> <li>3. For 4790/CK, must be 1, 2, 3 with or without the second character A, B, C, M, or T.</li> <li>4. For Alteration CK, must be 5A, 5B, 5C, or 5D.</li> <li>5. Codes are listed on the NSLC Reference Code Forum website; choose the Action Taken Lookup dropdown option. Available from: <a href="https://oars.nsfc.navy.mil/oars/docs/ref/index.html">https://oars.nsfc.navy.mil/oars/docs/ref/index.html</a></li> </ul>
Note for Action Taken codes:					
<ol style="list-style-type: none"> <li>1. 4790/2K block 29 is Action Taken, and block 64 is Final Action (IMA only). 4790/CK block 6 is Action Taken.</li> <li>2. Action Taken codes 5A-D are used in 2K block 64 or CK block 6 only.</li> <li>3. The second character A, B, C, M, and T of Action Taken codes 1, 2, and 3 are used in 2K block 29 only.</li> <li>4. Action Taken code 8 is used in 2K block 29 only.</li> </ol>					
Active Maintenance Time	F943	2K/CK	3	N	<ul style="list-style-type: none"> <li>1. Optional.</li> <li>2. Mandatory for SEL reporting Allowance Parts.</li> </ul>
Allowance Parts List/Allowance Equipage List (APL/AEL)	D008G	2K/CK	11	E	<ul style="list-style-type: none"> <li>1. Mandatory.</li> <li>2. Must not be blank, not all zeros, and no imbedded blanks.</li> </ul>

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
					3. Must be the APL/AEL Number, "NOTLISTED", or "NA".
Alterations (Configuration Changes)	E319	2K/CK	14	E	<p>1. Optional.</p> <p>2. For SHIPALT, pos. 1 &amp; 2 must be SA. Pos. 3-6 is ship type. Pos. 7-13 is alteration number. Pos. 14 is title code.</p> <p>3. For FIELD CHANGE, pos 1&amp;2 must be FC. Pos 3 is blank. pos 4-5 are the Field Change Bulletin numeric characters.</p> <p>4. For all other alteration types, pos. 1, 2, &amp; 3 must be A&amp;I, AMI, AR, BA, BK1, CFE, DFS, EC, ECC, ECH, ECI, ECO, ECP, EMR, EN, EP, FMR, GFE, HI, HMR, ICO, INS, LAR, LSA, MA, MJC, MO, MOD, MPL, NI, NL, OA, OSV, PDD, PSA, SC, SCD, SI, SP, SW, TC, TCM, TD, TDC, TEC, TMA, TMP, TR, TRI, TY, or TZ. Pos. 3 is blank for a 2-character code. Pos. 4-14 is alteration/SCD/Alt Directive number.</p> <p>5. Official codes are listed in the NSLC Reference Table Forum, Maintenance</p>

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
					Modernization Business Unit (MMBU) Forum dropdown option. They are listed here in the event users cannot access the NSLC site at: <a href="https://oars.nsfc.navy.mil/oars/docs/ref/index.html">https://oars.nsfc.navy.mil/oars/docs/ref/index.html</a>
Assist Repair Work Center	E902A	2K/2P	4	E	1. Optional.
Assist Repair Work Center Estimated Man-Hours (Asst. Est. MHRS)	E902A	2K/2P	4	E	1. Optional.
Automated Integrated Language System Identification Number (AILSIN)	E129	2K/CK	12	E	1. Optional.
Available on Board(Yes/No)		2K	1	A	1. Mandatory only if the "Blueprints, Technical Manuals, etc." data element is filled. 2. Must be an "X".
Availability Category		2K	1	A	1. Optional. Used for Deferral and IMA AWR Maintenance Actions. 2. Must be A-Z and 1-8. 3. Codes are listed on the NSLC Reference Code Forum website; choose the Availability

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
					Lookup dropdown option. Available from: <a href="https://oars.nsfc.navy.mil/oars/docs/ref/index.html">https://oars.nsfc.navy.mil/oars/docs/ref/index.html</a>
Blueprints, Technical Manuals, etc.		2K	32	E	1. Optional
Cause	F964C	2K	1	N	1. Mandatory. 2. Must be 1, 2, 3, 4, 5, 6, 7, 8 or 0.
Completion Date		2K/CK	*	N	1. Mandatory. 2. Must be greater than deferral date. * Length is determined by the date format.
Component Action	F968C	CK	1	A	1. Mandatory. 2. If reporting a configuration maintenance action, must be R, I, or M. 3. If reporting a configuration file correction, must be A, D, or C.
Component Identification	F940B	CK	15	E	1. Optional
Component Noun Name		CK	26	E	1. Mandatory. 2. For HM&E equipment, enter the noun name. 3. For electronics equipment, enter the A/N type designator or commercial model number. 4. For ordnance equipment, enter the

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
					system/equipment nomenclature, followed by the Mark and Mod numbers.
Component Serial Number		CK	15	E	1. Mandatory. 2. For equipment without a serial number, enter "NONE".
CSMP Summary	F905D	2K	30	E	1. Mandatory
Date Completed		2K	*	N	* Length is determined by the date format.
Date of Estimate		2K	*	N	* Length is determined by the date format.
Deadline Date	F964F	2K	*	N	1. Optional. 2. * Length is determined by the date format.
Deferral Date	F964E	2K	*	N	1. Mandatory. 2. * Length is determined by the date format.
Deferral Reason	F964D	2K	1	N	1. Mandatory. 2. Must be 1, 2, 3, 4, 5, 6, 7, 8, 9, or 0.
Departure Test Required		2P	1	A	1. Optional. 2. If used, must be an "X".
Dry Dock Required		2P	1	A	1. Optional. 2. If used, must be an "X".
Engineering Operational Sequencing System (EOSS)		CK	15	E	1. Optional. 2. Not required for Electronics or Ordnance configuration change actions.

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
Equipment Identification Code	D008D	2K/CK	7	E	1. Mandatory.
Equipment Noun Name	F940	2K/CK	16	E	<p>1. Mandatory.</p> <p>2. If the maintenance action is a SHIPALT, enter the equipment noun name from the SHIPALT record.</p> <p>Otherwise, enter the equipment nomenclature/description of the equipment or system on which the maintenance was performed.</p> <p>3. For HM&amp;E equipment, enter the noun name.</p> <p>4. For electronics equipment, enter the A/N type designator or commercial model number.</p> <p>5. For ordnance equipment, enter the system/equipment nomenclature, followed by the Mark and Mod numbers.</p>
Estimated Man-Days		2K/2P	5	N	1. If the estimate is less than one, enter "1".
Estimated Man-Days Cost		2K/2P	7	N	1. If no estimate, enter "0".
Estimated Man-Hours	G902A	2K/2P	4	N	1. If no estimate, enter "0".
Estimated Material Costs	G902M	2K/2P	6	N	1. If no estimate, enter "0".

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
Estimated Total Cost		2K/2P	7	N	1. If no estimate, enter "0".
Final Action (IMA only)		2K	2	E	1. Mandatory 2. Must be left-justified. 3. Codes are listed on the NSLC Reference Code Forum website; choose the dropdown option "ACTION TAKEN LOOKUP." Referred to as Final Action when coming from repair facility. Available from: <a href="https://oars.nsfc.navy.mil/oars/docs/ref/index.html">https://oars.nsfc.navy.mil/oars/docs/ref/index.html</a>
First Contact	F804	2K	18	E	1. Mandatory
Hull Number		2K/CK/2P	11	E	1. Optional
Identification/Equipment Serial Number		2K	15	E	1. Mandatory
INSURV Number	D912	2K	7	E	1. Optional
Integrated Priority	F802	2K	5	N	1. Optional
Intermediate Unit Commander (IUC) Screening	F949	2K	2	E	1. Optional. 2. If used, must be 1, 2, 3 with or without the second character A, S, or M; 4; 5, 5A-5F; 6, 6A-6E; or 8.
IUC/Repair Activity/TYCOM Remarks		2P	180	E	1. Optional
Job Control Number	E349	2K/CK/2P	13	E	1. Mandatory.

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
(JCN)					2. This data element is made up of the UIC (A002), Work Center (E128), and JSN (E349C).
Job Description/ Remarks		CK	120	E	1. Mandatory
Job Order Number	G679	2K	10	E	1. Optional
Job Sequence Number (JSN)	E349C	2K/CK/2P	4	N	1. Mandatory
Key Event	F934	2P	4	E	1. Optional
Key Operation	F939	2P	2	N	1. Optional
Lead Planning & Estimating Code		2K	4	E	1. Optional
Lead Repair Work Center (LWC)	E902D	2K/2P	4	E	1. Mandatory
Location	E900A	2K/CK	20	E	1. Mandatory
Maintenance Index Page Number (MIP)	E130	CK	15	E	1. Optional
Man-Hours Expended		2K	4	N	1. Mandatory. 2. Cannot be blank.
Meter Reading		2K	5	N	1. Optional
Meter Reading Indicator	D916G	CK	1	A	1. Optional. 2. If used, must be "X".
Nameplate Data	F940C	CK	120	E	1. Mandatory for installation, and addition. 2. Optional for removal, modification, change, and deletion.
Next Higher Assembly	F940D	CK	21	E	1. Optional
Normally Done By		2P	1	A	1. Optional
Periodic Maintenance Requirement		2P	12	E	1. Optional
Periodicity		2P	3	E	1.Optional 2.

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
Post-Overhaul Test Required		2P	1	A	1. Optional. 2. If used, must be an "X".
Pre-Arrival/Arrival Conference Action/Remarks		2K	56	E	1. Optional
Pre-Overhaul Test Required		2P	1	A	1. Optional. 2. If used, must be an "X".
Priority	C904A	2K	1	N	1. Mandatory. 2. Must be 1, 2, 3, or 4.
Quality Assurance Requirements		2P	12	A	1. Optional
Quantity		CK	3	N	1. Mandatory
R/M (Maintenance Indicator)	D912E	2K	1	A	1. Optional. 2. If used, must be "M" or "R".
Rate	F804A	2K	4	E	1. Mandatory
Record Identification Number (RIN)	E221	CK	5	E	1. Mandatory for deletion, removal, and modification. 2. Optional for installation and addition.
Remarks/Description	F905	2K/CK	1200	E	1. Mandatory
Repair Activity UIC	A002P	2K	5	E	1. Optional
Repair Work Center	E902A	2K	4	E	1. Optional
S (Safety Identifier)	D912B	2K	1	A	1. Optional. 2. If used, must be "S".
Safety Hazard	C921A	2K	1	E	1. Optional. 2. Must be 1, 2, 3, 4, 5, 0. Code 6 thru 9 may be locally assigned by TYCOMs for

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
					additional safety codes as required.
Scheduled Completion Date		2K/2P	*	N	1. Optional. * Length is determined by the date format.
Scheduled Start Date		2K/2P	*	N	1. Optional. * Length is determined by the date format.
Second Contact/ Supervisor	F804B	2K	18	E	1. Optional
Service Application Code	E010A	CK	10	E	1. Optional
Ship's Force Man-Hours (S/F MHRs)	F808B	2K	4	N	1. Mandatory
Ship's Force Man-Hours Expended (S/F MHRs EXP)	F808	2K/CK	4	N	1. Mandatory
Ship's Force Man-Hours Remaining (S/F MHRs REM)	F808A		4	N(*)	1. Optional * If TYCOM allows an automatic close out of the deferral by the IMA, enter "AUTO".
Special Interest		2P	1	A	1. Optional. 2. If used, must be an "X".
Special Purpose A	F801	2K	2	E	1. Optional. 2. If used, enter the Key Event code.
Special Purpose B	F801	2K	2	A	1. Optional. 2. If used, enter SS for SUBSAFE. Surface Ships may enter; S1 for "PARTS ON HAND/PARTS NOT REQD," S2 for "PARTS ON ORDER-DEF DEL DT," S3 for "CONT PROCURE PARTS," S4 for "WORK COMPL PREVIOUSLY."

<b>DATA ELEMENT</b>	<b>DEN</b>	<b>MAINTENANCE TYPE</b>	<b>LENGTH</b>	<b>ENTRY TYPE</b>	<b>VALIDATION SPECIFICATION</b>
Special Purpose C	F801	2K	2	E	1. Optional. 2. If used, must be L1.
Special Purpose D	F801	2K	2	N	1. Optional. 2. If used, must be 08.
Special Purpose E	F801	2K	2	A	1. Optional. 2. If used, must be RC.
Special Purpose F	F801	2K	2	A	1. Optional. 2. If used, must be DD.
Special Purpose G	F801	2K	2	A	1. Optional. 2. If used, must be NC or NP.
Special Purpose H	F801	2K	2	E	1. Optional. 2. The following codes are used in MFOM VSB for work screening: AC (AVCERT) BC (Blanket Purchase Agreement/Basic Ordering Agreement) CC (Commercial Industrial Services) CS (Crane Services) DV (Diver Services) GC (Contract) IC (Indefinite Delivery, Indefinite Quantity) NS (NAVSEA) RC (Regional Maintenance Center Contracting Officer) TC (Type Commander Contracting) TV (Tanks & Voids)
Special Purpose I	F801	2K	2	E	1. Reserved for future use.
Special Purpose J	F801	2K	2	E	1. Reserved for future use.
Special Purpose K	F801	2K	2	E	1. Optional. 2. If used, enter FB (Fly By Wire Certification Boundary) SF

<b>DATA ELEMENT</b>	<b>DEN</b>	<b>MAINTENANCE TYPE</b>	<b>LENGTH</b>	<b>ENTRY TYPE</b>	<b>VALIDATION SPECIFICATION</b>
					(Submarine Flight Critical Component), or DS (Deep Submergence System-Scope of Certification).
Special Purpose L	F801	2K	2	E	1. Optional. 2. If used, enter the code assigned to the visiting activity.
Special Requirements		2P	*	E	1. Optional. 2. If used, refer to Key Event, Special Interest, Dry Dock Required, Pre-Overhaul Test Required, Post-Overhaul Test Required, or Departure Test Required Codes for allowable codes and values. * Length is determined by the codes entered.
Status	F964B	2K	1	N	1. Mandatory. 2. Must be 1, 2, 3, or 0.
Suffix	D912D	2K	2	E	1. Optional.
Task		2P	12	E	1. Optional.
Technical Documentation		2P	28	E	1. Optional.
Technical Manual Number		CK	32	E	1. Optional.
Trouble Isolation	F980	2K	1	N	1. Optional.
TYCOM Screening	F949A	2K	2	E	1. Optional. 2. If used, must be 1, 2, 3, with or without the second character A, S, or M; 4; 5A-5F; 6, 6A-6E; 8; or 9.

DATA ELEMENT	DEN	MAINTENANCE TYPE	LENGTH	ENTRY TYPE	VALIDATION SPECIFICATION
Type Availability	F927	2K	1	N	1. Mandatory. 2. Must be 1, 2, 3, or 4.
U (Mission Degrading)	D912C	2K	1	A	1. Optional. 2. If used, must be "U".
Unit Identification Code (UIC)	A002	2K/CK/2P	5	E	1. Mandatory. 2. No imbedded blanks.
When Discovered Code	F964	2K	1	N	1. Mandatory. 2. Must be 1, 2, 3, 4, 5, 6, 7, 8, 9 or 0.
When Discovered Date	F964A	2K	*	N	1. Mandatory. 2. * Length is determined by the date format.
Work Center	E128	2K/CK/2P	4	E	1. Mandatory for installation or addition. 2. Optional for removal, modification, deletion, or change.
Work Center Responsible for Equipment (WCRe)	E128	CK	4	E	1. Mandatory for installation or addition. 2. Optional for removal, modification, deletion, or change.
Work Request Routine		2K	5	E	1. Optional. 2. If used, must be either the Expanded Ship Work Breakdown Structure, Ship Work Breakdown Structure, Ship Work Authorization Boundary, or Ship Work Line Item Number as directed by the TYCOM.
YYMM Issued		2P	4	N	1. Optional.

Table C-1

#### 4. Data Element Description

##### a. Alpha "A" Data Elements.

(1) Accepted By (2K). The signature/name and rank/rate of the person authorized by the tended ship to verify the acceptability of work performed. This entry is mandatory when reporting completion of a previously deferred maintenance action. The Work Center Supervisor must approve all maintenance actions not requiring assistance from an outside Work Center; the Work Center Supervisor's approval will be recorded when the maintenance action is documented.

(2) Action Taken (ACT. TKN.) (2K and CK). A code to describe the maintenance action taken.

(a) Select the code (Table C-2) which best describes the action taken to complete the maintenance. When recording these codes, start in the left justified position of the field. The first character is to be chosen from the list below; the second character is free-form and is to be recorded as specified by the TYCOM. For maintenance action reporting, the action codes in the Reference Table Forum can be used. Codes are listed on the NSLC Reference Code Forum website; choose the Availability Lookup dropdown option. Available from:  
<https://oars.nsclc.navy.mil/oars/docs/ref/index.html>

*NOTE: If there is an entry in the Alterations field of a deferred maintenance action (2K), a code "5", including the applicable suffix from the Reference Table Forum, must be entered in the "FINAL ACTION" field."*

#### MAINTENANCE ACTION CODES

CODE	DESCRIPTION
1	Maintenance Action Completed; Parts Drawn from Supply
2	Maintenance Action Completed; Required Parts Not Drawn from Supply (local manufacture, pre-expended bins, etc.)
3	Maintenance Action Completed; No Parts Required
<i>NOTE: The following second character codes can be used with the above Action Taken codes 1, 2, or 3 as directed by the TYCOM:</i>	
A - Maintenance Requirement Could Have Been Deferred	
B - Maintenance Requirement Was Necessary	
C - Maintenance Requirement Should Have Been Done Sooner	
M - High Cost Repairs	
T - The Equipment Being Reported Had a Time Meter	

CODE	DESCRIPTION
4	Canceled (When this code is used, the deferral will be removed from the CSMP. This code is not to be used with INSURV, safety, or priority 1 or 2 deferrals screened for accomplishment by the TYCOM or IUC.)
6	Rejected Work Request (see Final Action Code). This code is only to be used by Intermediate Maintenance Activities in the Final Action Block for rejected work. This code is not allowed for shipboard use.
7	Maintenance Action Completed; 2-M (Miniature/Micro-miniature Electronic Modules) Capability Utilized.
<b><i>NOTE: The following second character codes can be used with Action Taken Code 7 to better describe the action taken:</i></b>	
	A - Parts Drawn from Supply Utilized
	B - Parts Not Drawn from Supply Utilized
	C - Automatic Test Equipment (ATE) Utilized
	D - ATE and Parts Drawn from Supply Utilized
	E - ATE and Parts Not Drawn from Supply Utilized
8	Periodic Time Meter/Cycle Counter reporting. (This code is not applicable to the “FINAL ACTION” code reported by the repair activity.)
9	Maintenance Action Completed; 3-M Fiber Optic Repair
<b><i>NOTE: The following second character codes can be used with ACTION TAKEN CODE 9 to better describe the action taken:</i></b>	
	A - FOTE (fiber optic test equipment), multimode ST MQJs utilized
	B - FOTE, multimode heavy duty MQJs utilized
	C - FOTE, multimode rotary mechanical splice MQJs utilized
	D - FOTE, single mode ST MQJs utilized
	E - FOTE, single mode heavy duty MQJs utilized
	F - FOTE, multimode specialty MQJs utilized
	G - FOTE, single mode specialty MQJs utilized
	H - FOTE, not available
	I - Standard MQJs (measurement quality jumpers) not available
	J - Specialty MQJs not available
0	None of the Above (Code “0” is not recommended for shipboard use.)

Table C-2

(b) Select the code (Table C-3) which best describes the maintenance action associated with configuration change reporting.

## CONFIGURATION CHANGES MAINTENANCE ACTION CODES

CODE	DESCRIPTION
1	Maintenance Action Completed; Parts Drawn from Supply
2	Maintenance Action Completed; Required Parts Not Drawn from Supply (local manufacture, pre-expended bins, etc.)
3	Maintenance Action Completed; No Parts Required
<i>NOTE: The following second character codes can be used with the above Action Taken codes 1, 2, or 3 as directed by the TYCOM:</i>	
A - Maintenance Requirement Could Have Been Deferred	
B - Maintenance Requirement Was Necessary	
C - Maintenance Requirement Should Have Been Done Sooner	
M - High Cost Repairs	
T - The Equipment Being Reported Had a Time Meter	
<i>NOTE: If there is an entry in the Alterations field of a deferred maintenance action (2K), a code "5", including the applicable suffix ("A-D"), must be entered in the "FINAL ACTION" field.</i>	
5A - Partially Completed Alteration	
5B - Fully Completed Alteration	
5C - Fully Completed Equivalent to Alteration	
5D - Alteration Directive Not Applicable	

Table C-3

(3) Active Maintenance Time (2K and CK). The total clock hours, to the nearest whole hour, during which Ship's Force maintenance was performed. This should show actual time for troubleshooting, but should not include delays.

(4) Actual Man-Days. The total Man-Days required to accomplish the job for all involved repair Work Centers.

(5) Actual Man-Day Cost. The total Man-Day cost required by the Repair Activity to accomplish the job.

(6) Actual Material Cost. The total cost for all the material used by the Repair Activity to complete the job.

(7) Actual Total Cost. The sum total of both the Actual Man-Day Cost and the Actual Material Cost required by the Repair Activity.

(8) Adjusted Completion Date. The completion date after the original completion date of a Deferral MA or IMA AWR has been changed.

(9) Automated Integrated Language System Identification Number (AILSIN). – (See data element Table C-1) – The number used to identify the functional/hierarchical relationship of

the ship, system, and equipment configuration records. Current numbering schemes are AILSIN, Configuration Identification Number (CIN) and Functional Group Code (FGC).

(10) Allowance Parts List/Allowance Equipage List (APL/AEL) (2K and CK). The APL/AEL relates to a set of characteristics which identify a particular system, equipment, or component. The Master Index of APLs/AELs (MIAPL) lists what APLs/AELs are available and cross references various equipment identification numbers to an existing APL/AEL (e.g., "992179236" for an APL, and "2-260034096" for an AEL). For manual reporting, on equipment not listed in the Coordinated Shipboard Allowance List (COSAL), enter "NOT LISTED" in the APL/AEL field. For maintenance actions that are not equipment related (e.g., requests for cruise box manufacture, printing services, etc.), enter "NA" in this field.

(11) Alteration Identification (Configuration Changes) (2K and CK). An alteration is a change in design, material, number, location, or relationship of an assembly's component parts. Some alteration categories are:

(a) SHIPALT. Enter the alteration identification exactly as it appears on the Ship Alteration (SHIPALT) Record. Record the alteration type "SA" in the first two positions, ship type starting in position three, and the alteration number starting in the 7th position of the block (i.e., SASSBNf342130). Enter the title code from the alteration record in the last position of the field.

(b) FIELD CHANGE. Enter "FC" in the two left-justified positions. Leave position 3 blank; place the numeric characters listed in the FC Bulletin in positions 4 and 5.

(c) ALTERATION REQUEST. May be originated by a ship to request an alteration design. Enter and left-justify "AR", then a blank space, then any number the ship assigns for its own control.

(d) SHIP CHANGE DOCUMENT. Enter "SCD" in the first three positions followed by the SCD number. This type of alteration is replacing all other alteration types. Alterations of other types in the system continue to carry superseded types but all new alterations will be of type SCD.

(e) OTHER ALTERATIONS. Enter the appropriate alteration prefix from the following list (Table C-4) in the three left-justified positions, leave position three blank if code is only two position, and identify the alteration directive in the remaining positions.

### OTHER ALTERATIONS

<b>CODE:</b>	<b>DESCRIPTION:</b>
A&I	ALTERATION AND IMPROVEMENT
AMI	AUTONETICS MODIFICATION INSTRUCTION (TRIDENT)
AVC	AVIONICS CHANGE
BA	BOAT ALTERATION
BK1	BLOCK UPDATE (TRIDENT)
CC	CONTRACTOR CHANGE
CFE	CONTRACTOR FURNISHED EQUIPMENT REPORT
DFS	DEPARTURE FROM SPECIFICATION (TRIDENT)
EC	ENGINEERING CHANGE
ECC	CCS MEMOD ENGINEERING CHANGE (TRIDENT)
ECH	HM&E ENGINEERING CHANGE (TRIDENT)
ECI	EQUIPMENT CERTIFICATION INSTRUCTION
ECO	ENGINEERING CHANGE ORDER
EMR	EQUIPMENT MODIFICATION RECORD (TRIDENT)
EN	ENGINEERING NOTICE (TRIDENT)
EP	ENGINEERING CHANGE PROPOSAL
ESR	ENGINEERING SERVICES REQUEST
FC	FIELD CHANGE
FCA	FIELD CHANGE NUMBER (AEGIS)
FM	FIELD MODIFICATION (AEGIS)
FMB	FIELD MODIFICATION BULLETIN (AEGIS)
FMR	FIELD MODIFICATION REQUEST (TRIDENT)
GFE	GOVERNMENT FURNISHED EQUIPMENT REPORT
HI	HABITABILITY
HMR	HEAD QUARTERS MODIFICATION REQUEST (TRIDENT)
ICO	INSTALLATION CHANGE ORDER (TRIDENT)
INS	INSPECTION & SURVEY (TRIDENT)
LAR	LIASON ACTION REQUEST (TRIDENT)
LSA	LOGISTIC SUPPORT ANALYSIS
MA	MACHINERY ALTERATION
MJC	MACHINERY ALTERATION (TRIDENT)
MO	MODIFICATION (CRYPTO EQUIPMENT)
MOD	MODIFICATION (TRIDENT)
MPL	MILITARY PRODUCT LINE (TRIDENT)
NCW	TRIDENT (OBSOLETE)
NI	NAVY INSTRUCTION (TRIDENT)
NL	NAVY LETTER (TRIDENT)
OA	ORDNANCE ALTERATION
OSV	COMPUTER OPERATING SYSTEM VERSION

CODE:	DESCRIPTION:
PDD	PLANNING DEPARTMENT DRAWING (TRIDENT)
SA	SHIP ALTERATION
SC	SERVICE CHANGE OR SOFTWARE CHANGE
SCD	SHIP CHANGE DOCUMENT
SI	SYSCOM COMMAND INSTRUCTION
SP	SPECIAL PROJECTS
SPA	SPECIAL PROJECT ALTERATION
SW	SOFTWARE DELIVERY
TC	TRIDENT COMMAND AND CONTROL SYSTEMS MODIFICATION
TCM	TRIDENT COMMAND AND CONTROL SYSTEMS MODIFICATION
TD	TECHNICAL DIRECTIVE
TDC	TYCOM DISCRETIONARY CHANGE
TEC	TEMPORARY ENGINEERING CHANGE
TMA	TRIPPER MACHINERY OPERATION
TMP	TEMPORARY ALTERATION (TRIDENT)
TR	TRIDENT ALTERATION
TRI	TRIDENT SHIP ALTERATION
TY	TYCOM DIRECTIVE
TZ	TYPE ZERO ALTERATION

Table C-4

(12) Assist Repair Work Center (ASST. REPAIR W/C) (2K and 2P). The three (3) or four (4) character code of the first Work Center assigned to assist the lead Work Center on the job being planned. The code is always left justified in the field. On the 2K, if more than one assist Work Center is required, fill in another 2K. Only two assist Work Centers (two supplemental 2K continuation sheets) can be accommodated when a 2K is used as a planning document by an IMA.

(13) Assist Repair Work Center Estimated Man-Hours (ASST EST MHRS) (2K). The total number of estimated man-hours required by the repair activity assist Work Center to complete its portion of the job.

(14) Availability Category (2K). A code (see table C-5) that specifies the type of availability scheduled for an activity. Applicable to only Deferral MA or IMA AWR Data.

#### AVAILABILITY CODES

CODE:	DESCRIPTION:
A	Alongside Scheduled Continuous Maintenance
B	Docking Selected Restricted Availability (DSRA)

CODE:	DESCRIPTION:
C	Selected Restricted Availability (SRA)
D	Complex Overhaul
E	Extended Incremental Selected Restricted
F	Extended Docking Selected Restricted Avail (EDSRA)
G	Extended Selected Restricted Availability (ESRA)
H	Docking Incremental Selected Restricted Avail (DISRA)
I	Intermediate Maintenance Availability
J	Incremental Selected Restricted Availability
K	Interim/Emergent Dry Dock
L	Docking Phased Maintenance Availability
M	Phased Planned Maintenance Availability
N	Inactivation Availability (INAC)
O	Post Delivery Availability
P	Continuous Availability (Year Long CM)
Q	Post Shakedown Availability
R	Regular Overhaul
S	Self-Availability/Ship to Shop Availability
T	Restricted Availability
U	Unfunded
V	Phased Incremental Availability (PIA)
W	Depot Modernization Period
X	Technical Availability/Assessment
Y	Docking Phased Incremental Avail (DPIA)
Z	Voyage Repairs (PER title X) /BFIMA
1	Docking Phased Incremental Avail (DPIA1)
2	Docking Phased Incremental Avail (DPIA2)
3	Docking Phased Incremental Avail (DPIA3)
4	Phased Incremental Availability (PIA1)
5	Phased Incremental Availability (PIA2)
6	Phased Incremental Availability (PIA3)
7	Refueling Complex Overhaul (RCOH)
8	Extended Docking Planned Maintenance Avail (EDPMA)
?	Invalid

Table C-5

(15) Availability Number. Identifies the availability number in which the component PMR was last accomplished.

(16) Availability Proposed Start Date.

(17) Availability Proposed End Date.

(18) Availability Actual Start Date.

(19) Availability Actual End Date.

b. Bravo “B” Data Elements.

(1) Blueprints, Technical Manuals, etc. (2K). Used to list technical material (blueprints, technical manuals, plans, etc.), that might be of assistance to the repair activity providing assistance.

c. Charlie “C” Data Elements.

(1) CASREP Date Time Group.

(2) Cause (CAS) (2K). The code (Table C-6) best describing the cause of the failure or malfunction when need for maintenance was first discovered. When more than one cause contributed to the failure or malfunction, select the primary or overriding one (this field provides valuable data to the equipment manager; without it, only the fact that the equipment failed is known). Maintenance personnel must use their best judgment in determining the cause of failure.

#### CAUSE CODES

CODE	DESCRIPTION
1	<u>Abnormal Environment.</u> Exposure to conditions more extreme than those reasonably expected in the normal shipboard environment (e.g., electrical equipment sprayed by salt water, or compartment flooded).
2	<u>Manufacturer/Installation Defects.</u> Material not assembled or manufactured per specifications, or installed improperly by IMA or Depot (e.g., motor with open circuit armature).
3	<u>Lack of Knowledge or Skill.</u> Failure or malfunction of the equipment due to insufficient training, experience, or physical coordination of the operator, maintainer, or other personnel (e.g., not knowing equipment limitations such as the danger of a low speed wheel on a high speed grinder).
4	<u>Communications Problem.</u> A breakdown in the passing, receiving, or understanding of information (e.g., failure to hear or receive a complete message due to noise or mechanical or electrical interference).
5	<u>Inadequate Instruction/Procedure.</u> The instruction or procedures guide has omissions, errors, ambiguities, or other deficiencies (e.g., technical manual omits lubricant type).
6	<u>Inadequate Design.</u> Material manufactured and installed per specifications failed prematurely during normal usage under normal environmental conditions (e.g., steam piping orientation precludes adequate draining during warm-up).

CODE	DESCRIPTION
7	<u>Normal Wear and Tear.</u> Material requires replacement after long service and/or as a result of PMS (e.g., pump wear rings replaced during PMS).
8	<u>Corrosion Condition.</u>
0	<u>Other or No Malfunction.</u> Needs to be explained in the "Remarks" field. Examples: 1) Fatigue or physical stress brought on by prolonged work periods or excessive heat, humidity, or noise. 2) Desire to save time and effort by taking shortcut and jury-rigging equipment. 3) Malfunction occurred when installing a field change to improve equipment effectiveness, or when the cause resulted from a personnel oriented deficiency affecting safety due to fatigue, etc.

Table C-6

(3) Commanding Officer's Signature (2K). Shows approval by the Commanding Officer or authorized representative. Required on all deferrals for outside assistance.

(4) Command's Name (2K, CK, 2P, and 2L). The name of the activity originating the maintenance action.

(5) Completed By (2K). The signature and rate of the senior person actively engaged in the job at the lead Work Center. The senior person on the job will be identified for all maintenance actions not requiring assistance from an outside Work Center.

(6) Completed Deferral (COMP DEFL) (CK). Indicates the completion of a previously deferred job.

(7) Completed Maintenance Action, No Deferral (COMP M/A NO DEFL) (CK). Indicates a completed maintenance action with no prior deferral.

(8) Completion Date (2K and CK). The Julian date the maintenance action was completed.

(9) Component Action (CA) (CK). Indicates if the identified component was removed (R), installed (I), or modified (M). Use the codes R, I, or M as appropriate. If reporting a configuration record change, use the code "A" for addition, "D" for deletion, and "C" for correction.

(10) Component APL/AEL (CK). The APL/AEL of the component or equipment identified. If unsure of the correct APL/AEL for the equipment, entry may be left blank, and assistance requested from the supply department (also see 4.a.(10)).

(11) Component Identification (CK). The local numbering system used to identify equipment, (e.g., Station Number: "1A BOILER" or Valve Mark: "ASW 25"). A description of

the component may be entered. For electronic and combat systems equipment, the entry is optional if the component serial number field has an entry.

(12) Component Noun Name (CK). Identifies the component. If the action being reported is the accomplishment of an equipment alteration (Field Change, Engineering Change, etc.), the component is defined at the equipment level addressed in the alteration directive, usually the major equipment or system level; otherwise, the component is defined at the lowest unit, type designator, or assembly that has its own configuration identity. This component may or may not have its own APL. Example of an equipment and related components:

System or Equipment: AN/WRT-2  
Component: PP-2222/WRT-2  
Component: C-2764/WRT-2

If several components are removed and installed in a single maintenance action (identified by one JCN), continuation pages may be used to report the component changes. If necessary, overflow data from the component noun name can be placed in the nameplate data field.

(13) Component Serial Number/Identification/Equipment Serial Number (CK). Serial number of the component. If a serial number is entered, the "Quantity" field must be one ("1"). For equipment without a serial number, enter "NONE".

(14) Configuration File Correction (CONF FILE CORR) (CK). A data element field that indicates that the report is being submitted to correct erroneous configuration records (no equipment maintenance action involved).

(15) Continuation for (2L). Identifies the maintenance action to which the supplemental information pertains.

(16) Continuation Sheet (2K). Indicates remarks are continued on a second, third, or fourth form (2K). For manual reporting enter an "X".

(17) CSMP Summary (2K). A condensed description of the problem. This entry is limited to 30 characters. The CSMP summary conveys to management the significance of the JCN (maintenance action). The CSMP summary is displayed on management reports, as opposed to the entire narrative of the "REMARKS" field which is not. If continuation sheets are used, the summary line will appear on the first page.

d. Delta "D" Data Elements.

(1) Date (2L). The Julian date the document is prepared.

(2) Date Completed (2K). The Julian date the work request is completed and signed off by the requesting ship.

(3) Date of Estimate (2K). The Julian date the assisting activity completed the planning of the maintenance action.

(4) Deadline Date (2K). The latest possible Julian date that outside assistance and Ship's Force work must be completed as determined by the originator. This entry may be used to indicate a completion date required to meet an operational commitment, or to allow another job to start. This is an optional entry.

(5) Deferral Date (DEFER. DATE) (2K). The Julian date the maintenance action was deferred. An example of a deferral action on 27 July 2017 would be: "7208".

(6) Deferral Reason (DFR) (2K). A code which best describes the reason maintenance could not be performed at the time of deferral. Acceptable codes are reflected in Table C-7.

#### DEFERRAL REASON CODES

CODE	DEFERRAL REASON
1	<u>Due To Ship's Force Work Backlog/Operational Priority</u> . Within capability of Ship's Force to accomplish, but unable to do so because of ship's overall workload or operations.
2	<u>Lack of Material</u> . Within capability of Ship's Force, but unable to accomplish due to lack of parts, tools, test equipment, etc., that are specified for use in repair work by the technical manual or drawing. <i>NOTE: List the unavailable parts, tools, or test equipment and the technical manual and/or equipment drawing in Remarks.</i>
3	<u>No Formal Training on this Equipment</u> . Should be within capability of Ship's Force, but personnel responsible have no formal training in the maintenance of the equipment.
4	<u>Formal Training Inadequate for this Equipment</u> . Should be within capability of Ship's Force, and personnel responsible have received formal training, but the training is considered inadequate.
5	<u>Inadequate School Practical Training</u> . Should be within capability of Ship's Force, and personnel responsible have received formal training, but practical maintenance aspects of training are considered inadequate.
6	<u>Lack of Facilities/Capabilities</u> . The ship is not allowed shop equipment or other facilities to accomplish; work is otherwise beyond expected capability of Ship's Force to accomplish.
7	<u>Not Authorized for Ship's Force Accomplishment</u> . Directives of higher authority specify that the job will be done by other than Ship's Force.

<b>CODE</b>	<b>DEFERRAL REASON</b>
8	For Ship's Force Overhaul or Availability Work List. For jobs to be done by Ship's Force during forthcoming overhaul or availability.
9	Lack of Technical Documentation. Should be within capability of ship to accomplish but unable to do so because technical manuals, blueprints, drawings, etc., are not available.
0	Other or Not Applicable. Explain in Remarks.

Table C-7

(7) Department Initials (2K). The initials of the Department Head indicating the document was screened.

(8) Division Initials (2K). The initials of the Division Officer indicating the document was screened.

e. Echo "E" Data Elements.

(1) Engineering Operational Sequencing System (EOSS) (CK). The Document Code and Control Number of the primary EOSS procedure that is affected by the configuration change.

(2) Equipment Identification Code (EIC) (2K and CK).

(a) A seven (7) character code that identifies the equipment. The first position identifies the system; the first and second characters together identify the subsystem; the third and fourth together identify the equipment category in that system. The remaining three digits provide greater definition of the applicable equipment part and are useful to the engineer. Where the EIC is known to be more than four digits, it should be recorded at that level. EICs are listed in the SCLSI Index Report.

(b) If an equipment is not listed in the SCLSI Index Report, but it can be identified to the subsystem, use the subsystem identification, followed by two zeros. Example: An equipment identified as TRANSCEIVERSCOMMUNICATIONS, but not in the SCLSI Index Report, would be reported as "QD". If the equipment is identified only to the system, use the system identification, followed by three zeros.

(3) Equipment Noun Name (2K and CK). The nomenclature/description of the equipment. This is the same nomenclature assigned to the equipment EIC. Standard abbreviations may be used. When recording the accomplishment of a SHIPALT, use the noun name from the record. If the maintenance action affects several components or systems, enter the name/designator of the highest assembly affected.

(a) For HM&E, use the noun name (e.g., "MOTOR GENERATOR").

(b) For electronics equipment, use the Army/Navy (A/N) designation, or commercial model number (e.g., "AN/SPS-40D", "CY-4727/SPA-25", and "403-B").

(c) For combat systems equipment, enter the nomenclature followed by the Mark (MK) and Modification (MOD), separated by "/" (e.g., "LAUNCH SYSTEM 36/1").

(4) Estimated Man-Days (2K and 2P). Used by the repair activity, the total man-day estimate for all involved Work Centers to complete the job (if estimate is less than 1, enter "1").

(5) Estimated Man-Days Cost (2K and 2P). Used by the repair activity, the total man-day cost estimate for all involved Work Centers to complete the job (Estimated Man-Day entry X man-hour rate X 8 (working hours per day)).

(6) Estimated Man-Hours (EST. MHRs.) (2K and 2P). The man-hours estimated by the repair activity lead Work Center to complete the job.

(7) Estimated Material Costs (2K and 2P). Used by the repair activity, the total material costs estimated to complete the job.

(8) Estimated Total Cost (2K and 2P). Used by the repair activity, the total cost estimated to complete the job (Estimated Man-Day Cost + Estimated Material Costs = Estimated Total Cost).

(9) Expanded Ship Work Breakdown Structure (ESWBS). A five (5) digit code reported by RUIC/LWC/AWC as applicable by the AWR. ESWBS identifies a 2K equipment being repaired for "tended" UIC.

(10) External Work Candidate Identifier.

(11) External Work Candidate Identifier UIC.

(12) External Work Candidate Identifier System.

(13) External Work Candidate Identifier Date.

(14) External Work Candidate Identifier Sequence Number.

f. Foxtrot "F" Data Elements.

(1) Final Action (entered on 2K). A code that describes the final action taken by the repair activity to complete the job. Refer to the data element "ACTION TAKEN" used for maintenance action reporting for a complete list of codes (Table C-2). Action Taken code "8" is not applicable. In addition, the codes reflected in Table C-8 can be used.

**NOTE:** Codes are listed on the NSLC Reference Code Forum website; choose the dropdown option "ACTION TAKEN LOOKUP." Referred to as Final Action when coming from repair facility.

Available from:

<https://oars.nsclc.navy.mil/oars/docs/ref/index.html>

### FINAL ACTION CODES

CODE	DESCRIPTION
5A	Partially Completed Alteration
5B	Fully Completed Alteration
5C	Fully Completed Equivalent to Alteration
5D	Alteration Directive Not Applicable
6	Rejected Work Request (add suffix below for reason)
A	Ship's Force/Standard Stock Item
B	Excessive Shop Workload/Insufficient Availability
C	Lack of Skills
D	Lack of Facilities
E	Lack of Test or Calibration Equipment
F	Lack of Parts/Material
G	Lack of Documentation
H	Lack of Funds
I	Other (record the explanation in "Remarks")
J	Rescheduled Work Request Lack of Capabilities
K	Rescheduled Work Request Lack of Capacity
L	Rescheduled Work Request Lack of Material

Table C-8

(2) First Contact/Maintenance (MAN) (2K and 2L). The name of the senior person engaged in the maintenance action.

(3) Funding Activity Code.

FUNDING ACTIVITY SEQUENCE	FUNDING ACTIVITY SEQUENCE	FUNDING ACTIVITY CODE	FUNDING ACTIVITY OBS FLAG	FUNDING ACTIVITY TEXT
28	28	AA	0	TYCOM CM Non-Nuclear
29	29	AB	0	TYCOM EM Non-Nuclear
30	30	AC	0	TYCOM Diving Services

FUNDING ACTIVITY SEQUENCE	FUNDING ACTIVITY SEQUENCE	FUNDING ACTIVITY CODE	FUNDING ACTIVITY OBS FLAG	FUNDING ACTIVITY TEXT
31	31	AD	0	TYCOM Fleet Alteration Non-Nuclear
32	32	AE	0	TYCOM Funded Semat (ETC) Ships Force Assistance
33	33	AF	0	TYCOM Nuclear Maintenance/Repairs
34	34	AG	0	TYCOM Nuclear Alterations
35	35	AH	0	TYCOM Funded CNO Scheduled Availability Maintenance
36	36	BA	0	NAVSEA Nuclear Alteration
37	37	BB	0	NAVSEA Ordnance Alteration (ORDALTS)
38	38	BC	0	NAVSEA Non-Nuclear Program Alteration
39	39	BD	0	NAVSEA–Unique Non-Nuclear (includes ALT Development, Tech Support)
40	40	BE	0	NAVSEA–Unique- Nuclear and/or Refueling
41	41	BF	0	Naval Shipyard Mission Funded
42	42	BG	0	SRF Mission Funded
43	43	CA	0	IMA Funded Maintenance
44	44	DA	0	Administrative Support Non-Nuclear (pro-ratable) Including DSA Funded
45	45	DB	0	Administrative Support Nuclear (pro-ratable)
46	46	EA	0	Ship's Force Maintenance/Repair

FUNDING ACTIVITY SEQUENCE	FUNDING ACTIVITY SEQUENCE	FUNDING ACTIVITY CODE	FUNDING ACTIVITY OBS FLAG	FUNDING ACTIVITY TEXT
47	47	EB	0	Ship's Force Self Help Habitability
48	48	FA	0	Technical Support: NAVWAR SSC, RMC (mission funded)
49	49	FB	0	Technical Support: NAVWAR (separate Funding only)
50	50	GA	0	VRT-N VRT-M, ALRE
51	51	HA	0	NAVAIR (CAFSU, NAWC, FAA, ASIR)
52	52	HB	0	NAEC Lakehurst NJ
53	53	HC	0	NAWC China Lake
54	54	HD	0	NAWC PT Mugu
55	55	HE	0	NAWC PAX River
56	56	HF	0	NAWCAD ST Indigoes MD
57	57	IA	0	NSWCCD/David Taylor
58	58	IB	0	NSWCCD/SESS
59	59	IC	0	NSWCCD/PHD
60	60	ID	0	NSWC Crane
61	61	IE	0	NSWC Panama City
62	62	IF	0	NSWC Newport
63	63	IG	0	NSWC Keyport
64	64	IH	0	NSWC Louisville
65	65	JA	0	NAVMAR (AIT)
66	66	KA	0	ESU
67	67	0	0	OTHER- Explain In Remarks
68	68	VV	0	Visiting Ship Support Foreign Navy
999999	999999	?	0	Invalid

Table C-9

g. Golf "G" Data Elements.

(Not currently used)

h. Hotel "H" Data Elements.

(1) Hierarchical Structure Code (HSC) (2K and CK). Automatically filled in from equipment configuration files on 2K. If unknown, leave blank on a CK.

(2) Hull Number (2K, CK, 2P and 2L). The ship type and hull number of the activity originating the maintenance action. Not required by activities other than ships.

i. India "I" Data Elements.

(1) ICMP Last Accomplish Date.

(2) Identification/Equipment Serial Number (2K). The identification or serial number (up to 12 characters) of the equipment or system on which maintenance is being deferred.

(a) For electronics and combat systems equipment, use the serial number from the equipment nameplate (e.g., for AN/SPS-10C Radar with serial number 48, use "48").

(b) For HM&E, enter the ship's/activity's numbering system (e.g., for number 1A boiler, use "1A").

(c) Where no specific identification or equipment serial number is given, or for photographic services, plaques, printing, cruise boxes, etc., enter "NA" (Not Applicable).

(d) On items such as phones and fans, etc., to list more than one item of the same type on a maintenance action; enter "VARIOUS".

(e) If the serial number exceeds 12 characters, enter the words "SERIAL NUMBER" in the narrative, followed by the applicable number.

(3) IMA Repair Work Center. The lead Work Center at the IMA involved in the accomplishment of the maintenance. A three (3) or four (4) character code is used to uniquely identify the lead Work Center. Table C-10 provides a listing of the authorized IMA Work Center codes.

**IMA REPAIR WORK CENTER**

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
03T	Tender Repair Team	Tender Repair Team	
04A	Technical Library (AIMD)		
06A	Tool Room	Tool Room	6A

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
06B	Portable Tools	Portable Tools	6B
10A	Repair Office/ARRS/MCO	Repair Office	6D
10B	Weapons Repair Office	Weapon Rep Office	AR
10C	Non-Nuclear Planning	Non-Nuclear Planning	6E
10D	Nuclear Planning	Nuclear Planning	6F
10E	Technical Library	Technical Library	6G
11A	Shipfitter	Shipfitter	7A
17A	Sheetmetal	Sheetmetal	7B
25A	Gas Manufacturing	Gas Manufacturing	5A
25C	CO2 Recharge and Repair	CO2 Recharge/Repr	5C
25D	General Engineering Service	General Engnrg Svc	5D
26A	Welding Shop	Welding	7E
26B	Nuclear Welding	Nuclear Welding	7F
31A	Inside Machine	Inside Machine	2A
31B	Engraving	Engraving	2B
31C	Governor Injector	Governor Injector	2C
31D	Valve Repair and Test	Valve	2D
31E	Internal Combustion Engine Repair	Intrnl Cmbstn Eng	2E
31F	Hydraulics Repair	Hydraulics	2F
31G	Pump Repair	Pump	2R
31H	ACFT L & R	ACFT L & R	AX
31T	Gas Turbine	Gas Turbine	2Q
31Z	Metal Build-up	Metal Build-up	2H
35A	Optical Repair and Overhaul	Optical	5E
35D	Watch and Clock Shop	Watch & Clock	5H
35E	Typewriter Shop	Typewriter	5J
37A	Print Shop	Print	31
38A	Outside Machine Shop	Outside Machine	2G
38B	Ordnance Repair, Test, and Align	Ordnance	5K
38D	Valve Barge	Valve Barge	1H
38N	Nuclear Repair	Nuclear Repair	2J
38Y	Ordnance Alteration	Ordalt	
39A	Photographic Shop	Photographic	32

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
400	Power Plants Div (AIMD)		7R
410	Jet Engine Branch (AIMD)		7R
414	Power Plants Module Repair Shop (AIMD)		7R
41A	Boiler Inspection and Repair	Boiler	2K
41B	Boiler-Outside Repair	Boiler-Outside Rpr	2L
420	Reciprocating Engine Branch (AIMD)		7R
430	Propeller Branch (AIMD)		7R
500	Airframes Division (AIMD)		7R
51A	Electrical Repair	Electrical Repair	33
51B	Outside Electrical	Outside Electrical	34
51C	Meter Calibration	Meter Calibration	35
51E	Battery Shop	Battery	36
51F	Gyro Inspection and Repair	Gyro	37
51G	Interior Communication Test and Repair	IC Interior Commun	38
51H	Cable Shop	Cable	39
520	Hydraulics/Pneumatics Branch (AIMD)		7R
530	NDI (Non-Destructive Inspection) Branch (AIMD)		7R
56A	Pipe Shop	Pipe	7H
56B	Refrigeration and Air Conditioning Repair and Test	Refrig & Air Cond	2M
56C	Flexible Hose Test and Repair	Flexible Hose	7J
57A	Lagging and Pipe Covering Inspection and Repair	Lagging/Pipe Cover	7K
57B	Rubber and Plastic Forming Shop	Rubber and Plastic	7L

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
600	Avionics Division (AIMD)		7R
610	COMM/NAV Branch (AIMD)		7R
62A	Electric Shop (AIMD)		9G
62B	Instrument Shop (AIMD)		9G
62C	Battery Shop, Lead Acid (AIMD)		9G
62D	Battery Shop, Nickel Cadmium (AIMD)		9G
64A	Woodworking and Pattern Making Shop	Woodworking & Pattern	7M
64D	Drafting Shop	Drafting	7Q
64E	Key and Lock Shop	Key and Lock	5M
67A	Electronics Test, Repair, and Alignment	Electronics	41
67B	Electronics Calibration Lab (FECL)	Electronic Cal Lab	42
67C	Crypto Repair and Test	Crypto Repair	43
67E	Fire Control Test and Repair	Fire Control	AD
67F	Radiac Calibration and Repair	Radiac Calibration	5N
67G	Sonar Test, Repair, and Alignment	Sonar	5P
67H	Antenna Test, Repair, and Install	Antenna	45
67J	Navigation Repair		AQ
67K	Weapons Test Equipment, Repair and Calibrate	Weapons Test Equip	AP
67L	Module Test & Repair	2M MTR Repair	46
67M	PCB Repair	PCB Repair	47
67W	AN/SLQ-32(V) Repair Shop	SLQ Repair	48
68A	Boat Repair	Boat Repair	7R
68B	Small Craft Support	Small Craft	7W
68C	Life Boat Repair (Inflatable)	Life Boat Repair	9N

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
700	Armament Division (AIM/D)		2E/7E
71A	Paint and Sandblast	Paint and Sandblst	66
71B	Corrosion Control	Corrosion Control	7Y
72A	Riggers Support Activity	Riggers	7S
72B	Divers Support Activity	Divers	7T
72C	General Deck Service	General Deck Service	7U
72D	Weight Testing	Weight Testing	5Q
740	Airborne Mine Countermeasures Branch (AIMD)		6T
74A	Sail Loft and Canvas Shop	Sail Loft & Canvas	5R
800	Aviation Life Support Systems Div (AIMD)		
81A	Foundry Operations	Foundry	2P
81C	Oxygen Regulator & Repair Shop (AIMD)		
85A	Ballistic Fire Control Repair and Calibration	Ballistic FC Repair and Calibration	AL
900	Support Equipment Division (AIMD)		
910	SE Gas Engine Repair Branch (AIMD)		
91B	ASROC Overhaul, Test, Repair, and Stow	ASROC & ASTOR	4T
91C	Torpedo Test, Repair, and Stowage	Torpedo	4T
91D	SUBROC/TOMAHAWK Land Attack Missile System Nuclear	SUBROC Mk-14	8S
91E	Mk 48 Torpedo/Cruise Missile	MK 48	AH
91F	Mine Neutralization System (SLQ-48)		
91Q	Weapons Quality Assurance	Wpns Quality Assur	AM
92A	Sound Analysis Service	Sound Analysis	5S

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
92B	Support Equipment Hydraulic Repair Shop (AIMD)		
92C	Liquid Oxygen/Oxygen/Nitrogen Servicing Equip Repair Shop (AIMD)		2M
92D	Support Equipment Corrosion Control Branch (AIMD)		
930	Support Equipment Electrical Repair Branch (AIMD)		
93A	Non-Destructive Testing	Non-Destructive, QA	62
93B	Quality Assurance Service	Qlty Assur Svc	63
94A	Nucleonics and Radcon Service (AS/Subbase Only)	Nucleonics, Radcon	5T
95A	Water Chemical Lab	Water Chemical Lab	5V
95B	Spectrometer Lab Service Test	Spectromtr Lab	5W
960	Installed/Combat Air Start Branch (AIMD)		
96A	Mechanical Standard	Mechanical Standard	5Y
96B	SISCAL		
970	Air Conditioning Repair Branch (AIMD)		
97C	Non-Skid Service Shop	Non-Skid Shop	1C
97D	Ground Support Equipment	Support Eqpt	1D
97E	Aviation Ordnance Shop	Aviation Ordnance	1E
97F	Aviation Fuels Shop	Aviation Fuels	1F
97J	Manlifts	Manlifts	4B
97M	Contractor Support	Yellow Gear	3D
97R	Helo Landing Syst Recovery Assist, Secure, Traverse	HLST/RAST	1R
97W	Weapons Elevator Support Unit	WESU	1W

REPAIR W/C CODE	NAME	ABBREVIATED NAME	SUPPLY ID CODE
970	Public Works	Public Works	Z0
973	Comm Elec Safety	Comm Elec Safety	Z0
974	Eng Elec Safety	Eng Elec Safety	Z0
981	Tiger Team	Tiger Team	Z0
982	Depot Tiger Team	Depot Tiger Team	Z0
983	DIRSSP	DIRSSP	Z0
990	Other Department	Other Dept	ZZ
991	Ship's Force (S/F)	Ships Force (S/F)	Z0
993	Commercial Industrial Services (CIS)	CIS	Z0
999	Other (Non-IMA)	Other (Non-IMA)	ZZ
99B	Paint Locker	Paint Locker	6K
FCA	Field Calibration Facility (Gauge/Meters)	FCA	Z0
RD00	Repair Department (10A)	R00	DJ
RD01	Hull Systems Repair & Services	R01	DK
RD02	Mechanical Systems Repair Division	R02	DL
RD03	Electrical Systems Repair Division	R03	DM
RD04	Electronic Systems Repair Division	R04	DN
RD05	Combat Systems Repair Division	R05	DP
RD06	Nuclear Service and Repair Division	R06	DQ
WI05	Armory	Armory	DR
WR00	Weapons Repair Administration	W00	DC
WR01	Torpedo Repair	W01	DD
WR02	Fire Control Repair	W02	DE
WR03	Special Weapon Repair Ord Services at NSSF	W03	DF
WR04	Missile and Launcher Repair	W04	DG
WR05	Navigation Repair	W05	DH
WR06	Weapons Quality Assurance	W06	DI

Table C-10

(4) In Progress (Site Specific Detail Work Sheet). Coded information that indicates the progress of the job at different stages of accomplishment. Standard job progress reporting and monitoring is performed by each Work Center at the outside repair activity involved in the repair. Reported information includes "in-progress" information, which is coded as reflected in Table C-11.

CODE	DESCRIPTION
A	Awaiting Parts/Supplies/Tools
B	Awaiting Transportation
C	Awaiting QA Inspector
D	Awaiting NDT
E	Awaiting Fire-watch
F	Awaiting Access to Ship (Quarter-Deck Clearance)
G	Awaiting Riggers/Crane Services/Scaffolding Barge
H	Making Special Tool/Part
I	Awaiting AWC/Other Craft
J	Awaiting Tag Out
K	Awaiting Additional Reference Material
L	Awaiting Ship's Force
M	Ship Drills
N	Shop Equipment Inoperative
O	Change in Weather
P1	Rework. Unplanned delay caused by the need to repeat previously accomplished work due to poor workmanship or the omission of work steps.
P2	Failed Test
P3	Re-Lap/Re-Grind
P4	Wrong Material
P5	Wrong Measure
P6	Miscellaneous
Q1	Change of Normal Method/Tools Not Used. Unplanned delay caused by the need to correct a deficiency that the normal shop method of repair could not or did not correct.
Q2	New Set-Up
Q3	Parts Frozen
Q4	Departure From Specifications
Q5	Parts Build-Up
Q6	Miscellaneous
R	Other Than the Above

Table C-11

(5) INSURV Number (2K). Number assigned by INSURV to the applicable deficiencies identified during the INSURV inspection (Section II Chapter 1)

(6) Integrated Priority (2K). A sequential number to indicate its priority relative to other deferred work for an availability.

(7) Internal Work Candidate Identifier

(8) Internal Work Candidate Identifier UIC

(9) Internal Work Candidate Identifier System

(10) Internal Work Candidate Identifier Date

(11) Internal Work Candidate Identifier Sequence Number

(12) CDM Record Identification Number (RIN) (2K and CK). 2K BLOCK 28 Record Identification Number (RIN) identifies the component from the Coordinated Shipboard Allowance List (COSAL).

(13) IUC/Repair Activity/TYCOM Remarks (2P). Remarks relating to the repair job by the IUC, the repair activity, or the TYCOM.

(14) IUC Screening (2K). Recommendation by the IUC or designated representative indicating the action to be taken using one of the screening codes listed under the data element "SCREENING (TYCOM)".

(15) IUC Signature (2P). The initials of the IUC indicating the document was screened and is recommended for accomplishment.

j. Juliet "J" Data Elements.

(1) Job Control Number (JCN) (2K, CK, 2P and 2L). The JCN is the key identifier for maintenance actions and related supply documents. The JCN is used to identify the maintenance action and to relate all of the parts used when a ship reports a maintenance action and it links all associated reporting of a maintenance action. The JCN is comprised of three blocks. Block 1 is the Ship's/Activity's UIC (5 numeric characters), Block 2 is the Work Center (WC) (see WC entry), and Block 3 is the Job Sequence Number (JSN) (see JSN entry). It is also the link for associating up-line reporting of a maintenance action when more than one activity is involved. It is important that all activities involved continue to use the same JCN on all maintenance and supply documents that apply to that particular maintenance action.

(2) Job Description/Remarks (CK). Any remarks relating to the accomplishment of the maintenance action being reported. In some cases, the alteration directive will specify that certain information be documented.

(3) Job Order Number (2K). The job order number assigned by the activity performing the work.

(4) Job Sequence Number (JSN) (2K, CK, 2P, and 2L). A 4-character number assigned by the Work Center to the maintenance action, or assigned by the outside activity performing the work. This is a number assigned sequentially from the Ship's Work Candidate/JSN Log. The first position of the JSN is used to identify the tool or organization that created the 2K. In the case of activities other than the ship creating jobs for the ship, this first character will be an "Alpha" character. The Job Originator Table in the Maintenance and Modernization Business Unit (MMBU) available through the Naval Sea Logistics Center website under MMBU look up tables provides information on the "owner" of each "Alpha" character. The specific value contained within the first position of the JSN provides enhanced data mining capabilities and facilitates data aggregation and analysis. References to "National" values indicate that, based upon SHIPMAIN direction, an Information Technology application has been identified as the only authorized tool that will create 2Ks continuing the respective Job Originator Code.

(5) Julian Date (2K, CK, 2P, and 2L). A 4-character entry composed of the last digit of the calendar year followed by the numerical day of the year (e.g., 1 January 1994 is "4001" and 31 December 1993 is "3365").

k. Kilo "K" Data Elements.

(1) Key Event (2P). An occurrence during a tended unit's availability which affects or is affected by the repair activity's productive effort; e.g., docking, undocking, boiler light-off, weapons handling, fuel/defuel, etc. Key events are to be identified by assigning a 2-digit numeric code to each event and assigning an abbreviation of 15 characters maximum to that code. When more than 99 key events are required, the code can be assigned using alphanumeric combinations. The Key Event code and definition is assigned and managed by TYCOM instruction. Repair activities must ensure continuity of schedules by using codes mutually agreed to by TYCOM representatives.

**NOTE:** some automated systems allow for a four-digit code to be entered (refer to the TYCOM instruction).

(2) Key Operation (KEY OP) (2P). Assigned numbers indicating the logical sequence of the task identified. Table C-12 provides an example.

KEY OPERATION	TASK
01	Disconnect & Deliver
02	Disassemble
03	Replace Bearings
Etc.	Etc.

Table C-12

1. Lima "L" Data Elements.

(1) Lead Planning & Estimating Code (2K). The code assigned to the lead planning and estimating organization.

(2) Lead Repair Work Center (LWC) (2K and 2P). The code of the Lead Repair Work Center assigned to the job. The first character of the code is left-justified. The following codes indicate the IMA department to which the action Work Center is assigned; they are used to process IMA Performance Summaries at both IMA and TYCOM levels. Table C-13 refers.

DEPARTMENT KEY	
A	Dry Dock
B	Other Departments
F	Special
K	Temporary IMA
L	Reservist
P	Civilians
R	Repair Department
Z	Other Activities

Table C-13

**NOTE:** Variable department names may be assigned as directed by the TYCOM using the letters "G", "H", and "J". Refer to data element "IMA Repair Work Center" (Table C-10) for a list of authorized IMA Repair Work Center codes.

(3) Location (2K and CK). The location of the equipment on which maintenance is required or was performed.

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

(b) Deck-Frame-Side. Enter the deck, frame, and side that best describes the location of the equipment. If neither the compartment nor the deck, frame, side is appropriate; enter the name of the location (e.g., "FANTAIL", "FLIGHT DECK"). For submarines use standard abbreviation for locations (e.g., "OPSUL"). For shipboard locations, see General Specification for Ships of the U.S. Navy (NAVSEA PUB-AA-SPN 010/GEN SPEC) (NOTAL).

m. Mike "M" Data Elements.

(1) Maintenance Figure of Merit (MFOM) V1. MFOM1 is computed off the maintenance factors of the job, such as, priority code, status code, etc. The higher MFOM is, the more maintenance worth.

(2) Maintenance Figure of Merit (MFOM) V2. MFOM2 comes from Corona to RMAIS to 3-M. The lower MFOM is, the more maintenance worthy.

(3) Maintenance Index Page (MIP) Number (CK). The MIP number covering the affected equipment. For like equipment installations, i.e., exchanges, enter the MIP covering the deleted equipment. For new installations, enter the MIP number for the new equipment when available; if not available, enter "NA".

(4) Man-Hours Expended (2K). The man-hours expended on the last day the repair Work Center is involved in the work request (NOT the total man-hours of the work request).

(5) Master Job Catalog (MJC) Number. MJC are 14-position SF/IMA routines for repetitive tasks.

(6) Meter Reading (M/R) (CK). Used to indicate if the equipment or any of the equipment components/subunits being reported have time meters installed.

(7) Meter Reading (M/R) (2K). (An expected entry for Selected Level Reporting (SLR) Level 1/Level 2 equipment.) The meter reading (to the nearest whole hour) at the time of failure. If the equipment has more than one meter, designate the meter being recorded in "REMARKS" using the letters "METRED" followed by the meter designator. An asterisk (\*) must precede and follow meter designation as shown in the example below. The required meter is the meter associated with the major functional unit that failed. Example: \*METRED-1A2M1\*

(8) MRS SEVERITY CODE.

n. November "N" Data Elements.

(1) Nameplate Data (CK). Data that helps identify the equipment. Enter information available from the following list:

(a) Contract Number or Procurement Document Number.

(b) Part Number/Model Number/Drawing Number.

(c) Commercial and Government Entity (CAGE) code, or if not available, the name and address of the manufacturer.

(d) Any additional information, such as physical characteristics and manufacturer's identification that is readily available and provides a description of the use or operation of the component.

(2) Next Higher Assembly (CK). The nomenclature and serial number of the Next Higher Assembly (NHA) in which the equipment/component identified is a part of. If the serial number is unavailable, use the locally assigned NHA number. The NHA is usually identified in the technical manual and the COSAL.

(3) Normally Done By (2P). Indicates where this particular type of maintenance is normally performed (S/F, IMA, Depot), which allows the collection of data for evaluation of IMA costs relative to other maintenance activities.

o. Oscar "O" Data Elements.

(1) OMMS NG Software Release Number. Identifies the Release Number of the software.

p. Papa "P" Data Elements.

(1) Periodicity (2P). Identifies the number of months between which periodic maintenance requirements are to be performed.

(2) Periodic Maintenance Requirement (2P). The code of a specific periodic maintenance requirement (e.g., "MRC-G40 A1"), a Submarine Maintenance Engineering for Planning and Procurement (SUBMEPP) code, or a Metrology Automated System for the Uniform Recall and Reporting (MEASURE) code identifying a periodic maintenance requirement.

(3) Pre Arrival/Arrival Conference Action/Remarks (2K). Remarks provided by the repair activity determined necessary to facilitate repairs or that would require attention of the originating activity.

(4) Priority (PRI) (2K). Identifies the priority of the deferred maintenance action as reflected in Table C-14.

## **DEFERRED MAINTENANCE ACTION PRIORITY**

CODE	DESCRIPTION
1	<u>Mandatory</u> . The system or equipment is not functioning within designed parameters and may only be operated under emergency conditions. May be a threat to

CODE	DESCRIPTION
	personnel safety or is a critical damage control item. Required to sustain bare minimum acceptable level of human needs and sanitation. The system or equipment failure/malfunction causes a major degradation or total loss of primary mission (C-4 CASREP equivalent).
2	<u>Essential</u> . The system or equipment is severely degraded with major operational restrictions and may only be operated under emergency conditions. Further damage may result from continued operations. Poses no threat to personnel safety. Extremely important safety or damage control item. Required to sustain normal level of basic human needs and sanitation. Will contribute so markedly to efficient and economical operation and maintenance of a vital system that the payoff in the next year will overshadow the cost to accomplish. Required for minimum acceptable level of preservation and protection. Required for sustained performance of activity's mission. Required to maintain overall integrity of activity or a system essential to activity's mission. The system or equipment failure/malfunction causes a major degradation but not the total loss of primary mission (C-3 CASREP equivalent).
3	<u>Highly Desirable</u> . The system or equipment is operable with deficiencies that affect performance. No restrictions on operation. The system or equipment is capable of performing intended functions, but not to all designed performance standards, or not capable of performing required functions in all operating modes. Important safety or damage control item. Required for normal level of human comfort. Required for efficient performance of activity's mission. Required for overall integrity of equipment or systems that are not essential, but are required as backups in case of primary system failure. Will contribute so markedly to efficient and economical operation and/or maintenance of a vital system that the payoff in the next year will at least equal the cost to accomplish. Will effect major reduction in future maintenance in an area or system that presently cannot be maintained close to acceptable standards. Required to achieve minimum acceptable level of appearance. The system or equipment failure/malfunction causes a major degradation or total loss of a secondary mission (C-2 CASREP equivalent).
4	<u>Desirable</u> . The system or equipment is operable with minor discrepancies that do not impact performance. Required for overall integrity of other than an essential system or its backup system. Some contribution to efficient performance. Some contribution of normal level of human comfort and welfare. Will contribute to appearance in an important area. Will significantly reduce future maintenance.

Table C-14

(a) Priority 4 is the level all Work Candidates start with during the review and approval process. The Division Officer or Divisional LCPO may raise the priority to a 3 "Highly Desirable" but no higher. The reason for the priority increase will be explained in the block 35 recommended solutions block.

(b) The next level of review and approval is the Department Head who may raise the priority to 2 "Essential". The reason for the increase will be explained in the block 35 recommended solutions block.

(c) Priority 1 Mandatory is assignable by the 3-M Coordinator upon direction of the Maintenance Team or the unit Commanding Officer.

***NOTE: Unit Commanders must be aware that alerting seniors to the operational limitations of their units, brought about by equipment casualties or degradation is as important as expediting receipt of replacement parts and obtaining technical assistance. Both of these functions of maintenance and casualty reporting serve extremely beneficial purposes. They provide necessary information, not only in the realm of command and control of US Navy forces, but also in maintaining the unit in a truly combat ready status. Unit commanders will not delay or withhold reports in order to artificially maintain the unit's readiness rating at a higher than actual level. Support from every level, including intermediate and group commanders, is essential in order to maintain the highest level of combat readiness throughout the Navy. Casualty reports will be made as required based on the command material condition. Priority for the work candidate will be set based upon the material condition and current situation of the command vice casualty reporting requirements. All priority changes or any updates to the work candidates will be documented in the block 35 recommended solution block of the work candidate. Every work candidate starts with a priority of four (4). To raise the priority, answer the questions and follow the steps of the priority flow chart Figure C-1. Every priority level increase will be explained in the block 35 recommended solutions block of the work candidate.***

q. Quebec "Q" Data Elements.

(1) Quality Assurance Requirements (2P). Identifies the specific planning actions, work controls, and auditable records in support of individual TYCOM management needs. These special requirements are indicated by an "X" placed in the appropriate reporting field.

(2) Quantity (CK). The number of like equipment identified in the Work Center that was removed, installed, or modified to accomplish the maintenance action. If the component serial number field has an entry, the quantity entered must be "1". Only one piece of equipment can be uniquely identified by a single serial number.

r. Romeo "R" Data Elements.

(1) Rate (2K). The rank/rate of the first contact/maintenance person. The following examples apply:

## RATE DATA ELEMENTS

RANK / RATE CODE	ENTRY
Officers	OFF
ET1	ET1
Civilian	CIV
GM2	GM2
FTSN	FTSN
EMFN	EMFN
FN	FN

Table C-15

(2) Record Identification Number (RIN) (2K and CK). 2K BLOCK 28 RIN identifies the component from the Coordinated Shipboard Allowance List (COSAL). Identifies a specific equipment record within the SNAP, WSF, and SCLISIS databases. For CK deletions, removals, and modifications, enter the RIN for the component as listed in Part I, Section C of the COSAL. For CK installations and additions, leave applicable fields blank.

(3) Remarks/Description (2K and CK).

(a) For a Maintenance Action (2K). Provide information that describes the problem and what caused the failure (if known); followed by what needs to be done to correct the problem. Separate the problem description and corrective action entries with three X's (i.e., "What is WrongXXXWhat Must be Done"). If reporting the completion of a maintenance action, the field should describe the trouble and the corrective action. If necessary, this field is used to record safety related data and for expected SLR Level 2 data. For SLR Level 2 reporting the following narrative information is expected:

1. Any problems encountered which hindered or delayed completion of the maintenance action.
2. Reference Designators and/or Part Serial Numbers of removed and installed parts.
3. Symptoms of the failure.
4. Logistics Deficiencies - part number(s) of parts replaced or causing logistic delays (if the part was obtained by cannibalization identify source).
5. Description of difficulties with or deficiencies of fault isolation procedures, maintenance documentation, or test equipment.

6. Full description of multiple events within a maintenance action.

7. Any other helpful information concerning the event.

(b) SLR Level 3 Specialized Reporting. The data will be in a structured-narrative format as designed in a unique template.

(c) Configuration (CK). Enter information that describes the accomplishment of the action. Occasionally, alterations specify that certain information be documented. If an "X" is entered in the M/R field, identify each equipment and enter "M/R" followed by the meter reading.

(4) Remarks/Sketches (2L). Required amplifying information related to a maintenance action. Include drawings and sketches, or multiple item serial numbers and locations for which identical maintenance requirements exist from an outside activity.

(5) Repair Activity Action Taken. A code describing action taken to complete a Maintenance Action (MA) at SF or IMA level. Some code values are applicable to both SF and IMA while some are unique to SF only or IMA only.

(6) Repair Activity Completion Date. The date when the IMA has completed all maintenance work.

(7) Repair Activity UIC (2K). The UIC of the activity performing work for the originating ship.

(8) Repair Work Center (RWC) (2K). Used by the repair activity for internal planning and scheduling, a 3 or 4-character code identifying the lead Work Center assigned to the job.

(9) R/M (Maintenance Indicator) (2K). Either an "R" or "M", used by INSURV, which identifies equipment that shows low reliability or unusual maintenance. "R" indicates low reliability, requiring frequent corrective maintenance; "M" indicates poor maintainability, requiring unusual maintenance efforts due to installation or design.

s. Sierra "S" Data Elements.

(1) S (Safety Identifier) (2K). The code "S", used by INSURV to identify those discrepancies which might cause injury to personnel or material damage.

(2) Safety Hazard (2K). A code number selected from the Risk Assessment Codes (RAC) that describes a problem or condition which has caused, or has the potential to cause injury to personnel and/or damage to material, enter the applicable RAC (Table C-16) described in codes "1" through "5". If the documented maintenance action is not safety related, leave

blank. If a "0" is entered, an explanation in block 35 is not required and the maintenance action should not be routed to the Safety Officer. All other entries in this block require an explanation in block 35.

## RISK ASSESSMENT CODES

CODE	RISK ASSESSMENT DESCRIPTION
1	Critical Safety or Health Deficiency-Correct Immediately. This category identifies deficiencies which present a critical safety hazard to personnel or machinery, or a health hazard to personnel, and which must be corrected immediately. This code is used for items such as electric shock hazards, inoperative interlocks or safety devices, missing or damaged lifelines, inoperable escape scuttles, refrigerants (air conditioning or refrigeration) leaking into confined spaces, leaking components containing PCBs, and the like. All efforts must be exerted to correct these items prior to any other maintenance deficiencies. Suspension of use of the equipment, system, and/or space is mandatory.
2	Serious Safety or Health Deficiency-Suspension of Equipment or System or Space Use is Required. This category deals with serious safety hazards to personnel or machinery, or health hazards which must be corrected prior to resuming use of the equipment, system and/or space.
3	Moderate Safety or Health Deficiency-Waiver of Equipment or System or Space Use is Granted Pending Correction of the Item. This category is used in cases where the equipment, system, and/or space can be operated or utilized in a satisfactory manner without greatly risking physical injury, serious damage to the equipment, system, and/or space, or greatly risking the health of personnel.
4	Minor Safety or Health Deficiency. This is a category of safety or health deficiencies which must be corrected when resources become available.
5	Negligible Safety or Health Deficiency. This category identifies deficiencies which are noted for record purposes and may be corrected when other work is accomplished on the equipment, system, and/or space.
X	Safety Related Indicator
0	Maintenance Action is Not Safety Related
<i>NOTE: Codes "6" through "9" may be locally assigned by TYCOMs for additional safety codes required.</i>	
A brief explanation must be included in the Remarks/Description field. For example: "RE-INSPECTION OF SEPARATOR FOR PRESENCE OF OIL AFTER RINSE. MRC A-27 EVIDENTLY NOT DONE. PRESENCE OF OIL RESULTED IN FIRE IN HP AIR SYSTEMS WHEN COMPRESSOR OPERATED UNDER LOAD. FIRE BADLY BURNED VALVE AHP-287, REQUIRING REPLACEMENT." The ship's 3MC will forward a copy of all OPNAV 4790/2K documentation having an entry in this field to the safety officer for review.	

Table C-16

(3) Scheduled Completion Date (2K and 2P). The Julian date on which all work on the job is scheduled to be completed by the activity assisting the originating ship.

(4) Scheduled Start Date (2K and 2P). Used by the repair activity, the Julian date on which work on the job is to begin.

(5) Screening Action (2P). Appropriate action to be taken to accomplish the maintenance as directed by the TYCOM. The field may also be used by the IUC, but the TYCOM representative's decision has precedence. The IUC/TYCOM representative must indicate the level at which the maintenance, if approved, is to be done.

(6) Screening (IUC) (2K). The IUC or designated representative recommended action to be taken using one of the codes listed below under Screening (TYCOM). The IUC is that officer in the chain of command between the ship and the TYCOM.

(7) Screening (TYCOM) (2K). The action to be taken as determined by the TYCOM or designated representative. Acceptable screening codes are reflected in Table C-17.

CODE	DESCRIPTION
1	Depot (shipyard or ship repair facility) Accomplish
1A	Depot Assisted by Ship's Force
1S	Ship to Shop
1M	Accomplish with Modification
2	Intermediate Maintenance Activity (IMA) (tender/repair ship, etc.) Accomplish
2A	IMA Assisted by Ship's Force
2S	Ship to Shop
2M	Accomplish with Modification
3	TYCOM Support Unit (TSU) (floating dry dock, etc.) Accomplish or Technical Assistance from NAVUNDERSEAWARFARCENDET/Regional Maintenance Centers/Contractor Representative
3A	TSU Assisted by Ship's Force
3S	Ship to Shop
3M	Accomplish with Modification
4	Ship's Force Accomplish
5	Deferred
5A	Insufficient Time in the Availability to Complete the Task
5B	Lack of Shipyard Capability
5C	Lack of Material
5D	Lack of Funds
5E	Not Required During this Availability
5F	General
6	Not Authorized
6A	Not Technically Justified
6B	Covered by an Existing Ship Alteration
6C	Duplicate of Another JCN

CODE	DESCRIPTION
6D	Not Cost Effective
6E	General
8*	Disapproved
9**	Remove from CSMP. Pass to history (to be assigned by TYCOM only)
	* This screening code disapproves the accomplishment of a work item by an outside activity. It does not prevent entry of the deferral into the CSMP, which is the decision of the Commanding Officer.
	** This screening code is restricted to the removal of INSURV items from the CSMP for which, in the opinion of the ship's IUC and TYCOM, the ship has no responsibility for accomplishment.

Table C-17

(8) SECAS Office Use (CK). No longer in use.

(9) Second Contact/Supervisor (2K and 2L). The supervisor of the first contact/maintenance person indicating he screened the maintenance action entry for completeness and accuracy.

(10) Selected Equipment List (2K). Selected equipment under an intensive management program requiring additional usage data to be collected. See data element Remarks/Description for reporting requirements.

(11) Service Application Code (SAC) (CK). A code used to group equipment, components, assemblies, etc., according to a particular system or service application. This code is similar to the HSC in purpose, but does not provide a hierarchical structure. The SAC is a code assigned by the supply department.

(12) Ship's Force Man-Hours (S/F MHRS) (2K). The total man-hours (to the nearest whole hour - cannot be zero hours) that Ship's Force used doing the maintenance after submitting the deferral. It includes witnessing of tests, and those man-hours expended in reinstallation, testing, in process documentation, and 2K document completion time. 2K document completion time cannot exceed "1" hour."

(13) Ship's Force Man-Hours Expended (S/F MHRS. EXP.) (2K and CK).

(a) Maintenance Action (2K). The total man-hours (to the nearest whole hour - cannot be zero hours) used by all Work Centers in the maintenance action up to the deferral time; include documentation time which cannot exceed "1".

(b) Configuration Change (CK). The total number of man-hours expended by Ship's Force (and not previously reported) in completing the maintenance action; include

documentation time which cannot exceed "1" hour. Man-hours expended by other than ships force are to be documented separately.

(14) Ship's Force Man-Hours Remaining (S/F MHRs. REM.) (2K). Ship's Force/Activity man-hour estimate (to the nearest whole hour) remaining to complete the maintenance action. If TYCOM allows an automatic close out of the deferral by the IMA, enter "AUTO"; this is a request to the IMA to complete the maintenance action with no further documentation from the shop after the job has been accepted by the originator (authorized signature). If the originating unit does not receive CSMP support from the IMA doing the work, do not use the AUTO close out feature.

(15) Special Data (2P). Data element currently not assigned for use. Available for future expansion.

(16) Special Purpose (2K). A code used to indicate quality control and quality assurance standards are required. Refer to TYCOM instructions for additional information relative to these entries. Enter the code in the designated field "A" through "L" as reflected in Table C-18.

FIELD	DESCRIPTION
A	The department head will enter the KEY EVENT code from the ISIC provided Key Event Schedule.
B	Submarines enter code "SS" if the job requires work within the SUBSAFE boundaries or involves SUBSAFE materials (Refer to CSL/CSP INST 4790.16 and JFMM Vol V Part 1 para. 8.2.5e). Surface Ships may enter S1 for "PARTS ON HAND/PARTS NOT REQD," S2 for "PARTS ON ORDER-DEF DEL DT," S3 for "CONT PROCURE PARTS," or S4 for "WORK COMPL PREVIOUSLY."
C	Enter the code "L1" if the job requires work within Level I boundaries or involves Level I material. (Refer to CSL/CSP INST 4790.16 and JFMM Vol V Part 1 para. 6.3.1.3 & 6.3.1.4).
D	Enter the code "08" if the job is associated with nuclear equipment. (Refer to NAVSEAINST 9210.4A (NOTAL)).
E	Enter the code "RC" if the job requires radiological controls (RADCON). (Refer to NAVSEA Technical Publication S9213-33-MMA-000/(V).)
F	Enter the code "DD" if the job requires dry docking to accomplish.
G	Enter the code "NC" for critical noise deficiencies or "NP" for potential radiated noise deficiencies.
H	The following codes are used in MFOM VSB for work screening: GC (Contract), IC (Indefinite Delivery, Indefinite Quantity), CC (Commercial Industrial Services), RC (Regional Maintenance Center Contracting Officer), TC (Type Commander Contracting), BC (Blanket Purchase Agreement/Basic Ordering Agreement), TV (Tanks & Voids), CS (Crane Services), NS (NAVSEA), DV (Diver Services), or AC (AVCERT).
I	Reserved for future use.

J	Reserved for future use.
K	Enter the appropriate code: FB for Fly By Wire Certification Boundary (FBW Certification Blue Boundary), SF for Submarine Flight Critical Component (SFCC Red Boundary), or DS for Deep Submergence System-Scope of Certification (DSS-SOC).
L	Enter the code assigned to the visiting activity. This will identify the visiting activity as the originator of the deferral. Information reported as directed by the cognizant TYCOM.

Table C-18

(17) Special Requirements (2P).

- (a) Key Event. 2-digit number identifying an event which influences a job or is influenced by the completion of a job, (e.g., job requiring completion before undocking). Blank indicates that the job is not associated with a key event.
- (b) Special Interest. A field used to indicate the job has been selected for job management reports, and identifying the job as having significant management interest. An "X" is the common entry for this field.
- (c) Dry Dock Required. A field used to show that the requested maintenance requires the ship to be dry docked. An "X" is the common entry for this field.
- (d) Pre-Overhaul Test Required. A field used to identify a specific test required prior to an equipment or ship overhaul. An "X" is the common entry for this field.
- (e) Post Overhaul Test Required. A field used to identify that a test must be completed after equipment or ship overhaul. An "X" is the common entry for this field.
- (f) Departure Required. A field used to indicate that if the maintenance is not accomplished to specifications, notice of the departure must be sent to the TYCOM. An "X" is the common entry for this field.

(18) Status (STA) (2K). A code (Table C-19) that describes the effect of failure or malfunction on the operational capability of the equipment or system when the need for maintenance was first discovered.

## EFFECT OF FAILURE

CODE	DESCRIPTION
1	Operational
2	Non-Operational
3	Reduced Capability
0	Not Applicable (use if reporting printing services, etc.)

Table C-19

(19) Suffix (2K). Used by INSURV to insert additional required numbers between sequential numbers.

t. Tango "T" Data Elements.

(1) Task (2P). The description(s) of the task(s) for which the "Lead" and "Assist" Repair Work Center(s) identified are responsible.

(2) Technical Documentation (2P). Blueprints, technical manuals, etc., which may be useful to the IMA in providing required assistance. Indicate with an "X" if the publications are held by the tended unit or the IMA.

(3) Technical Manual (TM) Number (CK). The TM number covering the component. For removals and modifications, enter the appropriate TM number for the equipment. For like equipment installations (i.e., exchanges), enter the TM number of the deleted equipment. For new installations, enter the TM number covering the component. If unavailable, enter "NA".

(4) Trouble Isolation (TI) (2K). A single numeral (1-9) to indicate, to the nearest 10 percent, the percentage of active maintenance expended in troubleshooting. If no troubleshooting is involved, enter "f". Examples: "2" = 20%, "3" = 30%, "7" = 70%, etc.

(5) TYCOM Authorization (2K). Signature/entry of the TYCOM representative screening deferrals.

(6) TYCOM (Screening) (2K). Refer to data element Screening (TYCOM).

(7) TYCOM Signature (2P). Signature of the IUC or TYCOM representative indicating the maintenance request has been screened.

(8) Type of Availability (T/A) (2K). Type of availability recommended for performance of a deferral.

#### AVAILABILITY TYPE

CODE	DESCRIPTION
1	Depot (shipyard or ship repair facility). OMMS-NG displays “Depot”.
2	Intermediate Maintenance Activity (tender, repair ship, etc.). OMMS-NG displays either “Fleet Repair Center” or “Regional Repair Center”.
3	Fleet Technical Support. TYCOM Support Unit (floating dry dock, etc., or technical assistance from NAVUNDERSEAWARCEN DETACHMENT, Regional Maintenance Centers, or contractor representative). OMMS-NG displays “Fleet Technical Support”.
4A	Ship's Force Originating Work Center. OMMS-NG displays “Originating Work Center”.
4B	Ship's Force Organizational Level. OMMS-NG displays “Organizational Level”.

Table C-20

u. Uniform “U” Data Elements.

(1) U (Mission Degrading) (2K). Used by INSURV, field identifies certain deficiencies which are considered as preventing the ship from carrying out some part of its mission.

(2) Unit Identification Code (UIC) (2K, CK, 2P, and 2L). Identifies the Unit Identification Code of the activity originating the maintenance action. The Navy Unit Identification Code Listing is available from: <http://doni.daps.dla.mil/snld.aspx>. For service craft or boats without a UIC use the UIC of the parent activity. Other than U.S. Navy ships will have an “A” as the first character followed by a sequential number related to the number of foreign units in availability.

v. Victor “V” Data Elements.

(Currently not used.)

w. Whisky “W” Data Elements.

(1) When Discovered (WND) (2K). Identifies when the need for maintenance was discovered.

#### WHEN DISCOVERED CODES

CODE	DESCRIPTION
1	Lighting Off or Starting
2	Normal Operation
3	During Operability Tests
4	During Inspection
5	Shifting Operational Modes

CODE	DESCRIPTION
6	During PMS
7	Securing
8	During AEC (Assessment of Equipment) Program
9	No Failure, PMS Accomplishment Only
0	Not Applicable (use when reporting printing services, etc.)

Table C-21

(2) When Discovered Date (2K). The Julian Date when the equipment failure was discovered.

(3) Work Center (WC) (2K, CK, 2P, and 2L). Two basic types of Work Center codes exist. Their definition and application are as follows:

(a) Ships/Activities. Use a 4-position Work Center code. The first two positions identify the Department and Division. The last two positions identify the Division Work Center.

(b) Repair Departments of Tenders, RMCs and other IMAs. These organizations use a 3-position Work Center code to identify the repair shops (e.g., "10A", "67A", "91A", etc.). See data element "IMA Repair Work Center" (Table C-10) for a list of authorized IMA repair Work Center codes.

(4) Work Request Routine (2K). The appropriate ESWBS, Ship Work Breakdown Structure (SWBS), Ship Work Authorization Boundary (SWAB), or Ship Work Line Item Number (SWLIN), as directed by the TYCOM. This entry is made to integrate the deferral into applicable work packages.

x. X-ray “X” Data Elements.

(Currently not used.)

y. Yankee “Y” Data Elements.

(1) YYMM Issued (2P). Four numbers used to identify the year and month during which the periodic maintenance requirement entered was issued. The first two digits identify the year and the last two digits identify the month.

z. Zulu “Z” Data Elements.

(Currently not used.)

## PRIORITY CODE GUIDANCE

TO RAISE THE PRIORITY FOLLOW FLOW CHART - ALL WORK CANDIDATES/JNSNS START WITH 4 DESIRABLE

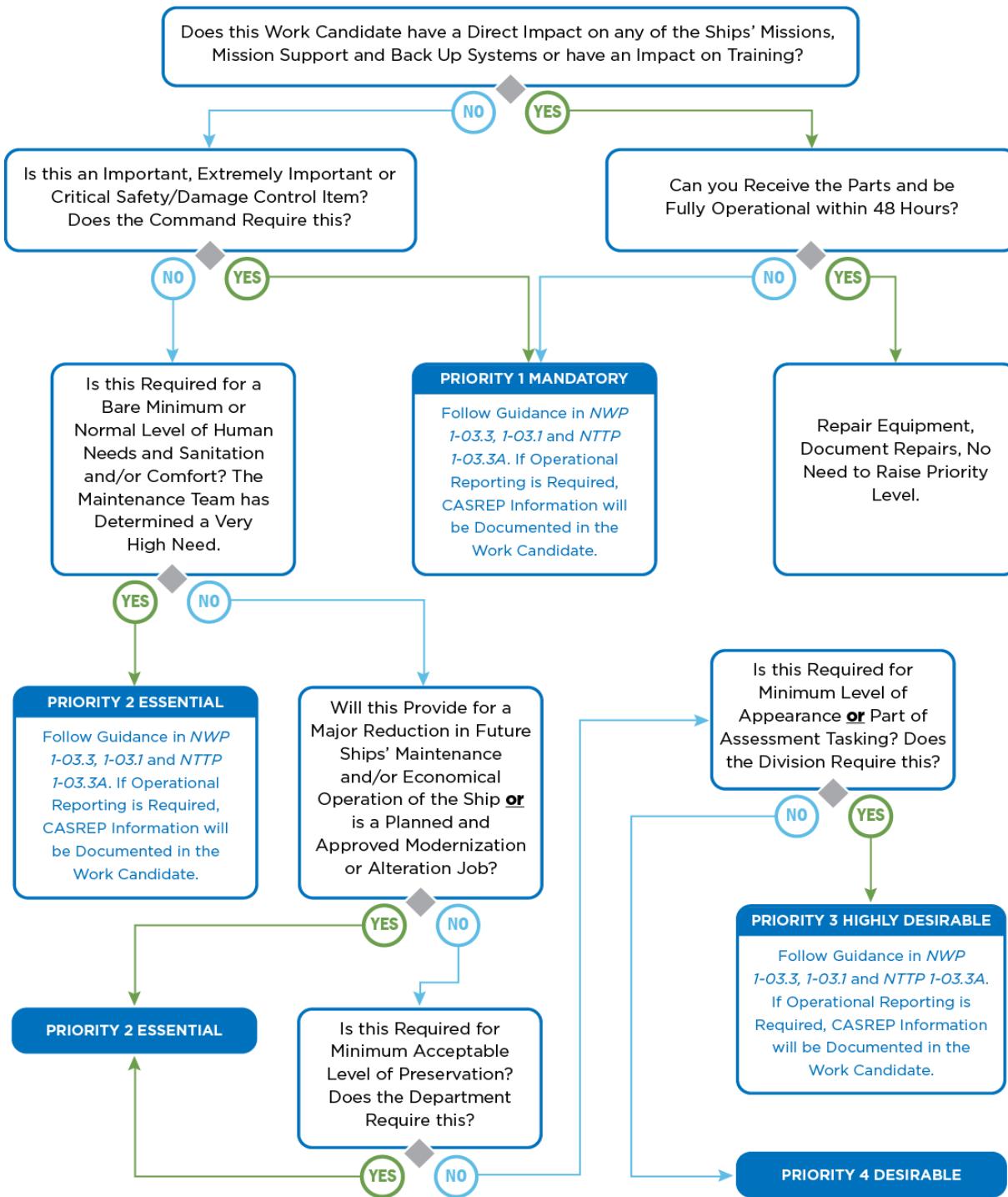


Figure C-1

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## **APPENDIX D**

### **SHIP'S 3-M FORM (OPNAV 4790/2P) PREPARATION MAINTENANCE PLANNING AND ESTIMATING**

APPENDIX D  
SHIP'S 3-M FORM (OPNAV 4790/2P) PREPARATION  
MAINTENANCE PLANNING AND ESTIMATING

1. Purpose

To provide guidance in the completion and submittal of OPNAV Form 4790/2P, the Maintenance, Planning and Estimating form. This appendix previously included OPNAV 4790/2K (2-Kilo) and OPNAV 4790/CK (CK) preparation instructions. The information has been moved to the Joint Fleet Maintenance Manual (JFMM) Vol VI, Chapter 19.

2. Background

The 4790/2P (2-Papa) is used in conjunction with an OPNAV 4790/2K that defers maintenance to an Intermediate Maintenance Facility (IMF) for accomplishment. Attached to the original 2-Kilo at the IMA, it is used by the IMA to screen and plan the job in detail. The 2-Papa contains information pertinent to the Lead Work Center (LWC), assist Work Center(s), identifies material requirements, technical documentation, and provides estimated funding requirements to complete the maintenance action. (Upon approval by the TYCOM, planning, estimating and scheduling information may be entered in the appropriate sections of the OPNAV 4790/2K Form).

*NOTE: An example of a completed OPNAV 4790/2P form can be found at the end of this Appendix, Figure D-1.*

3. Procedures for Documenting Planning & Estimating Data

a. Section I – Planning.

(1) Block A. Enter the Ship's Name originating the request for assistance (from the 2K).

(2) Block B. Enter the Ship's Hull Number originating the request for assistance (from the 2K).

(3) Job Control Number (JCN). Enter the same JCN (Ship's UIC, Work Center, and Job Sequence Number) assigned to the original maintenance action. It must be identical to the JCN of the attached 2K in Blocks 1, 2, and 3.

(4) Block 8 - Screening Action. The action to be taken must be indicated in this block. It may be filled in by the Intermediate Unit Commander (IUC), however, the TYCOM Representative's decision has precedence. The IUC/TYCOM Rep must indicate the level at

which the maintenance is to be done, or if the job is disapproved. There must be an entry in either "a", "b", or "c" if screened by the IUC; and "h", "i", or "j" when screened by the TYCOM REP. Blocks "d" through "m" may be used to identify qualifying actions. If "accomplished with modifications" is checked, the IUC/TYCOM will provide amplifying remarks in Section IV, Block 49. If the work is disapproved ("g" or "n"), amplifying remarks should be made in Section IV, Block 49.

(5) Block C/D - IUC/TYCOM Signature. The signature of the IUC and/or TYCOM Rep must be entered in these blocks following the screening process.

*NOTE: The following blocks (as applicable) are filled in by the Planning and Scheduling activity after the UIC and/or TYCOM Rep has screened the job for acceptance (Block 8).*

*NOTE: Blocks 4 through 7 are for Master Job Catalog (MJC) development.*

(6) Block 4 - Periodic Maintenance Requirement. Enter the code that identifies the specific periodic maintenance requirement. This code may be a PMS maintenance requirement code, a code identifying a periodic requirement of a Maintenance Planning Activity (CPA, SUBMEPP, SURFMEPP) or a calibration requirement of Metrology Automated System for Uniform Recall and Reporting (MEASURE).

(7) Block 5 - Periodicity. Enter the number of months between which the periodic maintenance requirement is to be done.

(8) Block 6 - YYMM Issued. Enter the four numbers used to identify the year and month during which the periodic maintenance requirement entered in Block 4 was issued. The first two digits identify the year and the last two digits the month; e.g., "1702" represents February 2017.

(9) Block 7 - Special Data. Reserved for future use.

(10) Block 8. See Block "8" above (3.a.(4)).

(11) Block 9 - Quality Assurance Requirements. Enter an "X" in Blocks "a" through "l" to indicate the specific planning actions, work controls, and auditable records in support of individual TYCOM management needs.

(12) Block 10 - Special Requirements.

<u>Key Event</u>	A two-digit number identifies a key event that influences a job, or is influenced by the completion of a job. A blank in this block indicates that the job is not associated with a key event. The Key Event code with a definition is assigned and managed by TYCOM instructions.
<u>Special Interest</u>	An "X" entered in this block indicates that this job has significant management interest, and keys the job to be selected for job management reports.
<u>Dry Dock Required</u>	An "X" in this block shows the requested maintenance requires the ship to be dry-docked.
<u>Pre-Overhaul Test Required</u>	An "X" entered in this block identifies a specific test prior to an equipment or ship overhaul.
<u>Post-Overhaul test Required</u>	An "X" entered in this block identifies a specific test that must be completed after equipment or ship overhaul.
<u>Departure Required</u>	An "X" entered in this block shows that if the maintenance requested is not done by the required specifications, notice of this departure is to be sent to the TYCOM.

Table D-1

(13) Block 11 - NORMALLY DONE BY. Entered by the Repair Officer, an "X" entered into the appropriate block (S/F, IMA, DEPOT) allows the collection of data for evaluation of the costs of the IMA relative to other maintenance activities.

b. Section II – Scheduling.

(1) Block 12 - LEAD WORK CENTER. Enter the code (left to right) of the "lead" repair Work Center assigned to the job. (Refer to Appendix C Data Elements "IMA Repair Work Center" for standard IMA Work Center codes)

(2) Blocks 13, 19, 25, 31, 37, and 43 - SCHED START DATE. Enter the Julian date that work is to be started by each repair Work Center. During the planning process when the availability date is unknown, these blocks may be left blank.

(3) Blocks 14, 20, 26, 32, 38, and 44 - SCHED COMP DATE. Enter the Julian date that the work of the individual repair Work Center must be completed.

(4) Block 15, 21, 27, 33, 39, and 45 - EST MHRS. Enter an estimate of the total number of man-hours necessary for each repair Work Center to complete its assigned work.

(5) Blocks 16, 22, 28, 34, 40, and 46 - KEY OP. Number the logical sequence, e.g., 001, 002, 003, etc., of the tasks identified in Blocks 17, 23, 29, 35, 41, and 47.

(6) Blocks 17, 23, 29, 35, 41, and 47 - TASK. Enter the description(s) of the task(s) for which the repair Work Center(s) assigned are responsible.

(7) Blocks 18, 24, 30, 36, and 42 - ASST WORK CENTER. Enter the code (left to right) of the repair Work Center(s) assisting the lead repair Work Center. (Refer to Appendix C, Data Elements "IMA Repair Work Center" for standard IMA Work Center codes)

c. Section III – Technical Documentation. Block 48 – TECHNICAL DOCUMENTATION. Enter any blueprints, technical manuals, etc., which might be of use in the accomplishment of the maintenance. Indicate by an "X" whether the publications are held by the IMA or the tended unit.

d. Section IV - IUC/Repair Activity/TYCOM Remarks. Block 49 – REMARKS. Used by the screening and repair managers to enter any remarks that amplify the scope or limitations applicable to the accomplishment of the maintenance.

e. Section V – Supplemental Planning. The following blocks are filled in when required by the TYCOM and only when estimating the cost of Depot Level work.

***NOTE:** Other uses of these blocks can be defined by TYCOM directives.*

(1) Block 50 - EST MAN-DAYS. Enter the total number of estimated man-days (for all involved repair Work Centers) required to accomplish the JCN. If the estimated man-days are less than one, enter "1".

(2) Block 51 - EST MAN-DAYS COST \$. Enter an estimate of the total man-day costs required to accomplish the JCN.

(3) Block 52 - EST MATERIAL COST. Enter an estimate of the total material cost.

(4) Block 53 - EST TOTAL COST \$. Enter an estimate of the total cost to complete the job (add blocks 51 and 52).

### 3. Procedures for Documenting Changes, Additions, and Deletions

Any block, with the exception of the JCN, that has had the planning and estimating information entered into the supporting ADP system can be added, deleted, or changed. Refer to the

instructions described for submitting a correction to an OPNAV 4790/2K Form. When

modifying information in Section II - SCHEDULING, the modification must contain the appropriate lead or assist WCs. When modifying information in Section III - TECHNICAL DOCUMENTATION and Section IV – IUC/REPAIR ACTIVITY/TYCOM REMARKS, the entire section must be revised so that correct information and change information is included. Do not change a word or two in these sections without resubmitting the entire section.

***NOTE:*** *In the event the original Lead Work Center (LWC) must be changed and a new LWC assigned, the planning section should submit the applicable documentation to change the LWC. Planning and estimating will submit a new planning sheet showing the new LWC and assist WC(s).*

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MAINTENANCE PLANNING & ESTIMATING FORM (P & E)

SECTION I. PLANNING

A. SHIP'S NAME		B. HULL NUMBER	JOB CONTROL NUMBER						
USS UNDERWAY		AS-48	1. SHIP'S UIC	2. WORK CENTER	3. JOB SEQ. NO.				
4. PERIODIC MAINTENANCE REQUIREMENT		5. PERIODICITY	6. YYMM ISSUED	7. SPECIAL DATA					
8. SCREENING ACTION		9. QUALITY ASSURANCE REQUIREMENTS			10. SPECIAL REQUIREMENTS				
IUC TYCOM a. <input type="checkbox"/> h. <input type="checkbox"/> DEPOT ACCOMPLISH b. <input checked="" type="checkbox"/> i. <input type="checkbox"/> IMA ACCOMPLISH c. <input type="checkbox"/> j. <input type="checkbox"/> TSU/NAVSEC/NOSSO/etc. d. <input type="checkbox"/> k. <input type="checkbox"/> SHIPS FORCE (IMA) (DEPOT) ASSIST e. <input type="checkbox"/> l. <input type="checkbox"/> SHIP TO SHOP f. <input type="checkbox"/> m. <input type="checkbox"/> ACCOMPLISH WITH MODIFICATIONS g. <input type="checkbox"/> n. <input type="checkbox"/> DISAPPROVE		a. <input type="checkbox"/> SUB SAFE b. <input type="checkbox"/> LEVEL 1 c. <input type="checkbox"/> NUCLEAR LEVEL 1 d. <input type="checkbox"/> NON-DESTRUCT TEST e. <input type="checkbox"/> NUCLEAR WORK PROCEDURES f. <input type="checkbox"/> SUBMARINE ANTENNA ENGINEERING DIVISION			g. <input checked="" type="checkbox"/> SPECIAL CLEANING h. <input checked="" type="checkbox"/> SPECIAL TESTING i. <input type="checkbox"/> SPECIAL IDENTIFICATION j. <input type="checkbox"/> NOISE CRITICAL k. <input type="checkbox"/> RADIOLOGICAL CONTROL l. <input checked="" type="checkbox"/> OTHER CONTROLS				
					HAZMAT				
C. IUC SIGNATURE		D. TYCOM SIGNATURE			11. NORMALLY DONE BY				
John Smith					a. <input type="checkbox"/> S/F    b. <input checked="" type="checkbox"/> IMA    c. <input type="checkbox"/> DEPOT				

SECTION II. SCHEDULING

12. LEAD WORK CENTER	13. SCHED. START DATE	14. SCHED. COMP. DATE	15. EST. MHRS	16. KEY OP	17. TASK
2 5 A	YR DA 4 0 5 3	YR DA 4 0 6 8	0 0 8 3	0 2	E V A C & R E C H G
18. ASSIST WORK CENTER	19. SCHED. START DATE	20. SCHED. COMP. DATE	21. EST. MHRS	22. KEY OP	23. TASK
0 3 T	YR DA 4 0 5 4	YR DA 4 0 6 7	0 0 0 4	0 3	U N S H I P & C L A D
24. ASSIST WORK CENTER	25. SCHED. START DATE	26. SCHED. COMP. DATE	27. EST. MHRS	28. KEY OP	29. TASK
0 3 A	YR DA 4 0 5 1	YR DA 4 0 6 9	0 0 4 9	0 1	M O N I T O R F R E O N
30. ASSIST WORK CENTER	31. SCHED. START DATE	32. SCHED. COMP. DATE	33. EST. MHRS	34. KEY OP	35. TASK
2 6 A	YR DA 4 0 5 6	YR DA 4 0 5 7	0 0 0 6	0 4	B R A Z E / W E L D
36. ASSIST WORK CENTER	37. SCHED. START DATE	38. SCHED. COMP. DATE	39. EST. MHRS	40. KEY OP	41. TASK
5 1 A	YR DA 4 0 5 3	YR DA 4 0 5 8	0 0 2 1	0 5	R E W I N D & B A K E
42. ASSIST WORK CENTER	43. SCHED. START DATE	44. SCHED. COMP. DATE	45. EST. MHRS	46. KEY OP	47. TASK

SECTION III. TECHNICAL DOCUMENTATION

48.	ON BOARD YES NO
N A V S H I P S T E C H M A N	X

SECTION IV. IUC/REPAIR ACTIVITY/TYCOM REMARKS

49.	C O M P R E S S O R M O T O R S H O R T

SECTION V. SUPPLEMENTAL PLANNING

50. EST. MANDAYS	51. EST. MANDAYS COST \$	52. EST. MATERIAL COST \$	53. EST. TOTAL COST \$	54.

OPNAV 4790/2P (6-84)

Figure D-1  
Completed OPNAV 4790/2P

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NAVSEAINST 4790.8D  
17 Jun 2021

## **APPENDIX E**

**3-M AUTOMATED PERIODIC MAINTENANCE PROGRAM**  
**(MASTER JOB CATALOG AND PERIODIC MAINTENANCE REQUIREMENTS)**

APPENDIX E  
3-M AUTOMATED PERIODIC MAINTENANCE PROGRAM  
(MASTER JOB CATALOG AND PERIODIC MAINTENANCE REQUIREMENTS)

1. Purpose

This appendix describes the Automated Periodic Maintenance Program (APMP) capabilities, provides guidelines for its use, and standardizes the requirements in support of fleet and Depot 3-M reporting. This program was established to assist maintenance and material managers in the execution of Class Maintenance Plan (CMP) and Life Cycle Manager (LCM) maintenance requirements to sustain weapon system operability.

2. Scope

Intermediate Maintenance Activities (IMA) require the capability to generate work requests for periodic maintenance. Periodic Maintenance Requirements (PMR) provide that capability. PMRs also provides the capability to schedule, maintain, issue and report work accomplished for PMR items. PMR data elements conform to 3-M standards. PMRs require the reporting of maintenance actions and configuration changes on all categories of equipment.

3. Objective

The APMP can provide a means to effectively manage and control all PMRs beyond the scope of the Planned Maintenance System (PMS). It is managed by integrating Systems Command (SYSCOM) Life Cycle Requirements, Configuration Data Managers' Database, Open Architecture (CDMD-OA) configuration data and periodicities invoked by system and equipment engineers with the 3-M Master Job Catalog (MJC) and PMR modules of intermediate maintenance management automated systems. This integration provides an automated pre-planned deferral to be added to the Current Ship's Maintenance Project (CSMP) and procurement of repair parts specified by technical repair standards or other controlled work procedures. The system:

- a. Provides continuous evaluation and adjustment of the CMP to reflect the specifications of the SYSCOM Platform Managers and the capabilities and capacities of fleet maintenance activities.

- b. Adjusts the Ship Configuration and Logistics Support Information System (SCLSI) and the Configuration Data Manager (CDM) databases to reflect all levels of equipment and components for existing and emerging PMRs.
- c. Develops, evaluates and implements a MJC deferral for each PMR added to the CMP.
- d. Distributes a Unit Identification Code (UIC) unique configuration and scheduling record for each CMP periodic requirement to each activity maintaining the equipment/component.
- e. Maintains the MJC and PMR database at the central facility (regional hub, port facility, Regional Support Group (RSG) or Parent Squadron/IMA) supporting ship classes.
- f. Plans and executes ship scheduled availabilities and planned work packages by retrieval of all scheduled PMRs, alterations, Type Commander (TYCOM) directed and local support routines from the MJC/PMR module and all screened deficiencies from the tended ship's CSMP into the Master CSMP of the central facility.
- g. Manages the execution of all authorized work, ensuring the progress, status change, delay and completion of each task is reported into 3-M as detailed in the applicable program user manuals.
- h. Produces and distributes PMR, CSMP and production information (Availability Summaries, Key Event Schedules and Progress, AWRs, Calibration Summaries, CSMP Summaries, etc.) as specified by TYCOM directives.
  - i. Distributes Maintenance Data System (MDS) information from NAVSEALOGCEN (NSLC) to the applicable program managers and SYSCOM/fleet support activities for analysis and upgrade of:
    - (1) CMPs,
    - (2) Technical specifications,
    - (3) Mandatory parts replacement requirements,
    - (4) Affirmation/adjustments of Lead Work Center (LWC)/Assistant Work Center (AWC),
    - (5) Task/key-op man-hour averages and
    - (6) Standards for recycling MJC and PMR improvements.

j. Manages the distribution of information between central activities and the organizational calibration and scheduling systems to support accomplishment of shipboard PMRs (e.g., Submarine Unrestricted Operations (URO) requirements and gage calibration by certified Field Calibration Activity (FCA) personnel.)

k. Adds all Test and Monitoring System (TAMS) installed equipment records into the SCLSIIS of the Class CDM so that cyclic requirements are tailored to the operating platform and the PMR scheduling record updated.

l. Adds all portable TAMS to the SCLSIIS for control by NAVWAR/NAVSEA Item Managers supported by Naval Weapons Assessment Division and Metrology Calibration (METCAL) organizations. This process:

(1) Increases the management of portable TAMS inventory control between the METCAL CDM and the fleet's central PMR configuration repository, CDMD-OA.

(2) Increases the management of alterations for portable TAMS applying business rules to justify upgrades. Controls TAMS alterations in the same manner as Ship Alterations (SHIPALTs) and TYCOM Alterations (ALTs). Provides information necessary to evaluate and improve reliability, maintainability, and availability of installed systems and equipment while eliminating periodic requirements where Material Condition Assessment (MCA) results indicate little risk of equipment failure.

#### 4. Master Job Catalog (MJC)

a. The MJC is a collection of recurring jobs applicable to multiple supported units. These jobs typically consist of PMRs from the CMP:

(1) PMRs for inspection, test, calibration, and repair of various equipments;

(2) Alterations;

(3) Recurring Board of Inspection and Survey (INSURV) deficiencies;

(4) Routines for IMA services;

(5) Depot routines for interfacing the CSMP with the Ship Alteration and Repair Package (SARP)/Overhaul Work Package (OWP).

b. There are many advantages of using jobs from the MJC. Use of the MJC reduces the documentation burden for Ship's Force in preparing deferrals for recurring maintenance actions. MJC preplanned jobs reduce the planning effort required by IMA Planning & Estimating (P&E).

Planning information is usually recorded for the MJC jobs. In addition, it reduces the variability in job accomplishment. This contributes to the consistency of job requirements for each repetitive use of the MJC job. MJC jobs provide a ready vehicle for recording lessons learned as the job is accomplished time after time.

c. The MJC is structured as a CSMP deferral and planning record. The MJC describes mandatory maintenance requirements, CMP periodic requirements, IMA support routines, alterations, Hazardous Material (HAZMAT) procedures, calibration routines and other SYSCOM and TYCOM directed maintenance requirements applicable to one or more ship classes. The TYCOMs provide some MJC jobs, while individual IMAs prepare others. In addition, each central maintenance activity may establish additional service routines to account for production-oriented work not otherwise covered by TYCOM direction. These periodic or repetitive requirements are retrieved from the MJC and added to an individual ship's Master CSMP for assignment to IMA and Depot Work Packages.

d. Application of the MJC requirements prior to and during a ship's availability relieves Ship's Force from documenting other than its own discovered deficiencies. The onboard automated CSMP need contain only these deficiencies, while the MJC retrieved requirements (and the ship's reported deficiencies) are maintained on a Master CSMP by the RSG, squadron or other central fleet activity.

e. TYCOMs will establish joint instructions to identify common MJC requirements and standard procedures for its distribution and maintenance. The intermediate maintenance management automated systems user manuals describe methods to retrieve periodic requirements from the MJC for addition to the individual availability work package.

f. A TYCOM designated planning activity (Submarine Maintenance, Engineering, Planning, and Procurement (SUBMEPP), Carrier Planning Activity (CPA) and / or Surface Maintenance, Engineering, Planning Program (SURFMEPP)) may be assigned to maintain and distribute MJC files to applicable fleet sites. These activities may also be tasked to provide analysis, improved planning and estimating, and material requirements for each documented MJC requirement.

g. All periodic requirements established by the SYSCOMs for a ship class should include the repair parts required and the forecast to NAVSUP WSS Mechanicsburg to build an effective load list over the projected life cycle of the ship class. The planning activity should provide quarterly files to sustain the conjunctive Automated Material Requisitioning (AMR) for CMP projections.

## 5. 3-M Periodic Maintenance Requirements

There are certain equipment and components in the fleet that require periodic maintenance such as tests, inspections, repairs, restorations, and replacements. For select automated systems, periodic maintenance tasks and routines are maintained on file with planning information. The record containing both the routine, test, etc., along with the scheduling and planning information is called a PMR.

a. Use of PMRs. Use of PMRs provide for the management of configuration and scheduling information for each equipment requiring periodic maintenance. As PMRs are established for equipment, Ship's Force submits the related configuration and scheduling information. This information is used to establish a MJC routine. The MJC routine will be added to the CSMP when the equipment is due for periodic maintenance as indicated by the scheduling information. MJC routines can be scheduled for accomplishment by Ship's Force or by an Intermediate or Depot-level activity.

b. Configuration and Scheduling PMR Data. Both configuration and scheduling data files may be provided and downloaded from the CDM, planning activity, NSWC, METCAL, TAMS or from other SYSCOM or contractor sources supporting fleet maintenance. Ship's Force may be required to initially document items for addition to the PMR database as directed by the TYCOM when the items require:

- (1) Periodic testing.
- (2) Calibration.
- (3) Inspection by an intermediate level shop or fleet support team.
- (4) Electrical safety inspections.
- (5) Cyclic zone inspections by Damage Control teams vice sustaining a PMS Equipment Guide List (EGL) and requiring the ship to submit IMA work requests.

Detailed operating procedures for MJC routines and PMRs are contained in Shipboard Non-Tactical ADP Program (SNAP) Central Design Activity (CDA) User Manuals and guides; these procedures are not repeated in this manual.

c. PMR Reporting. PMR records and related equipment/component information can be maintained in the PMR/MJC system. Configuration file entries are made on-line. Standard 3-M data elements (Blocks 1 through 30 of the OPNAV 4790/CK) are used for PMR configuration reporting. For additional information/data element definitions and approved values refer to the data element by name in Appendix C of this instruction.

**NOTE:** If a data element has been assigned a Data Element Number (DEN) in Appendix C, the DEN will be listed.

A check block at the top right portion of the form is used to specify that a configuration file correction "CONFIG FILE CORR" is being documented.

(1) Section I - Job Identification. This section is pre-filled except for the ship's UIC. The PMR "Work Center" can be tailored for different management programs by using a different suffix for each program LCM Code. The Job Control Number and Job Sequence Number ("JCN JSN") remains "0001" until the page count (number of adds) exceeds 9999, at which time the JSN will be changed to "0002" for the next 9999 page numbers. For example, NAVSEA Mechanical TAMS components use LCM code "HM" while electronic technicians TAMS uses "ET." A ship's PMR installation could use PMHM0001 and PMET0001 for up to 9999 components for each LCM. The total JCN for an initial "ADD" PMR item is then converted to reflect the PMR assigned Line Item Number (LIN) as part of the Work Center (WC/JSN) (e.g., PM001454 - where 001454 is the LIN) to become the permanent JCN for the life of the component on the UIC.

- (a) Block A. COMMAND NAME
- (b) Block B. HULL NUMBER
- (c) JOB CONTROL NUMBER (Blocks 1 - 3)

1. Block 1 - SHIP'S UIC (DEN A002). UIC of the customer unit/ship of installed equipment.

2. Block 2 - WORK CENTER (DEN E128). The PMR LCM code designated by the TYCOM.

3. Block 3 - JOB SEQ. NO. (DEN E349D). The JSN is pre-filled with "0001" until the number of "adds" (pages) exceeds 9999. The JSN is then changed to "0002" for the next 9999 "adds."

(d) Block 4 - ALTERATION IDENTIFICATION (SHIPALT, FLD. CHG., ETC.). Masked out in the automated system. Leave blank for PMR.

(e) Block 5 – EIC. EIC for the equipment identified. This EIC may be the general service code (U series) if the PMR is for support service of multiple systems. (These service EICs may be used in combination with the primary IMA Work Center e.g., U60067B, U60096A, U60067F, etc.).

(f) Block 6 - ACT. TKN. Action taken is masked out or pre-filled as specified by TYCOM instruction.

(g) Block 7 - EQUIPMENT NOUN NAME. Pre-filled as specified by TYCOM instructions to describe the general category of the PMR management program.

(h) Block 8 - MHRS. EXP. Command Man-hours Expended. Field is masked out in the automated system. Leave block blank if using the form.

(i) Block 9 - ACT. MAINT. TIME. Actual Maintenance Time. Field is masked out in the automated system.

(j) Block 10 - COMP. DATE. Completion Date. Field is masked out in the automated system.

(k) Block 11 - M/R (Meter Reading). Masked out.

(2) Section II - Job Description / Remarks – Block 12. Information/remarks identifying the PMR management program as directed by TYCOM instructions.

(3) Section III - Component Configuration Information. This section records the PMR related equipment configuration/identifying information specific to the component. Note that the PMR program is not limited to supply worthy components but is used to also manage all cyclic maintenance worthy items. Pad eyes, slings, and hoists requiring weight tests can all be added as PMRs to ensure inventory and scheduling control as can damage control lockers and fire hose, valve stations.

(a) Block 13 - COMPONENT NOUN NAME (DEN E224). For Hull, Mechanical, and Electrical Equipment (HM&E), the component name entered along with a descriptive nomenclature (e.g., Valve, Ball 3.5" MSW; Gauge, 0-50psi Lube Oil Pump). For electronic components and test equipment, the Army/Navy (A/N) nomenclature, Joint Electronic Type Designation System (JETDS) or commercial model number is entered. Prefix the model number with the Commercial and Government Entity (CAGE) and a dash. For ordnance components, enter the system/equipment nomenclature, followed by the Mark and Mod.

(b) Block 14 - QUANTITY (DEN DO11) (CK limits 001-999, pre-filled with 000). This quantity will usually be 001, but if multiple items are to be tested or calibrated as a batch job, enter the quantity per batch. For example: 100 Radiation Detection, Indication, and Computation (RADIAC) for a ship may be contained in four boxes of 25 each, resulting in four separate line items, each, with a 025 in block 14. For IMA Electrical Safety, all receptacles in a single shop may be counted as one line item and the total quantity shown in Block 14. This would necessitate testing all of them at one time.

(c) Block 15 - COMPONENT ACTION (DEN E033). If the item is not in the PMR INVENTORY, enter an "A" (add). Otherwise enter "C" (correct the record), or a "D" (delete the inventory line item).

(d) Block 16 - COMPONENT IDENTIFICATION (DEN E093). Enter the Valve Mark (VM)/Electric Symbol Number (ESN) or other identification. For inventory items controlled by an LCM, this identification would be retained as originally assigned. For Director Strategic Systems Project Office (DIRSSPO) controlled weapons handling gear, the identification number must be a "PMMP" (Pink Ticket) number. Once assigned, this element cannot be changed or corrected. For weight handling gear, include the safe working load in pounds prefixed by SWL (e.g., TP16SY SWL 6800). SCLSI defines this element as "Positional Reference Identification - PRID II."

***NOTE:** The two data elements of the OPNAV 4790/CK Blocks 16 (Component Identification) and Block 17 (Component Serial Number) become a single data element in Block 13 (Identification Equipment Serial Number) of the OPNAV 4790/2K used for reporting corrective maintenance. The PMR program selects the Component Identification from the configuration change (Block 16) and pre-fills this number in the Identification Equipment Serial Number field.*

(e) Block 17 - COMPONENT SERIAL NUMBER (DEN D032). If the nameplate serial number is not available, a number assigned by the owning ship will be entered. The ship's UIC (Block 1) and owning Work Center (Block 23) are separately shown on the PMR reports and in the system; there is no requirement to repeat the hull number and Work Center as part of the serial number. Weight handling equipment must be marked or tagged with the hull number (equal to the UIC) and the serial number of the component. The combination of blocks 1, 16, and 17 must not be duplicated in the PMR configuration file. If there are multiple PMRs for the same item, the additional requirements must be identified by separate MJC numbers.

***NOTE:** For SUBMEPP/CDM. When a commercial serial number is not assigned, record the unique Functional Group Code (FGC) in this field and in the Ship Equipment File (SEF).*

(f) Block 18 - COMPONENT APL/AEL (DEN DO08). Enter the Component Allowance Parts List/Allowance Equipage List/Component Identification Number/Repairable Identification Code (APL/AEL/CID/RIC). If there is no APL/AEL, enter NOT LISTED. For SUBMEPP inventory, when NOT LISTED is entered, the tenth and eleventh position must contain a number from 01-99 for interface with the Automated Material Requisitions (AMR) program. This is required to allow different components with the same MJC/PMR to be provided with separate "Bills of Material" for automatic call out.

(g) Block 19 - LOCATION (DEN E052). (Preliminary Equipment Index Location). Enter the location of the item. For inventories being converted by LCMs, if the location is not available, enter the customer's (ship's) Work Center and a question mark (e.g., "EE01?").

(h) Block 20 - EIC (DEN DO08D). Enter the components EIC. The EIC entered in Block 5 may be a General Support Code (U series EIC) or a System/Sub-System Code. The component EIC, when identified in the 3-M EIC Manual, should identify to the component being added to the configuration file.

(i) Block 21 - NEXT HIGHER ASSEMBLY. Enter the Equipment/System Designator (ESD) (DEN T058) or other identifier of the system/sub-system.

(j) Block 22 - SAC (DEN EO1OA). Enter the Service Application Code (SAC) from the Coordinated Shipboard Allowance List (COSAL)/SCLSIIS source if available. Note that it is a five-character element on the OPNAV 4790/CK form but 10 characters in the automated system. LCMs should interface with NAVSUP WSS Mechanicsburg to obtain the ten-character element.

(k) Block 23 - WORK CENTER (DEN E128). This is the 3-M code of the customer maintenance Work Center required to maintain the component. If a Work Center Responsible for Compartment (WCRC) (DEN 127) code is also available in the LCM inventory, enter it. SUBMEPP use MJC WC with last two characters of 01 (e.g., EACC=EA01).

(l) Block 24 - NAME PLATE DATA. Use to describe any other characteristics not covered by other elements. This data will not display on reports but will be accessible in the program. For SUBMEPP it will be the CSMP Summary from the individual MJC assigned to the PMRs.

(m) Block 25 - PMS MAINT INDEX PAGE (MIP). Enter the PMS MIP if available.

(n) Block 26 - EOSS. If applicable, enter the Engineering Operational Sequencing System (EOSS) number.

(o) Block 27 - TECHNICAL MANUAL NUMBER. If available, enter the TM number, otherwise enter NA.

(p) Block 28 - RIN (DEN E221). If the component is listed in the COSAL or SCLSIIS, enter the Record Identification Number (RIN). If not available, the program will assign a temporary RIN as a permanent data element until changed by the SCLSIIS CDM external interface. For automated ships, first review the SEF for the component's RIN.

(q) Block 29 - AILSIN/FUNCTIONAL GROUP CODE (DEN T063). If the Automated Integrated Language System Identification Number (AILSIN) is not available, enter the Ship Work Authorization Boundary (SWAB) or Ship Work List Item Number (SWLIN), if known. TRIDENT applications will contain the FGC in lieu of AILSIN. Other class submarines use SWAB, and other type ships use Expanded Ship Work Breakdown Structure (ESWBS).

(r) Block 30 - SPECIAL PURPOSE. These requirements are TYCOM directed and are provided by the TYCOM supporting activity (SUBMEPP). The following are PMR requirements for SUBMEPP LCM. If the local site determines that changes are required, additions may be made. Deletions must first be coordinated with SUBMEPP.

1. Block 30A SS. Use an "X" if the component is Submarine Safety (SUBSAFE).
2. Block 30B. Use an "X" if the component is Level 1.
3. Block 30C NL1. Use an "X" if the component is Nuclear Level 1.
4. Block 30D NDT. Use an "X" if the component requires Non-Destructive Test.
5. Block 30E NWP. Use an "X" if the component requires Nuclear Work Procedures.
6. Block 30F SAED. Use an "X" if the component requires SUB Antenna Engineering Division.
7. Block 30G SAED. Use an "X" if the component requires SUB Antenna Engineering Division.
8. Block 30H ST. Use an "X" if the component requires Special Testing.
9. Block 30I. Use an "X" if the component requires Special Identification.
10. Block 30J NC. Use an "X" if the component is Noise Critical.
11. Block 30K RAD. Use an "X" if the component requires Radiological Control.
12. Block 30L OC. Use an "X" if the component requires Other Controls.

13. Block 30M D/D. Use an "X" if the component requires Dry-docking.

(s) Block 32 - LINE ITEM NUMBER. This element is assigned by the program when items/components are added to the system. The LIN is unique to the configuration file for each customer UIC and is retained until the record is deleted from the ship's inventory.

***NOTE:** This line item number preceded by PM becomes the permanent 3-M Work Center and JSN. Subsequent changes made to the record are reported up-line as a corrected CK using this permanent JCN. In addition, changes to the scheduling record and to the Calibration Laboratory (Cal Lab) production record are reported up-line with the same permanent JCN to support the MEASURE integration into 3-M. Note that the LIN plays the same role as the RIN for "non-supply worthy" items.*

(t) Block 33 - ON SITE. If the component being calibrated/tested cannot be delivered to the Testing Work Center (TWC) because of location, size, etc., enter a "Y" to show the TWC must calibrate on-site. Otherwise, leave this field blank. Leave blank for Submarine Extended Operating Cycle (SEOC) PMRs relating to installed HM&E.

(u) Block 34 - PERIODICITY. Enter the number of months between calibration/testing or other PMR cycles. If the requirement is situational, see Block 45.

(v) Block 35 - DATE LAST DONE. Enter the date (DDMMYY) the PMR was last accomplished (e.g., 05FEB00). For EPP, if the PMR has never been done because the periodicity has not exceeded the months since commissioning, construction, or overhaul; enter this event date if the PMR authorizes. If the PMR is for test equipment/slings/portable tools that have not previously been calibrated/inspected, the PMR must be accomplished prior to first use. Block 35 will be entered by the TWC.

(w) Block 36 - NEXT DUE DATE. Enter the date (DDMMYY) the PMR is next due for accomplishment (e.g., 27JUL00). This data element is calculated and reported up-line by the automated program when the PMR is reported completed by the TWC.

(x) Block 37 – STND/ETV Man-Hours - TENTHS. If the component PMR has a standard, engineered time value, or historically based man-hour estimate, it should be provided by the LCM/NAVSEA for the initial download or subsequent Automated Shore Interface (ASI) process. This element is not for expended man-hours reported when the PMR is accomplished.

(y) Block 38 - APPROVED PROCEDURE. Enter the procedure, PMR, Maintenance Standard or other directive used during the required action on the component. SUBMEPP should not repeat the Integrated Maintenance and Modernization Program (IMMP) number in this block as it is planning record.

**NOTE:** This entry is displayed in the last Program (IMMP) P~ included in the MJC column of the PMR report. This information may be used as an update record to show such information as the name of the person conducting the test/calibration, or the measurement of the gear. Once entered, it will display on subsequent reports until changed when next tested.

(z) Block 39 - CAGE (DEN C035). Enter the Commercial and Government Entity (CAGE), if applicable.

(aa) Block 40 - NATIONAL STOCK NUMBER (NSN). Enter the NSN, if applicable, or the LCM assigned number used for procurement/replacement/supply action.

(ab) Block 41 - PLANT ACCOUNT NUMBER. Enter the plant account number if applicable. This usually applies only to shore activity permanent/fixed equipment.

(ac) Block 42 - CALIBRATION STANDARD. Enter a "Y" if the component is used as a measurement standard for calibrating or testing other test equipment, otherwise leave blank.

(ad) Block 43 - CLASS STANDARD. To identify the source/type of man-hours for Block 37. A = Engineered, B = Historical, C = Estimated.

(ae) Block 44 – EQUIPMENT TYPE. Enter the functional category of the equipment. 1 = Electronic; 2 = Coaxial/Microwave; 3 = Optical/Dimensional; 4 = Physical/Mechanical; 5 = Electrical; and 6= Special Support. These are for LCM Measurement Equipment. Additional codes and other categories will be established by other LCMs.

(af) Block 45 – PHASE LEVEL. For measurement equipment (SUBMEPP or CMP events) if applicable, enter an asterisk plus the four digit KEY EVENT code describing the situational requirement.

(ag) Block 46 – ACTION REQUIRED. Primarily calibration codes are entered. For SUBMEPP and weight handling components, use Code 06 TEST/INSP.

(ah) Block 47 – OVERFLOW INDICATOR. For measurement (TAMS), the IMA lab may use a two-character code to identify a specific shore facility. A similar code may be used for SUBMEPP to identify components requiring off site assistance teams.

(ai) Block 48 – SCAT CODE. For Ships Portable Electrical/Electronic Equipment Requirements List (SPETERL) TAMS. The LCM should provide the subcategory code. Not applicable to other equipment.

(aj) Block 49 – SUPPRESS LANTFLT 4790/6 (if applicable). A custody receipt is provided to the customer when test equipment or other portable components are delivered to the Cal Labs. This form is not required for other categories of equipment. Enter a "Y" to prevent printing of the custody receipt. Enter an "N" for all test equipment having to be delivered to the Cal Lab. This causes the printing of a four-part custody receipt when the component is due for calibration. When the PMR is run at the beginning of each month, the computer will generate the PMR DUE/OVERDUE INVENTORY REPORT for the customer ship and the Cal Lab. After generating the Cal Lab reports, the system will print the LANTFLT 4790/6 for each DUE component.

*NOTE: LANTFLT 4790/6 forms must be delivered to the Cal Lab and not to the customer ship with the recall reports.*

(ak) Block 50 – MEC-VITALITY CODE. Mission Essential Code V = Vital. For SUBMEPP use codes reflected in EOC IMMP/URO/LID. Use only if required and furnished by LCM. IMA Work Center, enter the 3-M IMA Repair WC code of the Cal Lab or Testing WC. This is obtained from the MJC planning record.

(al) Block 51 – MAINTENANCE LEVEL. From the CMP, used to identify where PMR will be performed: Organizational (O), Intermediate (I) or Depot (D). The NAVSEA Technical Specification Manual details additional data elements used in PMR as part of the Configuration/Equipment Record, and those used for generating from one to multiple scheduling records for each equipment record file. Each scheduling record must be identified to a unique MJC JCN general requirement for multi-tasking.

## 6. Data Elements

The following data elements are used in creating scheduling records for MJC supported equipment. These elements are used with the automated processing of PMRs and do not have a correlating block entry requirement on the PMR CK form. For additional information, refer to TYCOM instructions and systems user manuals.

DATA ELEMENT	DESCRIPTION/ENTRY CRITERIA
<u>ALMAD</u>	Identifies the ALMAD of the PMR component for calculating the Next Due Date. This is for SEOC IMMP/URO programs which adjust the LMA date to the end of the availability.
<u>EOSS</u>	Assigned by the CDM if applicable to the PMR accomplishment.
<u>Frequency</u> (Daily, Weekly, Monthly, etc.)	The periodicity frequency of the PMR. Used by SUBMEPP to identify SEOC events from the CMP. It should cross reference to scheduling of situational PMRs.

DATA ELEMENT	DESCRIPTION/ENTRY CRITERIA
<u>IMA Work Center</u> (DEN E902A)	The 3-M IMA Repair WC code of the Cal Lab or Testing WC. This is obtained from the MJC planning record. "FCA" is used for shipboard gage calibration.
<u>Initialization Next Due Date</u>	The CDM assigned date to identify when new requirements are to be scheduled for accomplishment. This date is required for implementing PMR on newly commissioned ships or when PMR components receive additional scheduling requirements. Format is YYMMDD.
<u>Last Action Taken</u>	The Final Action Taken (FAT) code from the Completed automated work request. Date is retained on record. Last Assigned Availability Number (LAAN) identifies the Availability Category and number in which the component PMR was last accomplished.
<u>Last Assigned Repair Activity Unit Identification Code</u> (RAUIC)	This RAUIC identifies the IMA last accomplishing the component PMR.
<u>Last JCN Reference</u>	The WC and JSN of the last reported JCN that accomplished the PMR. The intermediate maintenance management automated system includes retention of the last JCN and Availability Number in the PMR Scheduling file for determining the Adjusted Last Maintenance Action Date (ALMAD).
<u>Life Cycle Manager Code (LCM)</u> (DEN E137)	The LCM code assigned to the MJC planning record as shown in the modified OPNAV 4790/CK (PMR CK). Note that the one-character code from COSAL Maintenance Manual is expanded to two (with an optional suffix). This allows identification of multiple functions within the SYSCOMs.
<u>LCM Suffix</u> (Optional)	TYCOM will assign.
Maintenance Action Code Literal	The four-character literal to describe the required PMR. Calibrate = CAL, Special Calibration = SCAL, User Calibrate = UCAL, Test or Inspection = TEST, No Cal Required = NCR, Inactive = INAC.
<u>Master Job Catalog Number</u>	Enter the MJC number from the bottom of the modified OPNAV 4790/CK (PMR CK) or from the TYCOM MJC Index.
<u>PMR Number</u>	The PMR number as recorded on the MJC planning record (OPNAV 4790/2P) and as identified in the CMP.
<u>RAUIC Final Action Taken (FAT) Code</u>	Identifies the FAT reported by the RAUIC for the component PMR.

DATA ELEMENT	DESCRIPTION/ENTRY CRITERIA
<u>Scheduled Shop Code</u>	Identifies the IMA Cal Lab or other primary LWC to accomplish the PMR. For TAMS, use 51C, 67B, 67F, 96A, or FCA.
<u>Scheduled RAUIC</u>	Identifies the planned RAUIC for accomplishing PMR calibrations and other actions.
<u>Selected Equipment List Indicator (SEL)</u>	An "X" is used if CDM has indicated Meter Readings or Specialized Reporting.
<u>Situational Requirement Key Event Codes</u>	For scheduling PMRs to be done during non-cyclic situational events (e.g., calibrate tank level indicators whenever tanks are opened). These event codes are assigned by the CDM or supporting activity for CMP requirements.
<u>Special Handling Requirements</u>	A series of codes and definitions to be assigned as agreed between the TYCOM, Platform Manager and designated CDM for TAMS and other PMR components. A total of eight codes may be defined for each ship type. Four codes are reserved for the following: A = POTENTIALLY RADIOACTIVE CONTAMINATED B = REACTOR PLANT CLEAN REQUIREMENT C = STEAM PLANT CLEAN REQUIREMENT
<u>Systems Calibration (SISCAL) Calibration Requirements List (CRL) Indicator</u>	Reserved for use as an interface to indicate PMR is to be performed by NAVSEA Team.
<u>Version Issue Date (DEN D917A)</u>	The Julian Date (YDDD) of the original MJC JCN deferral.

Table E-1

7. Master Job Catalog (MJC) Interface with PMR. The MJC and PMR integration provides management of many other maintenance applications including:

- a. All Class Maintenance Plan requirements.

- b. Electrical safety and weight handling safety requirements.
- c. PMS requirements calling for IMA support.
- d. Periodic inspections of Rubber Insert Sound Isolation Coupling (RISIC) and flexible hoses.
- e. IMA testing of system relief valves.
- f. IMMP/URO submarine requirements.
- g. Tracking of multi-phase alterations.
- h. Corrosion control management. The decision to manage these cyclic requirements as single or multi-task requirements is usually determined by the scope of the task, and if a single Work Center can accomplish the task or whether multiple Work Centers will be required.

8. TAMS Calibration. PMR provides the TAMS community with inventory management, calibration scheduling management and calibration results reporting capabilities. TAMS categorizes equipment requiring calibration and weight testing periodic maintenance. The MJC supports TAMS equipments and the special IMA Routines required to support calibration and weight test, periodic maintenance requirements that are to be accomplished during scheduled availabilities. The lab assigned responsibility for calibration and repair along with the Work Centers responsible for accomplishment are provided in the MJC.

- a. PMR tracks all due and overdue TAMS of each MJC category. For each periodic requirement that needs to be accomplished, PMR creates a single deferral for each scheduling record. This assists the Cal Labs in identifying all items requiring periodic test, monitoring/calibration to the customer ship and the IMA lab.
- b. When the items are delivered to the lab, PMR will track delivery, progression, status, completion and pick-up of each piece of test equipment. The Master CSMP will display within the single deferral all of the due/overdue items by line item, model, serial and nomenclature.
- c. As each task (TAMS item) is completed, the expended man-hours are accumulated against the production AWR and the detailed reporting of hours, delays, parts usage, out-of-tolerance readings and standards being used are recorded and up-line reported. This information is also retained in the PMR so that the Cal Labs have an on-line history of each ship's TAMS.

d. When the availability is completed, the Automated Work Request (AWR) is signed off for processing. A special record is automatically created for each item calibrated against the single CSMP JCN. Optionally, the AWR can be created each month or quarter and be closed at the end of the period.

e. If any unscheduled TAMS items are delivered by the ship, the Lab (or TYCOM designated support activity) need only access the PMR record and add it to the outstanding AWR.

f. The Cal Lab can call out a standard REPAIR routine for the specific lab and PMR item. For example, if Lab 67B cannot calibrate one of the 150 items provided, the unique MJC JCN with the item data from PMR is retrieved against the repairable item. This REPAIR routine assigns 67A (Electronics Repair) as the Assist Work Center and 67B inputs the defective item to 67A.

9. Standard MJC Routines for TAMS Calibration and Weight Testing The "PMR WC" entry of the MJC standard routines identify the specific Logistic Manager Code for each category of TAMS. ET = Electronics Technician, JR = NAVSEA RADIAC, etc. A "2" causes multiple task (line items) per single AWR, and the "MC" is the special suffix assigned to the Master CSMP deferral from the MJC. From the MJC routine record, a PMR WC entry adjacent to the REPAIR MJC will create one item per AWR. This item will have a unique WC suffix - "CR" for Cal Repair. This allows retrieval of all TAMS repair history from NSLC by keying on the JCN WC suffix or by MJC JCN which is contained in Block 18 of each MJC-originated CSMP deferral. The LCM code is included on each PMR detailed record reported to NSLC via 3-M.

LAB	MJC FOR CAL	PMR WC	MJC FOR REPAIR	PMR WC
51C	N0000EXCAB702	HE2MC	N0000EXCAE702	HE CR
67B	N0000OXCAB701	ET2MC	N0000OXCAE701	ET CR
67F	N0000EXCAB703	JR2MC	N0000EXCAE703	JR CR
72D	N0000WXCNC719	HW2MC	N0000WXCNE719	HW CR
96A	N0000EXCAB704	HW2MC	N0000EXCAE704	HM CR
FCA	N0000EXCAB706	HM2MC	N0000EXCAE706	HM CR

Table E-2

10. Other Automated System in Support of PMR Other automated systems and system programs interface with the MJC and PMR programs. Refer to TYCOM instructions and system user manuals for particular system capabilities and requirements.

11. Using MJC JCN Structure to Manage Programs. The MJC File is created and managed the same as the CSMP file. Each "deferral" is a requirement or special work request (for service, scheduling of alterations or specialized CMP requirements, etc.) which is copied to a CSMP or work package. The method by which many different programs can be added to a single MJC is by control of the MJC JCN. In documenting an MJC, there are exceptions to the standard documenting procedures for a CSMP deferral (OPNAV 4790/2K) as described in the Joint Fleet Maintenance Manual, Volume VI, Chapter 19.

a. Fleet / TYCOM / Local Site MJC Control.

(1) Block 1 UIC. The first character defines the MJC Manager Code and identifies the activity responsible for the MJC item. It is assigned by the TYCOM. This same code is used as a prefix to the MJC JSON log. The following restrictions apply to the use of MJC Manager Codes.

A	Not Used. Reserved for foreign ship UIC identity.
I	Not used to avoid confusion with numeral 1.
O	Not used to avoid confusion with numeral 0.
Q	Not used to avoid confusion with numeral 0.
N	Used for MJC items issued and controlled by TYCOMs.
M	Used for MJC items issued and controlled by the Fleet CINC.

Table E-3

When MJC items are added to a ship's CSMP, the program adds the original MJC JCN (with an "M"-MJC-prefix) to the "ALTERATION (Block 18)" data field. This allows the 3-M history at NSLC to be queried relative to man-hour and material cost expenditures. A single calibration routine can provide (by individual ship, RAUIC, type of ship, etc.) total cost per TYCOM for each and all electronic calibration labs for specific periods of time. In addition, the associated Repair routine will identify each unique piece of TAMS repaired during the same period. The remaining four characters of the MJC UIC (BLOCK 1) identify MJC categories and the type of ships to which they apply. For each MJC UIC, there must be a corresponding UIC control record added to the master file.

0000	All Ships	0001	All Surface Ships
0002	All SSNs	0003	All SSBNs
0006	SSN/SSBN	0007	AEGIS CRUISERS
0100	ALTS AS/AD	0210	ALTS SSBN
0230	ALTS SSN	4020	SSN OVERHAUL ROUTINES
5000	TRIDENT UNIQUE	5100	SEA WOLF UNIQUE

Table E-4

(2) Block 2 MJC WC Designations.

(a) The left two letters identify the shipboard department and division to which the item normally applies. If a specific division is not applicable, use "X." When the MJC item is for multiple departments, use "E" for Engineering.

(b) The third and fourth letters identify the maintenance category and its source.

1. When the third letter is a "C" (a corrective maintenance directive or periodic service routine item), the fourth letter will identify its source as follows:

CODE	SOURCE OF DIRECTIVE
A	PLANNED MAINTENANCE SYSTEM (PMS)
F	NAVSEA
H	NAVMAR
M	USFF/COMPACFLT
I,O,Q	NOT USED
OTHER	RESERVED FOR TYCOM USE

Table E-5

2. Other combinations of the third and fourth letter may be used to identify other categories as directed by TYCOMs.

(c) When the MJC item is an alteration controlled through a TYCOM alteration management system or the Fleet Modernization Program Management Information System (FMPMIS), the first letter will identify the shipboard department, the second letter will be "X" and the third and fourth letter will identify the type of alteration (SA, TY, etc.).

1. The combination WC and JSON will be assigned by the alteration issuing authority and is displayed along with the structured alteration number on the alteration issuing directive.

2. The structured alteration number must be recorded in Block 18 of the MJC deferral exactly as described in Appendix H of this manual. This provides for an error free Alteration Record being added to the ship's CSMP and provides for the necessary 3-M to FMPMIS completion status feedback. Because Block 18 is prefilled, the MJC JCN will not be copied into that field in the CSMP. However, the Alteration Management System (AMS) WC/JSON will be assigned as the ship's WC/JSON. This same combination must be reported on the completed OPNAV 4790/CK Configuration Change Record rather than a shipboard assigned WC/JSON.

3. An additional restrictive WC/JSON combination is for tracking the standard Depot Overhaul Routines which have an MJC WC of "EXSY" and are identified in the OWP so that Depot estimates and return costs can be reported to the SWLIN/ESWBS level and individual Work Center deferrals from the CSMP can be grouped and costs accounted for under the EXSY "bucket jobs." These standard EXSY routines retain the MJC WC/JSON when added to the CSMP and allow the Ship's Engineer and Overhaul Coordinator to track the overhaul progress by use of the CSMP. NAVSEA (SEA 07) directed these procedures be followed by SUPSHIP and Shipyards when costing Departure Reports and to provide for Depot 3-M reporting.

(3) Block 3 MJC JSON Prefix for Work Category. This entry is the sequence number of the item unique to the MJC "Work Center" code. It is usually all numeric, but there may be conjunctive or associated actions following an MJC inspection, test or calibration. If so, the total set should reflect a different alphabetic code as the first character of the JSON.

b. Documenting the MJC Deferral. The amount of detail within an individual MJC item is dependent on whether the action required is to provide IMA routines such as "Printing Services", specific non-scheduled refurbishment or repair for a recurring failure of a specific APL, standard procedure for docking/undocking ships, corrosion control inspections of piping, or PMR scheduling of individual components. Details will be provided by TYCOM directives.

c. Evaluating Requirement for Single or Multi-Task.

(1) When the MJC item is being created for general service routines, and is not to interface with PMR configuration and scheduling, follow the standard deferral documentation procedures and describe in the Remarks data field (Block 35 of the 2K) the actions required for the routine. An example entry may read, "IMA provide sheet metal service. Limit to 1/8" thick metal. S/F provide sketch on OPNAV 2L. Maximum 100 man-hours."

(2) When the MJC item is written to interface with the PMR, the details of the equipment or component is a function of the PMR configuration and scheduling records. When a single requirement requires a single JCN, data element fields for "Alterations" (Block 4), "Component Noun Name" (Block 13), and "Component Identification" (Block 16) of the MJC will contain an asterisk. The data will be pre-filled from PMR when retrieved into the CSMP. An individual work request (JCN) per component is appropriate when multiple Work Centers are to be involved in the requirement or when there is a requirement for Controlled Work Procedures required by TYCOM Quality Assurance Procedures. For example:

(a) If there were 100 sea valves due for a 72-month refurbishment, 100 separate JCNs would be added to the CSMP.

(b) If there were a second requirement to visually check all sea valves for external corrosion every 24 months, an additional MJC item would be created and another PMR scheduling record would be added to each sea valve configuration record. In this situation, the MJC would be coded as multi-tasked and one JCN would be created with 100 tasks (1 task per valve). MJC calibration routines are all coded as multi-tasked.

d. Standard Narrative (Block 35). Narrative should include a statement of the requirement and include notices to the tended unit and LWC on ship-to-shop or special controls. The deferral narrative is limited to 1200 characters. However, when the AWR is completed, an additional 1200 characters may be used by the LWC to provide feedback information (free-form) to the SYSCOM directing the requirement.

e. Structured Narrative (Block 35). There are two types of structured narrative provided by the MJC:

(1) Certain inspection or test criteria are specified by the requirement in which the LWC/AWC is to feedback the material condition assessment by "yes/no" responses to conditional questions printed on the CSMP AWR. In these cases, the narrative will begin with a general statement of the requirement, followed by specific inspection conditions and a response space for "Y" or "N." For example: "Was there evidence of external leakage? ( ); corrosion? ( )."

(2) Certain equipment is designated for specialized reporting by the LCM or item manager and the organization. Automated ships' systems must flag the SEF to display the structured narrative specified and funded by the LCM. This requires the shipboard technician to enter "as found" readings and symptoms which are up-line reported for SYSCOM analysis. If an extension of these specialized reporting requirements to the off-ship IMA technicians is required, the PMR screen could display a similar format (refer to Appendix C, data element "REMARKS/DESCRIPTION" for Selected Equipment List (SEL) reporting requirements).

f. Documenting the MJC P&E. The OPNAV 4790/2P is used for MJC P&E with entries made as described in Appendix D except for the following:

(1) Section I – Planning.

(a) Block A - SHIP'S NAME. Enter the "MJC ITEM."

(b) Block B - HULL NUMBER. Leave Blank.

(c) Blocks 1-3 - JOB CONTROL NUMBER. Enter the same JCN as assigned to the attached MJC 2K.

(d) Block 4 - PERIODIC MAINTENANCE REQUIREMENT NUMBER. If the MJC is for a PMR, enter the appropriate number from the CMP or other directive.

(e) Block 5 - PERIODICITY. If applicable, enter the periodicity of the requirement.

(f) Block 6 - YEAR AND MONTH ISSUED. Enter the date (YYMM) the PMR was established.

(g) Block 7 - SPECIAL DATA. The first two positions are to identify the LCM code controlling the PMR. These codes are:

1. ET – NAVWAR Electrical/Mechanical TAMS
2. HE – NAVSEA Electrical TAMS
3. HM – NAVSEA Mechanical TAMS
4. HP – NAVSEA SUBMEPP/GEN Scheduling
5. HS – NAVSEA Electrical Safety

6. HW – NAVSEA Weight Handling Equipment

7. JR – NAVSEA Radiac TAMS

The third position is for entering whether the MJC is to control single or multi-component JCNs. Leave blank if the MJC is for non-PMR service routines. The fourth and fifth position are provided to record a special program WC suffix to the output CSMP JCN (e.g., Submarine IMMP/URO/LID/SEOC programs are assigned "JC" as a suffix). If no entry is made, the output JCN will be assigned a WC suffix of "MC." Only alpha codes should be assigned to separate MJC retrieved deferrals from shipboard created deficiency deferrals.

(h) Block 8 - SCREENING ACTION. When authorized by TYCOM instructions, the MJC may be designated as preapproved. Entry of the screening code will cause the MJC retrieval to by-pass normal screening action and the JCN will be sent directly for release to the IMA for accomplishment.

(i) Block 9 - QUALITY ASSURANCE REQUIREMENTS (QA). Assign the QA requirements applicable to the MJC. The PMR scheduling record for individual components will take precedence during call-down.

(2) Section II – Scheduling.

(a) Block 12 - LEAD WORK CENTER (LWC). Enter the code of the LWC assigned to control the coordination and completion of the total JCN. When the MJC is for multi-component inspection/calibration/testing, the primary WC is assigned. When an associated "Repair" MJC is to be created, assign the same primary WC as LWC and other required WCS as assisting (AWC). To ensure standardization for IMA capabilities and continuity when transferring work packages, the TYCOM controlled MJC assigned LWC must not be changed unless approved by TYCOM direction.

(b) Blocks 13, 19, 25, 31, 37, and 43. As required.

(c) SCHED START DATE. Enter a numeric value for the start day relative to the start of the availability. When the MJC is subsequently retrieved and added to the CSMP, the relative day will be added to the availability start date and outputted as a Julian date on which each task is to be started by the LWC and any AWCs. Note that multi-component MJCs will not include AWC entries.

12. Establish Bill of Materials Interface. When the MJC is for refurbishment of APL identified components, the repair part requirements (both mandatory and conditional) are provided on electronic media by the LCM or TYCOM assigned planning activity (SUBMEPP/SURFMEPP/CPA). When the MJC is retrieved for each component, an automated material requisition is produced for mandatory parts and a list of contingency items provided

with the work request. The same format record can be added by local sites if local MJC items are developed.

13. MJC Alteration Documentation Differences. Alterations added to the MJC will be limited to those managed by the AMS. These are identified by the assignment of the AMS WC/JSN and structured alteration number as described in the Joint Fleet Maintenance Manual (JFMM).

- a. Block 1 - UIC. Enter the MJC UIC established by the TYCOM.
- b. Blocks 2-3 - WC AND JSN. Enter the WC/JSN assigned by the alteration issuing authority.
- c. Block 18 – ALTERATIONS. Enter in position 1 and 2 the alteration type identified in the following table. This entry must match the WC suffix in the WC field (Block 2).

PREFIX	ALTERATION CATEGORY
A&I	ALTERATION AND IMPROVEMENT
AER	ALTERATION EQUIVALENT REPAIR
CFE	CONTRACTOR FURNISHED EQUIPMENT REPORT
EC	ENGINEERING CHANGE
ECI	EQUIPMENT CERTIFICATION INSTRUCTION
ECO	ENGINEERING CHANGE ORDER
EP	ENGINEERING CHANGE PROPOSAL
FC	FIELD CHANGE
GFE	GOVERNMENT FURNISHED EQUIPMENT REPORT
HMR	HEAD QUARTERS MODIFICATION REQUEST (TRIDENT)
LSA	LOGISTICS SUPPORT ANALYSIS
MA	MACHINERY ALTERATION
MO	MODIFICATION (CRYPTO EQUIPMENT)
MOD	MODIFICATION (TRIDENT)
OA	ORDNANCE ALTERATION
PDD	PLANNING DEPARTMENT DRAWING (TRIDENT)
SA	SHIP ALTERATION

PREFIX	ALTERATION CATEGORY
SC	SERVICE CHANGE OR SOFTWARE CHANGE
SCD	SHIP CHANGE DOCUMENT
SP	SPECIAL PROJECTS
SW	SOFTWARE DELIVERY
TC	TRIDENT COMMAND & CONTROL SYSTEMS
TD	TECHNICAL DIRECTIVE
TDC	TYCOM DISCRETIONARY CHANGE
TEC	TEMPORARY ENGINEERING CHANGE
TMA	TRIPER MACHINERY OPERATION
TRI	TRIDENT SHIP ALTERATION
TZ	TYPE ZERO ALTERATION

Table E-6

d. Block 27 – MHRS REM. Entry must be numeric. The use of “AUTO” (auto-close) is not appropriate for MJC alterations. Completion of deferrals for alterations must be by OPNAV 4790/CK.

14. MJC Index and Statistics. The MJC Index (Figure E-1) is produced as required by TYCOM instructions. A number of selection parameters are provided during call-down to limit the volume of the Index to particular applications. MJC JCNs required by tended ships may be recorded on the OPNAV 4790/2L and provided to the TYCOM-designated support activity during the availability arrival conference. Selected MJC JCNs may be called down as directed by the TYCOM prior to the availability or by quarter year (e.g., calibration routines) and may be assigned to other than the scheduled availability. This allows the Production Management Assistant (PMA) and other managers to focus on correction of deficiencies with weekly status reports of Service Routines progression. Also available is the MJC Call-Down Frequency Report. A number of selection parameters are provided to limit the volume of the report to particular applications. Available is a report on the number of times the MJC JCN was retrieved and the last retrieval date. This report allows monitoring of mandated JCN call-downs and also provides for culling out of locally created MJC routines which are seldom used. (Refer to the applicable system’s user manual for additional reports that may be generated.)

15. Analysis of MJC/PMR Originated Production History. Each JCN called down from the MJC as a deferral into the Master CSMP is assigned a CSMP JCN different than the MJC JCN. Each specialized project may be assigned a unique WC suffix so that the Program Manager may retrieve selective history from the NSLC 3-M database on the MJC Call-Down Frequency Report (Figure E-2).

- a. Some special program WC suffix codes currently being used are:

_XSA	SHIPALTS
_XTY	TYCOM ALTS
EXSY	Depot-level (SY=Shipyard) availability routines. These routines assign standard 3-M data to each.
ESWBS/SWLIN	For Depot Return Cost Departure Reports as approved by NAVSEA (SEA 07).
_XCR	Jobs for repair of components that failed calibration or weight testing. Each failed component will be assigned a unique JCN.
_JC	IMMP/RO/LID and other scheduled CMP PMRs.

Table E-7

b. When a special program code is not assigned, the program will assign a WC suffix of "MC." If allowed by TYCOM instructions, the ship may assign its own WC/JSN to the MJC routine. With the exception of MJC Alterations, each retrieved MJC deferral will have its MJC JCN prefixed with an "M" and be written to the Configuration/Alteration Number field (block 18) of the CSMP deferral.

c. When the MJC is designated as multi-level, the MJC call-down is linked to the PMR scheduling file and retrieves all due and overdue components as tasks within the one CSMP deferral JCN. This will result in a family of data records being created to capture the METCAL required data when the lab reports completion of each component.

d. Each Program Manager is able to retrieve and analyze all transactions unique to the MJC JCN and WC suffix code assigned to a special program.

16. Modification of On-Site MJC. Implementation, distribution and maintenance of the MJC will be as described in this instruction and supplemented by Fleet/TYCOM instructions. It is essential that existing MJC files, which have common application, be adapted by those commands not yet implemented. This will speed-up integration of the Regional Maintenance Hubs and provide continuity to the existing 3-M database for Program Manager requirements.

- a. The Fleet Maintenance Management System will provide connectivity to the SYSCOMs for data storage and distribution.
- b. The FLTCINCs/TYCOMs will provide instructions for management of the MJC to include centralized and on-site control.
- c. The existing method of confirming updates to the MJC by the IMAs is by including a "completed AWR record" in the update files sent from the originator. The originator subsequently monitors the MDS data.

**MASTER JOB CATALOG INDEX**

94 (94090)

31 MAR  
PAGE 2

ACTIVITY: LAND EMORY S. (USS)  
UIC: 20635

AS 39

SEQUENCED BY: MJCN UIC

SWAB/ SWLIN	JOB CATALOG NUMBER/TYPE	PLANNED ACTION (CSMP SUMMARY)	NOUN NAME EQUIP/SERVICE	LWC	IMA/DEP M/H	SHIP M/H	IUC/TY SCREEN	T A	KEY EVENT	START DAY	*FURNISH APL-IDENT
N0000	DXCN D701	ESM ALIGNMENT	ESM EQUIPMENT	67a	75	AUTO	2	2		1	*
N0000	EACF 0013	ACCOMPLISH IMMP 513-0023-01	SEPARATOR FLASK	10C	170	AUTO	2	2		1	*
N0000	EACF 0014	ACCOMPLISH IMMP MR 513-0089-01	SEPARATOR FLASK	10C	2	AUTO	2	2		1	*
N0000	EMCN 0001	SEAWATER SYSTEM METALS CONTROL	GENERIC MATERIAL	93A	20	AUTO	2	2		3	*
N0000	EMCN 0002	RPFW FLUSHING RIG	RPFW FLUSH	38N	1	AUTO	2	2		1	*
N0000	EMCN 0003	RADCOM SERVICES	RADCOM	94A	400	AUTO	2	2		1	*
N0000	EMCN 0004	PROBOLOG PREP	MN CONDENSOR	38A	50	AUTO	2	2		1	*
N0000	EMCN 0005	PRESSURIZER UT	PRESSURIZER	93A	17	AUTO	2	2		1	*
N0000	EMCN 0006	WELDER QUALIFICATION	WELDER QUAL	26B	40	AUTO	2	2		1	*
N0000	EMCN 0007	SHFT/BRG/PROP INSPECTION	SHFT/BRG/PROP	38A	48	AUTO	2	2		1	*
N0000	EMCN 0008	RADIAC CALIBRATION	RADIAC CALIBRATE	10C	1	AUTO	2	2		1	*
N0000	EMCN 0009	HYDROBLAST CLEANER	HYDROBLASTER	25D	16	AUTO	2	2		1	*
N0000	EMCN 0010	UT HP STEAM DRAINS	HP STEAM DRM UT	93A	46	AUTO	2	2		1	*
N0000	EMCN 0011	INSPECT MAIN PROPELLER	MN PROPELLER		0	AUTO	2	2	0	*	
N0000	EMCN 0012	SEAWATER SYSTEM METALS CONTROL	GENERIC MATERIAL	93A	26	AUTO	2	2		3	*
N0000	EXCA B702	CALIBRATE ELECTRICAL INSTRUMENTS	CALIBRATION SVCS	51C	40	AUTO	2	2		1	*
N0000	EXCA B703	CALIBRATE RADIAC EQUIPMENT	RADIAC EQUIPMENT	67F	20	AUTO	2	2		1	*
N0000	EXCA B704	CALIBRATE MECHANICAL INSTRUMENTS	CALIBRATION SVCS	96a	75	AUTO	2	2		1	*

**Figure E-1**  
**Master Job Catalog Index**

NAVSEAINST 4790.8D  
17 Jun 2021

**MJC CALL DOWN FREQUENCY REPORT**

31 MAR 94 (94090)  
PAGE 2

ACTIVITY; LAND EMORY S. (USS) AS 39 SEQUENCED BY; MJCN

CATALOG NUMBER	PLANNED ACTION (CSMP SUMMARY)	EST SHIP	MAN-HOURS IMA/DEF	T A	IUC/TY SCREEN	KEY EVENT	CALL-DOWN DATE	CALL-DOWN FREQUENCY	NON NAME EQUIPMENT/SERVICE
N0000 OXCA B701	CALIBRATE ELECTRIC EQUIPMENT	0	0	2	2	2	12/03/93	994	CALIBRATION SVCS
N0000 OXCA B705	FCA CALIBRATE ELECTRONIC TAMS	0	0	2	2		07/28/93	1	FCA ELECTRONICS
N0000 OXCA B701	REPAIR ELECTRONIC TEST EQUIP	0	0	2	2		08/13/93	810	ELECTRONIC TMDS
N0000 OXCA N702	TTY EQUIPMENT MAINTENANCE	0	0	2	2		04/05/93	69	TTY EQUIP MAINT
N0000 OXCM 001	TEST, REPAIR 2M PRINTED BOARDS	0	0	2	2		04/06/93	70	2M CIRCUITBOARDS
N0000 OXCN A702	PROVIDE MICROFILM SERVICE	0	0	2	2		09/12/91	38	MICROFILM SVC
N0000 OXCN E705	REPAIR TIME PIECES	0	0	2	2		04/05/93	436	TIME PIECE
N0000 OXCN E706	PORTABLE RADIO REPAIR	0	0	2	2		11/17/92	14	RADIO EQUIPMENT
N0000 OXCN E707	OPTICAL INSTRUMENT REPAIR	0	0	2	2		06/07/93	152	OPTICAL INSTRUM
N0000 OXCN E708	CRAT FOR RADIO GROOMING	0	0	2	2		04/09/93	25	RADIO GROOMING
N0000 OXCN N703	CRYPTO REPAIR	0	0	2	2		04/06/93	23	CRYPTO REPAIR

**Figure E-2**  
**Master Job Catalog Call-Down Frequency Report**

NAVSEAINST 4790.8D  
17 Jun 2021

**APPENDIX F**  
**LIST OF ACRONYMS**

APPENDIX F  
LIST OF ACRONYMS

3-M Maintenance and Material Management

A

A <sub>o</sub>	Operational Availability
ABR	Agreements for Boat Repair
ACN	Advance Change Notice
AILSIN	Automated Integrated Language System Identification Number
AT	Acceptance Trials
ADP	Automated Data Processing
AEL	Allowance Equipment List
AER	Alteration-Equivalent-To-Repair
AIT	Alteration Installation Team
AIT-I	Alteration Installation Team Industrial
AIT-P	Alteration Installation Team Pier Side
ALID	Automated Library Issue Document
ALMAD	Adjusted Last Maintenance Action Date
ALRE	Aircraft Launch and Recovery Equipment
ALT	Alteration
AN	Army/Navy
AP	Assessment Procedure
APHMP	Advance Planning Hull Modernization Plan
APL	Allowance Parts List
APMP	Automated Periodic Maintenance Program
ASI	Automated Shore Interface
ASW	Auxiliary Sea Water
ASWOC	Antisubmarine Warfare Operations Center
ATE	Automatic Test Equipment
AWC	Assistant Work Center
AWP	Availability Work Package
AWR	Automated Work Request

B

BFI	Battle Force Interoperability
BDA	Battle Damage Assessment
BUMED	Bureau of Medicine and Surgery

C

CAGE Commercial and Government Entity

Cal-Lab	Calibration Laboratory
CANTRAC	Catalog of Naval Training Courses
CAP	Common Assessment Procedure
CASREP	Casualty Report
CBM	Condition-Based Maintenance
CBM+	Condition Based Maintenance Plus
CCB	Configuration Control Board
CCR	Configuration Change Request
CDA	Central Design Activity
CDM	Configuration Data Manager
CDMD-OA	Configuration Data Manager's Database-Open Architecture
CFBD	Common Functional Block Diagram
CI	Configuration Item
CIN	Configuration Identification Number
CM	Configuration Management
CMP	Class Maintenance Plans
CNIC	Commander Navy Installations Command
CNO	Chief of Naval Operations
COMNAVIFOR	Commander, Naval Information Force
COMNAVSURFOR	Commander Naval Surface Forces
CONUS	Continental United States
COSAL	Coordinated Shipboard Allowance List
COTS	Commercial Off-The-Shelf
CPA	Carrier Planning Activity
CPM	Centrally Provided Material
CRL	Calibration Requirements List
CS	Commodity Specialist
CSA	Configuration Status Accounting
CSS	Center for Service Support
CSMP	Current Ship's Maintenance Project
CSOSS	Combat Systems Operational Sequencing System
CT	Combined Trials

D

D-Level	Depot
DCPO	Division Chief Petty Officer
DFAS	Defense Finance and Accounting Service
DFS	Departure From Specifications
DIRSSP	Director, Strategic Systems Programs
DIRSSPO	Director Strategic Systems Project Office
DISRA	Docking Incremental Selected Restricted Availability
DLSS	Diver's Life Support System

DPIA	Docking Phased Incremental Availability
DSRA	Docking Selected Restricted Availability
DSS	Deep Submergence System
DVD	Digital Video Disk

E

EC	Engineering Change
ECP	Engineering Change Proposal
EDPMA	Extended Docking Planned Maintenance Availability
EDSRA	Extended Docking Selected Restricted Availability
EGL	Equipment Guide List
EIC	Equipment Identification Code
EMFN	Electrician Mate Fireman
EMP	End of Monitoring Period
EOC	Equipment Operational Capability
EOC	Extension of Operating Cycle
EOSS	Engineering Operational Sequencing System
ESN	Electric Symbol Number
ESRA	Extended Selected Restricted Availability
ESWBS	Expanded Ship Work Breakdown Structure
ET1	Electronics Technician 1 <sup>st</sup> Class
EHPM	Execution Planning Hull Modernization Plan

F

FAT	Final Action Taken
FBR	Feedback Report
FBW	Fly-By-Wire
FC	Field Change
FCB	Field Change Bulletin
FCA	Field Calibration Activity
FCT	Final Contract Trials
FGC	Functional Group Code
FLEETMER	Fleet Maintenance Effectiveness Review
FMA	Fleet Maintenance Activity
FMP	Fleet Modernization Program
FMS	Foreign Military Service
FN	Fireman
FOTE	Fiber Optic Test Equipment
FR	Force Revision
FTGSN	Fire Control Technician Guns Seaman

G

GFE	Gas Free Engineer
GMG2	Gunners Mate Guns 2 <sup>nd</sup> Class
GMI	Guarantee Material Inspections
GPETE	General Purpose Portable Electric and Electronic Test Equipment

H

HAZMAT	Hazardous Material
HCPM	Headquarters Centrally Provided Material
HM&E	Hull, Mechanical, and Electrical
HMP	Hull Modernization Plan
HMUG	Hazardous Materials User's Guide
HSC	Hierarchical Structure Code
HSC	Hardware Systems Command

I

I-Level	Intermediate Level
ICMP	Integrated Class Maintenance Plan
IEM	Inactive Equipment Maintenance
ILO	Integrated Logistics Overhaul
ILS	Integrated Logistics Support
IMA	Intermediate Maintenance Activity
IMF	Intermediate Maintenance Facility
IMMP	Integrated Maintenance and Modernization Program
INAC	Inactivation Availability
IND	Industrial
INSURV	Board of Inspection and Survey
ISE	In Service Engineer
ISEA	In-Service Engineering Activity
ISEA	In-Service Engineering Agent
ISIC	Immediate Superior In Command
IT	Integrated Trials
IT	Information Technology
IUC	Intermediate Unit Commander

J

JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
JQR	Job Qualification Requirement
JSN	Job Sequence Number

L

LAAN	Last Assigned Availability Number
LAN	Local Area Network
LAR	Liaison Action Request
LCM	Life Cycle Manager
LCS	Littoral Combat Ship
LOA	Letter of Authorization
LOEP	List of Effective Pages
LWC	Lead Work Center
LSD	Logistics Support Data

M

MA	Maintenance Action
MACHALT	Machinery Alteration
MARCORBASES-PAC	Marine Corps Bases Pacific
MCA	Material Condition Assessment
MCI-E	Marine Corps Installations East
MCI-W	Marine Corps Installations West
MDS	Maintenance Data System
MEASURE	Metrology Automated System for the Uniform Recall and Reporting
MER	Maintenance Effectiveness Review
MET	Mission Essential Task
METCAL	Metrology Calibration
MFOM	Maintenance Figure of Merit
MI	Material Inspection
MIP	Maintenance Index Page
MIUWU	Mobile Inshore Underwater Warfare Units
MJC	Master Job Catalog
MMBP	Maintenance and Modernization Business Plan
MMBU	Maintenance Modernization Business Unit
MO	Mail Out
MOM	Management and Operations Manual
MPA	Maintenance Planning Activity
MP-EA	Maintenance Planning – Engineering Analysis
MQJ	Measurement Quality Jumper
MRC	Maintenance Requirement Card
MRMS	Maintenance Resource Management System
MRS	Maintenance Requirements Substantiated
MTBF	Mean Time Between Failure
MTS	Moored Training Ship

MTSSY Moored Training Ship Support Yard  
MU Maintenance University

N

NAALS Navigational Aids and Landing Systems  
NAEC Naval AIR Engineering Center  
NAVAIR Naval Air  
NAVOSH Navy Occupational Safety & Health  
NAVSEA Naval Sea Systems Command  
NAVSUP Naval Supply System Command  
NAVWAR Naval Information Warfare Systems Command (NAVWARSYSCOM) replaced SPAWARSYSCOM effective June 3, 2019  
NAWC Naval Air Warfare Center  
NDE-NM Navy Data Environment - Navy Modernization  
NEC Navy Enlisted Classification  
NECC Naval Expeditionary Combat Command  
NeL Navy eLearning  
NETC Naval Education Training Command  
NFPA National Fire Protection Association  
NHA Next Higher Assembly  
NISMF Navy Inactive Ship Maintenance Facility  
NIWC Naval Information Warfare Center (NIWC) Atlantic and NIWC Pacific replaced SPAWAR Systems Centers Atlantic and Pacific effective February 2019  
NMP Navy Modernization Program  
NMP-MOM Navy Modernization Program Management and Operations Manual  
NMR No Maintenance Required  
NMDR Navy Maintenance Database Re-platform  
NNPI Navy Nuclear Propulsion Information  
NPE New PMS Editor  
NROTC Naval Reserve Officer Training Candidate  
NSA Navy Supervising Activity  
NSLC Naval Sea Logistics Command  
NSN National Stock Number  
NSRF Naval Ship Repair Facility  
NSTM Naval Ships' Technical Manual  
NSWC Naval Surface Warfare Center  
NSWCCD Naval Surface Warfare Center Carderock Division  
NTCSS Navy Tactical Command Support System  
NUWC Naval Undersea Warfare Center

O

O-Level	Organizational
OARS	Open Architectural Retrieval System
OCS	Officer Candidate School
OEM	Original Equipment Manufacturers
OMMS-NG	Organizational Maintenance Management System – Next Generation
ORDALT	Ordnance Alteration
OSAR	On Site Analysis Report
OSS	Operational Sequencing System
OWP	Overhaul Work Package

P

PARM	Participating Acquisition Resource Manager
PAT	Pre-Arrival Test
PD	Position Description
P&E	Planning & Estimating
PEO	Program Executive Office
PIA	Phased Incremental Availability
PMA	Production Management Assistant
PMP	Performance Monitoring Program
PMR	Periodic Maintenance Requirement
PMS	Planned Maintenance System
PMSCA	PMS Coordinating Activity
PMSMIS	Planned Maintenance System Management Information System
PMT	Performance Monitoring Team
P-OMMS	Propulsion-Organizational Maintenance Management System
PPE	Personal Protective Equipment
PQS	Personnel Qualification Standards
PRID	Positional Reference Identification
PRISMS	PRESINSURV Inspection Management System
PY	Planning Yard

Q

QA	Quality Assurance
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R

RAC	Risk Assessment Code
RADIAC	Radiation Detection, Indication, and Computation
RAD WEB	Revised Alternative Dataflow Web
RAUIC	Repair Activity Unit Identification Code
RCM	Reliability-Centered Maintenance

RCOH	Refueling Complex Overhaul
REC	Re-Entry Control
RIC	Repairable Identity Code
RIN	Record Identification Number
RISIC	Rubber Insert Sound Isolation Coupling
RMAIS	Regional Maintenance Automated Information System
RMB	Requirements Management Board
RMC	Regional Maintenance Center
RSG	Regional Support Group
RWC	Repair Work Center

S

SAC	Service Application Code
SAR	Ship Alteration Record
SARP	Ship Alteration and Repair Package
SCAT	Sub-Category
SCD	Ship Change Document
SCLSI	Ship Configuration and Logistic Support Information
SCLSiS	Ship Configuration and Logistic Support Information System
SCN	Shipbuilding and Conversion, Navy
SECAS	Ship's Equipment Configuration Accounting System
SEI	Selected Equipment Indicator
SEOC	Submarine Extended Operating Cycle
S/F	Ship's Force
SFCC	Submarine Flight Critical Component
S/F MHRS	Ship's Force Man-Hours
S/F MHRS EXP	Ship's Force Man-Hours Expended
S/F MHRS REM	Ship's Force Man-Hours Remaining
SHIPALT	Ship Alteration
SHIPMAIN	Ship Maintenance
SIA	Split Industrial/Alteration Installation Team
SKED	PMS Scheduling Software
SLR	Selected Level Reporting
SME	Subject Matter Experts
SMS	Surface Missile System
SNAP	Shipboard Non-tactical ADP Program
SOC	Scope of Certification
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
SOVT	System Operation and Verification Test
SPAWAR	Space and Naval Warfare (SPAWARSYSCOM) changed to Naval Information Warfare Systems Command (NAVWARSYSCOM) effective June 3, 2019

SPETERL	Ship/Shore Portable Electrical/Electronic Test Equipment Requirements List
SPIN	Standard PMS Item Name
SPM	Ship Program Managers
SPMIG	Standard PMS Materials Identification Guide
SPO	Senior Petty Officer
SRA	Selected Restricted Availability
SSR	Ship's Selected Record
SUBMEPP	Submarine Maintenance Engineering for Planning and Procurement
SUBSAFE	Submarine Safety
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair
SURFMEPP	Surface Maintenance Engineering Planning Program
SWAB	Ship Work Authorization Boundary
SWLIN	Ship Work List Item Number
SYS.COM	Systems Command

T

T/A	Type Availability
TA	Trusted Agent
TAMS	Test and Monitoring System
T&E	Test & Evaluation
TEMPALT	Temporary Alteration
TFBR	Technical Feedback Report
TFR	Tailored Force Revision
TM	Technical Manual
TMDE-I	Test, Measurement, and Diagnostic Equipment Index
TOC	Total Ownership Cost
TPMTE	Tools, Parts, Materials, Test Equipment
TRF	Trident Refit Facility
TSLR	Time-Since-Last-Reviewed
TSU	TYCOM Support Unit
TWC	Testing Work Center
TWH	Technical Warrant Holder
TYCOM	Type Commander

U

UIC	Unit Identification Code
ULSS	User's Logistics Support Summary
URO	Unrestricted Operations
USFFC	United States Fleet Forces Command
USN	United States Navy
USNA	United States Naval Academy

V

VM            Valve Mark  
VSB          Validation Screening and Brokering

W

WC          Work Center  
WCS        Work Center Supervisor  
WCRC       Work Center Responsible for Compartment  
WCRE       Work Center Responsible for Equipment  
WSF        Weapon System File  
WSS        Weapon Systems Support

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## **APPENDIX G**

### **SHIP'S 3-M POINTS OF CONTACTS**

APPENDIX G  
SHIP'S 3-M POINTS OF CONTACTS

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
***CENTER FOR SERVICE SUPPORT COMMANDING OFFICER CENTER FOR SERVICE SUPPORT NAVAL STATION NEWPORT 1183 CUSHING ROAD NEWPORT RI 02871-1522		401	841-1566	
***CNIC (N32) COMMANDER NAVAL INSTALLATIONS COMMAND CODE N32 716 SICARD STREET SE SUITE 1000 WASHINGTON NAVY YARD WASHINGTON DC 20374-5140	326	202	433-3517	
***CNO (N95) DEPARTMENT OF THE NAVY OFFICE OF THE CHIEF OF NAVAL OPERATIONS 2000 NAVY PENTAGON WASHINGTON DC 20350-2000 Attention: OPNAV N95/Room 5A468	329	703	697-3974/ 9862	
***CNO (N96) DEPARTMENT OF THE NAVY OFFICE OF THE CHIEF OF NAVAL OPERATIONS 2000 NAVY PENTAGON WASHINGTON DC 20350-2000 Attention: OPNAV N961H	329	703	601-1678	
***COMNAVAIRPAC (N436) COMMANDER NAVAL AIR FORCES PACIFIC CODE N436 NAVAL AIR STATION BLDG 11 P O BOX 357051 SAN DIEGO CA 92135-7051	735	619	545-4356/ 8957	

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
***COMNAVAIRSYSCOM (PMA 213) (AVIATION 3-M/ATC NAALS) COMMANDER NAVAL AIR SYSTEMS COMMAND ATTN: PMA 213 47123 BUSE ROAD Bld 2272 PATUXENT RIVER MD 20670	757	301	757-3167	
***COMNAVIFOR (N42) COMMANDER, NAVAL INFORMATION FORCES CODE N42, ASHORE MAINTENANCE 115 LAKE VIEW PARKWAY SUFFOLK, VA 23435-2696	203	757	203- 3530/3548	
***COMNAVRESFOR (N4) COMMANDER NAVAL RESERVE FORCES CODE N4 1915 FORRESTALL DRIVE NORFOLK, VA 23551-8500	322	757	322-6546	
***COMNAVSEASYSCOM (SEA 04RM) (MAINTENANCE ENGINEERING DIVISION) COMMANDER NAVAL SEA SYSTEMS COMMAND CODE SEA 04RM 1333 ISAAC HULL AVE SE STOP 1210 WASHINGTON NAVY YARD WASHINGTON DC 20376	326	202	781-3284	
***COMNAVSEASYSCOM (SEA 04RM1) SHIPS 3-M (SEA 04RM1) COMMANDER NAVAL SEA SYSTEMS COMMAND CODE 04RM11 1333 ISAAC HULL AVE SE STOP 1210 WASHINGTON NAVY YARD WASHINGTON DC 20376	326	202	781- 3374/3386	

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
***COMNAVSEASYSCOM (SEA 06L) (FLEET LOGISTICS SUPPORT – CONFIGURATION MGT (SCLSIIS)) COMMANDER NAVAL SEA SYSTEMS COMMAND CODE 06L 1333 ISAAC HULL AVE SE STOP 1210 WASHINGTON NAVY YARD WASHINGTON DC 20376	326	202	781- 2099/3263	
***COMNAVSUPSYSCOM (SUP 412) COMMANDER NAVAL SUPPLY SYSTEMS COMMAND CODE SUP 412 5450 CARLISLE PIKE P O BOX 2050 MECHANICSBURG PA 17055-0791	430	717	605-7254	
***COMNAVSURFLANT (N432) COMMANDER NAVAL SURFACE FORCE U S ATLANTIC FLEET CODE N432A64 / N432A65 1430 MITSCHER AVENUE NORFOLK VA 23551-2494	836	757	444- 0557/0624	
***COMNAVSURFPAC (N43) (3-M OFFICER) COMMANDER NAVAL SURFACE FORCE U S PACIFIC FLEET CODE N43 2841 RENDOVA ROAD SAN DIEGO CA 92155-5490	577	619	556-6341	
***COMNAVSURFPAC (N41) (ATG) AFLOAT TRAINING GROUP PACIFIC COMMANDER AFLOAT TRAINING GROUP PACIFIC CODE N41 3455 STURTEVANT ST SUITE 1 SAN DIEGO CA 92136-5069	526	619	556-4955	

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
***COMNECC (N435) COMMANDER NAVY EXPEDITIONARY COMBAT COMMAND CODE N435 1575 GATOR BLVD SUITE 237 NORFOLK VA 23521-3024	253	757	462-3562	111
***COMPACFLT (4314C) COMMANDER U S PACIFIC FLEET CODE 4314C PEARL HARBOR HI 96860-7000	474	808	474-6452	
***COMNAVWARSYSCOM COMMANDER NAVAL INFORMATION WARFARE SYSTEMS COMMAND 4301 PACIFIC HIGHWAY SAN DIEGO CA 92110-3127	524	858	537-0521	
***COMSUBBLANT (N43) COMMANDER SUBMARINE FORCE U S ATLANTIC FLEET CODE N43 7958 BLANDY BLVD NORFOLK VA 23551-2492	836	757	836-1264	
***COMSUBPAC (N4322) COMMANDER SUBMARINE FORCE U S PACIFIC FLEET CODE N43221A 1430 MORTON STREET BLDG 665 PEARL HARBOR HI 96860-6543		808	473-4839	
***COMUSFLTFORCOM (N434A) COMMANDER U S FLEET FORCES CODE N434A 1562 MITSCHER AVE SUITE 250 NORFOLK VA 23551-2487	836	757	836-6906	
***INSURV PRESIDENT PRESIDENT BOARD OF INSPECTION AND SURVEY 2600 TARAWA COURT SUITE 250 VIRGINIA BEACH VA 23459	253	757	462-7006	

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
<b>MARINE AVIATION 3-M</b> MARINE AVIATION, HQMC 3000 MARINE CORPS PENTAGON, ASL-33 WASHINGTON DC 20380-1775	223	703	693-9719	
<b>***MCI-EAST</b> COMMANDING GENERAL MARINE CORPS INSTALLATIONS EAST ATTN: ATC NAALS Program Manager ATC T & R OFFICE MCB CAMP LEJEUNE NC 28542-0005	752	910	449-9359	
<b>***MCI-WEST</b> COMMANDING GENERAL MARINE CORPS INSTALLATIONS WEST ATTN: ATC NAALS COORDINATOR ATC T and R Office MCB CAMP PENDLETON CA 92005-5200	361	760	763-6403	
<b>***NAVSEALOGCEN</b> COMMANDING OFFICER NAVAL SEA LOGISTICS CENTER P O BOX 2060 5450 CARLISLE PIKE MECHANICSBURG PA 17055-0795	430	717	605-7133	
<b>***NAVSEALOGCEN DET NORFOLK (62111)</b> COMMANDING OFFICER NAVAL SEA LOGISTICS CENTER DET NORFOLK CODE 62111 BLDG 13 NORFOLK NAVAL SHIPYARD PORTSMOUTH VA 23709-5000	646	757	967-3412	

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
***NAVSEALOGCEN DET SAN DIEGO <b>(62112)</b> COMMANDING OFFICER NAVAL SEA LOGISTICS CENTER DET SAN DIEGO CODE 62112 4755 RAILROAD WAY SAN DIEGO CA 92136-5503	526	619	556-0246	
***NSDSA (0310) COMMANDER NAVAL SURFACE WARFARE CENTER PORT HUENEME DIV NAVAL SEA DATA SUPPORT ACTIVITY CODE 0310 4363 MISSILE WAY PORT HUENEME CA 93043-4307	982	805	228-0777	
***NSWCPD SSES (316) (Hull, Mechanical and Electrical PMS) COMMANDING OFFICER NSWC PHILADELPHIA DIVISION (PD) CODE 316 5001 SOUTH BROAD STREET PHILADELPHIA PA 19112-1403	443	215	897-1343	
***NIWC ATLANTIC (NORFOLK) COMMANDING OFFICER NAVAL INFORMATION WARFARE CENTER ATLANTIC (NORFOLK) 1837 MORRIS STREET SUITE 3311 NORFOLK VA 23511-3432 *24 Hr. TROUBLE DESK contact NAVY311 1-855-628-9311 or DSN: 510-628-9311 <a href="https://www.public.navy.mil/navwar/navy311/Pages/home.html">https://www.public.navy.mil/navwar/navy311/Pages/home.html</a>	646	757	443-0400	
***NIWC PACIFIC (SAN DIEGO) COMMANDING OFFICER NIWC Pacific Code 60 53560 Hull Street San Diego, California 92152 *24 Hr. TROUBLE DESK contact NAVY311 1-855-628-9311 or DSN: 510-628-9311 <a href="https://www.public.navy.mil/navwar/navy311/Pages/home.html">https://www.public.navy.mil/navwar/navy311/Pages/home.html</a>	526	628	553-2717	

TELEPHONE NUMBERS ACTIVITY/CODE	DSN	AREA CODE	COMM	EXT
***SURFMEPP COMMANDING OFFICER SURFACE MAINTENANCE ENGINEERING PLANNING PROGRAM (SURFMEPP) NORFOLK NAVAL SHIPYARD Bldg M-22 2nd FLOOR PORTSMOUTH, VA 23709-5093	312	757	967-3697	
***TRASUPCEN NORFOLK DET COMMANDING OFFICER TRAINING SUPPORT CENTER NORFOLK DET 9545 BAINBRIDGE AVENUE NORFOLK VA 23511-2794	565	757	445-7353	1098

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**APPENDIX H**  
**ALTERATION MANAGEMENT**  
  
**(Formerly Appendix I)**

## APPENDIX H ALTERATION MANAGEMENT

- Ref:
- (a) Navy Modernization Process Management and Operations Manual (NMP-MON)  
(SL720-AA-MAN-030)
  - (b) COMUSFLTFORCOMINST 4790.3 (Joint Fleet Maintenance Manual)
  - (c) SECNAVINST 5510.36A (Department of the Navy Information Security Program Instruction)
  - (d) NAVSEAINST 4720.15 Machinery Alterations (MACHALTs) on HM&E Systems

### 1. Purpose

This Appendix describes how approved alterations are incorporated into the 3-M System. It is intended as a guide for understanding the process and to assist in annotating the required Maintenance Data System (MDS) records and documents required to plan, and execute modernization to a vessel, its systems, and/or equipment.

### 2. Discussion

Navy Modernization has progress from the Fleet Modernization Program (FMP), to the Ship Maintenance (SHIPMAIN) process to the Navy Modernization Program (NMP) of today. Under the old FMP program there were 13 modernization alteration types; under NMP there are only two modernization types (Fleet and Program). The FMP manual was retired in 2009 and replaced with the NMP-MOM. There are still multiple types of alterations under each category depending on the planned Scope, Category, Duration and Funding identified during the modernization creation. The modernization items are created in the Navy Data Environment - Navy Modernization (NDE-NM) database once approved.

a. The NMP - Management and Operations Manual (MOM) (NMP-MOM) provides the governance, approval and execution processes necessary to ensure the NDE applications meet stakeholder requirements to manage alterations for individual hulls based on scheduled ship availabilities. NMP outputs:

(1) When a Ship Change Document (SCD) is approved at any phase, it becomes part of the MODPLAN, which provides a summary of approved modernization affecting designated Surface Ships and Aircraft Carriers. The approved SCD is also scheduled to specific ships in the NDE-NM module, which in turn serves as the authoritative database of planned modernizations for each ship.

(2) The ship-specific list of scheduled modernization in NDE-NM forms the basis of the Hull Modernization Plan (HMP) for that ship. HMP products are used to develop the Maintenance and Modernization Business Plan (MMBP) for surface ships or the Availability Work Package (AWP) for Aircraft Carriers. SCDs that are included in the HMP for a specific Chief of Naval Operations (CNO) or Shipbuilding and Conversion, Navy (SCN) (Aircraft Carriers only) availability are included on the Letter of Authorization (LOA) (or equivalent) specific to that availability.

(3) Surface Ship availability planning activities are informed of planned modernization work through the HMP and LOA processes. There are several HMP products prepared for surface ship availability planning. The Advance Planning HMP (AHMP) is prepared by the cognizant SPM in July of each year and provided to Regional Maintenance Centers (RMC) to facilitate advance planning for ships under their cognizance. The Execution Planning HMP (EHMP) is provided by the cognizant SPM in March of each year to the RMCs to support development of each ship's MMBP. SPM and Type Commander (TYCOM) LOAs (or equivalent) provide definitive installation authority for each CNO availability.

*NOTE: For LCS Variants, modernization data for all ships covering the timeframe of the AHMP and EHMP is maintained in one document called the LCS Hull Modernization Plan (LHMP) and provided monthly to the RMCs. LOA, AHMP and EHMP data can be extracted from the LHMP at any time.*

### 3. Objective

The NMP provides a disciplined process to deliver operational and technical modifications to the U.S. Naval Fleet in the most effective and cost efficient way. The process defines a standard methodology to plan, budget, engineer, and install timely, effective, and affordable shipboard improvements while maintaining Configuration Management (CM) and supportability. The objective of the NMP is to assure that fleet modernization investments address the fleet's greatest concerns and are integrated and prioritized across Strike Groups, Ships, Systems and Warfare area. The process directly involves Navy leadership at all levels (Fleet, Office of the CNO (OPNAV), Force TYCOMs, Systems Commands (SYSCOMs) and Program Executive Offices (PEOs)) in the programming, planning and installation of modernization in a consistent and disciplined manner.

### 4. Definitions

a. Alteration Identifier. Identifies the alteration by incorporating all of the mandatory key fields by Alteration Type. This data field is a composite of various data fields; that are known as 'Key Fields'.

(1) (AER-SA) = Alt Type, Class, Alt number, Alt Title, Increment Number, Revision Number,

(2) (EC, FC, SWD Alts) = Alt Type, Number, Revision, Change, System Affected

(3) (MA, OA) = Alt Type, Number, Revision, Change,

(4) (PRT, RME, RMV, TMP) = Alt Type, Number System Affected.

b. Modernization. Modernization consists of all efforts and costs that lead to changes of an In-Service Surface Ship or Carrier. These changes include upgrades or replacement of existing systems by new systems satisfying new requirements. All product development, procurement and installation costs are included as well as costs that are not specific to particular alterations, but are required to execute the Modernization Program. Product development costs are generally paid for within RDTEN 6.3 and 6.4 funding. Procurement and installation costs may be paid for with OPN, WPN, APN, SCN or O&MN funds. The domain includes RDTEN and procurement required for developing and upgrading systems. Any nuclear propulsion changes will be excluded from the Ship Maintenance (SHIPMAIN) process.

c. Ship Change Document (SCD). The change input vehicle for the single authoritative web-enabled database, NDE-NM. A SCD is defined as any new idea, spanning the complexity of a new 21st century Gun Weapons System to the replacement of a manually operated valve with a more reliable alternative. All SCDs will address the need for safety of personnel and equipment and/or provide increased reliability, maintainability and efficiency of installed equipment. There are two types of SCDs:

(1) Fleet Changes. Fleet SCDs are programmed for installation by the Fleet (TYCOM), as well as funded for accomplishment by the Fleet or other organizations as agreed upon.

(2) Program Changes. Program SCDs are programmed for installation by SYSCOMs or PEOs, as well as funded for accomplishment by the SYSCOMs, PEOs or other organizations as agreed upon.

d. Industrial Activity. Any activity that has the capability to perform all aspects of work on ships. These activities generally include Naval Bases, Naval Ship Repair Facilities (NSRFs), Intermediate Maintenance Facilities, Trident Refit Facilities (TRFs), public (Naval) shipyards and private shipyards that hold Agreements for Boat Repair (ABR) or Master Ship Repair (MSR) Agreements per the NAVSEA Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP) USN Operations Manual.

## 5. Alteration Types

a. Alteration-Equivalent-To-Repair (AER). An Alteration- Equivalent-To-Repair (formerly known as a Letter AER for Surface Ships, an Alteration and Improvement (A&I) for Submarines, and an Alteration Request for Aircraft Carriers) is a permanent alteration formally approved by the SPM, typically via letter, which has one or more of the attributes described in TYCOM Alterations (see paragraph 4.d.).

(1) AERs must satisfy all of the following criteria:

- (a) It does not impact Battle Force Interoperability (BFI).
- (b) It does not impact the ship's stability records (weight and moment).
- (c) It does not impact or alter the 3-dimensional footprint of the equipment it is replacing.
- (d) It does not impact shipboard distributive systems (i.e., water, ventilation, electrical, power), the Ship's Selected Record (SSR) or interfacing equipment or systems; compartmental arrangement records; or Damage Control records.
- (e) It does not impact Manpower and Personnel.

(2) All AERs require the SPM to obtain approval from the technical authority. Non-military improvements may be approved and authorized for accomplishment by the cognizant SPM.

(3) The following procedures will be followed if the SPM's internal review determines that the proposed AER should be accomplished as a Ship Alteration (SHIPALT) (Title "F", "D", "KP", or "K") or is already under development as a SHIPALT:

(a) An AER can be a prerequisite to a SHIPALT such as Title "F" and "D" SHIPALTS. In this case, information relating to the development of the SHIPALT will be included in the body of the AER recommendation letter. Additionally, it should be stated that affected Integrated Logistics Support (ILS) products will be covered during the SHIPALT development and execution.

(b) AERs can be accomplished in place of SHIPALTS where an emergent requirement of limited applicability dictates. In this case, the body of the recommendation letter must state that the Planning Yard (PY) must prepare the AER installation procedures.

(c) If a proposed AER is required until the accomplishment of a SHIPALT, the AER recommendation will identify the SHIPALT and its estimated completion date. All detailed procedures, material requirements and ILS requirements will be excluded from the letter.

(4) Authorization. Empowers a command to direct a specified alteration to be accomplished.

(5) Approval. An action of the cognizant SPM signifying the accomplishment of an alteration is technically feasible. Evidence of "Approval" is the signature of the SPM on the Ship Alteration Record (SAR), AER or Temporary Alteration (TEMPALT).

b. Equipment Alteration. Any alteration, other than a SHIPALT, in the configuration of an equipment or system (including embedded equipment, computer programs and expendable ordnance) after establishment of the product baseline.

(1) An Equipment Alteration involves a change in design, type of material, quantity, installed location, logistics, supportability, or the relationship of the component parts of an assembly within the ship.

(2) Equipment Alterations include the addition, deletion, rework, or replacement of parts, assemblies or equipment; or changes in assembly procedures.

(3) Alterations to associated computer programs include the incorporation of different computer program versions and approved modification or corrections to both operational test and maintenance programs.

(4) Equipment Alterations are initiated by approved Class I Engineering Change Proposals (ECPs).

(5) Equipment Alterations apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline.

(6) Equipment Alterations may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components, or for any combination of these reasons.

(7) There are four types of Equipment Alteration (Engineering Change (EC), Field Change (FC), Machinery Alteration (MACHALT) and Ordnance Alteration (ORDALT)) that are defined below:

(a) Engineering Change (EC). A modification, usually to Under-Sea Warfare (USW) equipment or systems, or other equipment groups as designated by the cognizant Systems

Command, Program Manager (PM), Participating Acquisition Resource Manager (PARM), and Configuration Control Boards (CCBs).

(b) Field Change (FC). A mechanical, electronic or electrical change, modification or alteration made to electronic equipment after delivery to the government or installation on board ship, including software changes, which do not impact interfaces to other equipment within the ship, change the footprint, form or fit, change power, weight, or air conditioning requirements. If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a FC or SHIPALT. FCs are initiated and approved by the cognizant Headquarters Systems Command and are implemented by Field Change Bulletin (FCB). Alteration Installation Teams (AITs) or Ship's Force can accomplish FCs. For these specific types of alterations, the cognizant SPM must be notified of the approved changes affecting their respective platforms, must be periodically advised of installation status and must be notified of any logistics upgrades, which have been completed as a result of the alteration.

(c) Machinery Alteration (MACHALT). A planned change, modification or alteration of any Hull, Mechanical or Electrical (HM&E) equipment in service (shipboard or shore activities) when it has been determined by the MACHALT CCB that the alteration or modification meets all of the following conditions:

1. Can be accomplished without changing an interface external to the equipment or system.

2. Are modifications made within the equipment boundary or is a direct replacement of the original equipment system.

3. Can be accomplished without the ship being in an industrial activity.

4. Can be accomplished individually, not conjunctively with a SHIPALT or other MACHALT. If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a MACHALT or SHIPALT.

(d) Ordnance Alterations (ORDALTs). Changes made to ordnance equipment or their computer programs by the addition, deletion, rework, or replacement of parts, assemblies or equipment, or by a change in assembly procedures.

c. Ship Alteration (SHIPALT). SHIPALTs are classified by title/type and comprise any change in hull, machinery, equipment, or fittings that involves changes in design, material, quantity, location, or relationship of the component parts of an assembly.

**NOTE:** Other alterations which modify shipboard systems such as ordnance alterations, electronic field changes, air alterations, and special project alterations are not considered SHIPALTs, but may require conjunctive SHIPALTs where systems interface changes are involved.

(1) **SHIPALT Title.** The title assigned to a SHIPALT identifying the approving authority and responsibility for funding. SHIPALT titles are:

(a) **Title “D”.** A permanent alteration that does not affect the military characteristics of a ship. It is formally approved by the SPM in the form of a Justification/Cost Form (JCF) and a SAR. It may require Centrally Provided Material (CPM) but does not require Headquarters CPM (HCPM). A Title “D” SHIPALT may specify whether it should be accomplished only by a depot-level maintenance facility. They generally include more efficient, cost effective designs that improve ship maintainability, and meets one or more of the TYCOM Alteration attributes described in paragraph 4.d, TYCOM Alterations.

(b) **Title “F”.** A permanent alteration that is formally approved by the SPM in the form of a JCF and a SAR. It does not require Centrally Provided Material (CPM) or Headquarters CPM and is within the Ship’s Force capabilities for accomplishment; however, it may be accomplished by a Fleet Maintenance Activity (FMA). It must also meet one or more of the TYCOM Alteration attributes described in paragraph 4.d, TYCOM Alterations.

(c) **Title “K”.** A permanent alteration to provide a military characteristic an upgrade to existing systems or provide additional capability not previously held by a ship. This may affect configuration controlled areas or systems of a ship which otherwise require the installation of Headquarters Centrally Provided Material (HCPM). These SHIPALTs are approved for development and authorized for accomplishment by the CNO (military improvements) or the Hardware Systems Command (HSC) (non-military improvements). The technical approval for Title “K” SHIPALTs is provided by NAVSEA.

(d) **Title “K-P”.** A Title “K” SHIPALT is within forces afloat or AIT capability for accomplishment, and requires the cognizant HSC to provide packaged special program and centrally provided materials.

(e) **Non-Permanent Changes (NPC).** Previously referred to as Temporary Alteration (TEMPALT) and have a designation of TMP for the Alteration Type. An NPC is defined as a change that will be installed for Test & Evaluation (T&E) purposes to demonstrate or aid in the demonstration of a new or improved capability for the Fleet. While typically fielded on a single ship, an NPC may be fielded on multiple ships if required to meet T&E objectives. Additionally, NPCs can be used to provide an interim capability to support operational and training requirements for Platform TYCOMs, Commander, Naval Information Force (COMNAVIFOR), Operational Commanders, Immediate Superior In Command (ISIC), or Commander, U.S. Fleet Forces Command (USFFC) when formal justification and approval is provided.

d. **TYCOM Alterations.** TYCOM Alterations are approved by the SPM for accomplishment as a Title “D” or “F” SHIPALT or AER depending upon the scope and effects of the change after review by the appropriate technical authority (e.g. TWH, Engineering Agent etc.). TYCOM Alterations are programmed for installation by the TYCOM, as well as funded for accomplishment by the TYCOM or other organization as agreed upon. TYCOM Alterations are maintenance alterations normally accomplished to improve reliability or maintainability. A TYCOM Alteration is a technical alteration that has one or more of the following attributes:

- (1) The use of different materials that have been approved for similar use and such materials are available from standard stock.
- (2) The replacement of obsolete, worn-out or damaged parts, assemblies or components requiring renewal by those of later and more efficient design which has been previously approved by the SPM and such replacement does not cause a change to the system or equipment normally associated with the military characteristics of the ship.
- (3) The strengthening of parts that require repair or replacement in order to improve reliability of the parts and of the unit, provided no other change in design is involved.
- (4) The minor modification involves no significant changes in design or functioning of equipment but is considered essential to prevent recurrence of unsatisfactory conditions.
- (5) The cost of the installation and maintenance of the new parts, assemblies or components is less than the cost of maintaining the installed parts, assemblies or components.
- (6) The replacement of parts, assemblies or components does not cause a change to the existing system design or affect any interfacing system design and does not affect a change to the systems or equipment normally associated with the military or technical characteristics of the ship.

6. Status Codes. Each Alteration has an associated status code that reflects if the alteration is Active or not. There are various codes that may indicate the alteration status, but for 3-M the only status code applicable for future modernization items is A-Active.

- a. **Alteration Status Code.** With-in the NDE-NM database, the Alteration Status Code indicates whether or not an alteration is Active or not. It does not reflect if the Alteration is applicable for a specific class of ship or specific hull, class applicability or hull accomplishment status.
- b. **Applicability Status Code.** Within the NDE-NM database, the Applicability Status Code reflects the alteration status code for a specific hull for a specific modernization item. If the

applicability status code is A=Applicable, B=Applicable-programmed, K=Package Alteration Authorized for Depot (Submarine Only) or L=Package Alteration Authorized for AIT (Submarine Only) then the modernization item is not complete for the indicated hull and can be scheduled or programmed for an availability. Any other code indicates the modernization item is complete, obsolete, equivalent or no longer applicable for the specific hull.

c. Accomplishment Status Code. Within the NDE-NM database, the Accomplishment Status Code indicates a specific job accomplishment record for a specific hull. The status code options are the same as the Applicability Status Code. There may be multiple accomplishment records for one applicability item. This condition will exist when there are quantities greater than one for a specific hull.

7. Methods of Install. Methods of Install (MOI) is an NDE NM data field used to indicate the where and how an alteration installation is executed. The where is in relation to the type of availability and the how is whom the installer is. Currently there are 5 types of MOIs;

a. AIT Pier-side (AIT-P). These are TYCOM controlled installation occurring usually in the ship's homeport while the ship is pier-side. These installations are by a Government or Contractor AIT. These installations are tracked and approved by the TYCOM using the Quarterly Scheduling Process.

b. AIT Industrial (AIT-I). These are SPM controlled installations occurring while the ship is in CNO availabilities. These installations are by a Government or Contractor AIT. These installations are tracked and approved using the SPM LOA process.

c. Industrial (IND). These are SPM controlled installations occurring while the ship is in a CNO availability. These installations are those being done by the Industrial activity responsible for the CNO availability. These installations are tracked and approved using the SPM LOA process.

d. Mail Out (MO). These are TYCOM approved SW Installations done without the involvement of an Installation Team usually performed by Ship's Force. These installations can be delivered by various methods. Once an installation is approved as a Mail Out by the TYCOM they can be delivered by the agreed upon method.

e. Split Industrial/AIT (SIA). These are SPM controlled installations occurring while the ship is in a CNO availability. These installations are those being done by the Industrial activity responsible for the CNO availability and a government or Contractor AIT. These installations are tracked and approved using the SPM LOA process.

8. Levels of Maintenance

- a. Organizational (Shipboard) Level Maintenance. Maintenance that is the responsibility of Ship's Force for accomplishment.
- b. Intermediate Level Maintenance. Ship's maintenance that is normally performed by Navy personnel on board tenders, repair ships, Shore Intermediate Maintenance Activities (SIMAs), aircraft carriers, and fleet support bases.
- c. Depot (Shipyard) Level Maintenance. Ship's maintenance that is performed by industrial activities. Depot-level maintenance requires major overhaul or a complete rebuilding of parts, assemblies, subassemblies, and end items, including the manufacturing of parts, modifications, testing, and reclamation.

9. Organizational Responsibilities. Responsibility for alteration management is required at various levels of command. Command responsibilities include:

- a. Naval Sea Systems Command (NAVSEA). As the managing agent for the Navy Modernization program, NAVSEA provides a major input into the NDE-NM database from MDS reports. The NDE-NM records and tracks authorized configuration change requirements and status. Specific alteration management responsibilities for the managing agent are:
  - (1) Maintain and update the NDE-NM database, requesting reports from fleet commands per reference (a) when the 3-M database cannot supply the required information.
  - (2) Ensure NDE-NM transactions and supporting information is available to applicable TYCOMs. Data should include:
    - (a) OPNAV Form 4790/2K information concerning all alterations. This excludes NAVSEA-08 alterations.
    - (b) Programmed status for all alterations.
    - (c) Plans, material, and package availability status for all SHIPALTs and AERs.
    - (d) Priorities for planned Amalgamated Military/Technical Improvement Plans (AMTs).
    - (e) Estimated man-days to complete.
    - (f) Estimated material costs (latest).
    - (g) Estimated total cost to complete.

- (h) Fiscal year planned.
  - (i) Returned total cost per alteration.
  - (j) Plans availability code.
- b. TYCOMs. The TYCOMs are responsible for alteration management within their force. Responsibilities include:
- (1) Assign priorities to alterations:
    - (a) For Title "K" alterations or Program Changes, review the NDE-NM and recommend changes of priorities to CNO.
    - (b) For Title "D", "F" or Fleet Change alterations and for TYCOM Alterations, assign the priorities of precedence for installation.
    - (2) For the TYCOM Mandatory Priority List, identify for CNO the planned installation year and assigned priority for Title "F" SHIPALTs. This information is subsequently displayed in the NDE-NM database.
    - (3) Check the NDE-NM Alteration Management data by verifying that:
      - (a) The information recorded is supported by corresponding SARs or SCDs.
      - (b) Applicability is assigned and correct.
      - (c) Programmed status is assigned.
    - (4) Document the following information (if desired) for local processing and control:
      - (a) Material, plans, and package SHIPALT availability.
      - (b) Alteration cost estimates.
      - (c) Priorities for accomplishment.
    - (5) For TYCOM Alterations maintain the following information in NDE-NM:
      - (a) Type Availability (T/A), and TYCOM Screening Code.
      - (b) Priority, if desired.

- (c) Designated planning activity, if desired.
  - (d) Designation to add to applicable ship CSMP file.
  - (e) Planned installation year, if desired.
  - (6) Monitor alteration management reports to ensure accuracy, including monitoring of the transaction and error reports.
  - (7) Provide direction to the supporting data processing activity concerning the production and distribution of alteration management reports.
  - (8) Take appropriate action when transferring alteration management files and reports to another command. This requires that both TYCOMs maintain the same alteration management master records.
  - (9) Issue instructions to:
    - (a) Provide for advanced planning for alterations.
    - (b) Assign planning activities.
    - (c) Report return cost of alterations.
    - (d) Assign parent IMAs, if applicable.
    - (e) Transfer files from one command to another.
    - (f) Provide for the routine correction of alteration files.
  - (g) Provide information on problems, and solutions reported on completed alterations by an IMA to all other concerned activities.
- c. Fleet Units. The Commanding Officer is responsible for the expeditious completion of all alterations authorized for the ship. Ship alteration management responsibilities are:

- (1) Audit for accuracy alteration management reports and MDS Transaction and Error Identification Reports containing alteration information. Report required corrections to the TYCOM.

(2) Ensure that the applicable SAR, SCD or similar document is provided to the ship for all alterations programmed in the execution year.

(3) Submit OPNAV Form 4790/CK, or electronic version following installation of alterations. See Section I, Chapter 4 of this manual, and reference (b) the JFMM, Volume VI, Chapter 19, for detailed instructions dealing with filling out specific blocks. When reporting alteration status changes:

(a) Ensure the remarks section (Block 12) of the OPNAV Form 4790/CK expressly states the work that remains to be completed on partially completed alterations.

(b) Ensure that all of the configuration data required by Section I, Chapter 4 and reference (b) the JFMM Volume VI, Chapter 19 is reported on the OPNAV Form 4790/CK.

(c) Ensure that OPNAV Form 4790/2K for partial alterations is completed.

10. Alteration Process. The alteration process can be found in the Navy Modernization Process Management and Operations Manual (NMP-MOM) SL720-AA-MAN-030 which can be found on the NMP Website <https://www.nde.navy.mil>. Specific procedures for processing alteration data from the NDE-NM into 3-M are contained in references (b), (c) and TYCOM instructions with a summary provided in the following sections.

a. All alterations scheduled for accomplishment must be in the ship's CSMP. This is the entry point for the alteration data into the 3-M System. Some of these alterations require extensive logistic support while others may be limited to, for example, a wiring change in a circuit. For each type/category of alteration, a unique alteration prefix has been assigned as an identifier. Authorized alteration categories and associated prefixes are:

PREFIX	ALTERATION CATEGORY
A&I	ALTERATION AND IMPROVEMENT
AER	ALTERATION EQUIVALENT REPAIR
CFE	CONTRACTOR FURNISHED EQUIPMENT REPORT
EC	ENGINEERING CHANGE
ECI	EQUIPMENT CERTIFICATION INSTRUCTION
ECO	ENGINEERING CHANGE ORDER
EP	ENGINEERING CHANGE PROPOSAL
FC	FIELD CHANGE
GFE	GOVERNMENT FURNISHED EQUIPMENT REPORT
HMR	HEAD QUARTERS MODIFICATION REQUEST
LSA	LOGISTICS SUPPORT ANALYSIS

MA	MACHINERY ALTERATION
MO	MODIFICATION (CRYPTO EQUIPMENT)
MOD	MODIFICATION (TRIDENT)
OA	ORDNANCE ALTERATION
PDD	PLANNING DEPARTMENT DRAWING (TRIDENT)
SA	SHIP ALTERATION
SC	SERVICE CHANGE OR SOFTWARE CHANGE
SCD	SHIP CHANGE DOCUMENT
SP	SPECIAL PROJECTS
SW	SOFTWARE DELIVERY
TC	TRIDENT COMMAND AND CONTROL SYSTEMS
PREFIX	ALTERATION CATEGORY
TD	TECHNICAL DIRECTIVE
TDC	TYCOM DISCRETIONARY CHANGE
TEC	TEMPORARY ENGINEERING CHANGE
TMA	TRIPER MACHINERY OPERATION
TRI	TRIDENT SHIP ALTERATION
TZ	TYPE ZERO ALTERATION

Table H-1 Alteration Categories and Prefixes

b. In addition to configuration changes made during corrective maintenance and reported as required by Section I, Chapter 4, preplanned equipment modernization must be authorized prior to the exchange by the responsible SYSCOM. When a component supported by the COSAL is replaced by a component with different repair part requirements, but meets the same equipment design specifications, the appropriate SYSCOM must authorize the exchange. The SYSCOM must also authorize exchanges of components replaced by non-supportive components.

## 11. Alteration Management 3-M Reporting Requirements

a. For NMP managed alterations requiring logistic support, the 3-M documentation provided by the SYSCOM will have the Work Center, Job Sequence Number (JSN), and structured Alteration Number pre-assigned. These identifiers are used for tracking the life cycle of the alteration. This information is reported through the 3-M System as a configuration change. Refer to Section I, Chapter 4 and reference (b) the JFMM Volume VI, Chapter 19 for additional information on configuration reporting.

b. If the issuing authority does not provide the formatted 3-M WC/JSN and Alteration number, the ship will assign the JCN. The structure of the alteration number is left to the reporting activity, except for the first two or three positions that must have an authorized

alteration category prefix. Note that reference (d) contains additional types of configuration changes that are not applicable to 3-M reporting.

12. Ship's Force Requests for Configuration Changes. Ship's Force requests for configuration changes not covered by applicable alterations must be submitted as TYCOM directed (refer to the TYCOM instruction). The request should be in the ship's CSMP prefixed by the authorized alteration category "AR".

13. Departure from Specification. When a component supported by the COSAL is replaced by a component with different repair part requirements but meeting the same specifications, the appropriate SYSCOM must authorize the exchange. Written communication is usually by Departure from Specifications (DFS) or Liaison Action Request (LAR) and subsequently documented by a completed Configuration Change Request (CCR).

14. Certification of Shipyard Installed Alterations. The Naval Supervising Activity (NSA) provides a certification of alteration installation to the recipient ship when the alteration(s) is/are accomplished by the shipyard. This certification includes the Work Center, JSN assigned to the alteration, and the Final Action Taken. The certification will be in the format shown in reference (b), Volume VI, Chapter 19, Appendix F, Alteration Certification Letter. The ship must endorse the shipyard's certification letter and forward to the supporting activity managing the unit's Master CSMP. The endorsement provides authorization for information transmitted to be processed as completed deferrals in the Master CSMP. Refer to reference (b), Volume VI, Chapter 19, Appendix F. First Endorsement on Alt. Certification Letter. This eliminates the need for documenting multiple configuration changes (OPNAV Form 4790/CK) to close the CSMP deferral. Configuration changes made by the depot in accomplishing the alterations are reported separately from 3-M.

#### 15. Automated Data Process Between 3-M and Ship's CSMP

a. Configuration and Logistics Support Information System (SCLISIS) Ships' 3-M automated programs are designed to accept applicable data for file, sort, and display. The alteration information is automatically passed from the SCLISIS CDMD-OA to automated ships via the Automated Shore Interface (ASI) process. For additional information on SCLISIS CDMD-OA and the ASI process refer to reference (a). Similarly, the MDS information may be transferred to a ship's CSMP via the Master Job Catalog (MJC) when authorized for accomplishment.

b. The communication link and interface procedures for processing 3-M and NDE-NM files, and CSMP file processing are contained in reference (a) and TYCOM instructions.

c. The procedures for adding alteration records to the MJC, and distributing these changes to the TYCOM operating sites are contained in Appendix E and TYCOM instructions.

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**APPENDIX I**  
RELIABILITY-CENTERED MAINTENANCE CERTIFICATION  
PROGRAM

**(Formerly Appendix J)**

APPENDIX I  
RELIABILITY-CENTERED MAINTENANCE CERTIFICATION  
PROGRAM

1. Purpose. To institutionalize Reliability-Centered Maintenance (RCM) methodology for NAVSEA maintenance managers, engineers, program managers, and contractors tasked with developing, reviewing, modifying, verifying, planning, and approving maintenance requirements. This appendix is directed at technical activities, maintenance managers, contractors, program managers, and engineers involved in the development, modification, verification, revision, approval and planning of maintenance requirements and documentation for all levels of maintenance.
2. RCM Certification Categories. Multiple RCM Certifications exist to meet the distinctly different maintenance program responsibilities that exist. Individual certifications include:
  - a. Backfit RCM Certification. Backfit RCM Certification addresses the responsibilities of; and is required for those individuals tasked to review, modify, plan, or approve changes to existing approved maintenance requirements. Backfit RCM recertification is required every three years.
  - b. Classic RCM Certification. Classic RCM Certification addresses the responsibilities of; and is required for those individuals tasked to develop, review, verify, or approve new maintenance requirements for new systems, subsystems, or equipment during ship acquisition and as the ship class is modernized during its life cycle. Classic RCM recertification is required every three years.
  - c. Backfit RCM Instructor Certification. Backfit RCM Instructor Certification is designed for candidates nominated by their command to support requirements identified by NAVSEA 04RM to teach Backfit RCM Certification courses at their organization and to serve as local RCM subject matter experts. These individuals must also be available to instruct at other locations outside their command as needed by SEA 04. The nominees must pass the two week NAVSEA Backfit RCM Instructor course and also demonstrate competence in the delivery of all instructional material to the satisfaction of the NAVSEA certifying agent to achieve initial certification. Recertification as a Backfit RCM instructor is required annually.
  - d. Classic RCM Instructor Certification. Classic RCM Instructor Certification is designed for candidates nominated by their command to support requirements identified by NAVSEA 04RM to teach Classic RCM Certification courses at their organization and to serve as local RCM subject matter experts. These individuals must also be available to instruct at other locations outside their command as needed by SEA 04. The nominees must pass the two week NAVSEA Classic RCM Instructor course and also demonstrate competence in the delivery of all

instructional material to the satisfaction of the NAVSEA certifying agent to achieve initial certification. Recertification as a Classic RCM instructor is required annually.

3. Organizational Responsibilities. Responsibility for RCM Certification is as follows:

a. Naval Sea Systems Command (NAVSEA). As RCM Certification Program managing agent, NAVSEA is responsible for all aspects of the certification program. Specific responsibilities include:

(1) Maintaining certification records within the ePMS Gateway at

<https://epmsgateway.pmsmis.navy.mil/Gateway/home.aspx>;

(2) Establishing the RCM Certification curriculum;

(3) Administering Backfit and Classic RCM Certification courses as required, including recertification;

(4) Developing the annual NAVSEA RCM Training and Certification Schedule in conjunction with the fiscal year;

(5) Identifying the need for Backfit or Classic RCM Certification Instructors at specific organizations or in specific geographic areas. Requesting instructor candidates be recommended by identified organizations and conducting instructor training for selected individuals;

(6) Certifying course instructors in writing after ascertaining appropriate RCM subject matter and instructional expertise has been achieved;

(7) Monitoring maintenance engineering tasks to ensure only certified individuals are assigned responsibility to develop, review, verify, modify, plan, or approve scheduled maintenance requirements; and

(8) Administering testing requirements including maintaining test question and answer databases for all RCM Certifications.

b. ISEAs, Naval Sea Logistics Center (NSLC) and Maintenance Planning Activities. These activities are responsible for:

(1) Maintaining sufficient Backfit RCM certified personnel to review, modify, plan, or approve changes to current approved maintenance tasks;

(2) Maintaining sufficient Classic RCM certified personnel to develop, review, verify, or approve new maintenance task requirements;

(3) Responding to NAVSEA requests for RCM Certification Instructor candidates to conduct Backfit and Classic RCM Certification courses as scheduled by NAVSEA; and

(4) Ensuring all contractors who develop, review, verify, modify, plan, or approve maintenance requirements are properly certified in NAVSEA Backfit RCM and Classic RCM as appropriate.

4. RCM Certification Process. RCM Certification training comprises three elements:

- a. Formal Instruction to develop a fundamental understanding of RCM methodology;
- b. Application of principles to enrich the fundamental understanding of RCM principles and to demonstrate practical application; and
- c. Testing to assess student knowledge and ensure an adequate level of qualification prior to certification.

5. RCM Practitioner Course

- a. NAVSEA Backfit RCM for Practitioners Course.

(1) Required attendees. Persons who review, modify, plan, or approve changes to existing approved maintenance requirements for NAVSEA must be NAVSEA Backfit RCM certified. This includes all In-service Engineers (ISEs) and NSLC Commodity Specialists (CS), who review, modify, plan, or approve changes to existing approved maintenance tasks. Contractors with similar responsibilities will also be required to attend.

(2) Dates and Locations. As publicized by the Annual NAVSEA RCM Training and Certification Schedule message released in conjunction with the fiscal year and published on the ePMIS Gateway at <https://epmsgateway.pmsmis.navy.mil/Gateway/home.aspx>.

(3) Purpose. Each two-day course focuses on fundamentals necessary to apply the NAVSEA Backfit RCM process to existing approved maintenance tasks. Backfit RCM certification is dependent upon successful completion of a written examination. Recertification is required every 3 years.

(4) Recertification may be accomplished in one of two ways:

(a) Successful completion of a NAVSEA Backfit RCM for Practitioners exam following formal training at a standalone training session or in conjunction with a FLEETMER event.

(b) Successful completion of a certification exam on the ePMS Gateway.

b. Classic RCM for Maintenance Requirements Developers Course.

(1) Required Attendees. Persons who develop, review, verify, or approve new maintenance requirements for NAVSEA must be NAVSEA Classic RCM certified. This includes all ISEs tasked with development of, review, verification or approval authority for new maintenance requirements. Contractors with similar responsibilities will also be required to attend.

(2) Dates and Locations. As publicized by the Annual NAVSEA RCM Training and Certification Schedule message released in conjunction with the fiscal year and published on the ePMS Gateway at <https://epmsgateway.pmsmis.navy.mil/Gateway/home.aspx>.

(3) Purpose. Each four-day RCM for Maintenance Requirement Developers course focuses on application of Classic RCM as defined in MIL-STD-3034A. Fundamentals taught during this course are necessary to apply RCM principles to the development of maintenance requirements for new systems and equipment. Classic RCM certification is dependent upon successful completion of a written practical examination. Recertification is required every 3 years.

(4) Recertification is accomplished by successful completion of an RCM for Maintenance Requirement Developer's certification exam following formal training or online at the ePMS Gateway.

c. NAVSEA Backfit RCM Instructor Certification Program. The NAVSEA Backfit RCM Instructor Certification course is typically given over a 10-day period but this schedule may be modified as required to best meet the training needs as deemed appropriate by NAVSEA.

(1) Required Attendees. NAVSEA may identify the need for certified Backfit RCM instructors at particular organizations or within a geographic area. As necessary, NAVSEA will request recommendations for instructor candidates from the identified command(s). Candidates must have a thorough understanding of the fundamentals of Backfit RCM and have instructor or public speaking experience.

(2) Dates and Locations. As designated by NAVSEA 04RM.

(3) Prerequisites. Successful completion of Backfit and Classic certification requirements, and recommendation of parent command or activity with NAVSEA 04RM concurrence.

(4) Purpose. The NAVSEA Backfit RCM Instructor Certification course serves two functions:

(a) To increase the candidate instructor's foundation and understanding of RCM theory and methodology.

(b) To train the candidates in the techniques needed to effectively teach Backfit RCM principles and methodology.

(5) Certified RCM Backfit Instructors are authorized to provide RCM Backfit certification training during RCM training sessions authorized by NAVSEA under the RCM Certification training program. Successful certification as a RCM Backfit Instructor is dependent upon passing a written exam in RCM theory and practical exercises, and successful completion of two NAVSEA 04RM monitored practice teaching session.

(6) Recertification is required annually and is accomplished by successful completion of a NAVSEA monitored practice teaching session.

d. NAVSEA Classic RCM Instructor Certification Program. The NAVSEA Classic RCM Instructor Certification course is typically given over a 10-day period but this schedule may be modified as required to best meet the training needs as deemed appropriate by NAVSEA.

(1) Required Attendees. NAVSEA may identify the need for certified Classic RCM instructors at particular organizations or within a geographic area. As necessary, NAVSEA will request recommendations for instructor candidates from the identified command or activity. Candidates should have a thorough understanding of the fundamentals of RCM and have instructor or public speaking experience. Classic RCM Instructor candidates must already be certified as Backfit RCM Instructors.

(2) Dates and Locations. As designated by NAVSEA 04RM.

(3) Prerequisites. Successful completion of Backfit RCM and Classic RCM certification requirements, successful certification as a Backfit RCM Instructor and recommendation of parent command with NAVSEA 04RM concurrence.

(4) Purpose. The NAVSEA Classic RCM Instructor Certification course serves two functions:

(a) To increase the candidate instructor's foundation and understanding of RCM theory and methodology; and

(b) To train the instructor in the techniques needed to effectively teach Classic RCM principles and methodology.

(5) Certified RCM Classic Instructors are authorized to provide Classic RCM certification training during RCM training sessions authorized by NAVSEA under the RCM Certification training program. Successful certification as a Classic RCM Instructor is dependent upon passing a written exam in RCM theory and practical exercises, and successful completion of a NAVSEA 04RM monitored practice teaching session. Candidates must already be certified as Backfit RCM instructors.

(6) Recertification is required annually and is accomplished by successful completion of a NAVSEA monitored practice teaching session.

6. Additional Information. Additional information regarding the NAVSEA RCM Certification Program, or help in registering for available courses may be obtained on the ePMS Gateway at <https://epmsgateway.pmsmis.navy.mil/Gateway/home.aspx> or by contacting the NAVSEA 04RM SMIP Helpdesk at 877-422-3316 or by e-mailing [smiphelp@caci.com](mailto:smiphelp@caci.com).

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## **APPENDIX J**

### **ASSIGNMENT OF RESPONSIBILITIES FOR THE PLANNED MAINTENANCE SYSTEM (PMS) OF THE SHIPS' MAINTENANCE AND MATERIAL MANAGEMENT (3-M) SYSTEM**

**(Formerly Appendix H)**

APPENDIX J  
ASSIGNMENT OF RESPONSIBILITIES FOR  
THE PLANNED MAINTENANCE SYSTEM (PMS) OF THE SHIPS'  
MAINTENANCE AND MATERIAL MANAGEMENT (3-M) SYSTEM

- Ref:
- (a) OPNAVINST 4700.7 (Maintenance Policy for U.S. Navy Ships)
  - (b) MIL-STD-3034A (Reliability-Centered Maintenance (RCM) Process)
  - (c) Virtual SYSCOM Joint Instruction VS-JI-22A (Virtual SYSCOM Engineering and Technical Authority Policy, of 31 Jan 2007)
  - (d) NAVSEAINST 4790.27 (Reliability-Centered Maintenance (RCM) and Condition-Based Maintenance (CBM) Policy for Ships, Ship systems and Equipment)
  - (e) OPNAVINST 4790.4 (Ships' Maintenance and Material Management System Policy)
  - (f) SECNAVINST 5510.36(Department of the Navy Information Security Program Instruction)

1. Planned Maintenance System (PMS) Policy

- a. All maintenance requirements must be developed using Reliability-Centered Maintenance (RCM) methodology as directed by reference (a). The preventive maintenance actions required by reference (a) are to be developed per reference (b) to include preservation and maintenance requirements for equipment in an inactive status and calibration requirements related to the Shipboard Gage Calibration Program. PMS requirements must be developed concurrently with ship construction or conversion, the procurement of new shipboard systems or equipment and in support of research and development items. In addition, PMS requirements must be developed or revised to cover PMS changes which result when Ship Alterations (SHIPALTs), Ordnance Alterations (ORDALTs), Machine Alterations (MACHALTs), Field Changes (FC), or other engineering changes are authorized. Development and distribution of other preventive maintenance procedures for ships' use is prohibited.
- b. NAVSEA 04RM designated PMS Coordinating Activities (PMSCA) are charged with the oversight of PMS, and are the only activities authorized to distribute PMS documentation. No other activities are authorized to distribute PMS documentation to ships. The PMSCA is the default Maintenance Coordinating Activity (MCA) for RCM analysis.
- c. PMS products developed by other SYSCOM activities must be integrated with NAVSEA PMS products into a single complete PMS package which is distributed by the PMSCAs.
- d. PMS documentation must be reviewed to ensure technical accuracy and the incorporation of;

- (1) Configuration changes
- (2) Technical manual changes
- (3) Feedback Report (FBR) changes,
- (4) Improved maintenance procedures.

All documentation will be validated prior to distribution to the fleet. Where practical, validation will consist of the performance of the procedure on the subject system, sub-system or equipment for which the procedure was developed to verify accuracy of the documentation.

e. PMS procedures should not include the following actions or items:

- (1) Watch routines.
- (2) As a general rule, corrective maintenance actions must not be part of PMS. There are special circumstances that may allow corrective maintenance procedures to be included in PMS. These situations will be dealt with on a case-by-case basis relying on the judgment of the PMSCA.
- (3) Major overhaul of equipment including tear down inspections or repair actions required to be done during an overhaul period. Scheduling of overhaul items may be included.
- (4) Facilities or housekeeping maintenance items.
- (5) Requirements that are documented by other means, such as underway check lists; boiler light off procedures, rounds fired logs, and any Operational Sequencing System (OSS) procedures.
- (6) Inventory checks such as repair locker check lists.

f. Each Maintenance Index Page (MIP) and Maintenance Requirement Card (MRC) must be a complete maintenance document containing all the information required to perform the task. Reference to other approved procedures must be restricted to an extreme minimum and must be approved by the PMSCA before inclusion on the MIP or MRC.

## 2. Waiver Policy

a. RCM Waivers. Maintenance requirements for shipboard equipment and systems must be developed using the RCM methodology detailed in reference (b). Waivers from developing requirements per reference (b) may be requested in the following circumstances:

- (1) The new maintenance requirement (e.g., MRC) is added to an existing MIP for a system already in PMS. Requests associated with the addition of a new maintenance requirement should include the following information:
- (a) Requirement description.
  - (b) Failure mode (i.e., material condition after failure) the maintenance requirement is intended to prevent.
  - (c) Description of origination for this new maintenance requirement. This description could include results of INSURV Material Inspection, Navy Safety Center Surface Ship Safety Survey findings, details of a preventable equipment casualty or performance of routine maintenance. If a reference exists (e.g., TFBR DDG 51 Ser 0051-02, INSURV message 031530Z OCT 02, etc.), identify the reference.
  - (d) Explanation of how the periodicity of the requirement was determined (e.g., OEM recommendation, Mean Time Between Failures (MTBF) data).
  - (e) Details of actual failures occurring in the Fleet which this maintenance requirement will prevent, and frequency of those failures.
  - (f) MIP and MRC information for any current and valid MRC or task that is similar to the proposed requirement.
  - (g) Additional technical information that might support adjudication of the waiver request. In addition, a Backfit RCM analysis, similar to that conducted at FLEETMER, should be submitted for each proposed maintenance requirement for which a waiver is being requested. Each Backfit RCM analysis should include a detailed rationale and justification addressing how this proposed task satisfies the Applicability and Effectiveness criteria for the proposed maintenance requirement.
- (2) The new maintenance requirement results from a modification or upgrade to a system or equipment that is already included in the 3-M System with valid and current PMS requirements. Waiver requests of this nature should include an explanation of the modification or upgrade being implemented and how it will impact the following specific equipment characteristics:
- (a) Function
  - (b) Equipment/system operating parameters
  - (c) Operating environment

- (d) Duty cycle
- (e) Materials
- (f) Protective devices
- (g) Safety features

System modification or upgrade-related waiver requests should also include a Backfit RCM analysis for each proposed maintenance requirement for which a waiver is being requested. Each Backfit RCM analysis should include a detailed rationale and justification addressing how this proposed task satisfies the Applicability and Effectiveness criteria for the equipment as modified or upgraded.

(3) The new maintenance requirement applies to a unique system or equipment that is being used on a temporary basis (i.e., being installed on a single hull vice on a ship class). Temporary installation waiver requests should include the following equipment and/or system details:

- (a) Ship or location of installation
- (b) Period of installation
- (c) Function
- (d) Equipment/system operating parameters
- (e) Operating environment
- (f) Duty cycle
- (g) Materials
- (h) Protective devices
- (i) Safety features

b. PMS Workload Increase Waivers. Waivers are required for any revision of a PMS requirement resulting in an increase in workload, or denial of a request to change periodicity that would reduce workload. Waivers of this nature require the technical review activity or ISEA to obtain NAVSEA 04RM approval. Upon concurrence, NAVSEA 04RM will forward the response to the cognizant PMSCA.

(1) PMS Workload Increase Waivers must be requested in the following circumstances:

(a) A change is made that increases the performance frequency of a current and valid MRC (e.g., changing a Quarterly maintenance action to a Monthly maintenance action). A valid MRC is one generated using reference (b) or evaluated and approved by Backfit-RCM methodology.

(b) The procedures on a current and valid MRC are either modified or task steps are added that results in additional workload.

(c) A current and valid MRC is added to a MIP that does not currently contain that MRC.

(2) PMS Workload Increase Waivers are not required for the following situations:

(a) New equipment, with current and valid PMS, is installed in a ship when that equipment and its corresponding maintenance are identical to that installed on other ships or stations.

(b) The MRC workload information is updated to more accurately reflect actual time required to perform the MRC without an increase in task scope or complexity.

(3) PMS workload waiver requests must include an explanation of the change being implemented and the following information:

(a) MRC or task description.

(b) Failure mode (material condition after failure) the MRC or task is intended to prevent.

(c) Description of origination for this new maintenance requirement. This description could include results of INSURV Material Inspection, Navy Safety Center Surface Ship Safety Survey findings, details of a preventable equipment casualty or performance of routine maintenance. If reference exists, (e.g., TFBR DDG 51 Ser 0051-02, INSURV message 031530Z OCT 02, ISEA PMS review, etc.) identify the reference.

(d) How the new requirement (i.e., revised periodicity, new procedural step, new maintenance requirement) was determined.

(e) Details of actual failures occurring in the Fleet which this revision to the current maintenance requirement will prevent, and frequency of those failures.

(f) Provide MIP and MRC information for any current and valid MRC or task similar to the proposed, modified, MRC or task.

(g) Any additional technical information that might support adjudication of the waiver request.

(h) In addition, for waiver requests associated with increases in maintenance periodicity or changes to existing MRC procedures (paragraph 2.b.(1) (a) and (b) above), a Backfit RCM analysis, similar to that conducted at a MER, should be submitted for each proposed maintenance requirement. Each Backfit RCM analysis should include a detailed rationale and justification addressing how this proposed task satisfies the Applicability and Effectiveness criteria for the proposed maintenance requirement.

### 3. eWaiver Process and Workflow.

The preferred method for submitting RCM or Man-Hour waiver requests is via the eWaiver application found on the NAVSEA ePMIS Gateway available at:

<https://epmsgateway.pmsmis.navy.mil/Gateway/home.aspx>. The eWaiver process has stringent review and approval requirements. eWaivers are processed via a rule-based workflow with specified roles. A waiver must be acknowledged by the Commodity Specialist (CS), In-Service Engineer (ISE) and Team Lead to ensure that the waiver is correctly defined and that the correct people have been identified for the review. Once the waiver has been acknowledged, it is returned to the Initiator to complete the analysis. The completed waiver then proceeds from the Initiator through the CS, the ISE (optional) the Team Lead, the RCM Team and the NAVSEA Approver. Any individual in the workflow process can only have one role. For example, the Initiator cannot be the same person as the ISE. The ISE must review and approve a waiver from the Initiator before it can proceed through the approval process. Any of the review roles in the process may return the waiver to the Initiator for rework or additional information as necessary. The final decision on approval of an RCM or Man-Hour waiver request resides with NAVSEA 04RM.

a. Maintenance requirements for shipboard equipment and systems must be developed using the RCM methodology detailed in reference (b). When developing requirements per reference (b) waivers may be initiated under the following circumstances:

(1) A new maintenance requirement (e.g., MRC) is added to an existing MIP for a system already in PMS.

(2) The new system or equipment maintenance requirement results from a modification or upgrade to a system or equipment that is already included in the 3-M System with valid and current PMS requirements.

(3) The new maintenance requirement applies to a unique system or equipment that is being used on a temporary basis (i.e., being installed on a single hull vice on a ship class).

b. Waiver requests associated with the addition of a new maintenance requirement should include the following information:

(1) Requirement description.

(2) Failure mode (i.e., material condition after failure) the maintenance requirement is intended to prevent.

(3) Description of origination for this new maintenance requirement. This description could include results of INSURV Material Inspection, Navy Safety Center Surface Ship Safety Survey findings, details of a preventable equipment casualty or performance of routine maintenance. If a reference exists (e.g., TFBR DDG 51 Ser 0051-02, INSURV message 031530Z OCT 02, etc.), identify the reference.

(4) Explanation of how the periodicity of the requirement was determined (e.g., OEM recommendation, Mean Time Between Failures (MTBF) data).

(5) Details of actual failures occurring in the Fleet which this maintenance requirement will prevent, and frequency of those failures.

(6) MIP and MRC information for any current and valid MRC or task that is similar to the proposed requirement.

(7) Additional technical information that might support adjudication of the waiver request. In addition, a Backfit RCM analysis, similar to that conducted at FLEETMER, should be submitted for each proposed maintenance requirement for which a waiver is being requested. Each Backfit RCM analysis should include a detailed rationale and justification addressing how this proposed task satisfies the Applicability and Effectiveness criteria for the proposed maintenance requirement.

c. Equipment or system modification or upgrade-related waiver requests should include an explanation of the modification or upgrade being implemented and how it will impact the following specific equipment characteristics:

(1) Function

(2) Equipment/system operating parameters

(3) Operating environment

- (4) Duty cycle
- (5) Materials
- (6) Protective devices
- (7) Safety features

System modification or upgrade-related waiver requests should also include a Backfit RCM analysis for each proposed maintenance requirement for which a waiver is being requested. Each Backfit RCM analysis should include a detailed rationale and justification addressing how this proposed task satisfies the Applicability and Effectiveness criteria for the equipment as modified or upgraded.

d. Temporary installation waiver requests should include the following equipment and/or system details:

- (1) Ship or location of installation
- (2) Period of installation
- (3) Function
- (4) Equipment/system operating parameters
- (5) Operating environment
- (6) Duty cycle
- (7) Materials
- (8) Protective devices
- (9) Safety features

#### 4. PMS Responsibilities and Procedures

a. The Maintenance Engineering Policy Division (NAVSEA 04RM) is responsible for NAVSEA's efforts in managing the policy, development, implementation and maintenance of the Ship's Maintenance and Material Management (3-M) System. Specifically, relative to the PMS responsibility, NAVSEA 04RM will:

(1) Manage, coordinate, and monitor the PMS actions within NAVSEA to ensure compliance with the requirements specified in OPNAVINST 4790.4 (Series) and this instruction.

(2) Plan, develop, and implement PMS improvement programs.

(3) Manage the PMS efforts assigned to the PMSCAs.

b. The PMSCAs, when tasked and funded must:

(1) Conduct technical reviews, standardize and validate MIPs and MRCs to ensure compliance with references (a) and (b).

(2) Deliver and install PMS packages to ships, craft, and other designated commands.

(3) Conduct maintenance liaison with fleet and Type Commands (TYCOM) in implementing, supporting, and adapting NAVSEA PMS programs to meet fleet requirements.

(4) Provide input to Integrated Logistics Support Planning and ship manning document evaluations as requested by NAVSEA 04RM.

(5) Initiate development of updated PMS for overhauled ships.

(6) Maintain the PMS database and library of PMS documents.

(7) Maintain the PMS Management Information System (PMSMIS).

(8) Provide guidance to maintenance requirement developers to ensure compliance with references (a) and (b).

(9) Maintain records to support audits of feedback report response performance.

(10) Forward Feedback Reports (FBR) to the cognizant Design Activities and/or In-service Engineering Activities (ISEAs) by electronic means.

(11) Perform other PMS support functions as tasked by NAVSEA 04RM.

c. Activities developing maintenance requirements must ensure that all PMS requirements (tools, parts, material and test equipment) are considered when developing provisioning and fitting out specifications.

d. NAVSEA technical codes and ISEAs (as defined in reference (c)), when tasked and funded, must perform the following for systems and equipment under their cognizance:

(1) Develop, review or revise, as applicable, maintenance requirements to ensure their technical accuracy for systems and equipment under their cognizance.

(2) Review and resolve PMS FBRs. Ensure that the procedures of paragraphs 12 and 13 are followed when responding to PMS FBRs.

e. Other SYSCOMs with responsibility for shipboard equipment included in PMS, are requested to:

(1) Coordinate PMS requirements with NAVSEA 04RM and provide completed PMS documentation to the PMSCA to ensure completion of the technical review, entry into the PMS database and issue to applicable ship(s) per reference (a).

(2) Provide timely response and resolution to FBRs for systems and equipment under their cognizance using the procedures of paragraphs 12 and 13.

## 5. PMS for New Construction or Conversion Ships

a. The Ship Program Manager (SPM) must:

(1) Ensure development and review of maintenance requirements is completed per reference (d) using one or more of the following options:

(a) Require in shipbuilding contracts that PMS documentation be developed and provided by the shipbuilder.

(b) Task and fund system and equipment acquisition managers to develop PMS for systems and equipment under their responsibility.

(c) Task and fund the PMSCAs to develop PMS documentation for NAVSEA equipment and systems.

(2) Task and fund the PMSCAs through NAVSEA 04RM to provide technical review, standardization, validation, printing, delivery and installation of a complete PMS package to the ship.

(3) Ensure that approved technical manuals, logistic support analysis, maintenance plans, and drawings needed to develop PMS requirements are identified and provided to the developing activity 9 months prior to the scheduled PMS installation date to ensure availability of PMS documentation at date of installation.

(4) If PMSCAs are not tasked to develop the PMS documentation, the SPM must ensure that developing activities submit proposed PMS requirements to the PMSCAs no later than 6

months prior to scheduled installation date for technical review, standardization, validation and printing to ensure availability of PMS documentation at date of installation.

(5) Provide PMSCAs copies of Schedule A lists (government furnished equipment), preliminary equipment component indexes, and other configuration lists to ensure availability of PMS at scheduled installation date. Where feasible, the configuration data must be provided in final form no later than 10 months prior to the PMS installation date.

b. NAVSEA 04RM and the PMSCAs must be responsible, as tasked and funded by the SPM, for the following:

(1) Develop PMS requirements for NAVSEA cognizant systems and equipment.

(2) Coordinate technical reviews, validate, standardize, and print all PMS documentation developed.

(3) Verify, deliver, and install a complete PMS package to the ship.

(4) Provide the SPM the development status of PMS for all ships' systems and equipment.

c. Acquisition managers tasked by the SPM to provide PMS documentation must provide the following to the PMSCAs:

(1) A copy of the contract or task requiring PMS development.

(2) The identification and nomenclature of ships' systems/equipment and related technical manual numbers.

(3) A list of designated ships on which systems and equipment will be installed.

(4) The date by which PMS documentation is required.

6. PMS for Overhauled Ships SPMs must ensure development and review of PMS maintenance requirements is completed per one or more of the following options:

a. Require in overhaul contracts that PMS documentation be developed and provided by the shipbuilder.

b. Task and fund system and equipment acquisition managers to develop PMS for systems and equipment under their responsibility.

c. Task and fund PMSCAs to develop PMS documentation for NAVSEA systems and equipment. The PMSCAs must deliver updated PMS documentation to the ships.

7. PMS for New Systems and Equipment

a. Acquisition managers responsible for systems and equipment requiring scheduled preventive maintenance must task and fund for development of initial PMS documentation per reference (b) concurrent with system and equipment delivery. Criteria for waiving requirements of reference (b) for new PMS documentation associated with development, modification or addition to existing PMS is addressed in paragraph 2. This requirement includes equipment purchased by TYCOMs, ship purchases, and other Commercial Off-The-Shelf (COTS) equipment.

b. Acquisition managers will fund PMSCAs for initial printing and distribution of PMS documentation for new systems. The only activities authorized to distribute PMS documentation to ships are the PMSCAs.

8. PMS for Existing Systems and Equipment in the Fleet NAVSEA 04RM will task and fund the PMSCAs to:

- a. Maintain, standardize and distribute PMS documentation.
- b. Provide processing for Category A Non-Technical Feedback Reports and for researching and resolving Category B, Technical Feedback Reports.
- c. Maintain the Planned Maintenance System Management Information System (PMSMIS).

9. PMS Changes as a Result of an Alteration. The alteration or change sponsor (SPM, TYCOM, etc.) must task and fund system and equipment Life Cycle Managers (LCMs) to develop new maintenance requirements per reference (b). If an RCM waiver is approved, they should task and fund revision to PMS documentation to reflect changes in systems and equipment resulting from alterations or changes. The proposed PMS documentation must be provided to the PMSCA at least 4 months prior to required PMS delivery date.

10. PMS for Foreign Navies (Former U.S. Navy Ships). PMS documentation requests from foreign navies for former U. S. Navy (USN) Ships must be processed as follows:

- a. Requests for PMS coverage for foreign navies on former USN Ships must be directed to the NAVSEA International Fleet Support Program Office (PMS 326).

- b. Upon receipt of a request from a foreign navy for PMS coverage for a former USN ship, PMS 326 will request from the appropriate PMSCA the cost and availability of providing a one-time updated PMS package and whether a List of Effective Pages (LOEP) is available for the ship. If the ship's LOEP is not available, then the PMSCA will advise PMS 326 whether another ship's LOEP can be used as a verification document.
- c. After receipt of a signed acceptance of the support offer, PMS 326 will issue a funding document to the appropriate PMSCA. Within 60 days, the PMSCA will provide PMS 326 with a LOEP and instruction for its use.
- d. PMS 326 is to complete and return the updated verified LOEP package to the appropriate PMSCA.
- e. The appropriate PMSCA will deliver a one-time updated PMS package based upon the verified LOEP within three months after receipt. This updated package will include only data available in the database. No new PMS development will be undertaken for equipment not having PMS coverage. Continuing PMS support will be provided if funded by PMS 326.

11. PMS for Foreign Navies (New Construction, Modernization, Overhaul and Conversion). The USN Program Manager (PMs or SPMs) responsible for the specific foreign navy effort will provide funding to initiate new, or modify existing PMS documentation per the procedures described herein for USN ships. The Program Manager must be the sole authority for PMS requirements on cognizant foreign ships.

12. PMS Feedback Reports (FBRs). FBRs are to be used for reporting technical and non-technical deficiencies or errors in PMS documents. Technical PMS discrepancies that could have a detrimental effect on personal safety, safety of ship, or could result in significant equipment damage, are classified as "Urgent." All other FBRs are classified as "Routine."

a. PMSCA. The central control points for processing FBRs are the PMSCAs. Depending on the type and level of technical authority necessary to answer the FBR, PMSCAs will either respond to the originator with a resolution, or forward the FBR to the appropriate technical review activity for their action. The PMSCA will enter all FBR information in the PMSMIS for tracking and control purposes.

b. Naval Sea Systems Command Activities. Design Activities, ISEAs, or other activities under the direction of the Naval Sea Systems Command holding technical authority for systems and equipment must take appropriate action on all FBRs under their cognizance, forwarding responses to the PMSCA. Responses will be electronically transmitted to the appropriate PMSCA. The PMSCA will record the FBR result in the PMSMIS and provide the final response to the originator.

c. Other Systems Command Activities. Design Activities, ISEAs, or other activities under the direction of other Systems Commands (SYSCOMs) holding technical authority for systems and equipment are requested to take appropriate action on all FBRs under their cognizance forwarding responses to the PMSCA. Responses will be electronically transmitted to the appropriate PMSCA. The PMSCA will record FBR results in the PMSMIS and provide the final response to the originator.

### 13. FBR Handling Procedures

#### a. Urgent FBRs.

(1) Urgent FBRs are those feedbacks reporting technical discrepancies that can result in personnel injury, risk to the safety of the ship or significant equipment damage. PMSCAs must provide a message response, or electronic response if a message is not received, to all Urgent FBRs informing the originator of specific actions and required changes that will result from FBR evaluation or forward the FBR to the appropriate technical review activity or ISEA within 1 working day of receipt. This message response or electronic response must be addressed to the originator and distributed to TYCOMs. TYCOMs will forward this message to all commands that could be affected by PMS change. The Urgent FBR response message or electronic response may recommend pen and ink changes to the affected PMS requirement.

(2) If the PMSCAs forward the FBR to a technical review activity or ISEA for resolution, then the technical review activity or ISEA must provide a message response, or electronic response if a message is not received, to all Urgent FBRs informing the originator of the specific actions and required changes that will result from the FBR evaluation within 1 working day of receipt. This message response or electronic response must be addressed to the originator and distributed to TYCOMs and PMSCAs. TYCOMs will forward this message or electronic response to all commands that could be affected by the PMS change. The Urgent FBR response message may recommend pen and ink changes to the affected PMS requirement.

(3) PMSCAs must distribute revised PMS documentation to affected users within 30 calendar days of receipt via Special Issue or Advance Change Notice (ACN).

b. Routine FBRs. PMSCAs must ensure completion of the technical review, research and provide a response to routine FBRs where resolution does not require technical authority action. FBRs that PMSCAs cannot resolve are sent to the cognizant technical review activity or ISEA. The cognizant technical review activity or ISEA will provide the response to the appropriate PMSCA. The response must describe the action taken and may recommend pen and ink changes to the affected PMS requirement. The PMSCAs will provide the response to the originator by electronic means. Distribution of the revised MRC to the originator and other affected users will be accomplished via Advance Change Notice (ACN) or Special Issue between Force Revisions (FRs). NAVSEA has established a goal of providing answers to all FBRs in one day. We realize that there are some TFBRs that will require more extensive research to answer and these FBRs

will not be able to meet this goal. The majority of FBRs received can be answered in one day and should be answered in one day. Technical Review Activities and ISEAs must provide responses in less than 21 working days from time of receipt.

(1) Changes to RCM-based MRCs require the technical review activity or ISEA to:

(a) Modify the original RCM Corporate History data to reflect the justification for the MRC change.

(b) Provide technical justification for changes to the PMSCA as part of the response to the Feedback Report. The Feedback Report response with the change and justification/rationale will then become part of the RCM Corporate History.

c. Special Issues. Special Issues are a category of ACN and are issues of new documentation between Force Revisions. A Special Issue represents a new MIP and at least one new MRC. A Special Issue may reflect newly developed documentation, or may reflect a change in the documentation a Command receives, such as the addition of a MIP and/or MRC(s) to the Work Center LOEP which the Command requires due to the addition of new equipment. Each Special Issue is serialized on every page. The serial number consists of the Special Issue indicator “SI”, originating activity code, serial number, MIP number, MRC number (if applicable), and revision date. Special Issues will be forwarded as a response to a locally-generated Feedback Report to the applicable hulls and/or activities.

14. PMS FBR Response Instructions. All PMS FBRs must be answered using the guidelines in this paragraph.

a. For Concurrence Response.

(1) If PMS documentation must be changed, the revision information must be provided to the appropriate PMSCA by electronic means. NAVSEA 04RM approved software may be used to make revisions to PMS documentation, but the use of this software should not delay the response to the appropriate PMSCA.

(2) If no revision to PMS documentation is required provide pertinent comments in the response to the appropriate PMSCA.

b. For Non-concurrence Response. When not concurring with the feedback report, the rationale for non-concurrence **must** be given. The response must be electronically provided to the appropriate PMSCA with any applicable corporate history changes and revised documentation.

c. Critical Review Questions for the FBR Review. The following questions must be considered in the response to all FBRs:

(1) What is the Sailor's question or problem?

(2) Is the MRC necessary?

(3) What failure mode(s) does the MRC prevent or detect?

(4) Is the MRC clear and easy to follow?

(5) Is the MRC safe for the Sailor to accomplish? Check to see that the Sailor is protected from falls, chemicals, asbestos, sewage, high voltage, rotating machinery, pressurized fluids or gases, poisonous gases, and that two-man protection is specified when necessary. If required, is the use of protective clothing, safety glasses or hearing protection specified?

(6) Is the equipment being maintained within the boundaries of applicable guidelines for selection and use of lubricants and hydraulic fluids for Shipboard Systems?

(7) Have you specified the correct number of Sailors, skill level, and man-hours required to accomplish this task?

(8) Is the periodicity such that it represents the absolute minimum necessary to achieve the inherent level of reliability?

(9) What would be the effect on the equipment if the MRC was accomplished less frequently? Not accomplished at all?

(10) For test maintenance actions, what is proven by this test?

(11) Does this action lead towards standardization of MRCs for similar equipment?

(12) Did you answer the Sailor's question?

15. PMS Advance Change Notice Guidance. A PMS ACN is authorization for changing a MRC or addition of a new MRC. An ACN is also a record of change to an MRC or addition of a new MRC. An ACN is issued in the format of an MRC suitable for attachment to the MRC to which it applies. An ACN can be issued to advise ships to annotate MIPs.

a. Changes Typically Published by ACNs.

- (1) Increase or decrease periodicity to change the interval between maintenance actions.
- (2) Delete or modify an existing maintenance requirement.
- (3) Addition or modification of an MRC procedure note to clarify the context or description of a procedure step.
- (4) Change a procedure step to correct maintenance technical data, e.g., frequency, pressure, voltages, current, decibels, resistance values, clearance, test data, etc.
- (5) Addition, deletion or modification of existing procedural steps which significantly improve the technical accuracy of the MRC.
- (6) Addition or changes to tools, parts, materials and/or test equipment that significantly improves PMS performance.

b. Distribution and Control of ACNs.

- (1) A PMS ACN must refer to a specific MIP and MRC. A new MRC page must be provided for each MRC page affected by the ACN.
- (2) Each PMS ACN must be serialized. The serial number will consist of the originating activity code, log number (if appropriate), MIP number, MRC control number, and date.
- (3) The PMSCA must maintain accountability of all outstanding ACNs by MIP/MRC. When revising and distributing the affected MIP, the revision must include annotation of applicable ACNs.

**16. Admitting Network Software Procedures to the NAVY's Planned Maintenance System**

- a. Background. Historically, PMS has addressed only hardware systems, equipment, and components including network hardware. Because network software tasks do not pass traditional RCM analysis, as called out in references (e) and (f), network software procedures cannot be added to PMS without an RCM waiver approved by NAVSEA 04RM. Including network software procedures in PMS establishes a sustainment infrastructure to manage, schedule, and track preventive maintenance for the preservation of data and the improvement of system reliability, availability, and security at reduced ownership costs. Due to the growth in networked systems and increasing reliance on these systems for both tactical and non-tactical functions, NAVSEA 04RM made a programmatic decision to accept RCM waiver requests for network software procedures from activities desiring to use the PMS repository and scheduling component. The original three-year window established in January 2007 to process RCM waiver

requests for network software PMS has been permanently extended. In general, network software tasks added to PMS should attempt to reduce or eliminate the potential for data loss or corruption, system degradation or failure, and improve the capability for quick system recovery or restoration. A few examples of network software procedures in PMS include:

- (1) Verifying proper switch spanning protocol,
- (2) Installing patches and updates,
- (3) Analyzing drives and executing defragmentation,
- (4) Verifying virus definition files,
- (5) Performing virus scans,
- (6) Reviewing server event logs,
- (7) Changing passwords,
- (8) Backing up the router current configuration file,
- (9) Performing system and drive backups.

b. Process. The process to add new network software procedures into PMS is summarized in steps 16.b.(1) through 16.b.(7).

(1) An RCM waiver is submitted by the system owner, program manager, or Life-Cycle Manager.

(2) Upon review and concurrence with request, the PMSCA Project Manager provides formal RCM waiver documentation to NAVSEA 04RM requesting that an RCM waiver be granted.

(3) Upon NAVSEA 04RM approval of the waiver the applicant's organization may start development of the actual procedures.

(4) NSLC CSs will screen new procedures for appropriateness, and clarity, convert them to the correct MRC format, and assign the MRCs to the applicable MIP. Currently, new network software procedures are assigned to the associated hardware system MIP or System Software only MIP.

(5) PMS FBR responses will be handled by the applicant's Subject Matter Experts (SMEs) and ISEA through PMSMIS with coordination by applicable NSLC CS.

(6) Revisions (whether in response to FBRs or changes in software) to existing network software MRCs will be developed by the ISEA and SMEs associated with the software for which the network software MRCs apply. Conversion of revised MRCs into New PMS Editor (NPE) format and subsequent input to the PMS database will be performed by the NSLC CS who is assigned PMS life-cycle responsibilities for the hardware associated with the network software MRCs. If the revision is significant, PMSCA Team Leaders have the responsibility and authority to determine if PMSCA personnel should accomplish a Verification/Validation. Should PMSCA make that decision, the ISEA (or Life-Cycle Manager) will be responsible for providing all the funding to cover expenses of the new Verification/Validation.

(7) New MRCs to be added to an existing set of network software MRCs will be treated as if they were a new request for network software procedures, but a waiver request will not be required. NSLC will provide a cost estimate for its participation in the Verification/Validation (if deemed necessary) once costs can be determined. Verification/Validation will be handled by the CS who has PMS life-cycle responsibilities for the network software procedures.

c. Requirements. The following process requirements govern the development, acceptance, and ongoing support of network software procedures within the PMS:

(1) An RCM waiver is required to add new network software procedures to PMS. The applicant (system owner, program manager, or Life-Cycle Manager) must provide NSLC, the PMSCA, a list of every system for which they are requesting a waiver. This list must contain the A/N nomenclature (if one is assigned) with all variants listed separately, for example, AN/USQ-153A(V)9, AN/USQ-153(V)4, AN/USQ-153B(V)6, and so on. If no A/N nomenclature is assigned, the applicant must provide sufficient information to identify each variant of the system for which the applicant might want to develop network software procedures. There are currently no plans to allow for automatic approval of later variants. All variants must be listed in the waiver request on file. Additional variants to be added later will require a new waiver.

(2) Funding is required by NSLC for initial work of MRC conversion, on-site Verification/Validation, first-year FBR handling, LOEP preparation, and other services. Additional nominal costs will continue on an annual basis for long-term support by NSLC of the network software procedures in PMS. Funding must be in place for the appropriate NSLC CS prior to beginning the process for adding the new procedures to PMS.

(3) An on-site visit is required to observe and verify the network software procedures (MRCs) being performed by personnel who normally operate the applicable system. If the system is a shipboard system, the Verification/Validation must take place onboard a ship that has the exact system for which the procedures are written, and the ship's crew must perform the tasks, thus ensuring that Sailors understand and can perform the procedures. Exceptions to this policy will be considered on a case-by-case basis, with the final determination resting with PMSCA.

d. Responsibilities

- (1) System owner, Program Manager, or Life-Cycle Manager.
  - (a) Initiate and submit an RCM waiver request as outlined in Table J-1.
  - (b) Develop procedures.
  - (c) Provide funding to support development and long term maintenance of documentation.
  - (d) Designate SME and or ISEAs responsible for responding to FBRs dealing with software procedures.
  - (e) Ensure procedures are verified and validated on equipment for which they were developed.
- (2) PMSCA.
  - (a) Prepares the RCM waiver request documentation for NAVSEA 04RM approval.
  - (b) Provides a cost estimate to the applicant's organization for document review, Verification/Validation participation, and initial and long-term support of the network software procedures in PMS
  - (c) Provides a yearly funding request to the applicant's organization to cover maintenance of documentation.
- (3) NAVSEA 04RM.
  - (a) Oversee the process for admitting network software procedures to PMS.
  - (b) Provide waiver approval.
- (4) NSLC Commodity Specialist.
  - (a) Review new procedures for appropriateness.
  - (b) Perform quality assurance on procedural language.
  - (c) Format procedures into the required MRC formats.
  - (d) Participate in Verification/Validation of new procedures (as required).

- (e) Assign MRCs to the appropriate MIPs.
  - (f) Assist SMEs and ISEAs with FBR resolution and close-out.
  - (g) Prepare and distribute PMS Force Revisions to ship and shore commands.
  - (h) Develop an e-mail group within PMSMIS to ensure all FBRs are routed to those individuals as well as the ISEA responsible for specific software procedures.
  - (i) Maintain the NAVSEA-PMS web site to provide information for the PMS program, request for service, and points of contact: <https://pms.nsfc.navy.mil/>
- (5) SME/ISEA.
- (a) Conduct procedure Verification/Validation.
  - (b) Respond to FBRs
  - (c) Provide NSLC with the names, supported systems and MIPs, e-mail addresses, and phone numbers of the individuals selected to answer software FBRs.

## WAIVER REQUEST EMAIL

<p><b>Send the request</b> by e-mail to NAVSEALOGCEN PMSCA at <a href="mailto:PMS@navy.mil">PMS@navy.mil</a> where it will be reviewed and forwarded to NAVSEA (SEA 04RM) for approval.</p>
<p><b>E-mail Subject line:</b> "Software Waiver Requested for" (name of equipment – include the A/N# (if applicable) and simple nomenclature for the equipment needing the network software waiver).</p>
<p><b>Body of the E-mail:</b> Provide System Description with complete nomenclature and all acronyms spelled out. If you can attach a copy of the User's Logistics Support Summary (ULSS) or a simple system description document, this information will assist in documenting details in the waiver letter. Specify all system variants to be covered by this waiver.</p>
<p><b>Note:</b> If you are the ISEA and ONLY responsible for Software (and not the Hardware), please specify that the waiver-requesting activity is not responsible for Hardware and list current Software versions and possible future versions. (Software versions are only required when you are not the Hardware ISEA.)</p>
<p><b>Program Manager Name:</b> Activity: Code: Name: Include title (CAPT, CDR, Mr., Ms., etc.). E-mail: Mailing Address and Phone:</p>
<p><b>Software Owner:</b> Activity: Code: Name: E-mail: Mailing Address and Phone (if different from Program Manager):</p>
<p><b>ISEA:</b> ISEA number in PMSMIS (if established): Activity: Code: POC Name: E-mail: Mailing Address and Phone:</p>
<p><b><i>Note: PMSMIS access and ISEA number will be required for distribution of network/software maintenance.</i></b></p>

Table J-1